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NWIRP BETHPAGE
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2012 THROUGH 2013 GROUNDWATER INVESTIGATION FOR OPERABLE UNIT 2 (OU 2)
VERTICAL PROFILE BORINGS 137, 138 AND 139 NWIRP BETHPAGE NY
3/6/2014
RESOLUTION CONSULTANTS

**2012 - 2013 OU2 GROUNDWATER INVESTIGATION
VPB 137, 138, 139
BETHPAGE, NY**

Prepared for:



**Department of the Navy
Naval Facilities Engineering Command, Mid-Atlantic
9742 Maryland Ave.
Norfolk, VA 23511-3095**

**Comprehensive Long-Term Environmental Action Navy
Contract Number N62470-11-D-8013**

CTO WE15

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List of Acronyms and Abbreviations

AOC	Area of Concern
bgs	below ground surface
BWD	Bethpage Water District
Delta	Delta Well and Pump, Inc.
DoD	Department of Defense
DOT	Department of Transportation
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency, United States
ft	feet
GOCO	Government-Owned Contractor-Operated
IDW	Investigation Derived Waste
IR	Installation Restoration
Katahdin	Katahdin Analytical Services, Inc
NAVD	North American Vertical Datum
NAVFAC	Naval Facilities Engineering Command
NG	Northrop Grumman
NTUs	Nephelometric Turbidity Units
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works
PPE	Personal Protective Equipment
PVC	Polyvinylchloride
SVOC	Semivolatile Organic Compounds
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
VPB	Vertical Profile Boring

1.0 PROJECT BACKGROUND

Resolution Consultants has prepared this Summary Report for the Naval Facilities Engineering Command, Mid-Atlantic under contract task order WE15 Contract N62470-11-D-8013. The report describes vertical profile boring (VPB) and monitoring well installation activities in 2012 and 2013 for the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage Operable Unit (OU) 2 Site 1 offsite plume. NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City (Figure 1).

1.1 Scope and Objectives

This data summary report provides information on the installation of three VPBs (137, 138, and 139) and eight associated monitoring wells. The purpose of this investigation was to address data gaps south of the On-site Containment Treatment system (ONCT). VPB and monitoring well locations are shown in Figure 2, and TCE concentrations for the shallow (<300 ft bgs) and deep (>300 ft bgs) groundwater incorporating the new data are shown in Figures 3 and 4. Additionally, Figures 5 and 6 present cross sections G-G' and H-H' through the site which incorporate the new lithologic and analytical data. VPBs 137, 138, and 139 were completed to 890, 935 and 965 feet (ft) below ground surface (bgs), respectively. The data from these VPBs provides information on the extent and magnitude of VOCs near Bethpage Water District Plant #6, and to a certain extent helps ascertain the effectiveness of the on-site groundwater treatment system.

Field tasks were conducted between October 2012 and October 2013 in accordance with the *United Federal Programs Sampling and Analysis Plan*, Bethpage, New York (Resolution Consultants, 2013). In addition, the work adhered to the following UFP SAP Addendums: Groundwater Sampling Using Low Stress (Low Flow) Purging and Sampling Protocol (Resolution Consultants, 2013) and Installation of Vertical Profile Borings and Monitoring Wells (Resolution Consultants, 2013). The field investigation included completing three vertical profile borings and eight monitoring wells, groundwater sampling, geophysical logging and surveying.

Documentation of these activities is included in the appendices of this report. Appendix A contains the summary packet for VPB 137 and associated wells RE103D1, RE103D2, RE103D3, Appendix B contains the summary packet for VPB 138 and associated wells RE104D1, RE104D2, RE104D3, Appendix C contains the summary packet for VPB 139 and associated wells RE105D1, RE105D2, and Appendix D contains the summary packet for Investigation Derived Waste (IDW).

1.2 Site History

NWIRP Bethpage is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City (Figure 1).

NWIRP Bethpage is in the Hamlet of Bethpage, Town of Oyster Bay, New York. Since its inception in 1941, the plant's primary mission was the research prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft. The facilities at NWIRP included four plants used for assembly and prototype testing, a group of quality control laboratories, two warehouse complexes (north and south), a salvage storage area, water recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings.

The Navy's property originally totaled 109.5 acres and was formerly a Government-Owned Contractor-Operated (GOCO) facility that was operated by the Northrop Grumman (NG) until September 1998. Prior to 2002, the NWIRP property was bordered on the north, west, and south by current or former NG facilities, and on the east by a residential neighborhood. By March 2008, approximately 100 acres of NWIRP property were transferred to Nassau County in three separate actions. The remaining 9 acres and access easements were retained by the Navy to continue remedial efforts at Installation Restoration (IR) Site 1 – Former Drum Marshalling Area and Site 4 – Former Underground Storage Tanks (Area of Concern [AOC] 22). A parcel of land connecting the two sites was also retained. Currently, the 9-acre parcel of NWIRP is bordered on the east by the residential neighborhood and on the north, south, and west by Nassau County property. Access to the NWIRP is from South Oyster Bay Road.

1.3 Geology and Hydrogeology

Overburden at the site consists of approximately 1,000 ft of glacial deposits overlying crystalline bedrock of the Hartland Formation. Overburden is divided into four geologic units: the upper Pleistocene deposits, the Magothy Formation, the clay member of the Raritan Formation ("Raritan Clay") and the Lloyd Sand member of the Raritan Formation ("Lloyd Sand") (Geraghty and Miller, 1994).

The upper Pleistocene ranges in thickness from approximately 50 to 100 ft and consists of till and outwash deposits of medium to coarse sand and gravel with lenses of fine sand, silt and clay (Smolensky and Feldman, 1990); these deposits form the Upper Glacial Aquifer. Directly underlying this unit is the Magothy Formation with a thickness of 650 to 850 ft bgs observed onsite. The Magothy is characterized by fine to medium sands and silts interbedded with zones of clays, silty

sands and sandy clays. Sand and Gravel lenses are found in some areas between depths of 600 and 875 ft bgs; these deposits form the Magothy Aquifer

The Raritan Clay is encountered at NWIRP at a depth of approximately 700 to 900 ft bgs. The Raritan Clay Unit is of continental origin and consists of clay, silty clay, clayey silt and fine silty, sand. This member acts as a confining layer over the Lloyd Sand Unit. The Lloyd sand member is also of continental origin, having been deposited in a large fresh water lacustrine environment. The material consists of fine to coarse-grained sands, gravel, and inter-bedded clay and silty sand. These deposits form the Lloyd Aquifer.

The Upper Glacial Aquifer and the Magothy Aquifer comprise the aquifers of interest at the NWIRP. Regionally, these formations are generally considered to form a common, interconnected aquifer as the coarse nature of each unit near their contact and the lack of any regionally confining clay unit allows for the unrestricted flow of groundwater between the formations.

The Magothy Aquifer is the major source of public water in Nassau County. The most productive water bearing zones are the discontinuous lenses of sand and gravel that occur within the siltier matrix. The major water-bearing zone is a basal gravel located at or near the contact with the Raritan. The Magothy Aquifer is commonly regarded to function overall as an unconfined aquifer at shallow depths and a confined aquifer at deeper depths. The drilling program on the NWIRP has revealed that clay zones beneath the facility are common but laterally discontinuous. No confining clay units of facility-wide extent have been encountered.

Groundwater is encountered at a depth of approximately 50 ft bgs at the facility. Historically, because of pumping and recharge at the facility, groundwater depths have been measured to range from 40 to 60 ft bgs. The regional groundwater flow in the area is to the south southeast.

2.0 FIELD PROGRAM

Field investigation activities consisted of the drilling, sampling, soil/groundwater analysis, geophysical logging and surveying of three vertical profile borings and eight monitoring wells. Drilling during this investigation was performed by Delta Well and Pump Co., of Ronkonkoma, New York. A description of these tasks is provided below.

2.1 Vertical Profile Borings

Three vertical profile borings (VPB 137, VPB 138 and VPB 139) were completed during this field effort between November 2012 and August 2013. Depths of VPB 137, VPB 138 and VPB 139 were 890 ft, 935 ft and 965 ft, respectively. Locations are shown on Figure 2 and on cross sections GG' and HH' on Figures 5 and 6, respectively. Details are summarized on Table 1.

2.1.1 Drilling

VPBs were installed by drilling an 8-inch diameter hole via a mud rotary drilling techniques. Drilling mud consisted of potable water and polymer-free sodium bentonite or equivalent. Drilling mud was contained and re-circulated in baffled, high capacity mud tubs. A sand separator was used intermittently to remove fines from circulation.

2.1.2 Sampling

For each vertical profile boring, up to 10 split spoon samples were collected from ground surface to a depth of 800 ft when a change in geology was observed. Below 800 ft, confirmation of the Raritan Clay formation was based on five consecutive split spoon samples retrieving clay. Samples were logged by the field geologist and screened for volatile organic compounds (VOCs) utilizing a photoionization detector (PID). Detailed boring logs for each VPB are included in Appendices A, B and C.

Groundwater samples were collected every 50 ft for the first 200 ft of borehole depth. After the first 200 ft, groundwater samples were collected every 20 ft until the boring terminated in the Raritan. Groundwater samples were collected with a hydropunch sampler and analyzed for VOCs by Environmental Protection Agency (EPA) Method 8260B by Katahdin Analytical Services, a Department of Defense Environmental Laboratory Accreditation Program (ELAP) accredited laboratory and NYSDEC-certified laboratory. During the collection of groundwater samples, typical field parameters were measured (pH, temperature, specific conductivity, turbidity etc.). Data validation was performed by Resolution Consultants. Groundwater sample logs, data validation packages and analytical data tables are included in Appendices A, B and C.

One soil sample was collected per VPB for laboratory analysis for total organic carbon (TOC) by EPA series SW-846 method 9060A. All analyses were performed or subcontracted by Katahdin Analytical Services. During drilling, a Community Air Monitoring Program was performed; one air sample was collected per VPB using SUMMA canisters and submitted for laboratory analysis by EPA Method TO-15 by Katahdin Analytical Services, a DoD ELAP accredited laboratory. Data validation of both TOC and air data was performed by Resolution Consultants. Data validation packages and analytical data tables are included in Appendices A, B and C.

2.1.3 Geophysics

Borehole geophysical logs were recorded for each VPB after drilling tools were withdrawn from the borehole. A Mount Sopris Instrument model 2PGA-100 poly gamma was used. Starting at the top of the hole, the probe was advanced at a maximum rate of 15 ft per minute. A copy of the log was printed in the field for review once the probe reached the bottom of the borehole. The instrument was then raised to the top of the boring and a second log was generated and printed in the field. The gamma log sheets and plots comparing the gamma log with trichloroethene (TCE) and tetrachloroethene (PCE) concentrations from hydropunch samples are included in the Summary Packet reports. At the completion of the geophysical logging at each VPB, the geologist log, the geophysical log, and the hydropunch groundwater samples (Appendices A, B, C) were compiled together and optimal well screen intervals were selected for the installation of monitoring wells.

2.2 Monitoring Wells

Eight monitoring wells were installed at the site of the three vertical profile borings between January and September 2013. Depths of monitoring wells ranged from 375 feet to 785 feet. Locations are shown on Figure 2 and on cross sections GG' and HH', Figures 5 and 6, respectively.

2.2.1 Drilling and Well Construction

The wells were installed using mud rotary drilling techniques. Well construction details are summarized Table 2. Boring logs with lithologic descriptions of the well screen interval are included in Appendices A, B and C.

Prior to installing each monitoring well, screen intervals were determined from the results of the groundwater samples, the geophysical logs, lithology and field data from the vertical profile borings. Screens were selected based on several goals: to monitor the depth interval of the highest VOC concentrations observed in hydropunch data and to monitor depths of interest to BWD Plant 6 wells: 6-1 (330 – 380 ft bgs) and 6-2 (700-735 and 750-770 ft bgs).

During the monitoring well installation, split spoon samples were collected every 5 ft in the screen interval. One soil sample per monitoring well was analyzed for TOC via USEPA series SW-846 method 9060A by Katahdin. Data validation of TOC data was performed by Resolution Consultants. Data validation packages and analytical data tables are included in Appendices A, B and C.

Wells were constructed of 4-inch diameter, Schedule 80, National Sanitation Foundation-approved polyvinylchloride (PVC) riser pipe and .010-slot well screen. Wells were completed at the surface with a 12-inch diameter steel curb box. Well risers were set below grade and fit with lockable J plugs. Detailed monitoring well construction diagrams are included in Appendices A, B and C.

2.2.2 Well Development

Following installation, all monitoring wells were developed to evacuate silts and other fine-grained materials and to establish the filter pack to promote a hydraulic connection between the well and the surrounding aquifer. Well development was not initiated until at least 24 hours after well installation.

Monitoring well screens were developed using a combination of air lifting, mechanical surging, and pumping with a submersible pump. Turbidity was monitored during development to determine stabilization. In compliance with New York State Department of Environmental Conservation (NYSDEC) policy, wells were developed until turbidity was less than 50 nephelometric turbidity units (NTUs) if possible. Table 3 summarizes total pumped volume from air and pump development and final turbidity. Well development logs are included in Appendices A, B and C.

2.2.3 Sampling

Following development, wells were allowed to stabilize for at least 2 weeks prior to groundwater sampling in accordance with low flow sampling procedures. Wells were purged with a submersible pump with the intake placed at the approximate midpoint of the screened interval. The following water quality parameters were continuously measured: water temperature, pH, conductivity, oxidation-reduction potential and turbidity. Groundwater analytical samples were collected when water quality parameters stabilized. Samples were analyzed for VOCs via method 8260B by Katahdin. All development and purge water was managed as investigation derived waste (IDW). Groundwater sample logs, data validation packages and analytical data tables are included in Appendices A, B and C.

2.3 Decontamination and Investigation Derived Waste (IDW)

Resolution Consultants utilized dedicated and disposable sampling equipment when possible to avoid the potential for cross-impacting of samples. The sampling equipment included dedicated plastic scoops, disposable Teflon or polyethylene tubing, disposable gloves, and laboratory supplied sample bottles. Hand held equipment, split spoons and the hydropunch were decontaminated using an alconox and water wash, a potable water rinse followed by a distilled water rinse. Water was collected in 5-gallon pails or 55-gallon drums and transported to the frac tank.

The investigation waste (consisting of soil cuttings, drilling muds, IDW fluids and personal protective equipment (PPE)) generated during the borings and well installations was containerized and staged at NWIRP Bethpage. All IDW was characterized and disposed of properly. The representative samples from each roll off were submitted to Katahdin for analysis of:

- Target Compound List (TCL) VOCs
- TCL Semivolatile Organic Compounds (SVOCs)
- Toxicity Characteristic leaching Procedure (TCLP) Metals
- Polychlorinated Biphenyls (PCBs)
- Total petroleum hydrocarbons
- Corrosivity
- Ignitability
- Reactive Cyanide
- Reactive Sulfide
- Paint Filter

Purge water and well development water was containerized in frac tanks and stored at NWIRP Bethpage for characterization and ultimate disposal to the POTW in accordance with the facilities existing discharge permit. A representative water sample was collected from each frac tank and submitted to Katahdin for analysis of VOCs via method SW 624 and pH via method SW 9040B (all waters); Both water and soil was transported from point of generation to the designated staging area at NWIRP in Department of Transportation (DOT) approved 55-gallon drums or similarly appropriate containers. To the extent feasible, soil and water was not mixed.

All analytical criteria were met for disposal of soil and water. Table 4 provides a summary of IDW management and documentation is included in Appendix D.

2.4 Surveying

A survey of the borings and well locations was conducted at the end of the fieldwork by GEOD Corp of Newfoundland, New Jersey, under the direct supervision of Resolution Consultants. The locations were tied into the existing base map developed for this investigation. The vertical locations were surveyed to a reference point determined in the field with a vertical accuracy of 0.01 foot. All elevations were referenced to the North American Vertical Datum (NAVD) 1988. The horizontal locations of each point were established from directly measuring from fixed Site features (such as curbs, light poles, etc) with an accuracy of 0.1 foot.

A table of survey data (ground, top of casing, PVC, latitude/longitude and northing/easting) and a survey map are included in Appendices A, B and C.

3.0 REFERENCES

Geraghty and Miller, Inc., 1994. *Remedial Investigation Report, Grumman Aerospace Corporation, Bethpage, New York*. Revised September 1994.

Naval Facilities Engineering Command (NAVFAC), 2003. *Record of Decision Naval Weapons Industrial Reserve Plant Bethpage, New York, Operable Unit 2 – Groundwater*, NYS Registry: 1-30-003B. April.

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Resolution Consultants, 2013. UFP SAP Addendum, *Installation of Vertical Profile Borings and Monitoring Wells*. December.

Smolensky, D., and Feldman, S., 1990. *Geohydrology of the Bethpage-Hicksville-Levittown Area, Long Island, New York, U.S. Geological Survey Water-Resourced Investigations Report 88-4135*, 25 pp.

Tables

TABLE 1
VERTICAL PROFILE BORING SUMMARY
2012 TO 2013 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

BORING	BORING START DATE	BORING COMPLETION DATE	GROUND ELEVATION (MSL)	TOTAL DEPTH (ft bgs)	SURFACE CASING SET AT (ft bgs)	NO. OF SPOON SAMPLES	GAMMA LOG (ft bgs)	NO. GW SAMPLES COLLECTED/ ATTEMPTED	TOC SAMPLES	DATE OF AIR SAMPLE	MONITORING WELLS INSTALLED AT LOCATION
VPB 137	11/6/2012	12/18/2012	93.77	890	55	18	889	29 / 39	1 (678 - 680 ft bgs)	12/7/2012	RE103D1, RE103D2, RE103D3
VPB 138	3/7/2013	4/26/2013	89.98	935	55	11	935	37 / 45	1 (743 - 745 ft bgs)	4/1/2013	RE104D1, RE104D2, RE104D3
VPB 139	6/26/2013	8/15/2013	87.50	965	55	11	962.7	36 / 43	1 (638 - 640 ft bgs)	7/18/2013	RE105D1, RE105D2

Vertical Profile Borings
137, 138, 139

TABLE 2
MONITORING WELL CONSTRUCTION SUMMARY
2012 TO 2013 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

February 2014

MONITORING WELL	ADJACENT VPB	WELL COMPLETION DATE	GROUND ELEVATION (MSL)	WELL DEPTH (ft bgs)	CASING DEPTH (ft bgs)	SCREEN INTERVAL (ft bgs)	SUMP DEPTH INTERVAL (ft bgs)	BORING DEPTH (ft bgs)
RE103D1	VPB 137	2/28/2013	93.80	645	55	625 - 640	640 - 645	647
RE103D2		2/4/2013	93.63	673	55	653 - 673	none	676
RE103D3		1/18/2013	93.74	735	55	715 - 730	730 - 735	743
RE104D1	VPB 138	6/20/2013	90.53	375	55	350 - 370	370 - 375	388
RE104D2		6/6/2013	90.79	735	55	710 - 730	730 - 735	747
RE104D3		5/15/2013	90.87	785	55	760 - 780	780 - 785	801
RE105D1	VPB 139	9/20/2013	87.23	555	55	530 - 550	550 - 555	567
RE105D2		9/5/2013	87.18	755	55	730 - 750	750 - 755	767

TABLE 3
MONITORING WELL DEVELOPMENT SUMMARY
2012 TO 2013 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

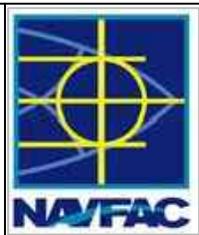
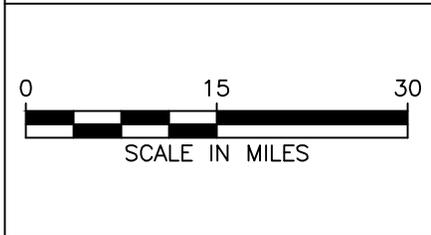
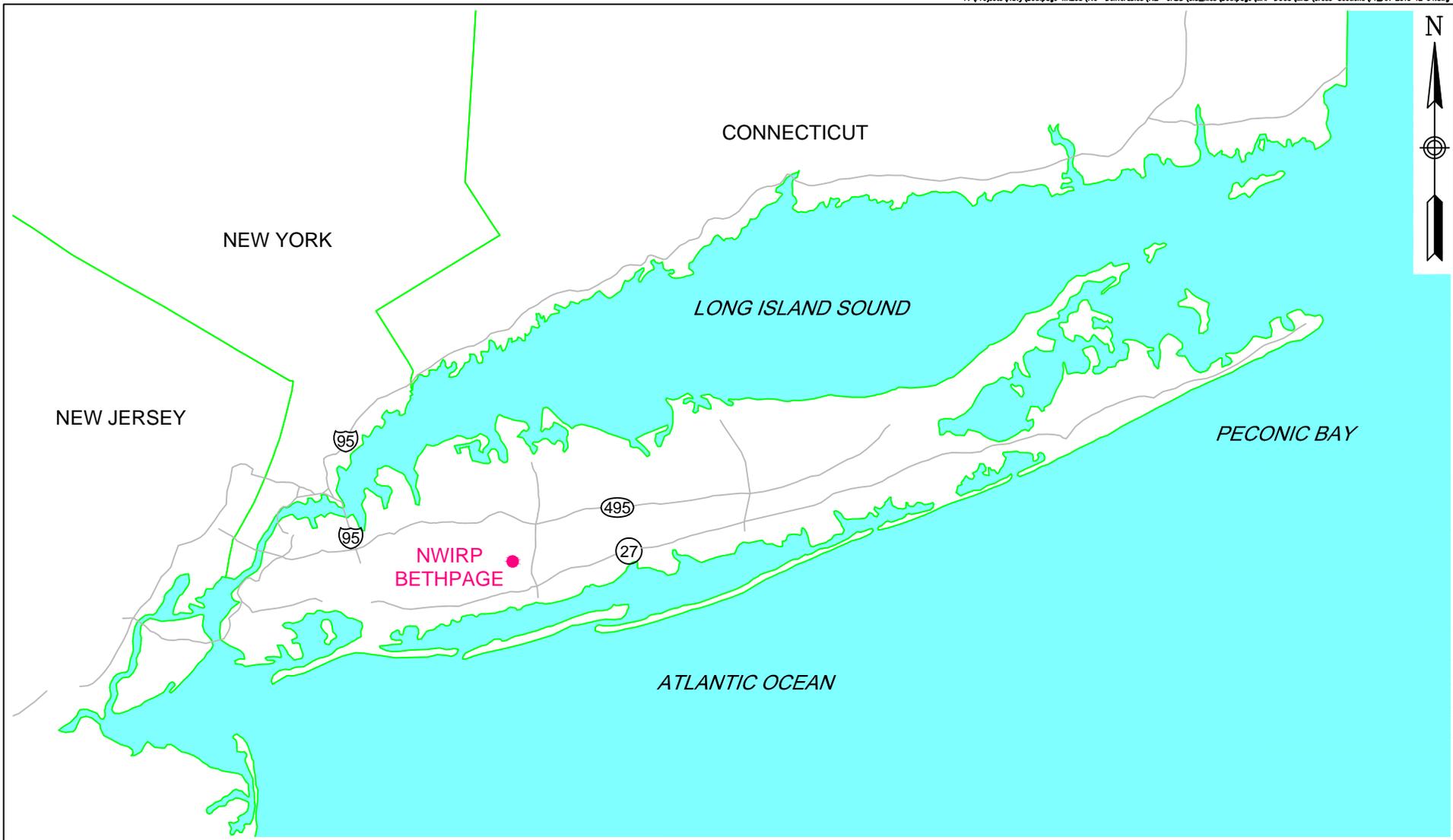
MONITORING WELL	ADJACENT VPB	AIR DEVELOPMENT		PUMP DEVELOPMENT			APPROX. TOTAL DEVELOPMENT VOLUME (GAL)	FINAL TURBIDITY (NTUs)
		DATE	APPROX. VOLUME (GAL)	DATE	FINAL PUMP DEPTH (FT)	APPROX. VOLUME (GAL)		
RE103D1	VPB 137	3/7/2013	4000	3/8/2013	90	4000	8000	2.17
RE103D2		3/6/2013	4000	3/11/2013	90	4000	8000	7.46
RE103D3		3/5/2013	4000	3/12/2013	90	5000	9000	36.32
RE104D1	VPB 138	7/11/2013	5000	7/12/2013	370	3000	8000	20.2
RE104D2		7/10/2013	4000	7/15/2013	730	4000	8000	39.2
RE104D3		7/9/13, 7/16/13	5500	7/17/2013	780	3500	9000	34.8
RE105D1	VPB 139	9/26/2013	5500	10/1/2013	545	4200	9700	1.05
RE105D2		9/25/2013	5500	9/30/2013	745	3300	8800	3.19

TABLE 4
INVESTIGATION DERIVED WASTE SUMMARY
2012 TO 2013 OU2 GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NY

Roll off #	Sample date	Sample ID	Lab SDG	Date manifested offsite	Manifest No.
9700	1/18/2013, 4/18/2013	IDWS 011813, IDWS041813-9700	SG0450, SG2572	7/28/2013	16964
0010	1/18/2013, 4/18/2013	IDWS 011813, IDWS041813-0010	SG0450, SG2572	7/29/2013	16963
9607	1/18/2013, 6/27/2013	IDWS 011813, IDWS-062713-9607	SG0450, SG4526	7/30/2013	16965
9650	6/27/2013	IDWS-062713-9650	SG4526	8/1/2013	16966
0417	7/31/2013	IDW-S-073113	SG5569	9/19/2013	16968
0406	7/31/2013	IDW-S-073113	SG5569	9/19/2013	16969
9893	7/31/2013	IDW-S-073113	SG5569	9/20/2013	16967
0812	10/15/2013	IDW-SOIL-20131015	SG8068	11/8/2013	16970
0312	10/15/2013	IDW-SOIL-20131015	SG8068	11/8/2013	20703

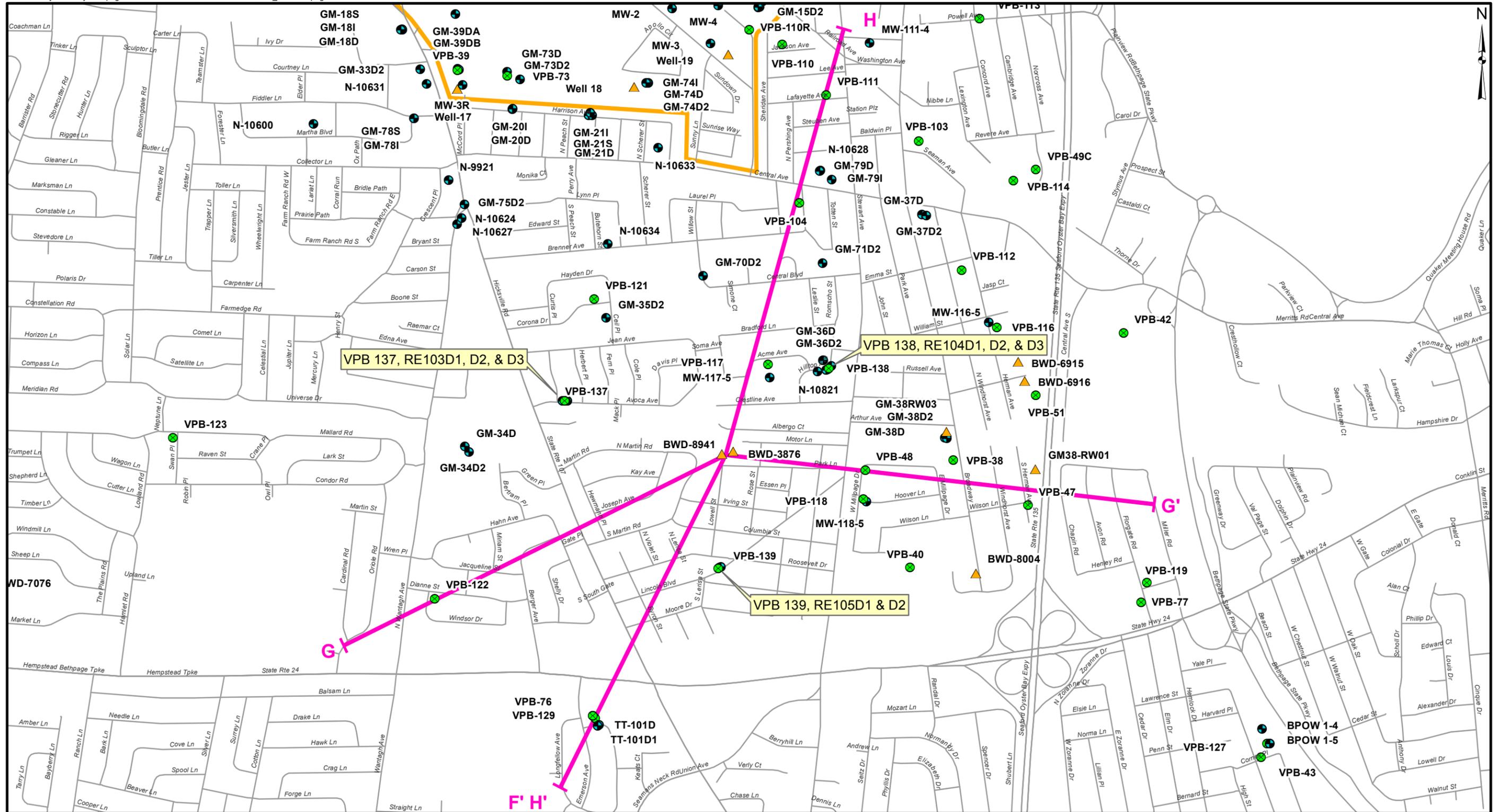
Container type	Sample date	Sample ID	Lab SDG	Date discharged to WWTP	Volume discharged (gal)	Source of water
Frac tank 1	3/6/2013	IDWGW-030613	SG1506	3/14/2013	21000	drilling water
Tanker	3/12/2013	IDWGW-031213	SG1611	3/14/2013	6000	development water
Drums	3/6/2013	IDWGW-030613	SG1506	3/14/2013	1000	rolloff water
Frac tank 2	3/12/2013	IDWGW-031213	SG1611	3/20/2013	19000	development water
Frac tank 1	6/12/2013, 6/28/2013	IDWGW-061213, IDWGW-062813-FRAC TANK1	SG4081, SG4591	7/8/2013	21600	drilling water
Frac tank 2	6/27/2013	IDWGW-062713-FRAC TANK #2	SG4526	7/8/2013	14600	development water
Frac tank 2	7/17/2013	IDW-GW-7-17-13	SG5068	7/24/2013	19500	development water
Frac tank 1	8/19/2013	IDWGW-081913-FRACTANK1	SG6217	9/5/2013	15400	drilling water
Frac tank 1	9/30/2013	IDWGW-093013-FRACTANK1	SG7520	10/9/2013	6500	drilling water
Frac tank 2	10/31/2013	IDWGW-103113-FRACTANK2	SG8534	11/15/2013	11200	development water

Figures

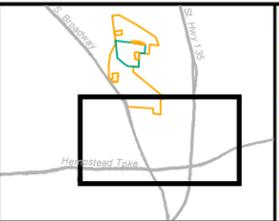


GENERAL LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

CONTRACT NUMBER N62470-11-D-8018	CTO NUMBER WXE08
APPROVED BY EV	DATE 12/04/2013
APPROVED BY --	DATE --
FIGURE NO. 1	REV 0



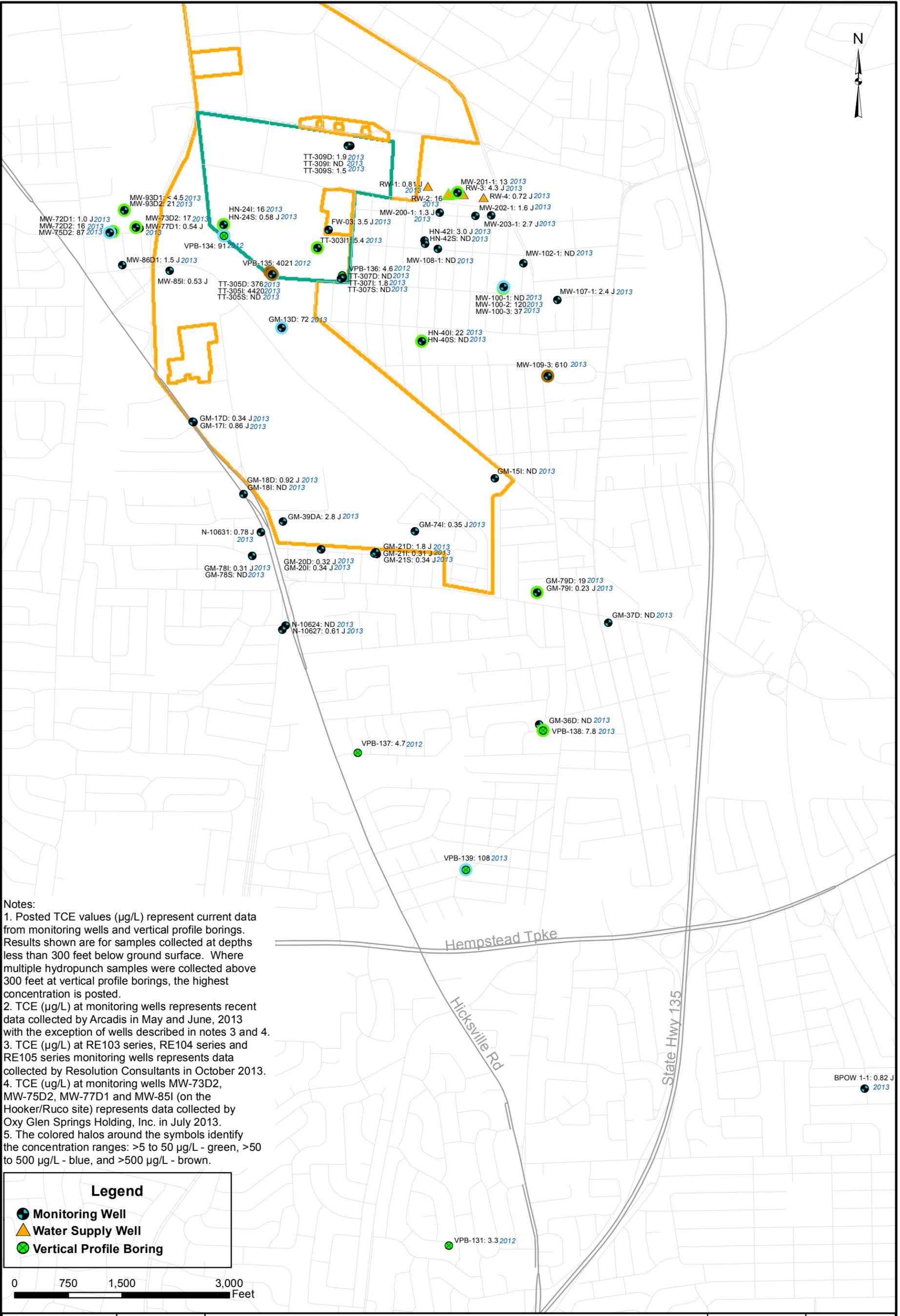
● Vertical Profile Boring 1997 Northrop Grumman
● Monitoring Well 1997 NWIRP Bethpage
▲ Water Supply Well
— Cross Section
 VPB 137 and VPB 138 depicted on Cross Section GG' 0 312.5 625 1,250
 VPB 138 and VPB 139 depicted on Cross Section HH' Feet



VPB-137, VPB-138, and VPB-139
 CROSS-SECTION AND LOCATION MAP
 OPERABLE UNIT 2 (SITE 1)
 NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
 BETHPAGE, NEW YORK

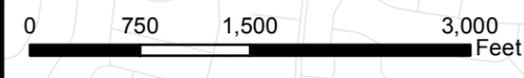
CONTRACT NUMBER N62470-11-D-8013	CTO NUMBER WE15
APPROVED BY PS	DATE 12/4/2013
APPROVED BY	DATE
FIGURE NO. 2	REV 1

I:\usr\mfr001\data2\Projects\Naval\Bathpage\WXE087.0_Deliverables\7.2_CADD\GIS files\Bathpage\MAP DOCS\IMXD\Cross-Sections\F3 BP_TCE_SHALLOW_2014.02.08.mxd



Notes:
 1. Posted TCE values ($\mu\text{g/L}$) represent current data from monitoring wells and vertical profile borings. Results shown are for samples collected at depths less than 300 feet below ground surface. Where multiple hydropunch samples were collected above 300 feet at vertical profile borings, the highest concentration is posted.
 2. TCE ($\mu\text{g/L}$) at monitoring wells represents recent data collected by Arcadis in May and June, 2013 with the exception of wells described in notes 3 and 4.
 3. TCE ($\mu\text{g/L}$) at RE103 series, RE104 series and RE105 series monitoring wells represents data collected by Resolution Consultants in October 2013.
 4. TCE ($\mu\text{g/L}$) at monitoring wells MW-73D2, MW-75D2, MW-77D1 and MW-85I (on the Hooker/Ruco site) represents data collected by Oxy Glen Springs Holding, Inc. in July 2013.
 5. The colored halos around the symbols identify the concentration ranges: >5 to $50 \mu\text{g/L}$ - green, >50 to $500 \mu\text{g/L}$ - blue, and $>500 \mu\text{g/L}$ - brown.

Legend	
	Monitoring Well
	Water Supply Well
	Vertical Profile Boring



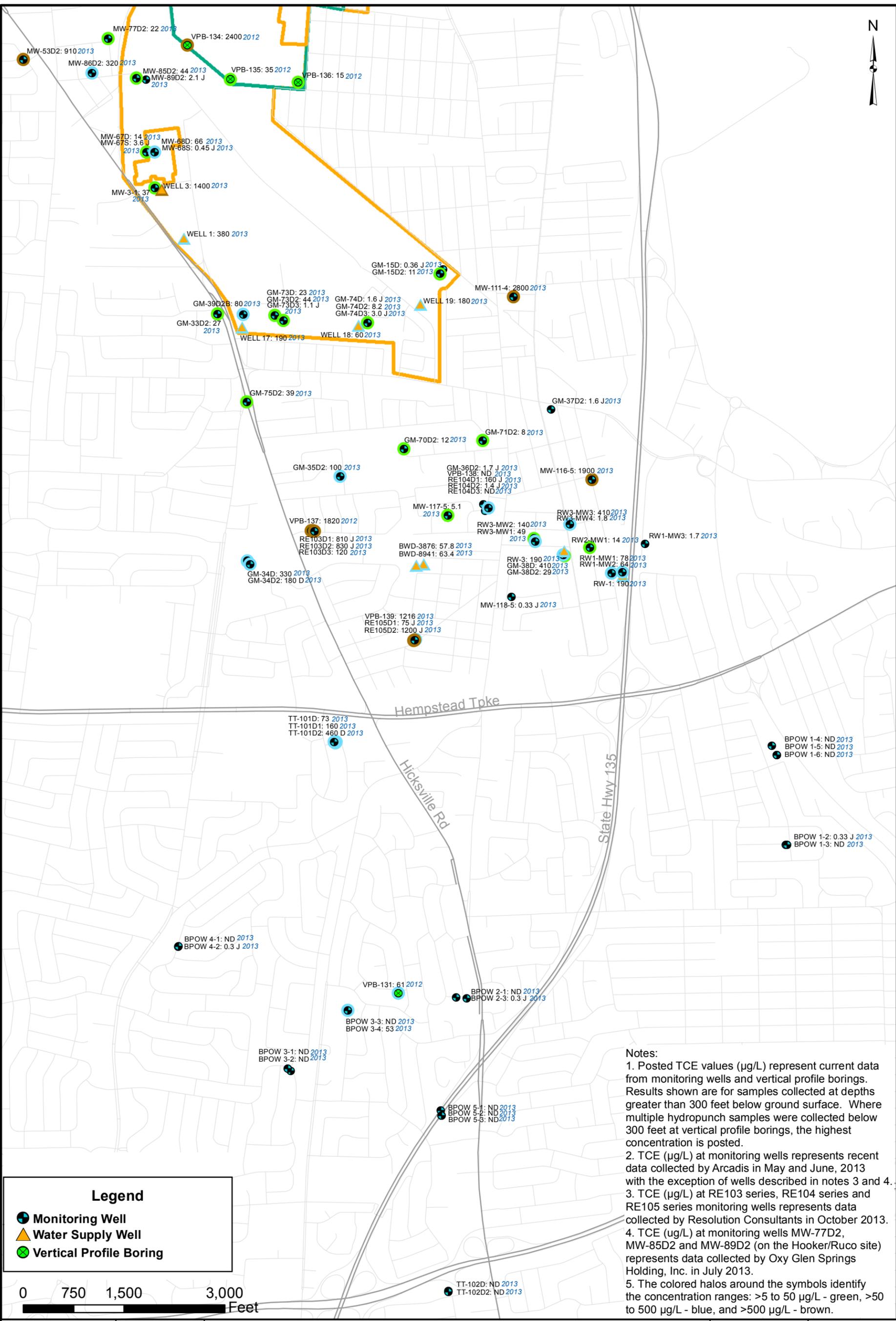
DRAWN BY	DATE
TT	11/22/11
CHECKED BY	DATE
TT	11/22/11
REVISED BY	DATE
PS	01/31/14
SCALE	AS NOTED



**TCE CONCENTRATIONS
 IN SHALLOW (<300 FT BGS)
 OU2 GROUNDWATER
 NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
 BETHPAGE, NEW YORK**

CONTRACT NUMBER N62470-11-D8013	CTO NUMBER WE08
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 3	REV 0

\\uscm1vp001\data2\Projects\Naval\Bathpage\WXE0817_0_Deliverables\7.2_CADD\GIS_files\Bathpage\MAP_DOCS\MXD\Cross-Sections\F4_BP_TCE_DEEP_2014_02_08.mxd

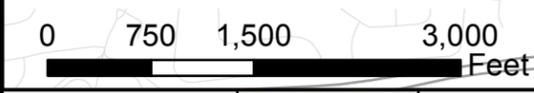


Notes:

1. Posted TCE values ($\mu\text{g/L}$) represent current data from monitoring wells and vertical profile borings. Results shown are for samples collected at depths greater than 300 feet below ground surface. Where multiple hydro-punch samples were collected below 300 feet at vertical profile borings, the highest concentration is posted.
2. TCE ($\mu\text{g/L}$) at monitoring wells represents recent data collected by Arcadis in May and June, 2013 with the exception of wells described in notes 3 and 4.
3. TCE ($\mu\text{g/L}$) at RE103 series, RE104 series and RE105 series monitoring wells represents data collected by Resolution Consultants in October 2013.
4. TCE ($\mu\text{g/L}$) at monitoring wells MW-77D2, MW-85D2 and MW-89D2 (on the Hooker/Ruco site) represents data collected by Oxy Glen Springs Holding, Inc. in July 2013.
5. The colored halos around the symbols identify the concentration ranges: >5 to $50 \mu\text{g/L}$ - green, >50 to $500 \mu\text{g/L}$ - blue, and $>500 \mu\text{g/L}$ - brown.

Legend

- Monitoring Well
- Water Supply Well
- Vertical Profile Boring

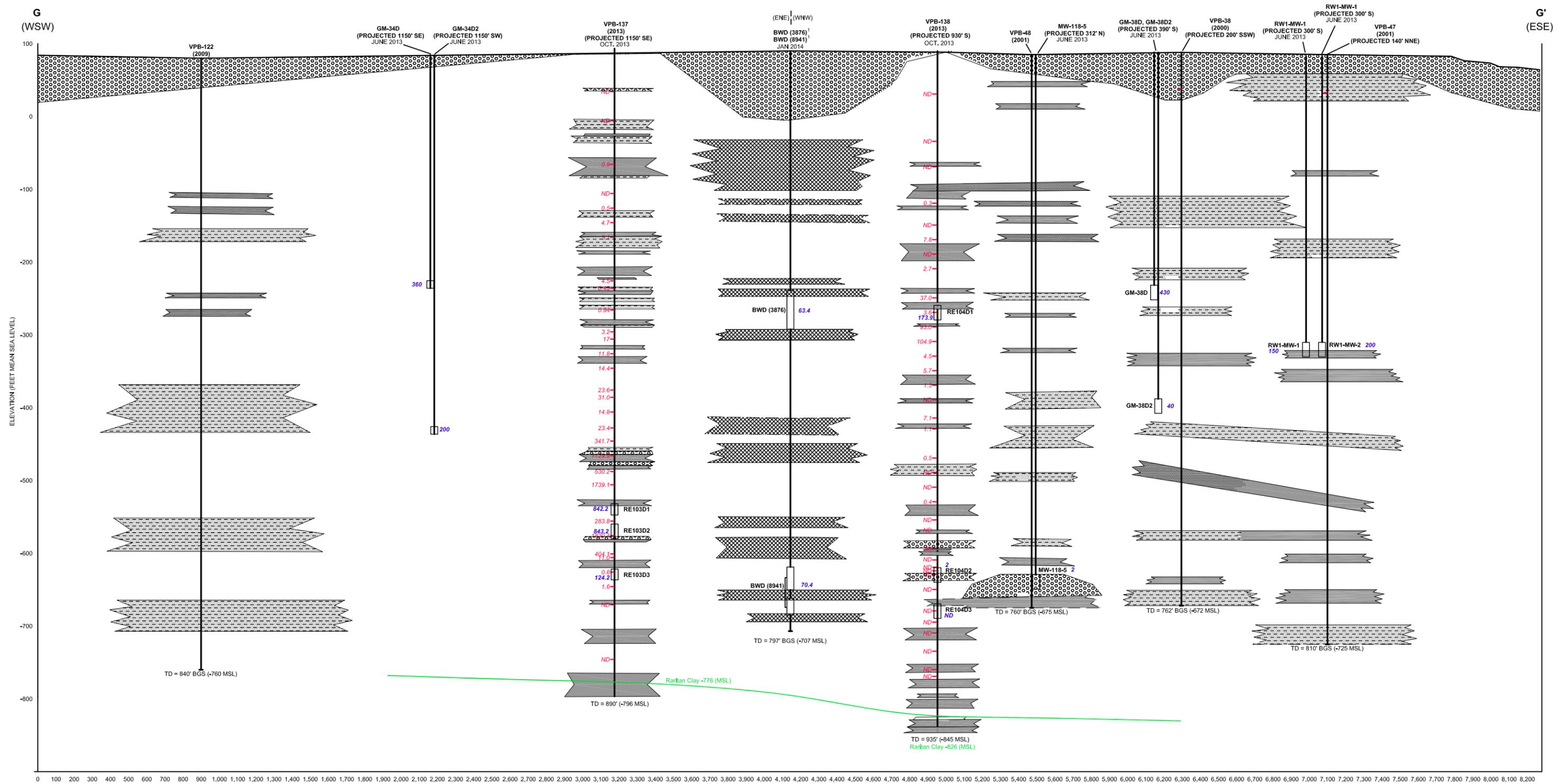


DRAWN BY	DATE
TT	12/12/11
CHECKED BY	DATE
TT	12/12/11
REVISED BY	DATE
PS	01/31/14
SCALE	AS NOTED



**TCE CONCENTRATIONS
IN DEEP (>300 FT BGS)
OU2 GROUNDWATER
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK**

CONTRACT NUMBER N62470-11-D8013	CTO NUMBER WE08
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 4	REV 0



Notes:
 1. Adapted from Tetra Tech.
 2. Designations on well labels:
 1. From Arcadis Cross Section (2004)
 2. TVOC data from H.M.
 * TVOC from Arcadis
 3. Some wells projected into cross section; distance and direction of projection noted under well name.

LEGEND

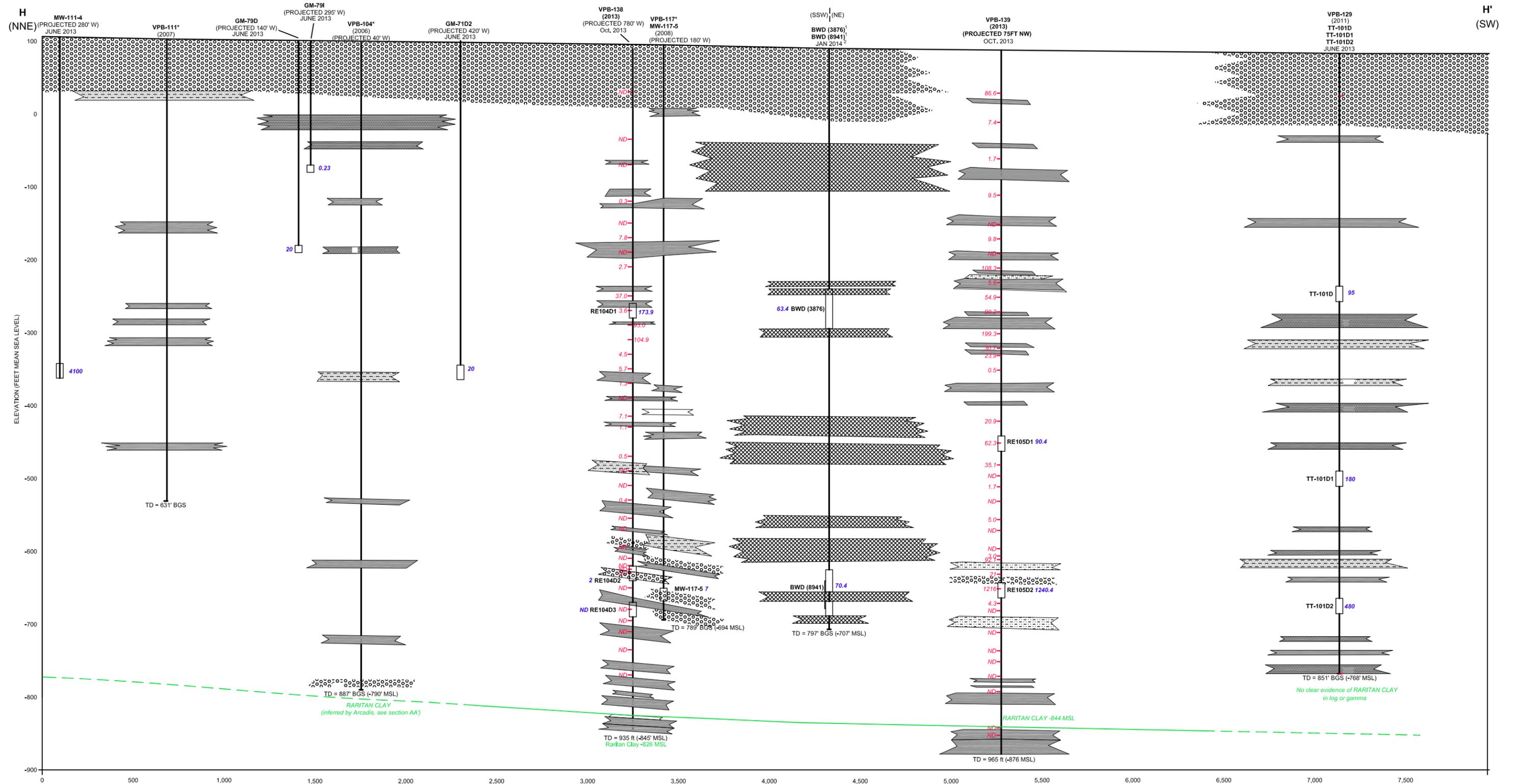
	SAND AND GRAVEL
	F-M SAND WITH VARYING AMOUNTS OF SILT, CLAY, AND C. SAND
CONFINING UNITS	
	INTERBEDDED CLAY AND SAND
	SANDY CLAY
	CLAY
	CONFINING UNIT FROM ARCADIS CROSS-SECTION, NO SPECIFIC LITHOLOGY GIVEN
	TOP OF RARITAN CLAY (DASHED WHERE INFERRED)

TT-101D	MONITORING WELL ID
VPB-121	VERTICAL PROFILE BORING
(2009)	INSTALLATION YEAR
(PROJECTED 450' ESE)	PROJECTION
	MONITORING WELL SAMPLING DATE
	CONFINING UNIT (DASHED WHERE INFERRED)
	MONITORING WELL SCREEN WITH TVOC CONCENTRATION (ug/L)
	VERTICAL PROFILE BORING TVOC RESULTS (ug/L)
	NON-DETECT
	TOTAL DEPTH IN FT BELOW GROUND SURFACE (ELEVATION IN FT ABOVE MEAN SEA LEVEL)



CROSS SECTION G - G'
 OPERABLE UNIT 2 (SITE 1)
 NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
 BETHPAGE, NEW YORK

CONTRACT NUMBER N62470-11-D-8013	CTO NUMBER WE15
APPROVED BY	DATE DECEMBER 2013
APPROVED BY	DATE
FIGURE NUMBER 5	REV 0



Notes:
 1. Adapted from Tetra Tech.
 2. Designations on well labels:
 1. From Arcadis Cross Section (2004)
 2. TVOC data from H.M.
 * TVOC from Arcadis
 3. Some wells projected into cross section; distance and direction of projection noted under well name.

- LEGEND**
- SAND AND GRAVEL
 - F-M SAND WITH VARYING AMOUNTS OF SILT, CLAY, AND C. SAND
 - CONFINING UNITS**
 - INTERBEDDED CLAY AND SAND
 - SANDY CLAY
 - CLAY
 - CONFINING UNIT FROM ARCADIS CROSS-SECTION, NO SPECIFIC LITHOLOGY GIVEN
 - TOP OF RARITAN CLAY (DASHED WHERE INFERRED)

- TT-101D**
VPB-121
 (PROJECTED 450' ESE)
 MAR 2012
 TD = 840' BGS (-735' MSL)
- TT-101D** 374 - ND -
 TD = 840' BGS (-735' MSL)
- MONITORING WELL ID
 - VERTICAL PROFILE BORING
 - INSTALLATION YEAR
 - PROJECTION
 - MONITORING WELL SAMPLING DATE
 - CONFINING UNIT (DASHED WHERE INFERRED)
 - MONITORING WELL SCREEN WITH TVOC CONCENTRATION (ug/L)
 - VERTICAL PROFILE BORING TVOC RESULTS (ug/L)
 - NON-DETECT
 - TOTAL DEPTH IN FT BELOW GROUND SURFACE (ELEVATION IN FT ABOVE MEAN SEA LEVEL)



CROSS SECTION H - H'
 OPERABLE UNIT 2 (SITE 1)
 NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
 BETHPAGE, NEW YORK

CONTRACT NUMBER N62470-11-D-8013	CTO NUMBER WE15
APPROVED BY	DATE DECEMBER 2013
APPROVED BY	DATE
FIGURE NUMBER 6	REV 0

Appendices

Appendix A

VPB 137 and RE103D1, RE103D2, RE103D3

**Vertical Profile Boring 137 and
RE103D1, RE103D2, RE103D3**

- 1. VPB 137 Boring and Gamma Log**
- 2. VPB 137 Gamma and PCE/TCE plot**
- 3. VPB 137 Groundwater Sample Log Sheets**
- 4. VPB 137 Analytical Data Validation**
 - Analytical Data Sheets
 - Chain of Custody Records
 - Validation Letter and Table
- 5. VPB 137 Analytical Data Table**
- 6. Monitoring Wells RE103D1, RE103D2, RE103D3**
 - Boring Logs
 - Well Construction Logs
 - Well Development Logs
 - Groundwater Sample Log Sheets
 - Analytical Data Validation
 - Analytical Data Table
- 7. Survey**

Section 1

VPB 137 Boring and Gamma Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206694.84	Easting: 1125135.13	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.77		Well Screen Interval (ft):
Start Date: 11/6/2012	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 12/18/2012			Total Depth (ft): 890.0

Note: Unless denoted by a splitspoon sample (indicated by the presence of a PID reading), boundaries between strata are approximate only and may be transitional because they are based on screened wash samples collected during mud rotary drilling at 5 ft. intervals.

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
0					Upper Glacial			
2								Light brown, medium-coarse SAND, little well-rounded Gravel, trace silt
4						SW		
6								
8								
10								
12						SW		Light brown, medium-fine SAND, trace well-rounded Gravel, trace silt
14								
16								
18								Light brown, medium SAND, trace well rounded coarse Sand, trace silt
20						SW		
22								
24								
26								Light brown, medium SAND, trace well rounded coarse Sand, trace silt
28						SW		
30								
32								
34								
36								Light brown, medium SAND, little fine Sand, trace subrounded coarse sand, little silt
38						SW		
40								
42								
44								
46								Light brown, subrounded coarse-medium SAND, trace subrounded Gravel, little silt
48						SW		
50								
52								
54								
56								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
56	20 40 60 80							
58					Upper Glacial	GW		Light brown, subrounded coarse-medium SAND, trace sub-rounded Gravel, little silt <i>(continued)</i>
60			<0.5	<0.5		SP		Brown fine-angular SAND, trace Gravel
62								
64						SW		Brown fine-medium SAND grading to fine-coarse Sand, trace gravel
66								
68						SW		Brown fine-coarse SAND, trace Gravel
70								
72						SW		Brown fine-coarse SAND, trace angular fine Gravel
74								
76						SW		Brown fine-coarse SAND, trace angular fine Gravel
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								
100			<0.5	<0.5				
102					Magothy			Brown fine-coarse SAND and tannish grey CLAY, trace fine Gravel Note: Top of Magothy Formation not identified in the field. Upper Glacial assumed to end at approximately 100 ft bgs based on literature.
104								
106								
108								
110								
112								
114								
116								
118								
120		6.4 - 7.9				SM		Tan with some orange banding, fine-medium SAND, little Silt ~20%

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
120	20 40 60 80							
122					Magothy	CL		Grey white CLAY forms sharp contact with above Tan fine-medium SAND and CLAY, mica flakes
124								
126						SC		
128								
130								
132								Tan fine-medium SAND
134								
136						SW		
138								
140								
142								Tan fine-medium SAND
144								
146						SW		
148								
150								
152								CLAY and Tan fine-medium SAND
154						CL		
156								
158								
160			0.9	<0.5				CLAY, little fine-medium Sand, trace small angular gravel
162								
164						CL		
166								
168								
170								CLAY, little fine-medium Sand, trace small angular gravel
172						CL		
174								
176								
178						SC		Tan fine-medium SAND, some Clay
180		5				SM		Orangish-Tan fine SAND, little medium Sand, little silt, laminae
182						SM		Trace angular fine GRAVEL
184						SW-SC		Orange stained, Tan fine SAND, little medium Sand, little clay

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
184	20 40 60 80							
186					Magothy			Orange stained, Tan fine SAND, little medium Sand, little clay (continued)
188						SW-SC		
190								
192								Tan fine SAND, little medium Sand, muscovite flakes
194								
196								
198						SP		
200			<0.5	<0.5				
202								
204								Tan fine SAND, little medium Sand
206						SP		
208								
210						SW		Brown-Black fine-medium - SAND
212								
214								Black-Tan medium - fine SAND
216						SW		
218								
220			0.54	<0.5				Brown silty fine-medium SAND
222						SM		
224								Brown fine-medium SAND , some grey Clay
226						SC		
228								Brown fine-medium SAND , some grey Clay
230						SC		
232								
234								Brown fine-medium SAND, trace angular gravel muscovite flakes
236						SW		
238								
240			3.9	0.76				Brown fine-medium SAND, little Silt
242								
244						SW-SM		
246								
248								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
248	20 40 60 80				Magothy			Brown fine-medium SAND, little Silt	
250						SW-SM			
252									
254									Orange-Grey CLAY, some fine-medium Sand
256						CL			
258									
260			3.6	1.5					Fine-coarse SAND, some black Clay
262						SC			
264									Fine SAND, some black Clay
266						SC			
268									
270						SC			Tan fine-medium SAND, little black-grey Clay
272									
274						SC			Fine-medium SAND, little coarse Sand, some grey clay
276									
278									
280					ML			Tan SILT/CLAY, some fine Sand, trace medium-coarse sand	
282									
284									
286					SP-SM			Tan fine SAND, trace medium Sand, little silt	
288									
290					SP-SM			Tan fine SAND, little Silt	
292									
294									
296					SP-SM			Tan fine SAND, little Silt	
298									
300		0.8			SP-SM			Tan fine SAND, little medium Sand, little silt, layers of black organics	
302									
304					CL			Grey -orange CLAY and tan fine Sand, little medium sand	
306									
308									
310					CL			Orange-black CLAY trace coarse Sand	
312									

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
312	20 40 60 80				Magothy			
314						SM		Tan fine SAND, trace medium-coarse Sand, little silt
316						CL		Orange-black CLAY trace coarse Sand
318						SP		Tan fine SAND
320			4.5	<0.5				Tan fine SAND, little medium Sand
322						SW		
324								Tan fine SAND, little medium Sand, trace coarse Sand, black organics
326						SW		
328								Tan fine SAND, little medium Sand, black clay
330			0.45	<0.5				
332						SC		
334								Black and white CLAY, small angular Gravel changing to brown fine-medium sand, black organics
336						CL / SM		
338								Tan fine SAND, little medium Sand, black organic seams
340			See	103D2				
342						SM		
344								Tan fine-medium SAND, some white Clay, mica flakes, black organic seams
346						SC		
348								Tan fine-medium SAND, some white Clay, mica flakes, black organic seams with trace white clay
350						SP-SC		
352							Tan fine-medium SAND and white/black Clay	
354					SC			
356							Tan fine SAND	
358								
360			0.94	<0.5				
362					SP			
364							Tan fine-medium SAND, little coarse Sand, black organics	
366								
368					SP-SM			
370								
372								
374							Gray black CLAY, some fine-medium Sand, trace coarse sand	
376					CL			

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
376	20 40 60 80				Magothy			
378		0.2				CL		Gray black CLAY, some fine-medium Sand, trace coarse sand (continued)
380						CL		Grey CLAY covered with little fine-medium Sand, trace coarse sand, laminae visible
382				SC			Tan fine-medium SAND, Muscovite Flakes, some black rust colored clay	
384								Tan fine-coarse SAND, trace fine Gravel
386						SW		
388								Tan fine-coarse SAND, trace fine Gravel
390			3.2	<0.5				
392						SW		
394								Tan medium SAND, little fine Sand
396						SW		
398								Tan fine-medium SAND, black Clay, little angular gravel
400			15	2.0				
402						SP-SC		
404								Tan fine-medium SAND, black Clay, little angular gravel
406						SP-SC		
408								Grey/black CLAY, some fine-medium Sand
410						CL		
412								Tan medium-fine SAND, muscovite flakes
414						SW		
416							Tan fine-medium SAND, trace black/grey Clay, trace coarse sand	
418			11	<0.5				
420					SW			
422							Black-grey CLAY, some fine-medium Sand	
424					CL			
426							Black-grey CLAY, some fine-medium Sand	
428					CL			
430							Tan fine-medium SAND	
432					CL			
434							Tan fine-medium SAND	
436					SW			
438							Black/tan fine-medium SAND	
440			13	1.4				
					SW			

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
440	20 40 60 80				Magothy			Black/tan fine-medium SAND (<i>continued</i>)	
442						SW		Black/tan fine-medium SAND	
444									Black/tan fine-medium SAND
446						SW			Black/tan fine-medium SAND
448									Black/tan medium-fine SAND; grey Clay
450									
452									
454						SW			
456									
458									
460									Tan fine-medium SAND
462						SP			
464									Tan medium SAND, well sorted
466						SP			
468									
470			21	1.4				Tan medium SAND, well sorted	
472					SP				
474								Tan medium SAND, trace black Organics, little white clay	
476					SP-SC				
478									
480			27	2.5				Grey fine SAND	
482									
484					SP				
486									
488									
490		0.1			SP-SM			Grey fine SAND, little Silt, several seams of black organics	
492					SP-SM			Grey fine SAND, little Silt, several seams of black organics	
494									
496					SP-SM			Tan fine-medium SAND, muscovite flakes, little grey clay, black organics	
498									
500			12	2.8				Tannish-white fine-medium SAND, little grey Clay, trace coarse sand, black organic seams	
502					SW-SC				
504									

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
504	20 40 60 80				Magothy			
506						SW		White coarse SAND with fine subrounded to subangular Gravel
508								
510								White coarse SAND, little subrounded-subangular Gravel
512								
514						SW-SM		
516								
518								
520		0.4						Tannish-grey medium-fine SAND, trace Silt/white Clay, trace coarse sand
522			22	1.4		SP		
524								Greyish-tan medium-coarse SAND, little subangular Gravel
526						SW		
528								
530								Tan fine-coarse SAND, trace fine Gravel
532						SW		
534								
536					SW-SC		Tan fine-coarse SAND with grey Clay	
538								
540			330	2.4			Tannish-white medium SAND, little coarse Sand, trace grey clay	
542					SW-SC			
544							Tan fine-medium SAND, trace black organics	
546					SW			
548								
550							Tan medium-coarse SAND, little fine Gravel, little grey clay, black organic streaks	
552					SC			
554							White subrounded fine GRAVEL and fine-coarse SAND, little grey Clay	
556					GP-GC			
558								
560			1100	1.4			Tan-grey SILT/CLAY, fine-coarse Sand	
562								
564					MLCL			
566								
568								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
568	20 40 60 80				Magothy			
570						GP-GM		Grey small GRAVEL and coarse SAND, little grey Clay/Silt
572								
574								
576						MLCL		Grey SILT/CLAY, little fine-coarse Sand
578								
580		1.1				SM		Grey-tannish fine-medium SAND, little Silt, laminae, (orange banding) several black organic seams
582			520	2.0		SM		Whitish-grey medium-coarse SAND, little fine Gravel, little silt/clay
584						SM		
586								
588								
590						SW		Whitish-tan coarse-medium SAND, little subrounded fine Gravel, little silt/clay
592								
594						SW		Whitish-tan coarse-medium SAND
596								
598								
600			1700	5.8	SM		Grey coarse SAND, some medium Sand, trace fine gravel, little silt/clay	
602								
604								
606					SW-GP		Whitish-tan coarse SAND - fine subrounded Gravel, little medium-fine sand, iron nodule	
608								
610					SW-GP		Whitish-tan coarse SAND - fine subrounded Gravel, little medium-fine sand, iron nodule	
612								
614								
616					SW		Whitish-tan coarse SAND, little fine Gravel, white clay	
618								
620								
622		2.0, 2.5			CL		Coarse SAND - fine subrounded Gravel, clay matrix	
624								
626								
628					CL		Coarse SAND - fine subrounded Gravel, clay matrix	
630								
632								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
632	20 40 60 80				Magothy			Coarse SAND - fine subrounded Gravel, clay matrix <i>(continued)</i>	
634				CL					
636									Tan fine-coarse SAND, little subrounded Gravel
640						SW			
642									
644		0.5				SW			Whitish-grey medium-fine SAND, trace little Silt, several seams of organics banding, iron nodule
646									Whitish-tan coarse-medium SAND little subrounded fine Gravel
648									
650			280	0.51		SW			
652									
654									Whitish grey coarse SAND and fine Gravel, some medium sand
656						SW-GP			
658									
660						SW			Grey-white coarse SAND, little medium Sand, little fine gravel
662									
664									Grey-white coarse SAND, little medium Sand, little fine gravel
666						SW			
668									
670			1800	4.3		SP-GP			Coarse SAND - fine Gravel
672									Tannish-white subrounded fine - coarse GRAVEL
674					GW				
676		5.8						Grey- white CLAY/SILT and Gravel	
678					CLML				
680					SP-SM			Light grey fine SAND, trace-little Silt	
682								Light grey fine SAND, trace-little Silt	
684					SP-SM				
686									
688									
690								Tan coarse SAND-fine Gravel	
692					SW-GP				
694			400	0.47				Grey coarse-fine SAND, little subrounded fine Gravel, little silt	
696					SM				

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
696	20 40 60 80				Magothy			
698						SM		Grey coarse-fine SAND, little subrounded fine Gravel, little silt <i>(continued)</i>
700			11	<0.5		SM		Tannish-orange, fine-coarse SAND, little fine-coarse Gravel, black organics, little silt/clay
702								
704								
706								
708								
710						CLML		Greyish-black SILT/CLAY (50%) some fine-coarse Sand, little fine gravel
712								
714								
716								
718								
720			0.57	<1.0		SM		Fine-medium SAND, little Silt/Clay
722								
724		0				SP GP		Tan with orange banding, fine SAND, some Silt
726						SP GP		Tan with orange banding, fine SAND, some Silt
728								
730						SW-SC		Greyish-tan fine-coarse SAND, little Silt/white Clay
732								
734								
736					SM		Greyish-tan fine-coarse SAND, little fine subrounded Gravel, little silt	
738								
740			1.6	<0.5	SM		Greyish-tan medium-coarse SAND, several grey/Silt nodules	
742								
744								
746					SM		Greyish-tan medium-coarse SAND, several grey/Silt nodules	
748								
750								
752					SM		Greyish-tan medium-coarse SAND, several grey/Silt nodules	
754								
756					SP		Tan medium SAND, streaks of black Organics, trace grey clay nodules	
758								
760					CL		Silty CLAY, some fine Sand	

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
760	20 40 60 80				Magothy			Silty CLAY, some fine Sand (<i>continued</i>)
762						CL		
764			<1.0	<1.0				Tan medium-coarse SAND, little Silt, black organic fragments
766						SW-SM		
768								
770						SP-SM		Tan medium SAND, Muscovite Flakes, little black organics, silt
772								
774		0				SP-SM		Grey fine SAND, trace-little Silt (~10%)
776								
778						SP-SM		Grey fine SAND, trace-little Silt (~10%), several clay nodules observed in wash
780								
782								
784								
786								
788								
790								
792								
794								
796								
798								
800								
802								
804					CLML		Grey SILT/CLAY, little fine-medium Sand	
806								
808								
810					CLML		Grey SILT/CLAY, fine Sand	
812								
814								
816					CLML		Grey SILT, clumps of Clay, little fine-coarse sand	
818								
820		0			SM		Grey fine SAND, little Silt (~20%)	
822					SM		Grey fine SAND, little Silt (~20%), several clay nodules observed in wash	
824								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
824	20 40 60 80				Magothy			Grey fine SAND, little Silt (~20%), several clay nodules observed in wash <i>(continued)</i>	
826						SM			
828									
830						SM			Grey fine-medium SAND, little Silt
832									
834						SM			Grey fine-medium SAND, little Silt
836									
838									
840			<1.0	<1.0					Grey fine-medium SAND, little Silt
842						SM			
844									
846						SM			
848									
850					SM			Grey fine SAND, little Silt, tip of hydropunch covered with above	
852									
854					SM			Grey fine-coarse SAND, little Silt/Clay	
856									
858					CLML			White grey CLAY/SILT, little fine-coarse Sand, little gravel	
860									
862					CLML			White grey CLAY/SILT, little fine-coarse Sand, little gravel	
864									
866					CL			CLAY	
868		0			CLML			Grey CLAY, Laminae, fine sand, black organics	
870					Raritan			Grey CLAY, Laminae, fine sand, black organics	
872				CL					
874		0		CL					Grey silty CLAY
876				CL					Grey silty CLAY
878				CL					Grey-black silty CLAY
880		0		CL					Grey-black silty CLAY
882				CL					
884		0		CL					Grey CLAY, little Silt, laminae, very stiff
886				CL					Grey CLAY, little Silt, laminae, very stiff
888				CL					

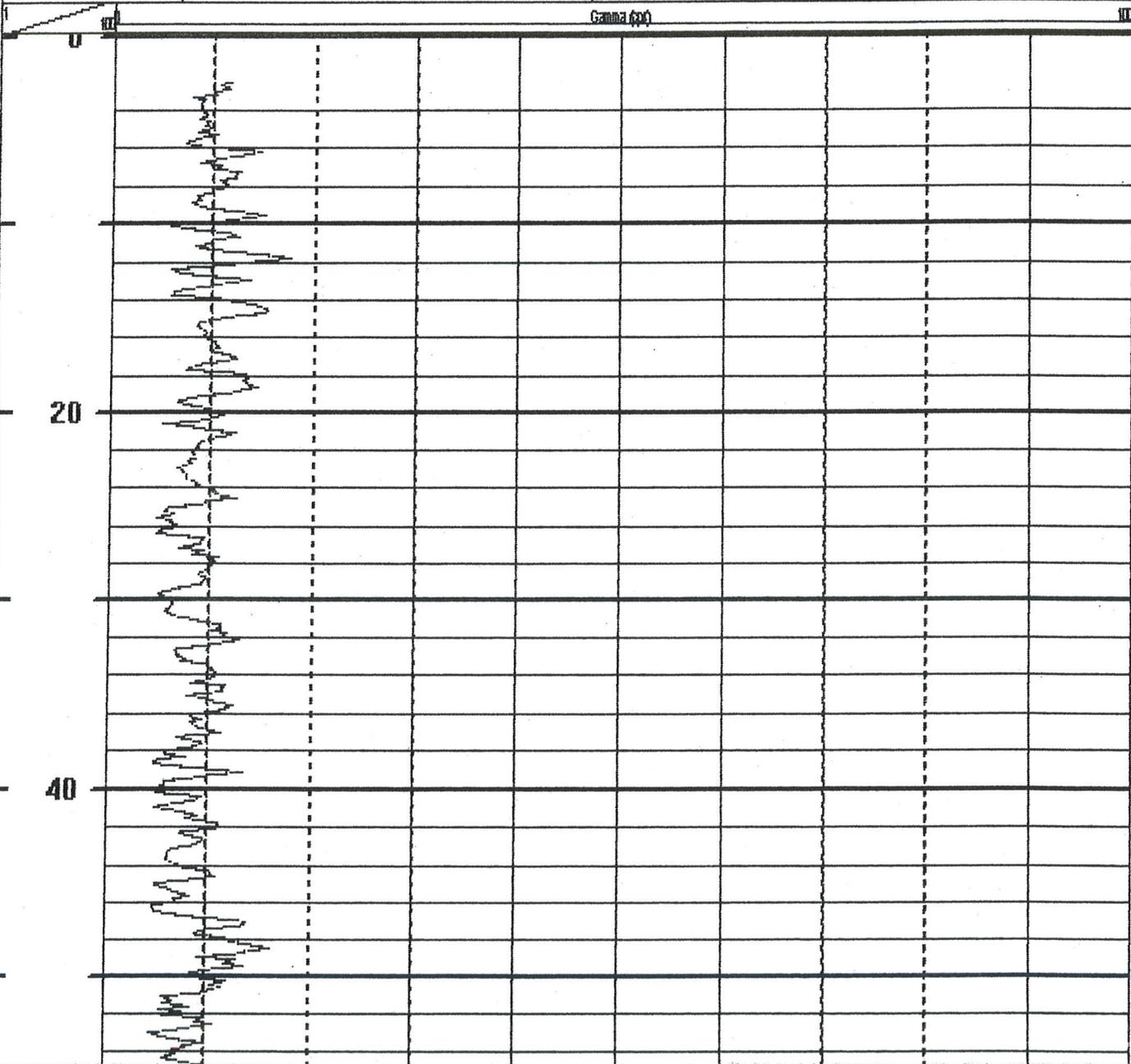
(Continued Next Page)

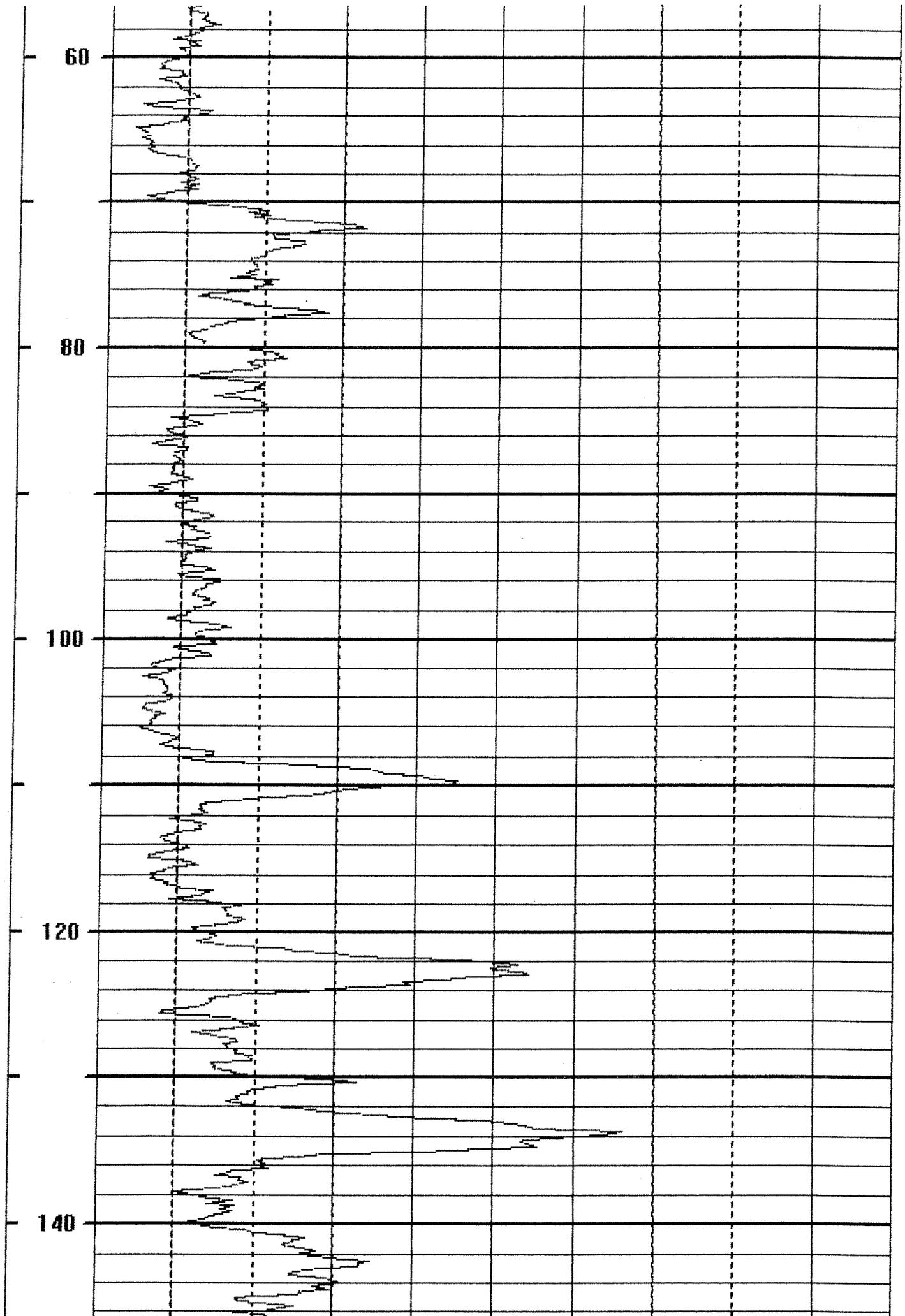
DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
888	20 40 60 80							
890		3.5			Raritan	CL		Greyish Pale pink CLAY, grey Silt and black organics
								End of boring at 890.0 ft. bgs.

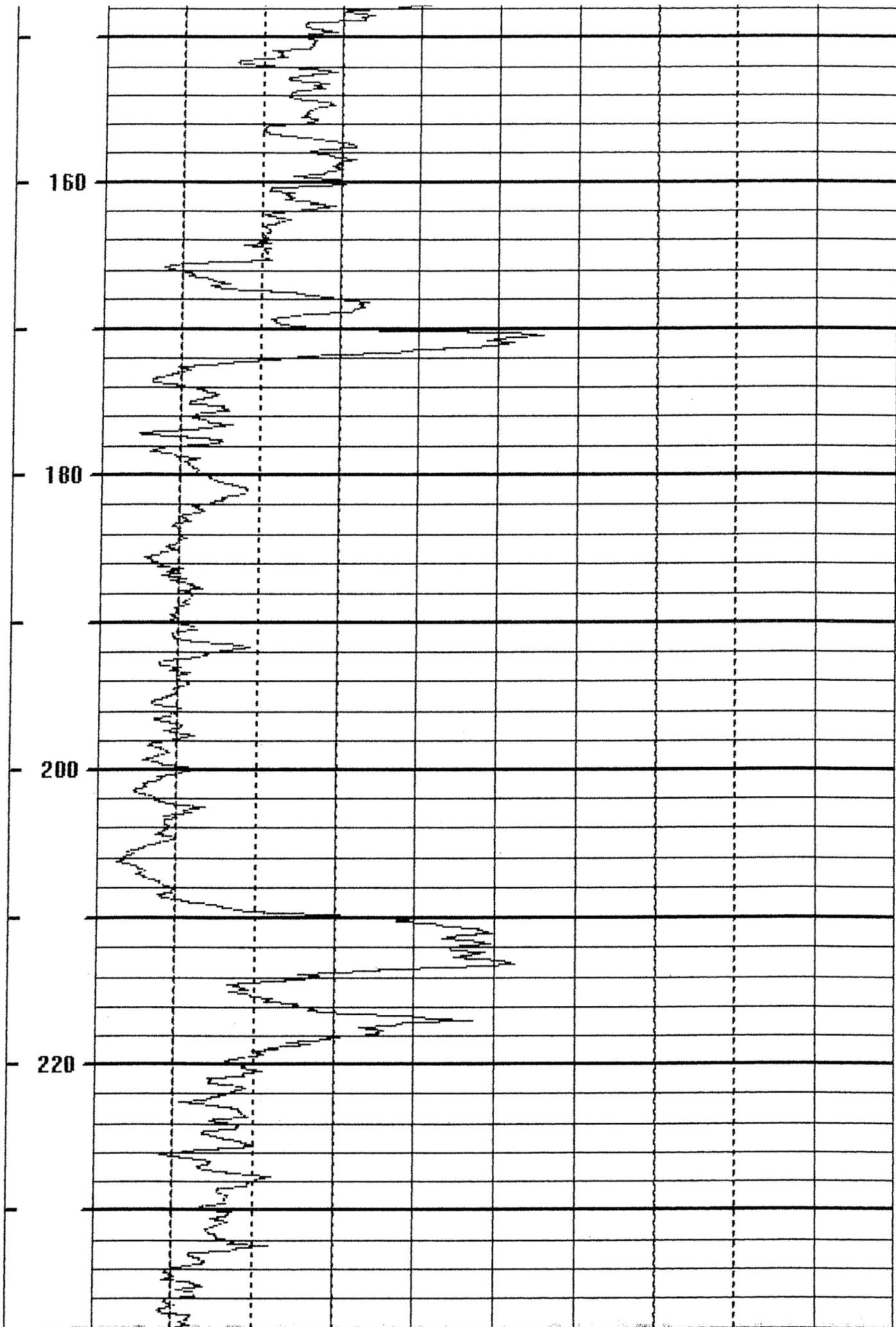
VPB-137
 DOWNHOLE
 RUN

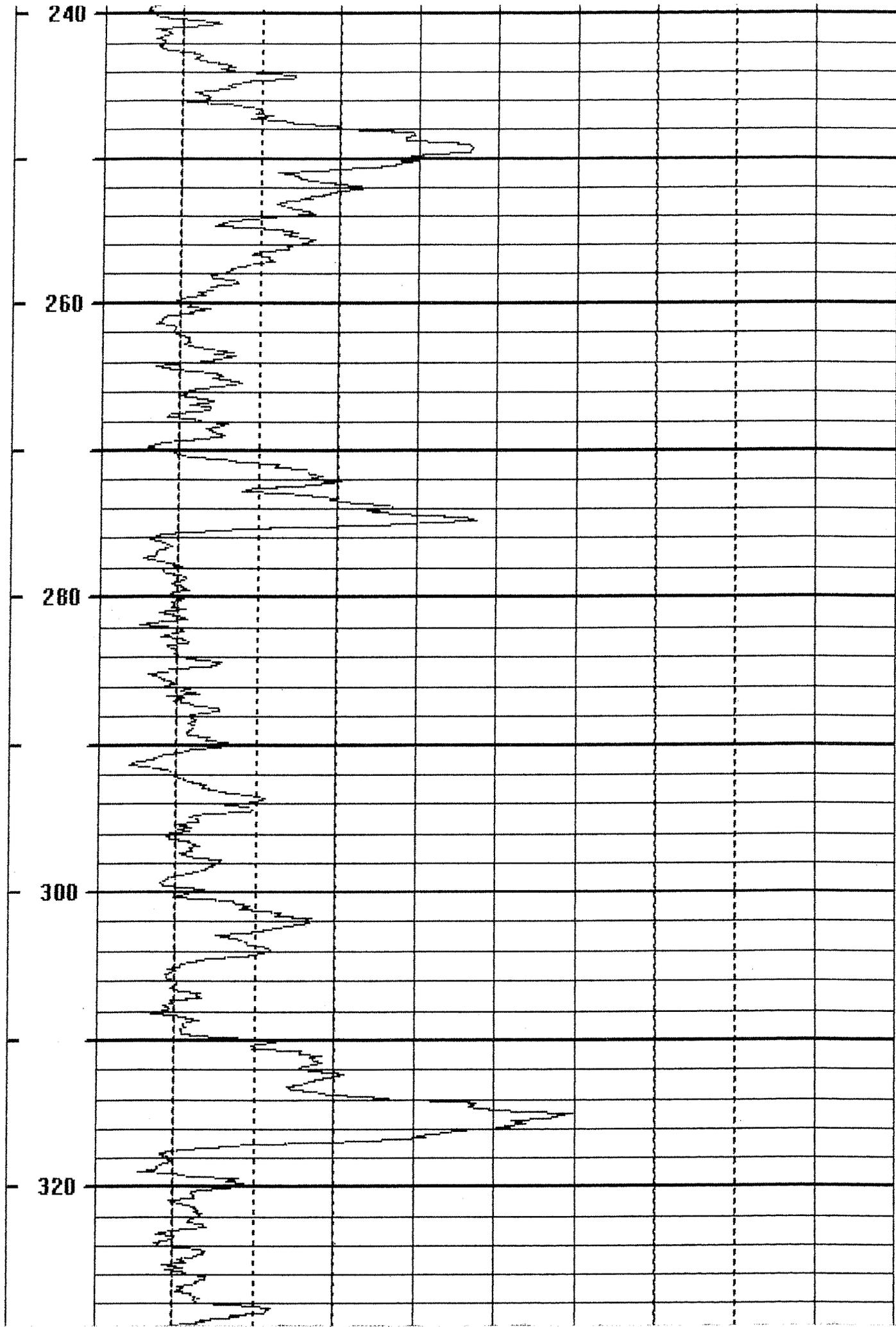
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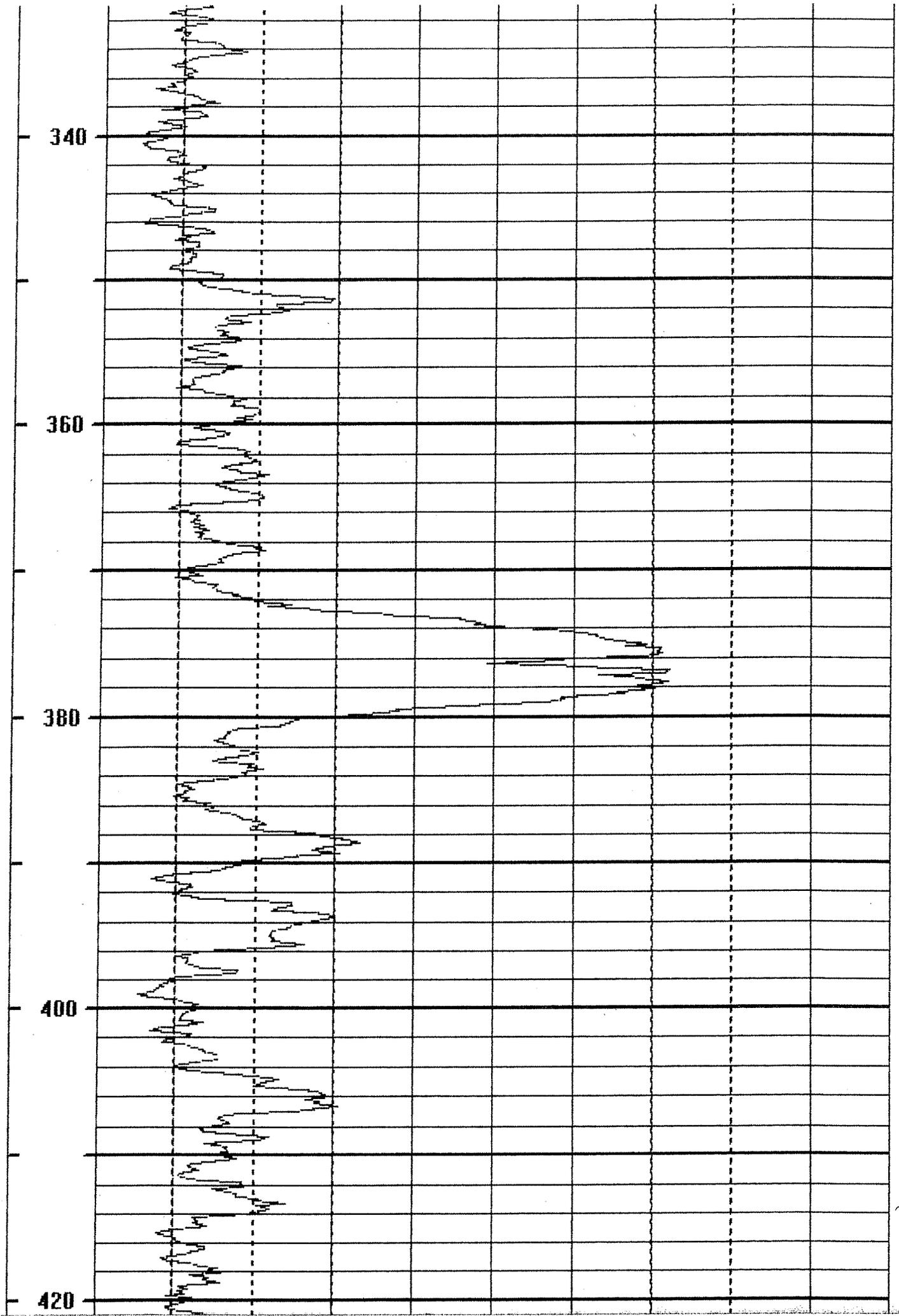
COMPANY: DELTA WELL & PUMP CO., INC.		Location: NWRP BETHPAGE		Casing
Well	VPB-137	Depth Driller		
		Depth Logger		
Date	12/13/2012	BH Fluid		
		Logged by:	CMC	
File Name	729	Witness:	VICTORIA	

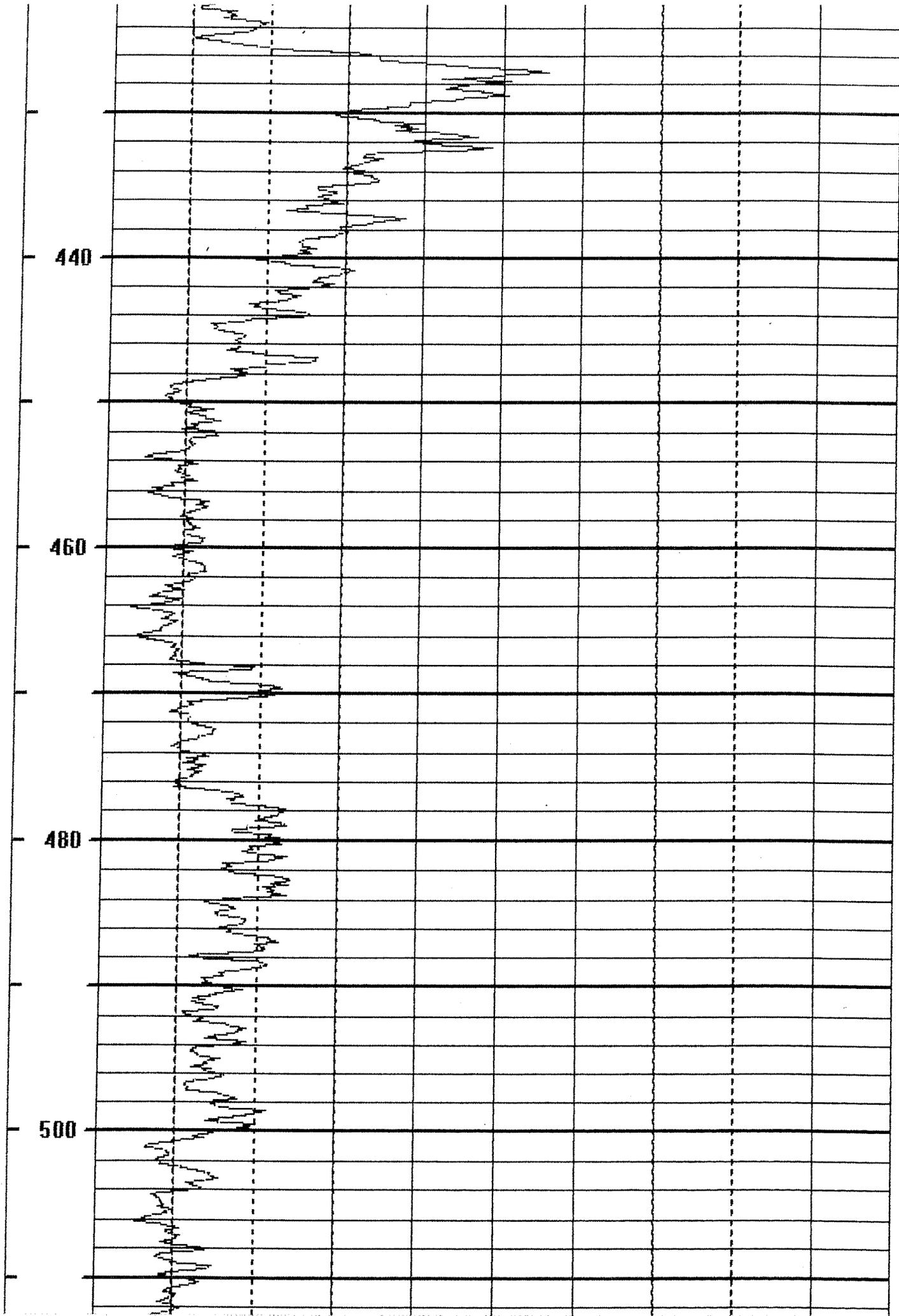


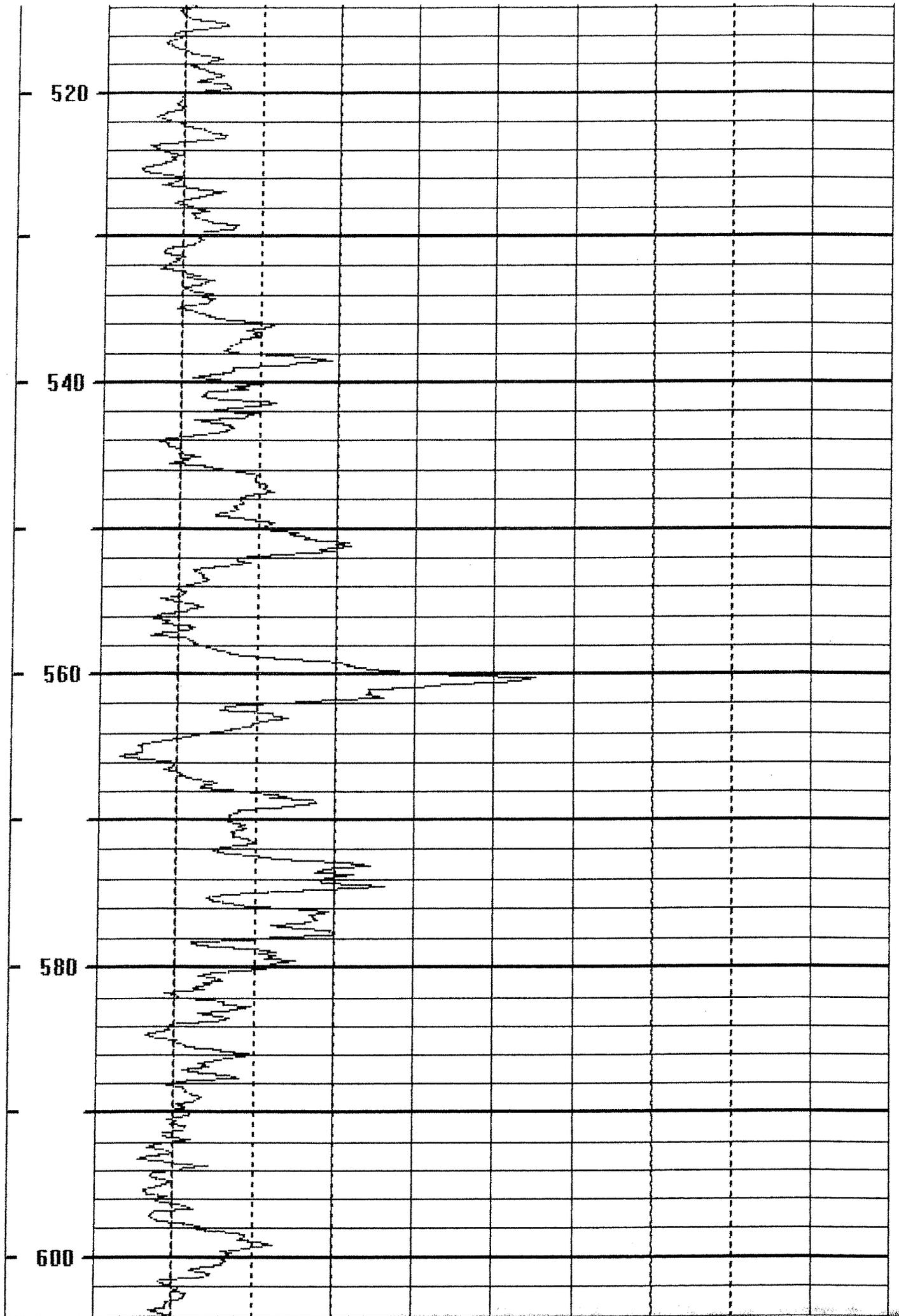


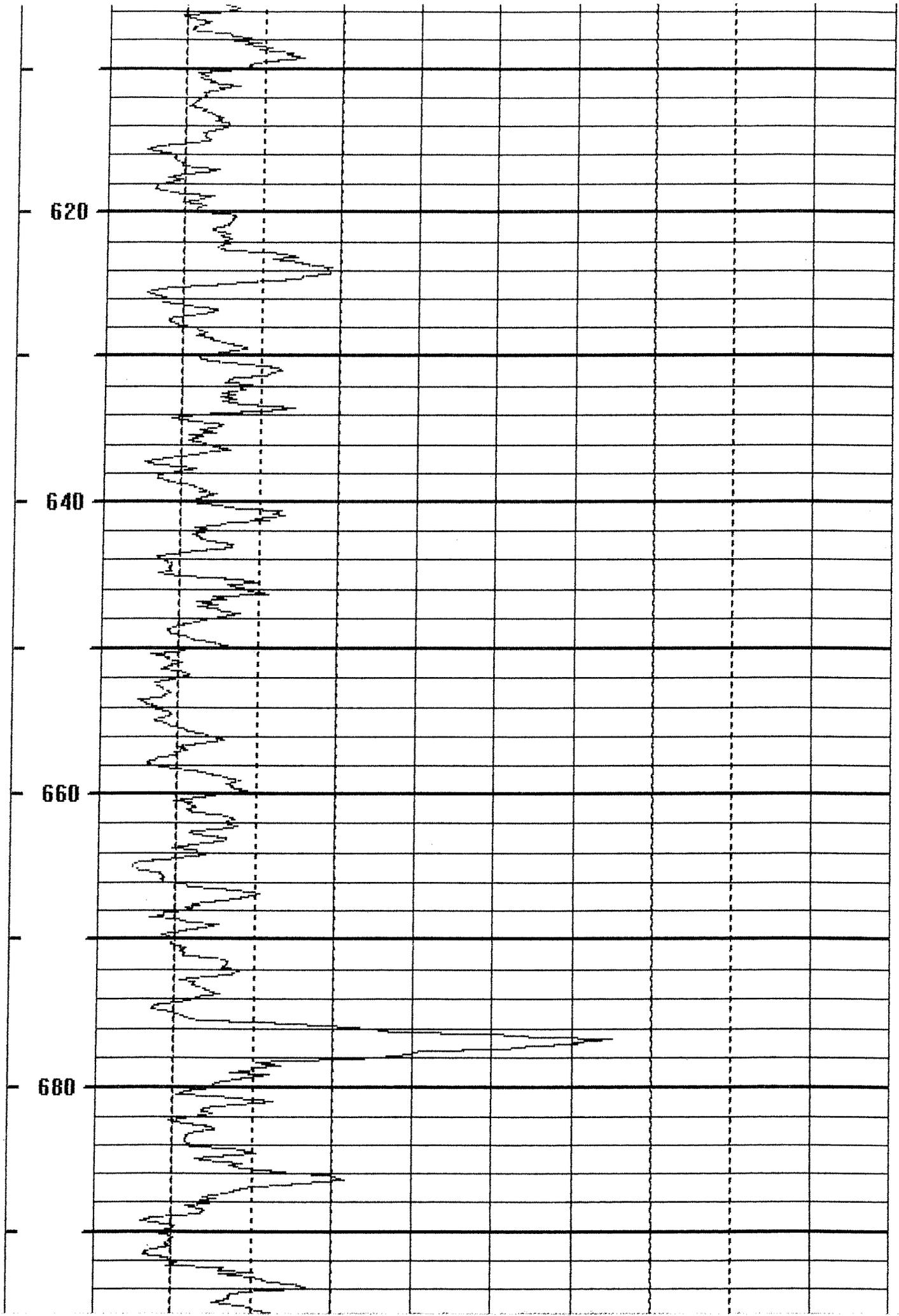


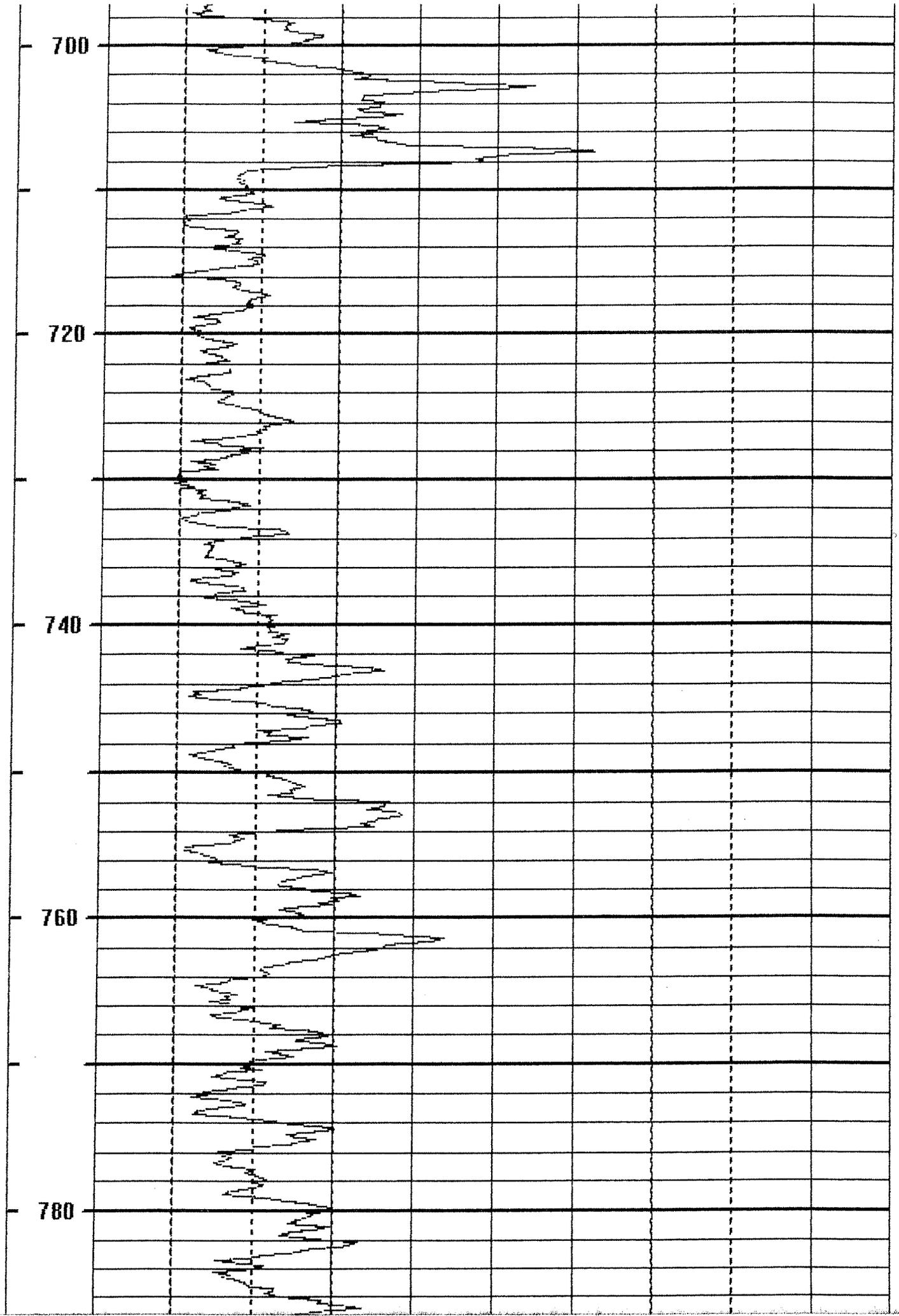


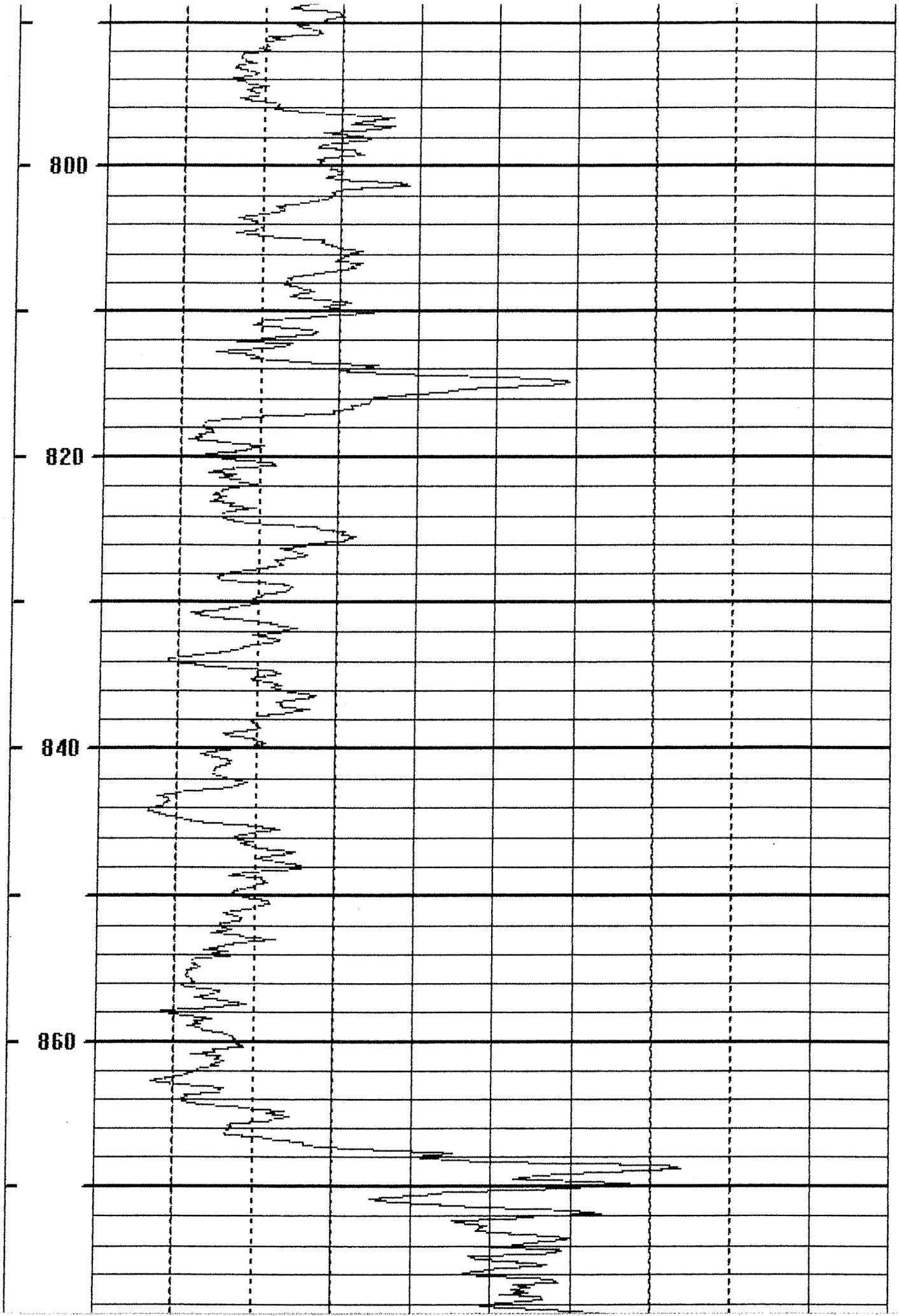








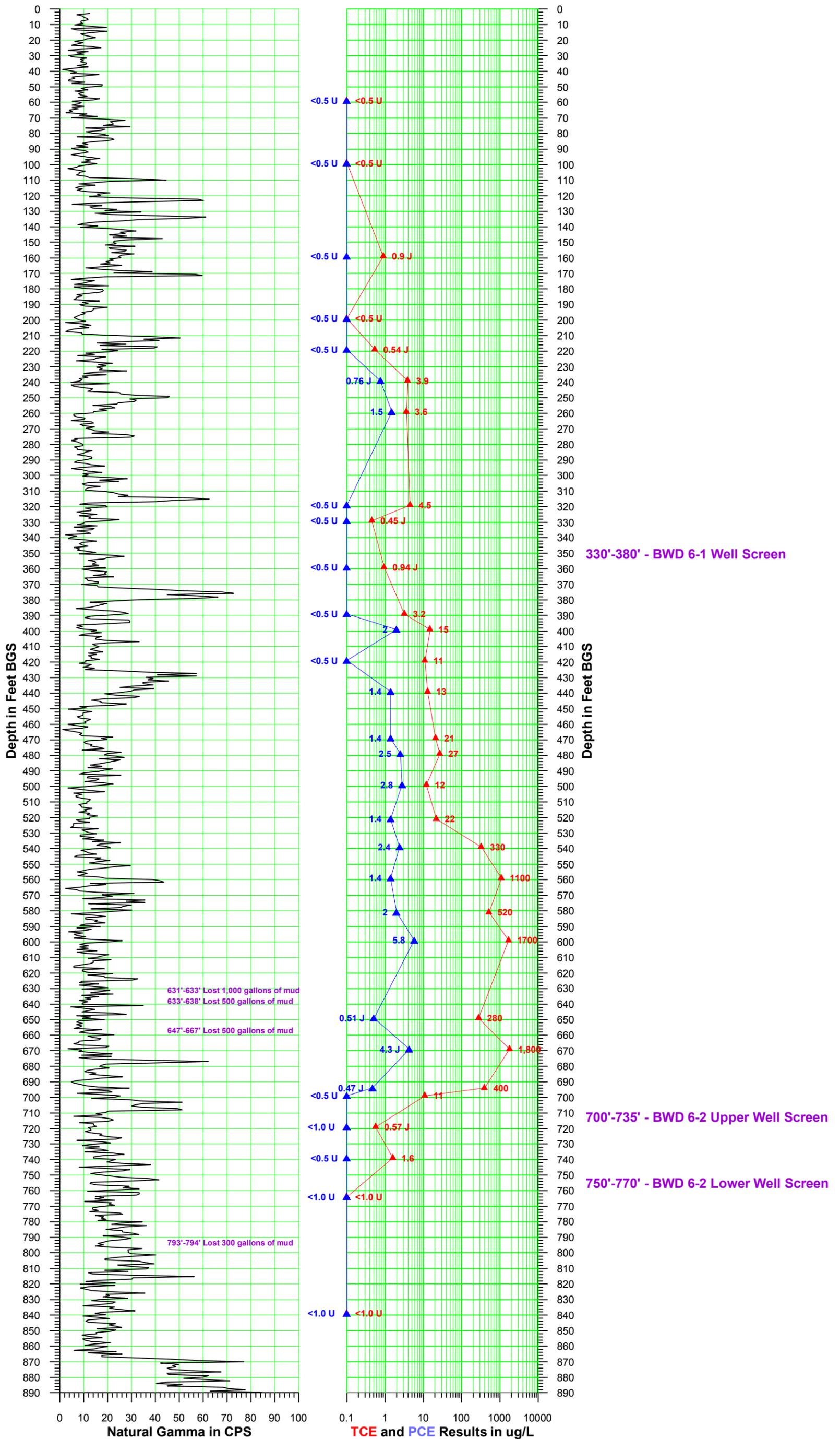




Section 2

VPB 137 Gamma and PCE/TCE Plot

Vertical Profile Boring VPB-137 Downward Run - December 13, 2012



Section 3

VPB 137 Groundwater Sample Log Sheets

Hydropunch Sample

Client: NAVY
 Project No: 60266526
 Site Location: Avoca & Martin Place

Date: Nov 15-19; Nov 19-21; Nov, 26, 2012
 VPB: 137

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
Nov 15 2012	11:45	12.68	2.72*	1425	0.54	198.4	1100+ offscale	58	60	Very Silty
Nov 15 2012	14:15	13.91	3.10*	609	4.12	219.8	208.7	98	100	Light Brown
Nov 16 2012	16:00	14.23	2.78*	705	7.5	243.7	187.8	158	160	
Nov 16 2012	12:00	13.84	8.22	299	7.6	117.6	1100+ offscale	198	200	Very turbid
Nov 16 2012	14:00	14.80	3.26*	331	7.76	240.8	513	218	220	
Nov 19 2012	11:00	12.58	5.60	158	8.70	169.1	985.9	238	290	
Nov 19, 2012	13:00	13.35	7.97	195	7.97	254.1	1023	258	260	
Nov 20, 2012	13:30	15.37	7.12	257	12.87	131.7	1100	318	320	cloudy
Nov 20, 2012	14:00	14.63	3.45*	203	7.76	157.7	594.6	328	330	
Nov 21, 2012	10:30	13.86	5.01*	459	5.01	174.2	1100+ offscale	338	340	very turbid
Nov. 26, 2012	11:05	15.46	3.5*	278	5.42	186.4	201.6	358	360	

* pH on YSI malfunctioning

Hydropunch Sample

Client:
Project No:
Site Location:

NAVY
60266526
Avoca & Martin Place

Date: Nov. 26 - Nov. 30, 2012
VPB: 137

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color	
Nov. 26 2012	12:00	12.89	2.83	381	8.27	199.1	225.5	388	390		
Nov. 26 2012	14:00	12.21	3.13	407	4.49	165.3	685.5	398	400		
Nov. 27 2012	10:00	not enough sample for YSI & turbidity meter							418	420	
Nov. 27 2012	11:30	8.41	4.5	5	11.23	121.6	317.7	438	440		
Nov. 27 2012	15:00	hydropunch attempted no recovery							458	460	
Nov. 28, 2012	11:00	13.06	2.8*	18	8.5	240.1	1100+ off scale	468	470	Dark Very Turbid	
Nov. 28, 2012	13:30	12.35	3.28*	121	8.23	300.2	195.1	478	480		
Nov 29, 2012	10:30	11.41	5.4	213	6.14	132.8	132.2	498	500		
Nov 29, 2012	13:51	12.72	5.39	501	6.9	118.9	1100+ off scale	520	522	Dark Very Turbid	
Nov 30, 2012	10:15	13.09	5.77	113	7.76	105.6	263.1	558	560	Dark vt	
Nov 30, 2012	12:45	13.99	5.97	300	7.20	149.7	1100+ off scale	578	580	Dark very Turbid	

* pH on YSI malfunctioning

Hydropunch Sample

Client:
Project No:
Site Location:

NAVY
60266526
Avoca Ave & Martin Place

Date: Dec 3, 5-7, 2012, Dec 10, 2012
VPB: 137

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color	
Dec 3, 2012	11:00	15.46	6.00	4	12.1	242	61.63	598	600		
Dec 3, 2012	11:30	not enough sample for YSI & turbidity meter							618	620	
Dec 3, 2012	15:00	14.95	6.82	37	11.41	159.8	635	648	650	slight sheen on water Very Turbid	
Dec 5, 2012	12:00	14.65	6.00	5	10.8	189.2	51.01	668	670	clear	
Dec 6, 2012	13:30	11.35	5.86	303	8.47	121.2	1100+ off scale	693	695	very cloudy, turbid	
Dec 6, 2012	13:00	12.18	6.01	603	6.86	232	see above	698	700	very cloudy, turbid	
Dec 6, 2012	14:00	12.11	7.20	587	2.49	200.1	1100+ off scale	718	720		
Dec 7, 2012	13:00	not enough sample for YSI & turbidity meter							738	740	clear
Dec 7, 2012	15:50	no sample collected							758	760	silty stream not enough sample to fill vials
Dec 10, 2012	11:30	not enough sample for YSI & turbidity meter							763	765	extremely silty
Dec 10, 2012	15:00	not enough sample - Dry							783	785	

Section 4

VPB 137 Analytical Data Validation

- Analytical Data Sheets
- Chain of Custody Records
- Validation Letter and Table

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF8222	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 02/04/2013
Reviewed by:	Andrea Mischel/AECOM	File Name: SF8222_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on November 15, 2012, November 16, 2012 and November 19, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-111512-158-160	Ground water
VPB137-GW-111512-58-60	Ground water
VPB137-GW-111512-98-100	Ground water
VPB137-GW-111612-198-200	Ground water
VPB137-GW-111612-218-220	Ground water
VPB137-GW-111912-238-240	Ground water
VPB137-GW-111912-258-260	Ground water
TRIP BLANK-01_11192012	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996) and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification

- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

The laboratory noted that sample VPB137-GW-111512-58-60 was incorrectly listed in the chain of custody form. The sample is correctly identified in the data package.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met. All samples were analyzed within 12 hours of the BFB tunes.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

ICAL Response Factor Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
RF <0.10 for chloromethane, 1,1-dichloroethane, and bromoform or RF<0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane	J	UJ
All compounds except SPCCs		
RF <0.05	J	R
Sample results qualified as not detected (U) due to blank contamination are not rejected, but estimated (UJ).		
SPCCs System Performance Check Compounds		

ICAL Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%RSD > 15% and quantitation based on mean RF	J	UJ
r or r^2 < 0.99 and quantitation based on linear regression	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

CCV Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ
%Drift	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Sample results were qualified as follows:

For common lab contaminants (methylene chloride, acetone, 2-butanone):

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and ≤ 4x the QL	Report the sample result with a U**
		≥ 4x the QL	No qualifications
	> 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and < blank contamination	Report the sample result with a U
		≥ 2x QL and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment			

For all other compounds:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ QL	< QL	Report sample QL value with a U
		≥ QL and ≤ 2x the QL	Report the sample result with a U**
		≥ 2x the QL	No qualifications
	> QL	< QL	Report sample QL value with a U
		≥ QL and < blank contamination	Report the sample result with a U or reject the sample result as unusable R
		≥ QL and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
	TIC detected	Detects	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment.			

QL (Quantitation Limit) is equivalent to the lowest calibration standard.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific LCS %Rs or RPDs was as follows:

Nonconformances ¹	Action	
	Detected Compounds	Nondetected Compounds
%R or RPD > UL	J	No qualification
%R < LL	J	UJ
%R < 20% (see note 1)	J	R
(LL = lower limit, UL = upper limit)		
Notes:		
1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject sample results previously negated (U) on the basis of blank contamination.		

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific IS on the basis of IS recoveries was as follows:

Sample IS area compared to CCV and CCV IS area compared to ICAL*		
Qualify results	<50%	> 200%
Positive Results	J	J
Nondetected Results	R	A
* If an IS area fails with respect to the ICAL, but passes with respect to the CCV, then use professional judgment to evaluate the sensitivity and linearity of the analysis before applying validation actions. (AECOM professional judgment)		

All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL) but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-targets was checked to ensure that the results and/or sample specific QLs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations



AECOM
250 Apollo Drive
Chelmsford, MA 01886-3140

978.905.2100 tel
978.905.2101 fax

Attachment A

Non Conformance Summary Tables

There were no nonconformances identified with this data set.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Page ____ of ____

Client: Resolution Consultants Contact: Eleanor Vivation Phone #: (914) 227 3947 Fax #: ()

Address: 100 Red Schoolhouse Rd Suite B1 City: Chastnut Ridge State: MA Zip Code: 10977

Purchase Order #: _____ Proj. Name / No.: Bethpage Katahdin Quote #: _____

Bill (if different than above) Address: _____

Sampler (Print / Sign): Valerie Thayer Copies To: _____

LAB USE ONLY WORK ORDER #: SF 8/22
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C _____ TEMP BLANK INTACT NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	Filt.																	
					OY	ON	OY	ON	OY	ON	OY	ON	OY	ON	OY	ON	OY	ON				
	<u>VPB 137-GW-111612-148-200</u>	<u>11/16/12/12:00</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB 137-GW-111612-218-200</u>	<u>11/16/12/1400</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB 137-GW-111512-158-160</u>	<u>11/15/12/1600</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB Trip blank - 01</u>	<u>11/16/12</u>	<u>W</u>	<u>1</u>	<u>X</u>																	
	<u>VPB-BT-GW-111512-98-100</u>	<u>11/15/12/1415</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB-GW-137-111512-111512-58-60</u>	<u>11/15/12/11:45</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB 137-GW-111912-238-240</u>	<u>11/19/12/1100</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
	<u>VPB 137-GW-111912-258-260</u>	<u>11/19/12/1300</u>	<u>W</u>	<u>3</u>	<u>X</u>																	
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COMMENTS

Relinquished By: (Signature) <u>R. Thayer</u>	Date / Time <u>11/19/12 12:00</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>11-20-12 0930</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

0000009 ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-1
Client ID: -GW-111612-198-200
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2963.D

Sample Date: 16-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		115.	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		98.0	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-2
Client ID: -GW-111612-218-220
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2958.D

Sample Date: 16-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.54	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		110.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		96.2	%					
Dibromofluoromethane		98.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-3
Client ID: -GW-111512-158-160
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2959.D

Sample Date: 15-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.90	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		111.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		96.2	%					
Dibromofluoromethane		98.7	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-4
Client ID: TRIP BLANK-01
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2957.D

Sample Date: 16-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		111.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		96.8	%					
Dibromofluoromethane		98.7	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-5
Client ID: -GW-111512-98-100
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2960.D

Sample Date: 15-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		112.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		96.1	%					
Dibromofluoromethane		98.5	%					

Report of Analytical Results

Client: AECOM Environment
 Lab ID: SF8222-6
 Client ID: -GW-111512-58-60
 Project: Navy Clean WE15 NWIRP B
 SDG: SF8222
 Lab File ID: D2964.D

Sample Date: 15-NOV-12
 Received Date: 20-NOV-12
 Extract Date: 20-NOV-12
 Extracted By: DJP
 Extraction Method: SW846 5030
 Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
 Analyst: DJP
 Analysis Method: SW846 8260B
 Matrix: AQ
 % Solids: NA
 Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		114.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		94.9	%					
Dibromofluoromethane		96.7	%					

Report of Analytical Results

Client: AECOM Environment
 Lab ID: SF8222-7
 Client ID: -GW-111912-238-240
 Project: Navy Clean WE15 NWIRP B
 SDG: SF8222
 Lab File ID: D2961.D

Sample Date: 19-NOV-12
 Received Date: 20-NOV-12
 Extract Date: 20-NOV-12
 Extracted By: DJP
 Extraction Method: SW846 5030
 Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
 Analyst: DJP
 Analysis Method: SW846 8260B
 Matrix: AQ
 % Solids: NA
 Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		3.9	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	0.76	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		109.	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		93.8	%					
Dibromofluoromethane		97.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8222-8
Client ID: -GW-111912-258-260
Project: Navy Clean WE15 NWIRP B
SDG: SF8222
Lab File ID: D2962.D

Sample Date: 19-NOV-12
Received Date: 20-NOV-12
Extract Date: 20-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG116826

Analysis Date: 20-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		3.6	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.5	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		107.	%					
Toluene-d8		99.7	%					
1,2-Dichloroethane-d4		95.5	%					
Dibromofluoromethane		99.2	%					

Data Validation Report

Project: Regional Groundwater Investigation - NWIRP Bethpage

Laboratory: Katahdin Analytical Services, Inc.

Service Request: SF8350

Analyses/Method: EPA SW-846 Method 8260B for VOCs (GC/MS)

Validation Level: Limited

AECOM Project Number: 60266526.SA.DV

Prepared by: Rick Purdy/AECOM Completed on: 02/04/2013

Reviewed by: Andrea Mischel/AECOM File Name: SF8350_8260B

SUMMARY

The samples listed below were collected by AECOM from the Regional Groundwater Investigation - NWIRP Bethpage site on November 20, 2012, November 21, 2012 and November 26, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-112012-318-320	Ground water
VPB137-GW-112012-328-330	Ground water
VPB137-GW-112112-358-360	Ground water
VPB137-GW-112612-388-390	Ground water
VPB137-GW-112612-398-400	Ground water
VPB137-GW-112612-FD	Ground water
VPB137-TB-02	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (USEPA, 1996)* and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
 - ✓ Field duplicates
 - ✓ Internal standards
 - ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met. All samples were analyzed within 12 hours of the BFB tunes.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

ICAL Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%RSD > 15% and quantitation based on mean RF	J	UJ
r or r ² < 0.99 and quantitation based on linear regression	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

ICAL Response Factor Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
RF <0.10 for chloromethane, 1,1-dichloroethane, and bromoform or RF<0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane	J	UJ
All compounds except SPCCs		
RF <0.05	J	R
Sample results qualified as not detected (U) due to blank contamination are not rejected, but estimated (UJ).		
SPCCs System Performance Check Compounds		

CCV Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ
%Drift	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Sample results were qualified as follows:

For common lab contaminants (methylene chloride, acetone, 2-butanone):

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and ≤ 4x the QL	Report the sample result with a U**
		≥ 4x the QL	No qualifications
	> 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and < blank contamination	Report the sample result with a U
≥ 2x QL and ≥ blank contamination		If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**	
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment			

For all other compounds:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ QL	< QL	Report sample QL value with a U
		≥ QL and ≤ 2x the QL	Report the sample result with a U**
		≥ 2x the QL	No qualifications
	> QL	< QL	Report sample QL value with a U
		≥ QL and < blank contamination	Report the sample result with a U or reject the sample result as unusable R
		≥ QL and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
	TIC detected	Detects	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment.			

QL (Quantitation Limit) is equivalent to the lowest calibration standard.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

All QC acceptance criteria were met.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
%R < 20% (see note 1)	J	R*
%RPD > UL (see note 2)	J	No qualification

Note: Actions are applied to the native unspiked sample only (see note 3)
 *When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)

Notes:

1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.
2. In the absence of Region 2 guidance, RPD actions are based on AECOM professional judgment.
3. If a field duplicate sample was also collected for the native sample chosen for MS/MSD analysis, professional judgment is used to apply MS/MSD actions to the corresponding field duplicate sample as well as the native sample.

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific LCS %Rs or RPDs was as follows:

Nonconformances ¹	Action	
	Detected Compounds	Nondetected Compounds
%R or RPD > UL	J	No qualification
%R < LL	J	UJ
%R < 20% (see note 1)	J	R
(LL = lower limit, UL = upper limit)		

Notes:

1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject sample results previously negated (U) on the basis of blank contamination.

All QC acceptance criteria were met.

Field Duplicate Results

Sample VPB137-GW-112612-FD was collected as a field duplicate of sample VPB137-GW-112612-388-390.

Field duplicate RPDs were reviewed for conformance with the AECOM QC criteria of $\leq 50\%$ for solid matrices and $\leq 30\%$ for aqueous matrices. These criteria apply if both results were greater than five times the quantitation limit (QL).

Data qualification to the analytes associated with the specific field duplicate RPDs was as follows:

Criteria	RPD	Action	
		Detected	Nondetected
Sample and duplicate are nondetect results	Not calculable (NC)	No qualification	No qualification
Sample and duplicate results $\geq 5xQL$	>30 (aqueous)	J	Not Applicable
Sample and duplicate results $< 5xQL$	>60 (aqueous)	J	Not Applicable
If sample or duplicate result is $> 5xQL$ and the other is not detected	NC	J	UJ
If sample or duplicate result is $< 5xQL$ and the other is not detected	NC	No qualification	No qualification

Actions: (AECOM professional judgment was used)

All QC acceptance criteria were met.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific IS on the basis of IS recoveries was as follows:

Sample IS area compared to CCV and CCV IS area compared to ICAL*		
Qualify results	<50%	> 200%
Positive Results	J	J
Nondetected Results	R	A

* If an IS area fails with respect to the ICAL, but passes with respect to the CCV, then use professional judgment to evaluate the sensitivity and linearity of the analysis before applying validation actions. (AECOM professional judgment)

All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL) but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-targets was checked to ensure that the results and/or sample specific QLs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations



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Attachment A

Non Conformance Summary Tables

There are no nonconformances associated with this data set.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

VOLATILE ORGANIC ANALYSIS
DATA VALIDATION CHECKLIST

Laboratory: Katahdin Analytical/Scarborough, ME
Laboratory SDG/Job No: SF8350
Validation Level: Level 2

Client/Site Name: Navy CLEAN, WE15 NWIRP Bethpage
Project Number: 60266526.SA.DV
Date: 01/22/13
Validator: Richard Purdy

Number of Samples/Matrix: 6 GW (1 FD) + 1 TB
Analysis (Include Method #): VOC 8260B

Review Item	Criteria	Criteria Met? (Yes/No)	Qualification? (Yes/No)	Comments
Chain of Custody	present; complete	Y	N	lab log-in showed GW-112112-GW-338-340 preserved with H2SO4
Sample Preservation	4C +/- 2C; ph <2	Y	N	6C; pH <2 for all samples
Holding Time	14 days if preserved	Y	N	holding times met
Quantitation Limits	per SAP; nominally 0.50 ug/L	Y	N	RLs met criteria
Percent Solids	>30%	NA	NA	--
Method Blanks	< 1/2 RL	Y	N	no contamination detected
Other Laboratory Blanks ^{1,2}	< 1/2 RL	NA	NA	--
Trip/Equipment Blanks	< 1/2 RL	Y	N	no contamination detected
Initial Calibration ³	within method criteria	Y	N	acceptance criteria met
Continuing Calibration Verification ³	within method criteria; every 12 hrs	Y	N	acceptance criteria met
Matrix Spike	within laboratory limits	NA	NA	--
Matrix Spike Duplicate ²	within laboratory limits; RPD < 30%	NA	NA	--
Field Duplicate	RPD < 20% or <2xRL difference	Y	N	VPB137-GW-112612-398-400; RPDs within criteria
Surrogate Standards ²	within laboratory limits	Y	N	recoveries met laboratory criteria
Laboratory Control Standards	within laboratory limits	Y	N	recoveries met laboratory criteria
Internal Standards ^{2,3}	50% - 100% CCV area; +/- 30 sec.	Y	N	acceptance criteria met
GC/MS Tunes ^{2,3}	within method criteria; every 12 hrs	Y	N	acceptance criteria met
Interferences ³	--	NA	NA	--
Calculation Spot Checks ³	--	NA	NA	--
Transcription Spot Checks ³	--	NA	NA	--

¹May include reagent blanks, calibration blanks, etc.

²May not be applicable to all analyses.

³Level IV validation only. See full NFG worksheets for details.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-2
Client ID: VPB137-TB-02
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3011.D

Sample Date: 21-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.2	%					
Toluene-d8		98.2	%					
1,2-Dichloroethane-d4		91.7	%					
Dibromofluoromethane		91.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-3
Client ID: GW-112112-358-360
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3015.D

Sample Date: 21-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.94	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		86.7	%					
Toluene-d8		98.5	%					
1,2-Dichloroethane-d4		98.0	%					
Dibromofluoromethane		99.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-4
Client ID: GW-112012-318-320
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3016.D

Sample Date: 20-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		4.5	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		85.7	%					
Toluene-d8		97.8	%					
1,2-Dichloroethane-d4		99.3	%					
Dibromofluoromethane		98.1	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-5
Client ID: GW-112012-328-330
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3017.D

Sample Date: 20-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.45	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.8	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		101.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-6
Client ID: GW-112612-388-390
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3018.D

Sample Date: 26-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		3.2	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		85.9	%					
Toluene-d8		97.4	%					
1,2-Dichloroethane-d4		101.	%					
Dibromofluoromethane		97.5	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-7
Client ID: VPB137-GW-112612-FD
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3019.D

Sample Date: 26-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		16	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		2.2	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.4	%					
Toluene-d8		97.8	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		103.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8350-8
Client ID: GW-112612-398-400
Project: Navy Clean WE15 NWIRP B
SDG: SF8350
Lab File ID: D3020.D

Sample Date: 26-NOV-12
Received Date: 27-NOV-12
Extract Date: 28-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117120

Analysis Date: 28-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-NOV-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		15	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		2.0	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		85.6	%					
Toluene-d8		97.5	%					
1,2-Dichloroethane-d4		101.	%					
Dibromofluoromethane		98.2	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF8423	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/20/2013
Reviewed by:	Lisa Krowitz/AECOM	File Name: SF8423_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on November 27, 2012 and November 28, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-EQUIPMENT RINSATE BLANK	Equipment blank
VPB137-FB-01	Field blank
VPB137-GW-112712-418-420	Ground water
VPB137-GW-112712-438-440	Ground water
VPB137-GW-112812-468-470	Ground water
VPB137-GW-112812-478-480	Ground water
VPB137-TB-03	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (USEPA, 1996)* and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results

- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Results less than the quantitation limit (QL) but greater than the method detection limit (MDL) were qualified by the laboratory as estimated (J). These qualifiers were retained during data review. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and

- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate, and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL), but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-1
Client ID: GW-112812-478-480
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3036.D

Sample Date: 28-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113		1.2	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.32	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		27	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		2.5	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		82.0	%					
Toluene-d8		93.2	%					
1,2-Dichloroethane-d4		102.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-2
Client ID: VPB137-TB-03
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3035.D

Sample Date: 28-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		89.1	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		101.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-3
Client ID: GW-112812-468-470
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3037.D

Sample Date: 28-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	0.89	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.32	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		21	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		85.1	%					
Toluene-d8		96.2	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		103.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-4
Client ID: VPB137-GW-EQ BLK
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3038.D

Sample Date: 28-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.4	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		100.	%					
Dibromofluoromethane		103.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-5
Client ID: GW-112712-418-420
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3039.D

Sample Date: 27-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	0.49	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.30	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		11	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.0	%					
Toluene-d8		96.8	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		105.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-6
Client ID: GW-112712-438-440
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3040.D

Sample Date: 27-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		13	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		84.3	%					
Toluene-d8		95.4	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		102.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8423-7
Client ID: VPB137-FB-01
Project: Navy Clean WE15 NWIRP B
SDG: SF8423
Lab File ID: D3041.D

Sample Date: 27-NOV-12
Received Date: 29-NOV-12
Extract Date: 30-NOV-12
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG117262

Analysis Date: 30-NOV-12
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 14-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.5	%					
Toluene-d8		99.2	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		102.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF8589	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 02/04/2013
Reviewed by:	Andrea Mischel/AECOM	File Name: SF8589_8260B

SUMMARY

The samples listed below were collected by AECOM from the Regional Groundwater Investigation - NWIRP Bethpage site on November 28 - 30, 2012 and December 3 - 4, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-112812-538-540	Ground water
VPB137-GW-112912-498-500	Ground water
VPB137-GW-113012-558-560	Ground water
VPB137-GW-12312-598-600	Ground water
VPB137-GW-12412-648-650	Ground water
VPB137-TB-04	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996) and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- √ Data completeness (chain-of-custody (COC)/sample integrity)
- √ Holding times and sample preservation
- √ GC/MS performance checks
- √ Initial calibration/continuing calibration verification
- √ Laboratory blanks/trip blanks/equipment blanks
- √ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results

√	√
NA	Field duplicates
√	Internal standards
√	√

The symbol (√) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

Based on the scope of this validation, the data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met. All samples were analyzed within 12 hours of the BFB tunes.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

ICAL Response Factor Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
RF <0.10 for chloromethane, 1,1-dichloroethane, and bromoform or RF<0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane	J	UJ
All compounds except SPCCs		
RF <0.05	J	R
Sample results qualified as not detected (U) due to blank contamination are not rejected, but estimated (UJ).		
SPCCs System Performance Check Compounds		

CCV Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ
%Drift	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Sample results were qualified as follows:

For common lab contaminants (methylene chloride, acetone, 2-butanone):

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
		< 2x QL	Report sample QL value with a U
		≥ 2x QL and ≤ 4x the QL	Report the sample result with a U**
	> 2x QL	≥ 4x the QL	No qualifications
		< 2x QL	Report sample QL value with a U
		≥ 2x QL and < blank contamination	Report the sample result with a U
		≥ 2x QL and ≥ blank contamination	If the result is ≤2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**

* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.

**Based on AECOM professional judgment

For all other compounds:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ QL	< QL	Report sample QL value with a U
		≥ QL and ≤ 2x the QL	Report the sample result with a U**
		≥ 2x the QL	No qualifications
	> QL	< QL	Report sample QL value with a U
		≥ QL and < blank contamination	Report the sample result with a U or reject the sample result as unusable R
		≥ QL and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
TIC detected	Detects	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**	
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment.			

QL (Quantitation Limit) is equivalent to the lowest calibration standard.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

All QC acceptance criteria were met.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification

$20\% \leq \%R < LL$	J	UJ
$\%R < 20\%$ (see note 1)	J	R*
$\%RPD > UL$ (see note 2)	J	No qualification
Note: Actions are applied to the native unspiked sample only (see note 3)		
*When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)		

Notes:

- Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.
- In the absence of Region 2 guidance, RPD actions are based on AECOM professional judgment.
- If a field duplicate sample was also collected for the native sample chosen for MS/MSD analysis, professional judgment is used to apply MS/MSD actions to the corresponding field duplicate sample as well as the native sample.

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific LCS %Rs or RPDs was as follows:

Nonconformances ¹	Action	
	Detected Compounds	Nondetected Compounds
$\%R$ or RPD > UL	J	No qualification
$\%R < LL$	J	UJ
$\%R < 20\%$ (see note 1)	J	R
(LL = lower limit, UL = upper limit)		
Notes:		
1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject sample results previously negated (U) on the basis of blank contamination.		

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific IS on the basis of IS recoveries was as follows:

Sample IS area compared to CCV and CCV IS area compared to ICAL*		
Qualify results	<50%	> 200%
Positive Results	J	J
Nondetected Results	R	A
* If an IS area fails with respect to the ICAL, but passes with respect to the CCV, then use professional judgment to evaluate the sensitivity and linearity of the analysis before applying validation actions. (AECOM professional judgment)		

All QC acceptance criteria were met.

Sample Results/Reporting Issues

The concentrations of trichloroethene exceeded the calibration range in the undiluted analyses of samples VPB137-GW-112812-538-540, VPB137-GW-113012-558-560, VPB137-GW-12312-598-600, and VPB137-GW-12412-648-650. Results for trichloroethene are reported from the analyses of diluted samples.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations



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Chelmsford, MA 01886-3140

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Attachment A

Non Conformance Summary Tables

There are no nonconformances associated with this data set.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

VOLATILE ORGANIC ANALYSIS
DATA VALIDATION CHECKLIST

Laboratory: Katahdin Analytical/Scarborough, ME
Laboratory SDG/Job No: SF8589
Validation Level: Level 2

Client/Site Name: Navy CLEAN, WE15 NWIRP Bethpage
Project Number: 60266526.SA.DV
Date: 02/01/13
Validator: Richard Purdy

Number of Samples/Matrix: 5 GW + 1 TB
Analysis (Include Method #): VOC 8260B

Review Item	Criteria	Criteria Met? (Yes/No)	Qualification? (Yes/No)	Comments
Chain of Custody	present; complete	Y	N	lab log-in showed GW-112112-GW-338-340 preserved with H2SO4
Sample Preservation	4C +/- 2C; ph <2	Y	N	2.1C; pH <2 for all samples
Holding Time	14 days if preserved	Y	N	holding times met
Quantitation Limits	per SAP; nominally 0.50 ug/L	Y	N	RLs met criteria
Percent Solids	>30%	NA	NA	--
Method Blanks	< 1/2 RL	Y	N	no contamination detected
Other Laboratory Blanks ^{1,2}	< 1/2 RL	NA	NA	--
Trip/Equipment Blanks	< 1/2 RL	Y	N	no contamination detected
Initial Calibration ³	within method criteria	Y	N	acceptance criteria met
Continuing Calibration Verification ³	within method criteria; every 12 hrs	Y	N	acceptance criteria met
Matrix Spike	within laboratory limits	NA	NA	--
Matrix Spike Duplicate ²	within laboratory limits; RPD < 30%	NA	NA	--
Field Duplicate	RPD < 20% or <2xRL difference	Y	N	--
Surrogate Standards ²	within laboratory limits	Y	N	recoveries met laboratory criteria
Laboratory Control Standards	within laboratory limits	Y	N	recoveries met laboratory criteria
Internal Standards ^{2,3}	50% - 100% CCV area; +/- 30 sec.	Y	N	acceptance criteria met
GC/MS Tunes ^{2,3}	within method criteria; every 12 hrs	Y	N	acceptance criteria met
Interferences ³	--	NA	NA	--
Calculation Spot Checks ³	--	NA	NA	--
Transcription Spot Checks ³	--	NA	NA	--

¹May include reagent blanks, calibration blanks, etc.

²May not be applicable to all analyses.

³Level IV validation only. See full NFG worksheets for details.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-1
Client ID: -GW-12312-598-600
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9113.D

Sample Date: 03-DEC-12
Received Date: 05-DEC-12
Extract Date: 06-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117522

Analysis Date: 06-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		8.0	ug/L	1	1	1.0	0.35	0.50
Freon-113		18	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane		1.2	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		3.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.84	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.63	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.68	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	1700 100	ug/L	1 20	1	1.0 20	0.28 5.6	0.50 10
Tetrachloroethene		5.8	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.95	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		97.9	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		100.	%					
Dibromofluoromethane		99.6	%					

REC 12/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-2
Client ID: -GW-112812-538-540
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9114.D

Sample Date: 28-NOV-12
Received Date: 05-DEC-12
Extract Date: 06-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117522

Analysis Date: 06-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.63	ug/L	1	1	1.0	0.35	0.50
Freon-113		6.0	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.5	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.80	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.35	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	340 330	ug/L	1 4	1	1.0	0.28 1.1	0.50 2.0
Tetrachloroethene		2.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.6	%					
Toluene-d8		99.8	%					
1,2-Dichloroethane-d4		100.	%					
Dibromofluoromethane		100.	%					

REC/1/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-3
Client ID: -GW-113012-558-560
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9115.D

Sample Date: 30-NOV-12
Received Date: 05-DEC-12
Extract Date: 06-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117522

Analysis Date: 06-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		2.7	ug/L	1	1	1.0	0.35	0.50
Freon-113		17	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.43	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		3.0	ug/L	1	1	1.0	0.21	0.50
Chloroform		1.5	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride		3.2	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	1100 880	ug/L	10 +	1	10	1.0 0.28 2.8	0.50 5.0
Tetrachloroethene		1.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.66	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.9	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		102.	%					

REC

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-4RA
Client ID: -GW-112912-498-500
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9130.D

Sample Date: 29-NOV-12
Received Date: 05-DEC-12
Extract Date: 07-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117580

Analysis Date: 07-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		12	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		2.8	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		104.	%					
Toluene-d8		93.1	%					
1,2-Dichloroethane-d4		92.5	%					
Dibromofluoromethane		88.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-5
Client ID: VPB137-TB-04
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9112.D

Sample Date: 29-NOV-12
Received Date: 05-DEC-12
Extract Date: 06-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117522

Analysis Date: 06-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		97.1	%					
Toluene-d8		100.	%					
1,2-Dichloroethane-d4		97.7	%					
Dibromofluoromethane		97.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8589-6
Client ID: -GW-12412-648-650
Project: Navy Clean WE15 NWIRP B
SDG: SF8589
Lab File ID: C9117.D

Sample Date: 04-DEC-12
Received Date: 05-DEC-12
Extract Date: 06-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117522

Analysis Date: 06-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 19-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.36	ug/L	1	1	1.0	0.35	0.50
Freon-113		1.8	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.49	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.40	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.26	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	280 310	ug/L	4 1	1	4.0 1.0	0.28 0.30	0.50 2.0
Tetrachloroethene	J	0.51	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.7	%					
Toluene-d8		97.6	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		98.3	%					

REC 11/13

Data Validation Report

Project: Regional Groundwater Investigation - NWIRP Bethpage

Laboratory: Katahdin Analytical Services, Inc.

Service Request: SF8677

Analyses/Method: EPA SW-846 Method 8260B for VOCs (GC/MS)

Validation Level: Limited

AECOM Project 60266526.SA.DV
Number:

Prepared by: Rick Purdy/AECOM Completed on: 05/28/2013

Reviewed by: Lisa Krowitz/AECOM File Name: SF8677_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on November 29, 2012, November 30, 2012, December 5, 2012, and December 6, 2012, .

Sample ID	Matrix/Sample Type
VPB137-GW-112912-520-522	Ground water
VPB137-GW-113012-580-582	Ground water
VPB137-GW-12512-668-670	Ground water
VPB137-GW-12612-693-695	Ground water
VPB137-GW-12612-698-700	Ground water
VPB137-GW-12612-718-720	Ground water
VPB137-TB05	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks

X	Surrogate spike recoveries
NA	Matrix spike (MS) and/or matrix spike duplicate (MSD) results
✓	Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
NA	Field duplicates
✓	Internal standards
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and

- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

There were no trip or equipment blanks associated with these samples. Method blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required. Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL) but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-targets was checked to ensure that the results and/or sample specific QLs were adjusted accordingly by the laboratory.

The results for trichloroethene in the following samples were analyzed at the indicated dilutions because the concentrations exceed the calibrated range of the instrument:

VPB137-GW-12612-693-695 (4x)

VPB137-GW-113012-580-582 (4x)

VPB137-GW-12612-668-670 (10x)

The results for sample VPB137-GW-12612-718-720 are reported from the analysis of a 2x dilution because of limited volume.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-1
Client ID: -GW-12612-693-695
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9168.D

Sample Date: 06-DEC-12
Received Date: 07-DEC-12
Extract Date: 10-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117716

Analysis Date: 10-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	1.3	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.46	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.73	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.76	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	440 400	ug/L	1 4	1 1	1.0 4.0	0.28 1.1	0.50 2.0
Tetrachloroethene	J	0.47	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.34	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		104.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4	*	123.	%					
Dibromofluoromethane		108.	%					


 8/7/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-2DL
Client ID: -GW-12612-718-720
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9202.D

Sample Date: 06-DEC-12
Received Date: 07-DEC-12
Extract Date: 11-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117774

Analysis Date: 11-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene	J	0.57	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		106.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		115.	%					
Dibromofluoromethane		105.	%					

TABLE 1 – Data Qualification

Sample ID	Matrix	Compound	Result	QL	Units	Validation Qualifiers	Validation Reason
VPB137-GW-12512-668-670	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	7.4	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	1,1,2-TRICHLOROETHANE	0.99	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	1,1-DICHLOROETHANE	1.1	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	1,1-DICHLOROETHENE	1.3	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	CARBON TETRACHLORIDE	0.86	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	CHLOROFORM	1.8	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	CIS-1,2-DICHLOROETHENE	2.6	0.50	UG/L	J	s
VPB137-GW-12512-668-670	WG	TETRACHLOROETHENE	4.3	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.3	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	1,1,2-TRICHLOROETHANE	0.34	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	1,1-DICHLOROETHANE	0.46	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	CHLOROFORM	0.76	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	CIS-1,2-DICHLOROETHENE	0.73	0.50	UG/L	J	s
VPB137-GW-12612-693-695	WG	TETRACHLOROETHENE	0.47	0.50	UG/L	J	s

Attachment A**Non Conformance Summary Tables****Table A-1 - Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB137-GW-113012-580-582	1,2-DICHLOROETHANE-D4	122.	70	120
VPB137-GW-12612-693-695	1,2-DICHLOROETHANE-D4	123.	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-3RA
Client ID: -GW-12612-698-700
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9157.D

Sample Date: 06-DEC-12
Received Date: 07-DEC-12
Extract Date: 10-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117716

Analysis Date: 10-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		11	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		105.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		98.2	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-4
Client ID: -GW-12512-668-670
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9139.D

Sample Date: 05-DEC-12
Received Date: 07-DEC-12
Extract Date: 07-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117580

Analysis Date: 07-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.3	ug/L	1	1	1.0	0.35	0.50
Freon-113		7.4	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane		1.1	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		2.6	ug/L	1	1	1.0	0.21	0.50
Chloroform		1.8	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.86	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	1200 1800	ug/L	10	1	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene		4.3	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.99	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		104.	%					
Toluene-d8		97.9	%					
1,2-Dichloroethane-d4		102.	%					
Dibromofluoromethane		93.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-5
Client ID: VPB137-TB05
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9128.D

Sample Date: 06-DEC-12
Received Date: 07-DEC-12
Extract Date: 07-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117580

Analysis Date: 07-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		102.	%					
Toluene-d8		94.0	%					
1,2-Dichloroethane-d4		89.3	%					
Dibromofluoromethane		88.9	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-6RA
Client ID: -GW-112912-520-522
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9203.D

Sample Date: 29-NOV-12
Received Date: 07-DEC-12
Extract Date: 11-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117774

Analysis Date: 11-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		22	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		106.	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		105.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8677-7
Client ID: -GW-113012-580-582
Project: Navy Clean WE15 NWIRP B
SDG: SF8677
Lab File ID: C9171.D

Sample Date: 30-NOV-12
Received Date: 07-DEC-12
Extract Date: 10-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117716

Analysis Date: 10-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.1	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	4.8	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	1.2	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.46	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.42	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.20	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	520 470	ug/L	A 1	1	A 1.0	0.28 1.1	0.50 2.0
Tetrachloroethene	J	2.0	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		103.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		105.	%					

↖ 8/2/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF8768	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 02/05/2013
Reviewed by:	Lisa Krowitz/AECOM	File Name: SF8768_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on December 7, 2012 and December 10, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-121012-763-765	Ground water
VPB137-GW-12712-738-740	Ground water
VPB137-TB06	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996) and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✗ Surrogate spike recoveries
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1. There were no data points rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met. All samples were analyzed within 12 hours of the BFB tunes.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL), but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-targets was checked to ensure that the results and/or sample specific QLs were adjusted accordingly by the laboratory.

Because of matrix-related issues, sample VPB137-GW-121012-763-765 was analyzed at a 2x dilution. The reporting limits were adjusted accordingly.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Sample ID	Matrix	Compound	Result	QL	Units	Validation Qualifiers	Validation Reason
VPB137-TB06	WQ	1,1,2,2-Tetrachloroethane		0.50	UG/L	UJ	s
VPB137-TB06	WQ	Chlorobenzene		0.50	UG/L	UJ	s
VPB137-TB06	WQ	Tetrachloroethene		0.50	UG/L	UJ	s

Attachment A**Non Conformance Summary Tables**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB137-TB06	Toluene-D8	84.8	85	120
VPB137-TB06	4-Bromofluorobenzene	70.0	75	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8768-1
Client ID: -GW-12712-738-740
Project: Navy Clean WE15 NWIRP B
SDG: SF8768
Lab File ID: F8480.D

Sample Date: 07-DEC-12
Received Date: 11-DEC-12
Extract Date: 12-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117849

Analysis Date: 12-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 13-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		1.6	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.8	%					
Toluene-d8		94.1	%					
1,2-Dichloroethane-d4		93.2	%					
Dibromofluoromethane		93.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8768-2DL
Client ID: -GW-121012-763-765
Project: Navy Clean WE15 NWIRP B
SDG: SF8768
Lab File ID: F8481.D

Sample Date: 10-DEC-12
Received Date: 11-DEC-12
Extract Date: 12-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117849

Analysis Date: 12-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 13-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene	U	1.0	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		79.7	%					
Toluene-d8		92.6	%					
1,2-Dichloroethane-d4		102.	%					
Dibromofluoromethane		97.1	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8768-3
Client ID: VPB137-TB06
Project: Navy Clean WE15 NWIRP B
SDG: SF8768
Lab File ID: F8479.D

Sample Date: 07-DEC-12
Received Date: 11-DEC-12
Extract Date: 12-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG117849

Analysis Date: 12-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 13-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U UJ	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U UJ	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U UJ	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		70.0	%					
Toluene-d8		84.8	%					
1,2-Dichloroethane-d4		81.7	%					
Dibromofluoromethane		87.7	%					

FCW/31/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF8893	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 02/04/2013
Reviewed by:	Andrea Mischel/AECOM	File Name: SF8893_8260B

SUMMARY

The samples listed below were collected by AECOM from the Regional Groundwater Investigation - NWIRP Bethpage site on December 11, 2012.

Sample ID	Matrix/Sample Type
VPB137-GW-121112-838-840	Ground water
VPB137-TB07	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996) and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards

✓ Sample results/reporting issues

The symbol (?) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (Q) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met. All samples were analyzed within 12 hours of the BFB tunes.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

ICAL Response Factor Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
RF <0.10 for chloromethane, 1,1-dichloroethane, and bromoform or RF <0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane	J	UJ
All compounds except SPCCs		
RF <0.05	J	R
Sample results qualified as not detected (U) due to blank contamination are not rejected, but estimated (UJ).		
SPCCs System Performance Check Compounds		

CCV Linearity Nonconformances:

Criteria	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ
%Drift	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the method detection limit (MDL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Sample results were qualified as follows:

For common lab contaminants (methylene chloride, acetone, 2-butanone):

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and ≤ 4x the QL	Report the sample result with a U**
		≥ 4x the QL	No qualifications
	> 2x QL	< 2x QL	Report sample QL value with a U
		≥ 2x QL and < blank contamination	Report the sample result with a U
≥ 2x QL and ≥ blank contamination		If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**	
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			

**Based on AECOM professional judgment

For all other compounds:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
	≤ QL	< QL	Report sample QL value with a U
		≥ QL and ≤ 2x the QL	Report the sample result with a U**
		≥ 2x the QL	No qualifications
	> QL	< QL	Report sample QL value with a U
		≥ QL and < blank contamination	Report the sample result with a U or reject the sample result as unusable R
		≥ QL and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
	TIC detected	Detects	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 g/L.			
**Based on AECOM professional judgment.			

QL (Quantitation Limit) is equivalent to the lowest calibration standard.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. All associated compounds were nondetect; no data qualification was necessary as a result of this nonconformance.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific LCS %Rs or RPDs was as follows:

Nonconformances ¹	Action	
	Detected Compounds	Nondetected Compounds
%R or RPD > UL	J	No qualification
%R < LL	J	UJ
%R < 20% (see note 1)	J	R
(LL = lower limit, UL = upper limit)		
Notes:		
1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, AECOM professional judgment is used to estimate (UJ) rather the reject sample results previously negated (U) on the basis of blank contamination.		

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific IS on the basis of IS recoveries was as follows:

Sample IS area compared to CCV and CCV IS area compared to ICAL*		
Qualify results	<50%	> 200%
Positive Results	J	J
Nondetected Results	R	A
* If an IS area fails with respect to the ICAL, but passes with respect to the CCV, then use professional judgment to evaluate the sensitivity and linearity of the analysis before applying validation actions. (AECOM professional judgment)		

All QC acceptance criteria were met.

Sample Results/Reporting Issues

All compounds detected at concentrations less than the quantitation limit (QL) but greater than the MDL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-targets was checked to ensure that the results and/or sample specific QLs were adjusted accordingly by the laboratory.

Because of limited volume, sample VPB137-GW-121112-838-840 was analyzed at a two-fold dilution. The reporting limits were adjusted accordingly.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations



AECOM
250 Apollo Drive
Chelmsford, MA 01886-3140

978.905.2100 tel
978.905.2101 fax

Attachment A

Non Conformance Summary Tables

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB137-TB07	DIBROMOFLUOROMETHANE	116.	85	115

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8893-2
Client ID: VPB137-TB07
Project: Navy Clean WE15 NWIRP B
SDG: SF8893
Lab File ID: F8518.D

Sample Date: 11-DEC-12
Received Date: 14-DEC-12
Extract Date: 17-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG118103

Analysis Date: 17-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 17-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		95.0	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane	*	116.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SF8893-1
Client ID: GW-121112-838-840
Project: Navy Clean WE15 NWIRP B
SDG: SF8893
Lab File ID: F8526.D

Sample Date: 11-DEC-12
Received Date: 14-DEC-12
Extract Date: 17-DEC-12
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG118103

Analysis Date: 17-DEC-12
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 17-DEC-12

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene	U	1.0	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		94.7	%					
Toluene-d8		94.3	%					
1,2-Dichloroethane-d4		110.	%					
Dibromofluoromethane		105.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SF9122	
Analyses/Method:	EPA Method 415.1, Total Organic Carbon (TOC) and EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID) / 415.1, 9060A	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/22/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SF9122_415.1, 9060 and D2216

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on December 12, 2012 and December 5, 2012.

Sample ID	Matrix/Sample Type
VPB137-EQUIPMENT RINSATE BLANK	Equipment blank
VPB137-SOIL-12512-678-680	Soil

Data validation activities were conducted with reference to

- *Methods for Chemical Analysis of Water and Wastes, EPA600/4-79-020 (1983 revision), Method 415.1, Total Organic Carbon (Combustion or Oxidation);*
- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010)*
-

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate. REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- X Laboratory blanks/equipment blanks
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated, negated, and/or rejected due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks. Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Laboratory blank contamination is summarized in Attachment A in Table A-1. Contamination detected in the field and equipment blank is summarized in Attachment A in Table A-2. Qualified sample results are shown in Table 1. Sample results were qualified as follows:

Blank Type	Blank Result	Sample Result	Action for Samples
ICB/CCB (Positive)	≥DL but ≤ LOQ	Nondetect	No action
		>DL but <LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ	Use AECOM professional judgment (see below [1])
	>LOQ	>DL but <LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ but < ICB/CCB Result	Qualify at level of Blank Result with a "U" or Qualify result as unusable
		>ICB/CCB but <10x the ICB/CCB result	Qualify as estimated (J)
		≥10x ICB/CCB	No action is taken based on AECOM professional judgment
PB / EB/ FB (Positive)	> LOQ	>DL but ≤ LOQ	Qualify as nondetect (U) at the LOQ
		>LOQ but < 10x Blank Result	Qualify results as unusable
		≥10x Blank Result	No action
	≥DL but ≤LOQ	Nondetect	No action
		>DL but <LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ	Use AECOM professional judgment (see below [1])

[1] Establish an action level (AL) at 5x the blank contamination. If sample result is <AL, qualify the reported result with a U.

MS and/or MSD Results

MS/MSD analyses were not performed on samples submitted with this data set. There were no data validation actions made on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate samples were not submitted with this data set. There were no data validation actions made on this basis.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples. All criteria were met.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOQ	Units	Validation Qualifiers	Validation Reason
VPB137-EQUIPMENT RINSATE BLANK	WH	TOTAL ORGANIC CARBON		1.0	MG/L	U	bl

Attachment A**Nonconformance Summary Tables****Table A-1 - Lab Blanks**

Blank ID	Compound	Result	LOQ	Units	Associated Samples
WG118444-1	TOTAL ORGANIC CARBON	0.36	1.0	MG/L	VPB137-EQUIPMENT RINSATE BLANK

Table A-2 - Field Blanks

Blank ID	Compound	Result	QL	Units	Associated Samples
VPB137-EQUIPMENT RINSATE BLANK	TOTAL ORGANIC CARBON	0.74	0.50	MG/L	VPB137-SOIL-12512-678- 680

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Waketfield, MA 01880

Lab Sample ID: SF9122-1
Report Date: 11-JAN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SF9122

Sample Description

SOIL-12512-678-680

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	J110 ug/gdrywt	480	100	360	SW846 M9060	WG118478	27-DEC-12 14:36:48	N/A	N/A	
Total Solids	83. %	1		N/A	SM2540G	WG118391	28-DEC-12 09:16:49	ASTM D2216	26-DEC-12	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SF9122-2
Report Date: 11-JAN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SF9122

Sample Description
RINSATE BLANK

Matrix AQ Date Sampled 12-DEC-12 Date Received 26-DEC-12

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
Total Organic Carbon	10.74 mg/L	1.0	.1023	0.50	EPA 415.1	WG118444	26-DEC-12 17:08:13	N/A	N/A	N/A

1.0 U mg/L
12/22/13
RP

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Severn Trent Laboratory, Burlington, VT	
Service Request:	200-14131	
Analyses/Method:	EPA Method TO-15, VOCs Collected in Canisters - GC/MS	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 09/13/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG0003_TO-15

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on December 7, 2012.

Sample ID	Matrix/Sample Type
VPB137-AIR-120712	Ambient air

Data validation activities were conducted with reference to *Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS) (USEPA, Method TO-15) and the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks
- NA Surrogate spike recoveries
- NA Matrix Duplicate (MD) results
- ✓ Laboratory control sample (LCS) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Blank results were reviewed for conformance with the QC acceptance criteria. Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

Surrogate compounds are not applicable to this method.

MD Results

MD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TestAmerica Burlington
 30 Community Drive
 Suite 11

South Burlington, VT 05403
 phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information Company: <i>Aso Lutton Consultants</i> Address: <i>AECOM 100 Red Schoolhouse</i> City/State/Zip: <i>Chittenden Bridge NY 109</i> Phone: <i>cell. 1 814 227 3444</i> Fax: <i>845-435-4980</i> Project Name: <i>Dehydration</i> Site: <i>VPB-137</i> PO #		Project Manager: <i>Eleanor Vivasichow</i> Phone: <i>1914-227-3942</i> Email: <i>roco</i> Site Contact: <i>Valerie Thayer 207-650</i> TA Contact:		Samples Collected By: <i>Val Thayer</i> of / COCs	
Sample Identification <i>VPB 137 - Air - 120712</i>		Other (Please specify in notes section) Landfill Gas Soil Gas Ambient Air Indoor Air Sample Type Other (Please specify in notes section)			
Analysis Turnaround Time Standard (Specify) Rush (Specify)		EPA 25C EPA 3C MA-APH TO-15			
Sample Date(s) <i>12/7/2012</i>		ASTM D-1946			
Time Start <i>9:15</i>		Flow Controller ID <i>3134</i> <i>W0114571</i> <i>50721190</i>			
Time Stop <i>16:35</i>		Canister ID <i>660</i>			
Canister Vacuum In Field, "Hg (Start) <i>-30</i>		Canister Vacuum In Field, "Hg (Stop) <i>-8.0</i>			
Temperature (Fahrenheit)					
Interior		Ambient			
Start		Start			
Stop		Stop			
Pressure (inches of Hg)					
Interior		Ambient			
Start		Start			
Stop		Stop			
Special Instructions/QC Requirements & Comments: <i>Sample collected outdoors - rainy on Friday Dec 7</i>					
Date/Time: <i>12/10/2012 5:00</i>		Samples Received by: <i>Alphonse B...</i>			
Date/Time: <i>12/11/12 12:11:12</i>		Received by: <i>Alphonse B...</i>			
Date/Time: <i>12/11/12 12:11:12</i>		Received by: <i>Alphonse B...</i>			

Samples Shipped by: *Valerie Thayer*
 Samples Relinquished by: *Alphonse B...*
 Relinquished by:

Date/Time:
 Date/Time:
 Date/Time:

Samples Received by:
 Received by:
 Received by:

Lab Use Only Shipper Name: Condition:

Analytical Data

Client: Katahdin Analytical Services

Job Number: 200-14131-1

Sdg Number: 200-14131

Client Sample ID: VPB137-AIR-120712

Lab Sample ID: 200-14131-1

Date Sampled: 12/07/2012 1635

Client Matrix: Air

Date Received: 12/11/2012 1015

TO-15 Volatile Organic Compounds in Ambient Air

Analysis Method:	TO-15	Analysis Batch:	200-49784	Instrument ID:	C.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	clbw017.d
Dilution:	1.0			Initial Weight/Volume:	200 mL
Analysis Date:	12/19/2012 0353			Final Weight/Volume:	200 mL
Prep Date:	12/19/2012 0353			Injection Volume:	200 mL

Analyte	Result (ppb v/v)	Qualifier	DL	LOQ
1,1,1-Trichloroethane	0.080	U	0.020	0.20
1,1,2,2-Tetrachloroethane	0.040	U	0.011	0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.083	J	0.020	0.20
1,1,2-Trichloroethane	0.040	U	0.016	0.20
1,1-Dichloroethane	0.080	U	0.023	0.20
1,1-Dichloroethene	0.20	U	0.086	0.20
1,2-Dichloroethane	0.040	U	0.018	0.20
Carbon tetrachloride	0.086	JM	0.013	0.20
Chlorobenzene	0.040	U	0.013	0.20
Chloroform	0.080	U	0.024	0.20
cis-1,2-Dichloroethene	0.20	U	0.084	0.20
Tetrachloroethene	0.21		0.015	0.20
trans-1,2-Dichloroethene	0.080	U	0.023	0.20
Trichloroethene	0.028	U	0.0092	0.20
Xylene (total)	0.52		0.016	0.20

Analyte	Result (ug/m3)	Qualifier	DL	LOQ
1,1,1-Trichloroethane	0.44	U	0.11	1.1
1,1,2,2-Tetrachloroethane	0.27	U	0.076	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane	0.64	J	0.15	1.5
1,1,2-Trichloroethane	0.22	U	0.087	1.1
1,1-Dichloroethane	0.32	U	0.093	0.81
1,1-Dichloroethene	0.79	U	0.34	0.79
1,2-Dichloroethane	0.16	U	0.073	0.81
Carbon tetrachloride	0.54	JM	0.082	1.3
Chlorobenzene	0.18	U	0.060	0.92
Chloroform	0.39	U	0.12	0.98
cis-1,2-Dichloroethene	0.79	U	0.33	0.79
Tetrachloroethene	1.4		0.10	1.4
trans-1,2-Dichloroethene	0.32	U	0.091	0.79
Trichloroethene	0.15	U	0.049	1.1
Xylene (total)	2.3		0.069	0.87

R12/9/13

Section 5

VPB 137 Analytical Data Table

-

Location		VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137
Sample Date	NYSDEC	11/15/2012	11/15/2012	11/15/2012	11/16/2012	11/16/2012	11/19/2012	11/19/2012	11/20/2012
Sample ID	Groundwater Guidance or Standard Value (Note 1)	VPB137-GW- 111512-58-60	VPB137-GW- 111512-98-100	VPB137-GW- 111512-158-160	VPB137-GW- 111612-198-200	VPB137-GW- 111612-218-220	VPB137-GW- 111912-238-240	VPB137-GW- 111912-258-260	VPB137-GW- 112012-318-320
Sample Interval		58 - 60 ft	98 - 100 ft	158 - 160 ft	198 - 200 ft	218 - 220 ft	238 - 240 ft	258 - 260 ft	318 - 320 ft
Sample type code		N	N	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.76 J	1.5	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	< 0.50 U	< 0.50 U	0.90 J	< 0.50 U	0.54 J	3.9	3.6	4.5
Total VOC				0.9		0.54	4.66	5.1	4.5

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location		VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137
Sample Date	NYSDEC	11/20/2012	11/21/2012	11/26/2012	11/26/2012	11/26/2012	11/27/2012	11/27/2012	11/28/2012
Sample ID	Groundwater Guidance or Standard Value (Note 1)	VPB137-GW- 112012-328-330	VPB137-GW- 112112-358-360	VPB137-GW- 112612-388-390	VPB137-GW- 112612-398-400	VPB137-GW- 112612-FD	VPB137-GW- 112712-418-420	VPB137-GW- 112712-438-440	VPB137-GW- 112812-468-470
Sample Interval		328 - 330 ft	358 - 360 ft	388 - 390 ft	398 - 400 ft	398 - 400 ft	418 - 420 ft	438 - 440 ft	468 - 470 ft
Sample type code		N	N	N	N	FD	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.49 J	< 0.50 U	0.89 J
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.30 J	< 0.50 U	0.32 J
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	2.0	2.2	< 0.50 U	1.4	1.4
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	0.45 J	0.94 J	3.2	15	16	11	13	21
Total VOC		.45	0.94	3.2	17	18.2	11.79	14.4	23.61

Notes:

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

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Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location		VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137
Sample Date	NYSDEC	11/28/2012	11/29/2012	11/29/2012	11/28/2012	11/30/2012	11/30/2012	12/3/2012	12/4/2012
Sample ID	Groundwater Guidance or Standard Value (Note 1)	VPB137-GW- 112812-478-480	VPB137-GW- 112912-498-500	VPB137-GW- 112912-520-522	VPB137-GW- 112812-538-540	VPB137-GW- 113012-558-560	VPB137-GW- 113012-580-582	VPB137-GW- 12312-598-600	VPB137-GW- 12412-648-650
Sample Interval		478 - 480 ft	498 - 500 ft	520 - 522 ft	538 - 540 ft	558 - 560 ft	580 - 582 ft	598 - 600 ft	648 - 650 ft
Sample type code		N	N	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	0.35 J	< 0.50 U	0.20 J	0.68 J	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	1.2	< 0.50 U	< 0.50 U	6.0	17	4.8	18	1.8
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.66 J	< 0.50 U	0.95 J	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	0.43 J	< 0.50 U	1.2	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	0.63 J	2.7	1.1	8	0.36 J
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	0.80 J	3.2	0.42 J	0.63 J	0.26 J
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	1.5	0.46 J	0.84 J	0.40 J
CIS-1,2-DICHLOROETHENE	5	0.32 J	< 0.50 U	< 0.50 U	1.5	3.0	1.2	3	0.49 J
TETRACHLOROETHENE	5	2.5	2.8	1.4	2.4	1.4	2.0	5.8	0.51 J
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	27	12	22	330	1100	520	1700	280
Total VOC		31.02	14.80	23.40	341.68	1129.89	530.18	1739.10	283.82

Notes:

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

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VOCs analyzed under method 8260B

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Yellow highlighted values exceed Groundwater Standards

Location		VPB137	VPB137	VPB137	VPB137	VPB137	VPB137	VPB137
Sample Date	NYSDEC	12/5/2012	12/6/2012	12/6/2012	12/6/2012	12/7/2012	12/10/2012	12/11/2012
Sample ID	Groundwater Guidance or Standard Value (Note 1)	VPB137-GW- 12512-668-670	VPB137-GW- 12612-693-695	VPB137-GW- 12612-698-700	VPB137-GW- 12612-718-720	VPB137-GW- 12712-738-740	VPB137-GW- 121012-763-765	VPB137-GW- 121112-838-840
Sample Interval		668 - 670 ft	693 - 695 ft	698 - 700 ft	718 - 720 ft	738 - 740 ft	763 - 765 ft	838 - 840 ft
Sample type code		N	N	N	N	N	N	N
VOC (ug/L)								
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	7.4 J	1.3 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,1,2-TRICHLOROETHANE	1	0.99 J	0.34 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,1-DICHLOROETHANE	5	1.1 J	0.46 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,1-DICHLOROETHENE	5	1.3 J	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
CARBON TETRACHLORIDE	5	0.86 J	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
CHLOROFORM	7	1.8 J	0.76 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
CIS-1,2-DICHLOROETHENE	5	2.6 J	0.73 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
TETRACHLOROETHENE	5	4.3 J	0.47 J	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 1.0 U	< 0.50 U	< 1.0 U	< 1.0 U
TRICHLOROETHENE	5	1800	400	11	0.57 J	1.6	< 1.0 U	< 1.0 U
Total VOC		1820.35	404.06	11.00	0.57	1.60		

Notes:

ug/L = micrograms per Liter

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Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

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Section 6

Monitoring Wells RE103D1, RE103D2, RE103D3

- Boring Logs
- Well Construction Logs
- Well Development Logs
- Groundwater Sample Log Sheets
- Analytical Data Validation
- Analytical Data Table

-Boring Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206694.59	Easting: 1125111.76	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.8		Well Screen Interval (ft): 625-640
Start Date: 2/13/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 2/28/2013			Total Depth (ft): 647.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-623 ft bgs: See VPB 137 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							Bentonite Grout
250							
300							
350							
400							
450							4" Diameter Schedule 80 PVC Riser
500							
550							
600							

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206694.59	Easting: 1125111.76	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.8		Well Screen Interval (ft): 625-640
Start Date: 2/13/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 2/28/2013			Total Depth (ft): 647.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction	
606		Magothy			0-623 ft bgs: See VPB 137 for Descriptions (<i>continued</i>)		4" Diameter Schedule 80 PVC Riser (<i>continued</i>)	
608							#0 Filter Sand	
610								
612								
614								
616								
618								
620								
622								
624	0.0			SC			Tan fine-medium SAND; little C. Sand; little grey clay	
626								
628	0.0		SP-SM		Tannish/grey medium-fine SAND; trace-little Silt			
630								
632								
634	1.2		SP-SM		Tan medium-fine SAND; trace Silt; trace fine gravel		4" Diameter schedule 80 PVC, 10 Slot Well Screen (625-640 ft bgs)	
636								
638	0.0		SW-SM		Tan-orange stained medium - coarse SAND some fine Gravel; little silt			
640								
642							Sump	
644								
646							#1 Sand to bottom of well screen	
					End of boring at 647.0 ft. bgs.			

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206692.99	Easting: 1125160.34	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.63		Well Screen Interval (ft): 653-673
Start Date: 1/21/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 2/4/2013			Total Depth (ft): 676.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-658 ft bgs: See VPB 137 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							4" Diameter Schedule 80 PVC Riser
250							
300							
350					Collected sample for resampling of VPB-137 at 338-340 feet. TCE = 2.7 ppb. PCE = 0.72 ppb J.		
400							
450							
500							Bentonite Grout
550							
600		Magothy					

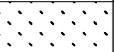
Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206692.99	Easting: 1125160.34	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.63		Well Screen Interval (ft): 653-673
Start Date: 1/21/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 2/4/2013			Total Depth (ft): 676.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
620					0-658 ft bgs: See VPB 137 for Descriptions (<i>continued</i>)		Bentonite Grout (<i>continued</i>)
622							
624							
626							
628							
630							
632							
634							
636							#0 Filter Sand
638							
640							
642							
644							
646							
648							#1 Filter Sand
650							
652							
654							
656							
658	0.0				Tan fine GRAVEL (poor recovery)		
660			GP				
662							
664	0.0		GP		Fine GRAVEL (tip of spoon contains tan f/c Sand little silt; trace fine subrounded gravel)		4" Diameter schedule 80 PVC, 10 Slot Well Screen (653-673 ft bgs)
666							
668	0.0		CL / SP		Grey CLAY layer (0.25') and Tan; medium-fine SAND (0.15')		
670							
672							
674							#1 Sand to bottom of well screen
676					End of boring at 676.0 ft. bgs.		

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206693.46	Easting: 1125144.91	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.74		Well Screen Interval (ft): 715-730
Start Date: 12/19/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 1/18/2013			Total Depth (ft): 743.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-725 ft bgs: See VPB 137 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							Bentonite Grout
250							
300							
350							
400							
450							
500							4" Diameter Schedule 80 PVC Riser
550							
600							
650							

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Avoca Avenue & Martin Place, Hempstead, NY	Northing: 206693.46	Easting: 1125144.91	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.74		Well Screen Interval (ft): 715-730
Start Date: 12/19/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 1/18/2013			Total Depth (ft): 743.0

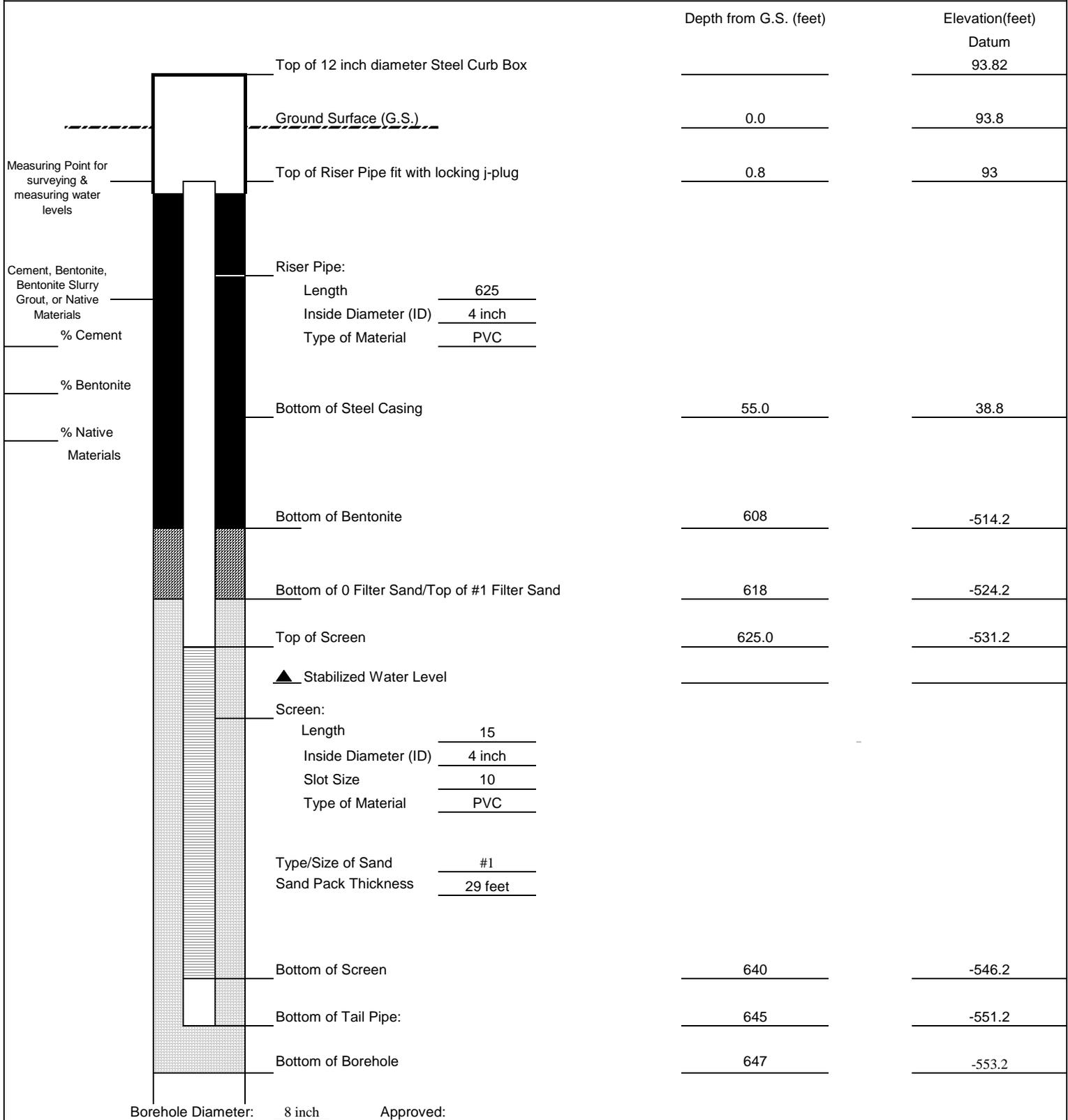
DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
680		Magothy			0-725 ft bgs: See VPB 137 for Descriptions <i>(continued)</i>		4" Diameter Schedule 80 PVC Riser <i>(continued)</i>
682							
684							
686							
688							
690							
692							
694							
696							
698							
700							
702							
704							#0 Filter Sand
706							
708							#1 Filter Sand
710							
712							
714							
716							
718							
720							
722							
724							
726	0.0		SM		Orange/grey banding fine SAND little Silt; 2 black organic laminae; trace fine gravel; trace white-grey clay		4" Diameter schedule 80 PVC, 10 Slot Well Screen (715-730 ft bgs)
728							
730	0.0		SM		Interbedded layers (laminae) of black organics (possibly lignite) and grey fine Sand		
732							Sump
734							
736							
738							
740							#1 Sand to fill bottom of boring to sump
742							
					End of boring at 743.0 ft. bgs.		

-Well Construction Logs



Client: NAVFAC		WELL ID: RE103D1
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 2/28/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 206694.59 Easting: 1125111.764		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



Describe Measuring Point:

Approved: _____
Signature

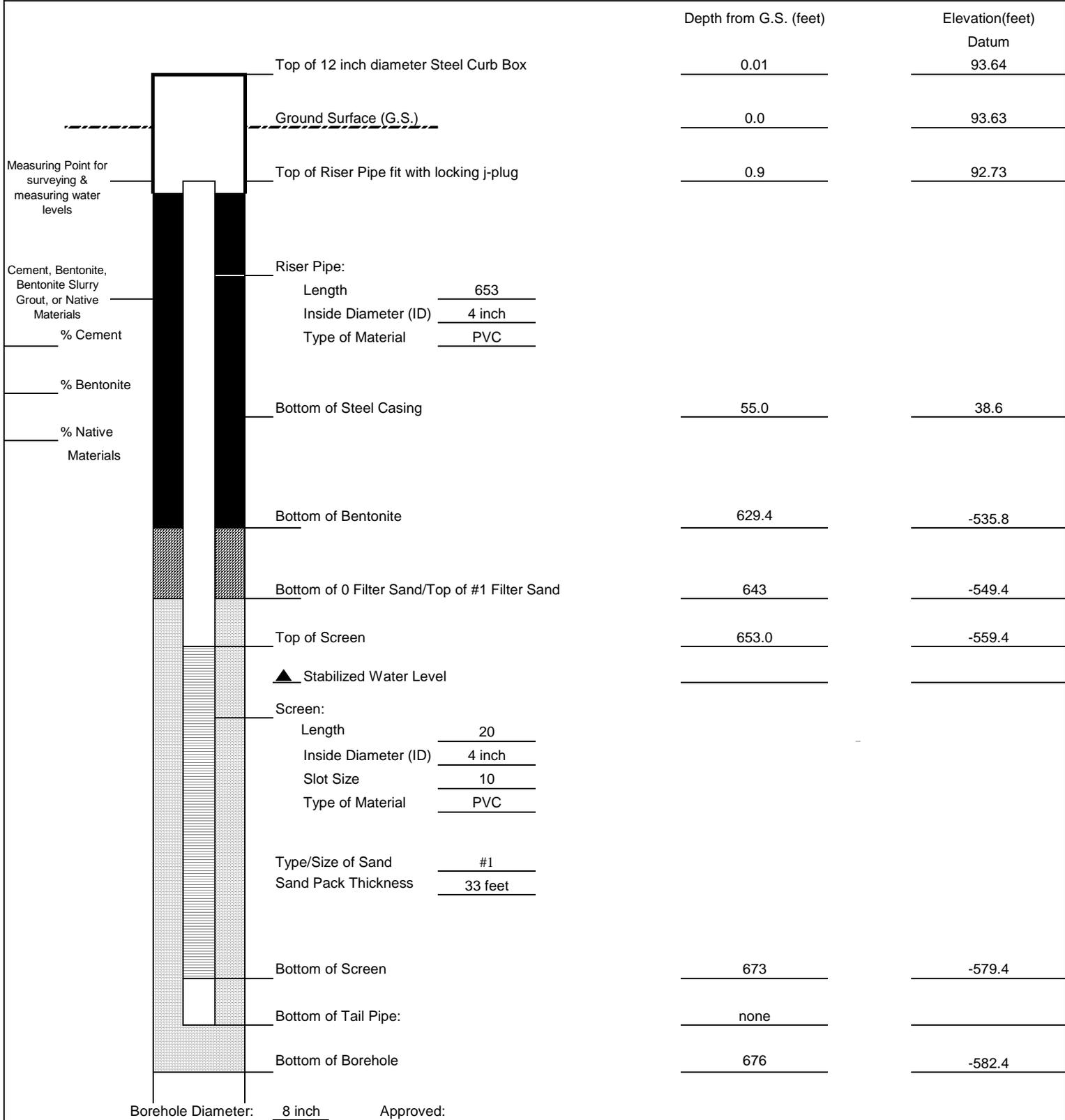
_____ Date

Ground Surface



Client: NAVFAC		WELL ID: RE103D2
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 2/4/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 206692.993 Easting: 1125160.339		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



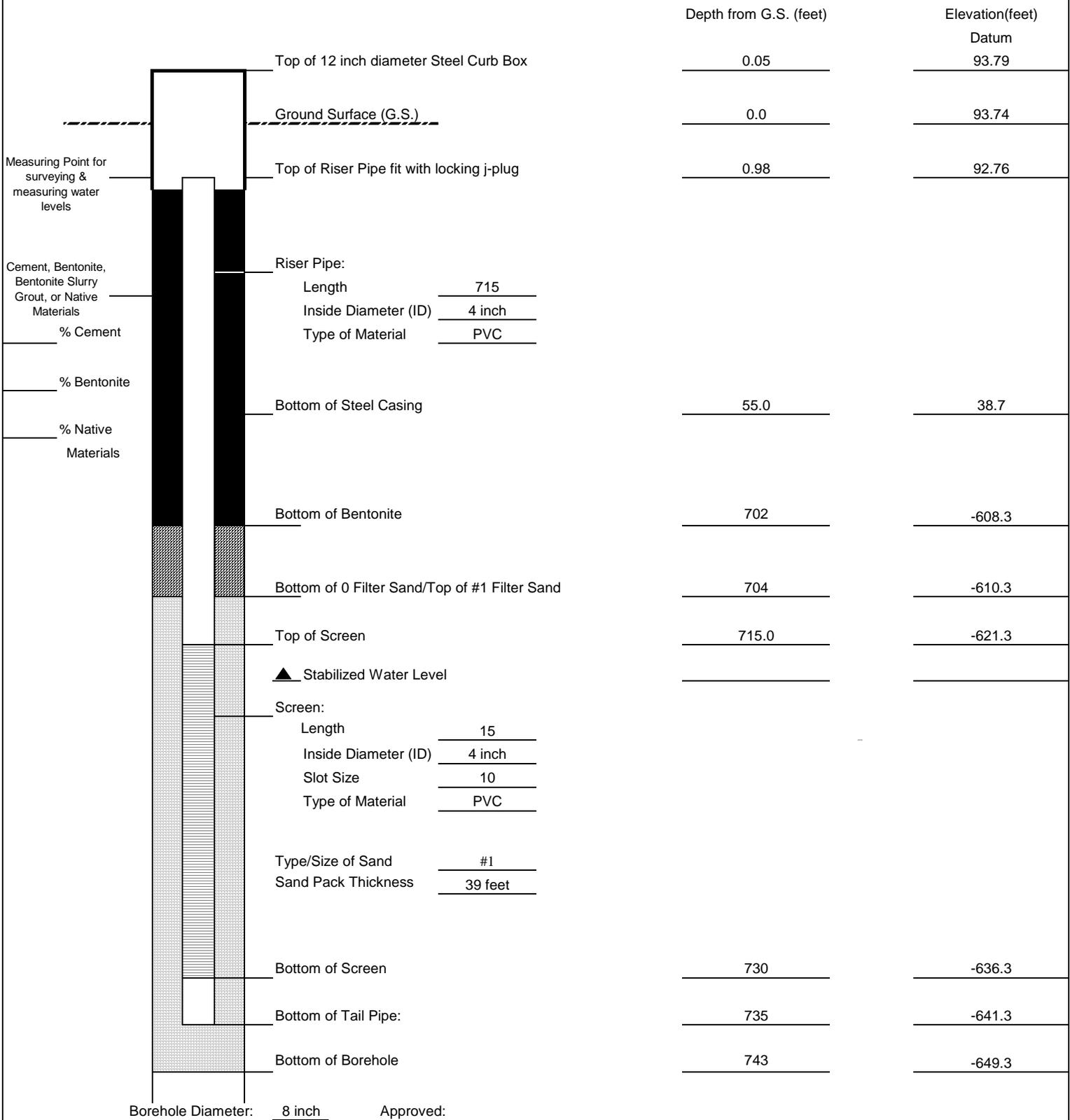
Describe Measuring Point: _____
 Ground Surface _____

Approved: _____
 Signature _____ Date _____



Client: NAVFAC	WELL ID: RE103D3	
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY	Date Installed: 1/18/13	
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 206693.459 Easting: 1125144.905	Contractor: DELTA WELL & PUMP	

MONITORING WELL CONSTRUCTION DETAIL



Describe Measuring Point:

Ground Surface

Approved: _____

Signature _____

Date _____

-Well Development Logs

-Groundwater Sample Log Sheets



RESOLUTION
CONSULTANTS

Well ID: RE103D1

Low Flow Ground Water Sample Collection Record

Client: NWIRP Navy Bethpage Date: 10-31-13 Time: Start 0935 am/pm
 Project No: 60266526 Finish _____ am/pm
 Site Location: Avoca + Martin
 Weather Conds: Cloudy, 50°F Collector(s): Mike Zobel

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 39.17 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: bladder pump

b. Acceptance Criteria defined (see workplan)

- Temperature 3% - D.O. 10%
- pH ± 1.0 unit - ORP ± 10 mV
- Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>U73063X</u>
<u>Hanna</u>	<u>HI98703</u>	<u>464514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1030	<u>5</u>	16.57	5.56	0.106	3.01	232.0	56.8	300	0.2	Clear
1035		16.76	5.54	0.105	2.86	234.2	36.1	300	0.2	Clear
1040		16.84	5.50	0.105	2.83	240.1	26.2	300	0.2	Clear
1045		16.97	5.49	0.104	2.77	247.3	16.4	300	0.2	Clear
1050		17.05	5.47	0.103	2.72	250.1	9.81	300	0.2	Clear
1055		17.09	5.46	0.103	2.70	352.2	5.51	300	0.2	Clear
1100		17.00	5.44	0.104	2.71	355.7	4.92	300	0.2	Clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Bladder Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RE103D1-GW-103113</u>	<u>VOA</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1140</u>

Comments _____

Signature Mike Zobel Date 10-31-13



RESOLUTION
CONSULTANTS

Well ID: RE10302

Low Flow Ground Water Sample Collection Record

Client: NWIRP Navy Bethpage Date: 10-31-13 Time: Start 1310 am/pm
 Project No: 60266526 Finish _____ am/pm
 Site Location: avaca + martin
 Weather Conds: Rain, 55°F Collector(s): Mike Zobel

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 40.29 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Bladder Pump

- b. Acceptance Criteria defined (see workplan)
- Temperature 3% - D.O. 10%
 - pH ± 1.0 unit - ORP ± 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>U730103X</u>
<u>Hanna</u>	<u>H+99703</u>	<u>464514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1410	2	15.94	5.25	0.050	5.43	245.9	5.95	225	0.0	clear
1415		15.81	5.21	0.050	6.96	251.5	4.90	225	0.0	clear
1420		15.60	5.22	0.049	5.07	253.8	3.19	225	0.0	clear
1425		15.73	5.18	0.047	4.61	257.5	4.19	225	0.0	clear
1430		15.74	5.16	0.047	4.52	260.4	7.01	225	0.0	clear
1435		15.80	5.17	0.046	4.36	259.2	5.56	225	0.0	clear
1440		15.60	5.22	0.046	3.92	258.7	5.84	225	0.0	clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: Bladder Pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RE10302-GW-103113</u>	<u>VOA</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	

Comments _____

Signature Mike Zobel Date 10-31-13



Well ID: RE 10303

Low Flow Ground Water Sample Collection Record

Client: NWIRP Navy Bethesda Date: 10/31/13 Time: Start 1300 am/pm
 Project No: 60266526 Finish _____ am/pm
 Site Location: Avoca & Martin
 Weather Conds: cloudy, drizzle, 60° Collector(s): PK, MZ

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 735 c. Length of Water Column 694.93 (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 40.07 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: bladder pump with drop tube
 b. Acceptance Criteria defined (see workplan)
 - Temperature 3% - D.O. 10%
 - pH + 1.0 unit - ORP + 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'
 c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>478163X</u>
<u>Hanna</u>	<u>HI 98703</u>	<u>4645514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1300	40.07								40.07	Setup
1345										OK
1400		16.14	5.25	0.030	6.62	249.8		250		adjust flow rate
1410		15.73	4.19	0.029	4.26	269.6	90	300		
1415		15.65	5.17	0.029	4.13	276.9	12.8	300		
1420		15.65	5.14	0.028	4.04	280.3				
1425		15.65	5.10	0.028	3.89	289.7	8.29			

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: bladder pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RE 10303-103113</u>	<u>VOA</u>	<u>3</u>	<u>HCL</u>	<u>NOC</u>	<u>1635</u>

Comments _____

Signature Martin Zohar Date 10-31-13

-Analytical Data Validation

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG0473	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID) / 9060A	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/23/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG0473_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on January 14, 2013.

Sample ID	Matrix/Sample Type
RE103D3-SOIL-011413-725-727	Soil

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010)*
-

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- X Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- NA Laboratory duplicate results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met;
- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

MS Results

The MS and/or MSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria shown in the table below.

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

Qualify Results	%R < 30%	%R ≥ 30% to 75%	%R > 125%	RPD>50%
Detected results	J	J	J	J
Nondetects	R	UJ	Accept	UJ

Notes: MS actions apply to all samples of the same matrix. This qualification will also be applied to the results of all samples within a given area of the site, if deemed appropriate.

1. If the sample result (SR) > 4x the spike concentration (S), no action is taken.
2. If either the MS or MSD does not meet %R criteria, qualify all associated samples.

Laboratory Duplicate Results

Duplicate analyses of this sample were not performed. There were no data validation actions made on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria. All criteria were met.

Field Duplicate Results

Field duplicate samples were not submitted with this data set. There were no data validation actions made on this basis.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples.

All criteria were met.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	QL	Units	Validation Qualifiers	Validation Reason
RE103D3-SOIL-011413-725-727	SO	TOTAL ORGANIC CARBON	410	370	UG/G	J	m

Attachment A**Nonconformance Summary Tables****Table A-1 - Matrix Spikes**

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
RE103D3-SOIL- 011413-725-727	TOTAL ORGANIC CARBON	132		75	125		

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG0473-1
Report Date: 11-FEB-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG0473

Sample Description
SOIL-011413-725-727

Matrix Date Sampled Date Received
SL 14-JAN-13 23-JAN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	J410 ug/gdrywt	500	100	370	SW846 M9060	WG119373	23-JAN-13 15:01:58	N/A	N/A	
Total Solids	80. %	1		N/A	SM2540G	WG119525	29-JAN-13 08:04:04	ASTM D2216	28-JAN-13	

Reul 2/2/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1011	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID) / 9060A	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/23/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1011_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on January 30, 2013.

Sample ID	Matrix/Sample Type
RE10302-SOIL-013013-668-670	Soil

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010)*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory duplicate results
- NA Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified as a result of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method percent %Rs were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Matrix Spike/Matrix Spike Duplicate Results

MS/MSD analyses were not performed on samples submitted with this sample set. No validation actions were made on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria. The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. There were no data validation actions made on this basis. Sample Results/Reporting Issues

If applicable, nondetects in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples.

All criteria were met.

QUALIFICATION ACTIONS

There were no sample results qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

There are no nonconformances associated with this data set.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG1011-1
Report Date: 05-MAR-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG1011

Sample Description

SOIL-013013-668-670

Matrix Date Sampled Date Received
SL 30-JAN-13 14-FEB-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Fontnotes
TOC In Soil	1000 ug/gdrywt	500	100	370	SW846 M9060	WG120405	18-FEB-13 16:51:05	N/A	N/A	
Total Solids	80. %	1		N/A	SM2540G	WG120249	18-FEB-13 09:03:49	SM2540G	15-FEB-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1611	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID) / 9060A	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/24/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1611_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on February 25, 2013.

Sample ID	Matrix/Sample Type
RE103D1-SOIL-022513-633-635	Soil
RE103-SOIL-D-022513	Soil

Sample IDWG-031213 was submitted as part of this sample set but was not validated.

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010)*

In the absence of method-specific information, laboratory quality control (QC) limits project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results

NA	Field duplicates
✓	Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified as a result of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves;
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method %Rs were met;

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinse blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

MS and/or MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria. The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate samples were not submitted with this data set. There were no data validation actions made on this basis.

Sample Results/Reporting Issues

If applicable, nondetects are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples.

All criteria were met.

QUALIFICATION ACTIONS

There were no sample results qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A
Nonconformance Summary Tables

There are no nonconformances associated with this data set.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG1611-1
Report Date: 29-MAR-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG1611

Sample Description

RE103-SOIL-D-022513

Matrix Date Sampled Date Received
SL 25-FEB-13 13-MAR-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	600 ug/gdrywt	480	100	360	SW846 M9060	WG121319	13-MAR-13 15:04:42	N/A	N/A	
Total Solids	83. %	1		N/A	SM2540G	WG121350	13-MAR-13 10:34:00	SM2540G	14-MAR-13	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG1611-2
Report Date: 29-MAR-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG1611

Sample Description
SOIL-022513-633-635

Matrix SL
Date Sampled 25-FEB-13
Date Received 13-MAR-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	760 ug/gdrywt	490	100	360	SW846 M9060	WG121319	13-MAR-13 14:40:28	N/A	N/A	
Total Solids	82. %	1		N/A	SM2540G	WG121350	15-MAR-13 10:35:00	SM2540G	14-MAR-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG8535	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Kristin Rutherford/AECOM	Completed on: 11/22/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG8535_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on October 30 and 31, 2013.

Sample ID	Matrix/Sample Type
GWD-103013	Field Duplicate of RE-105-D1-GW103013
RE-103-D1-GW103113	Ground water
RE-103-D2-GW103113	Ground water
RE-103-D3-GW103113	Ground water
RE-104-D1-GW103013	Ground water
RE-104-D2-GW103013	Ground water
RE-104-D3-GW103113	Ground water
RE-105-D1-GW103013	Ground water
RE-105-D2-GW103013	Ground water
TB-GW-103013	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008) and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). . In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity

- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✗ Surrogate spike recoveries
- ✗ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
%R < 20% (see note 1)	J	R*
%RPD > UL (see note 2)	J	No qualification
Note: Actions are applied to the native unspiked sample only (see note 3)		
*When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)		

Notes:

1. Based on NFG 2008 VOC guidance, professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.
2. In the absence of Region 2 guidance, RPD actions are based on professional judgment.
3. If a field duplicate sample was also collected for the native sample chosen for MS/MSD analysis, professional judgment is used to apply MS/MSD actions to the corresponding field duplicate sample as well as the native sample.

Nonconformances are summarized in Attachment A in Table A-2. Qualified sample results are shown in Table 1.

LCS Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of ≤30% for aqueous matrices. These criteria apply if both results were greater than five times the Limit of Quantitation (LOQ).

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
GWD-103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
GWD-103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.5	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHANE	0.37	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
GWD-103013	WG	CARBON TETRACHLORIDE	0.27	0.50	UG_L	J	s
GWD-103013	WG	CIS-1,2-DICHLOROETHENE	1.9	0.50	UG_L	J	s
GWD-103013	WG	TRICHLOROETHENE	70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,1-TRICHLOROETHANE	0.75	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	12	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLOROETHANE	0.70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHANE	1.5	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHENE	8.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CARBON TETRACHLORIDE	0.45	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CHLOROFORM	0.86	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CIS-1,2-DICHLOROETHENE	4.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TETRACHLOROETHENE	2.3	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TRICHLOROETHENE	810	5.0	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.6	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHANE	1.2	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CARBON TETRACHLORIDE	0.50	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CHLOROFORM	1.6	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-103-D2-GW103113	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	TRICHLOROETHENE	830	5.0	UG_L	J	s
RE-103-D3-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.6	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHANE	0.61	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHENE	0.54	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CHLOROFORM	0.68	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CIS-1,2-DICHLOROETHENE	0.76	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	6.5	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CHLOROFORM	0.40	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TETRACHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TRICHLOROETHENE	160	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	0.61	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	TRICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.9	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHANE	0.40	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	CHLOROFORM	0.46	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-105-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.0	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	TRICHLOROETHENE	75	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,1-TRICHLOROETHANE	0.86	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	21	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	1,1,2-TRICHLOROETHANE	1.1	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHANE	2.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHENE	5.4	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	CARBON TETRACHLORIDE	4.2	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CHLOROFORM	2.3	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	3.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TETRACHLOROETHENE	0.50	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TRICHLOROETHENE	1200	10	UG_L	J	s

Attachment A

Nonconformance Summary Tables

Table A-1 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
GWD-103013	1,2-DICHLOROETHANE-D4	121	70	120
GWD-103013RA	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113DL	1,2-DICHLOROETHANE-D4	143	70	120
RE-103-D2-GW103113	1,2-DICHLOROETHANE-D4	132	70	120
RE-103-D2-GW103113DL	1,2-DICHLOROETHANE-D4	137	70	120
RE-103-D3-GW103113	1,2-DICHLOROETHANE-D4	141	70	120
RE-104-D1-GW103013	1,2-DICHLOROETHANE-D4	124	70	120
RE-104-D1-GW103013RA	1,2-DICHLOROETHANE-D4	133	70	120
RE-104-D2-GW103013	1,2-DICHLOROETHANE-D4	131	70	120
RE-104-D2-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-104-D3-GW103113RA	1,2-DICHLOROETHANE-D4	134	70	120
RE-105-D1-GW103013	1,2-DICHLOROETHANE-D4	122	70	120
RE-105-D1-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-105-D2-GW103013	1,2-DICHLOROETHANE-D4	133	70	120
RE-105-D2-GW103013DL	1,2-DICHLOROETHANE-D4	136	70	120

DL – dilution analysis

RA - reanalysis

Table A-2 - Matrix Spikes

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
RE-105-D2-GW103013	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	143	145	73	126	2	20
RE-105-D2-GW103013	1,1-DICHLOROETHENE	128	131	70	130	2	20

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



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CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Client: Resolution Consultants / AECOM Contact: Eleanora Vivarone Phone #: (845) 425-4980 Fax #: (845) 425-4989
 Address: Ruston Corporate Park City: Chestnut Ridge State: NY Zip Code: 10977
100 Reed Schoolhouse Rd Suite B-1
 Purchase Order #: _____ Proj. Name / No. NWIRP Bethpage 00266526 Katahdin Quote # _____

Bill (if different than above) Address _____
 Sampler (Print / Sign) _____ Copies To: _____

LAB USE ONLY WORK ORDER #: SG-8535
 KATAHDIN PROJECT NUMBER _____
 REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP °C TEMP BLANK INTACT NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	Filt.																
					YO	YN	YO	YN	YO	YN	YO	YN	YO	YN	YO	YN					
	RE 105-D1 GW 103013	10-30-13 / 1040	GW	3	✓																
	RE 105-D2 GW 103013	10-30 / 1200	GW	3	✓																
	GWD-103013	10-30-13 / 1010	GW	3	✓																
	RE 105 D2 GW MS 103013	10-30 / 1200	GW	3	✓																
	RE 105 D2 GW MS 103013	10-30 / 1200	GW	3	✓																
	RE 104 D1 GW 103013	10-30 / 1515	GW	3	✓																
	RE 104 D2 GW 103013	10-30 / 1730	GW	3	✓																
	RE 103 D1 GW 103113	10-31 / 1140	GW	3	✓																
	RE 104 D3 103113	10-31 / 1150	GW	3	✓																
	RE 103 D3 103113	10-31 / 1635	GW	3	✓																
	RE 103 D2 GW 103113	10-31 / 1540	GW	3	✓																
	/	/																			
	/	/																			
	/	/																			
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COMMENTS _____

Relinquished By: (Signature) <u>[Signature]</u>	Date / Time 10-31-13 / 18:00	Received By: (Signature) <u>[Signature]</u>	Date / Time 11-1-13 / 09:00	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-1
Client ID: RE-105-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4031.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.9	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.40	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.46	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	75	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.0	%					
Toluene-d8		91.1	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		98.8	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-3
Client ID: GWD-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4032.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.37	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	1.9	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.27	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	70	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.7	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	121.	%					
Dibromofluoromethane		95.9	%					

*KMR
12/21/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-4
Client ID: RE-105-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4039.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J M	5.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J MM	21	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	2.0	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	3.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	2.3	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	4.2	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.86	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J EMM	1200	ug/L	+ 20	+ 20	+ 20	0.28 5.6	0.50 10
Tetrachloroethene	J	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	1.1	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		90.6	%					
1,2-Dichloroethane-d4	*	133.	%					
Dibromofluoromethane		100.	%					

*KML
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-5
Client ID: RE-104-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4033.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	Y	1.7	ug/L	1	1	1.0	0.35	0.50
Freon-113	Y	6.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.79	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.40	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	160	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	1.7	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.6	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		99.5	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-6
Client ID: RE-104-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4034.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.61	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	1.4	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.2	%					
Toluene-d8		90.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		104.	%					

*KMR
12/21/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-7
Client ID: RE-103-D1-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4035.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	8.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	12	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.5	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	4.8	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.86	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.45	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.75	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	930 810	ug/L	+ 10	+ 10	+ 10	0.28 2.8	0.50 5.0
Tetrachloroethene	J	2.3	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.70	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		87.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		105.	%					

*KAR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-8RA
Client ID: RE-104-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4062.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.3	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	134.	%					
Dibromofluoromethane		104.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-9
Client ID: RE-103-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4057.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.54	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	1.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.61	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.76	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.68	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	340-120	ug/L	+ 2	+ 2	1.0-2.0	0.28	0.56 0.50 1.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.5	%					
Toluene-d8		86.9	%					
1,2-Dichloroethane-d4	*	141.	%					
Dibromofluoromethane		108.	%					

*KMR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-10
Client ID: RE-103-D2-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4037.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	5.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.2	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	1.6	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	850 830	ug/L	1 10	1 10	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		94.9	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	132.	%					
Dibromofluoromethane		102.	%					

*KMR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-11
Client ID: TB-GW-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4030.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.5	%					
Toluene-d8		88.9	%					
1,2-Dichloroethane-d4		117.	%					
Dibromofluoromethane		99.4	%					

-Analytical Data Table

Location	Sample Date	Sample ID	Sample Interval	Sample type code	NYSDEC Groundwater Guidance or Standard Value (Note 1)	0.05 mg/L	0.1 mg/L	0.5 mg/L	1.0 mg/L
						B	B	B	B
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5					0.75 J	0 (\$)	0 (\$)	0 (\$)
1,1,2,2-TETRACHLOROETHANE	5					0 (\$)	0 (\$)	0 (\$)	0 (\$)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5					12 J	0 (\$)	5.6 J	1.6 J
1,1,2-TRICHLOROETHANE	1					0.70 J	0 (\$)	0.79 J	0 (\$)
1,1-DICHLOROETHANE	5					1.5 J	0 (\$)	1.2 J	0.61 J
1,1-DICHLOROETHENE	5					8.8 J	0 (\$)	1.4 J	0.54 J
1,2-DICHLOROETHANE	5					0 (\$)	0 (\$)	0 (\$)	0 (\$)
CARBON TETRACHLORIDE	5					0.45 J	0 (\$)	0.50 J	0 (\$)
CHLOROBENZENE	5					0 (\$)	0 (\$)	0 (\$)	0 (\$)
CHLOROFORM	7					0.86 J	0 (\$)	1.6 J	0.68 J
CIS-1,2-DICHLOROETHENE	5					4.8 J	0 (\$)	2.1 J	0.76 J
TETRACHLOROETHENE	5					2.3 J	0.72 J	0 (\$)	0 (\$)
TRANS-1,2-DICHLOROETHENE	5					0 (\$)	0 (\$)	0 (\$)	0 (\$)
TRICHLOROETHENE	5					810 J	2.7	830 J	120
Total VOC						842.16	3.42	843.19	124.19

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is

approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

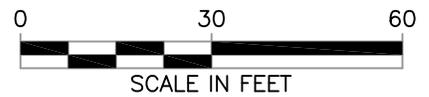
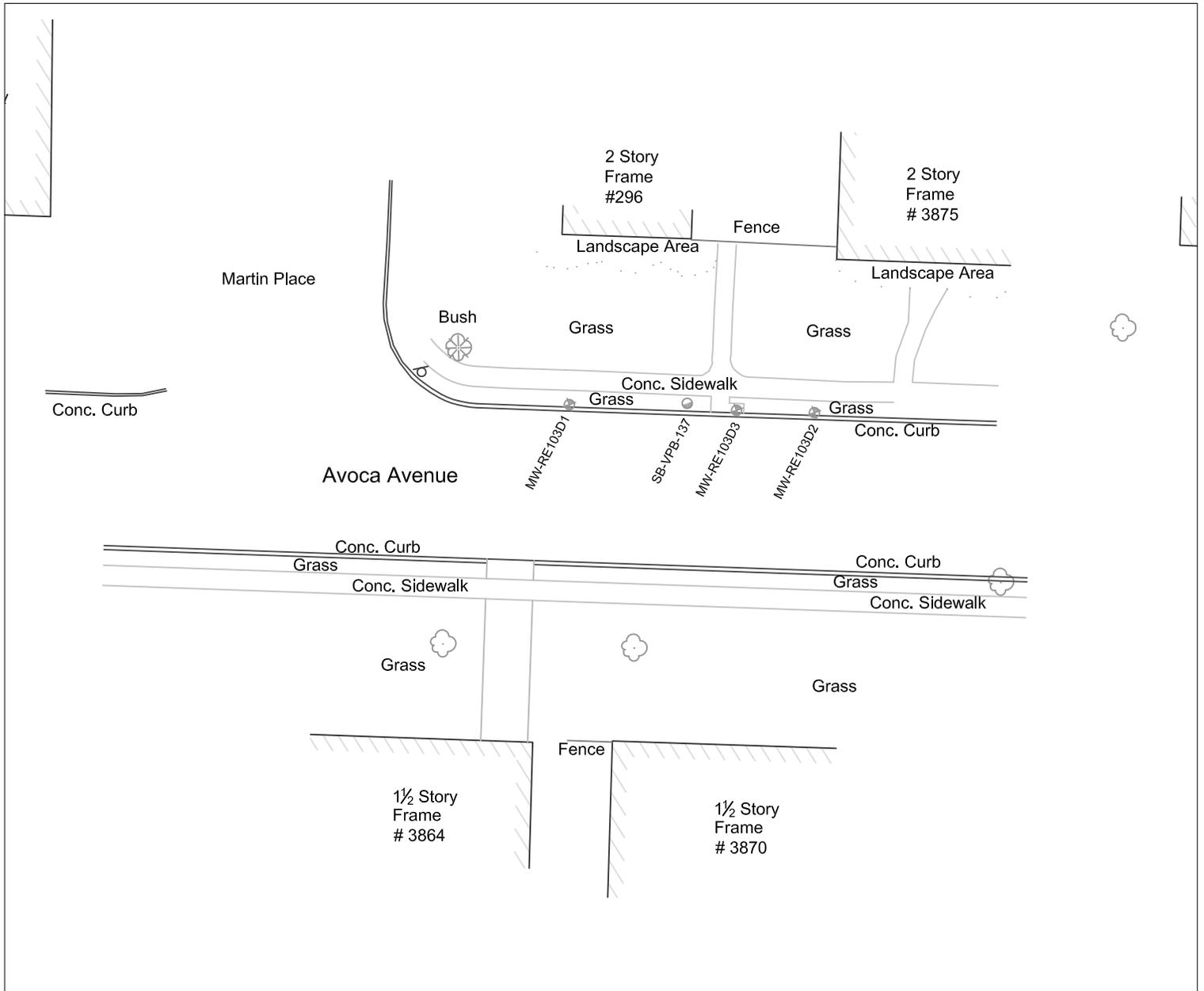
Bold and Italics = Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Section 7

Survey

-



Vertical Profile Boring 137 Survey Locations

Adapted from mapping provided by GeodCorp, 10/22/2013

SURVEY RESULTS, BEETHPAGE, LONG ISLAND, NY

Project No: 3276

Client: AECOM

Horizontal Datum: NAD 83(2011) NYLI3104

Vertical Datum: NAVD 88

Units: U.S. Survey Feet

Survey date: 10/14/2013

Description	Point	Northing	Easting	Latitude	Longitude	Ground	Rim	PVC
SB-VPB-137	1032	206694.84	1125135.13	40-43-58.38	73-29-29.94	93.77	N/A	N/A
SB-VPB-138	1073	207008.61	1127722.15	40-44-01.33	73-28-56.32	89.98	N/A	N/A
SB-VPB-139	1124	205055.04	1126639.88	40-43-42.09	73-29-10.52	87.50	N/A	N/A
MW-RE103D1	1029	206694.59	1125111.76	40-43-58.38	73-29-30.25	93.80	93.82	93.00
MW-RE103D2	1030	206692.99	1125160.34	40-43-58.36	73-29-29.62	93.63	93.64	92.73
MW-RE103D3	1031	206693.46	1125144.91	40-43-58.37	73-29-29.82	93.74	93.79	92.76
MW-RE104D1	1035	207037.00	1127745.61	40-44-01.61	73-28-56.01	90.53	90.40	89.80
MW-RE104D2	1037	207000.04	1127708.99	40-44-01.25	73-28-56.49	90.79	90.67	90.12
MW-RE104D3	1038	206993.50	1127695.55	40-44-01.19	73-28-56.66	90.87	90.76	90.20
MW-RE105D2	1123	205064.02	1126652.42	40-43-42.18	73-29-10.36	87.59	87.56	87.18
MW-RE105D1	1122	205072.87	1126664.43	40-43-42.27	73-29-10.20	87.62	87.69	87.23
MW-GM26D2	1034	207046.08	1127750.87	40-44-01.70	73-28-55.94	90.61	90.50	90.33
MW-GM36D	1036	207028.45	1127741.01	40-44-01.53	73-28-56.07	90.65	90.53	90.37
MSS-2	1071	207049.69	1127751.61	40-44-01.74	73-28-55.93	90.53	90.53	N/A
MSS-1	1072	206995.70	1127702.44	40-44-01.21	73-28-56.57	90.75	90.75	N/A

Appendix B

VPB 138 and RE104D1, RE104D2, RE104D3

**Vertical Profile Boring 138 and
RE104D1, RE104D2, RE104D3**

- 1. VPB 138 Boring and Gamma Log**
- 2. VPB 138 Gamma and PCE/TCE plot**
- 3. VPB 138 Groundwater Sample Log Sheets**
- 4. VPB 138 Analytical Data Validation**
 - Analytical Data Sheets
 - Chain of Custody Records
 - Validation Letter and Table
- 5. VPB 138 Analytical Data Table**
- 6. Monitoring Wells RE104D1, RE104D2, RE104D3**
 - Boring Logs
 - Well Construction Logs
 - Well Development Logs
 - Groundwater Sample Log Sheets
 - Analytical Data Validation
 - Analytical Data Table
- 7. Survey**

Section 1

VPB 138 Boring and Gamma Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 207008.61	Easting: 1127722.13	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 89.98		Well Screen Interval (ft):
Start Date: 3/7/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 4/26/2013			Total Depth (ft): 935.0

Note: Unless denoted by a splitspoon sample (indicated by the presence of a PID reading), boundaries between strata are approximate only and may be transitional because they are based on screened wash samples collected during mud rotary drilling at 5 ft. intervals.

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	20 40 60 80							
2					Upper Glacial	SW		Brown fine to medium SAND, little coarse Sand, trace silt.
4								
6								
8						SW		Orange brown fine-coarse SAND, trace Gravel, trace silt.
10								
12						SM		Orangish brown fine to coarse SAND, little fine Gravel, little silt
14								
16								
18						SP		Orange medium SAND, little coarse Sand, little silt
20								
22								
24								
26						SM		Brownish orange medium SAND, little coarse Sand, trace fine gravel, little fine sand, little silt.
28								
30								
32						SM		Brownish orange medium SAND, little coarse Sand, trace fine gravel, little fine sand, little silt.
34								
36								
38								
40						SM		Brownish orange fine to medium SAND, little Silt
42								
44								
46								
48								
50								
52						SM		Brownish orange fine to medium SAND, little Silt
54								
56								
58								

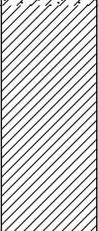
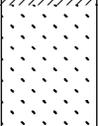
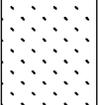
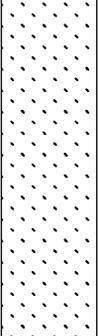
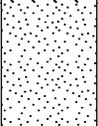
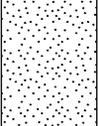
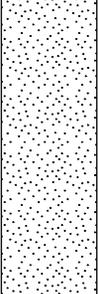
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DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
58								
60			<0.5	<0.5	Upper Glacial			Brownish orange fine to medium SAND, little Silt <i>(continued)</i>
62						SM		
64								Orangish-brown coarse SAND, some fine subrounded-subangular Gravel, little medium sand
66								
68						SW		
70								
72								
74								Yellowish orange fine SAND, little medium Sand, little coarse sand, trace gravel, little orange clay
76								
78						SW-SC		
80								
82								
84								
86						SW		Yellowish orange medium SAND, little subangular coarse Sand, little angular fine gravel
88								
90								Orange medium SAND, little subangular coarse Sand.
92						SW		
94								Tan subangular coarse to medium SAND
96						SW		
98								
100								Yellowish orange coarse to medium SAND, little silt/white clay
102					Magothy	SM		Note: Top of Magothy Formation not identified in the field. Upper Glacial assumed to end at approximately 100 ft bgs based on literature.
104								Yellowish orange fine to medium SAND, little subrounded Gravel, little grey clay/silt
106								
108								
110						SM		
112								
114								Orange streaks of red coarse to medium SAND, little fine Sand, little silt
116								
118						SM		
120								
122								
124			<0.5	<0.5		SW		Bright orange coarse to medium Sand, little fine Sand

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
126					Magothy	SW		Bright orange coarse to medium Sand, little fine Sand <i>(continued)</i>
128						SW-SC		Bright orange fine SAND, little medium Sand, little grey clay
130								Tan medium SAND, little coarse Sand, little fine sand
132								
134								
136								
138						SW		
140								
142								
144								
146						SW		Orange medium-fine SAND, little coarse Sand
148								
150						SW		Orange medium-fine SAND, little coarse Sand
152								
154		0.3						
156						MLCL		Layers of grey orange SILT and CLAY, some fine to medium Sand
158								
160			<0.5	<0.5				
162								
164					SM		Orange-grey medium-fine SAND, little grey/orange Silt/Clay	
166								
168								
170								
172					SW-SC		Orange fine to medium SAND, little grey Clay, one iron nodule	
174								
176								
178					SW-SC		Orange fine-medium SAND, little grey Clay	
180								
182								
184								
186					SC		Brown/tan fine-medium SAND, little grey Clay	
188								
190					SC		Tan fine-medium SAND, little black/grey Clay	

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION		
192					Magothy	SC		Tan fine-medium SAND, little black/grey Clay <i>(continued)</i>		
194						CL		Greyish/black CLAY and SILT, little fine Sand		
196							SM		Tannish-orange medium SAND, black flakes of lignite	
200								SM		
202			0.32	<0.5					CL		Orange/white black CLAY, little fine-medium Sand, several iron nodules
204							SM			Tannish orange fine-medium SAND, little orange white Clay, trace coarse sand
206								SM		
208									SM	
210			<0.5	<0.5				SP			Tannish orange medium - fine SAND
212										
214										
216										
218										
220										
222										
224										
226										
228										
230										
232										
234										
236										
238										
240										
242										
244										
246										
248										
250										
252										
254										
256										

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
258					Magothy	SP		Tannish orange medium - fine SAND <i>(continued)</i>
260			6.8	1.0		SP		Tannish orange fine-medium SAND, little orange white Clay, several iron nodules
262					CL		Black/grey CLAY, little fine-medium Sand	
264								
266								
268								
270								
272								
274								
276								
278								
280			<0.5	<0.5				
282								
284								
286								
288								
290						SP-SM		Tan Black medium to fine SAND, little Silt
292								
294								
296								
298								
300			1.6	1.1		SP-SM		Brown medium to fine SAND little Silt
302								
304								
306						SP		Tannish orange and black medium SAND, little fine Sand
308								
310								
312								
314								
316						SP		Tannish orange medium SAND, little fine Sand
318								
320								
322								

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
324					Magothy			Tannish orange medium SAND, little fine Sand <i>(continued)</i>
326						SP		Black CLAY, little medium Sand
328						CL		
330								
332						SP-SM		
334								
336						SP		
338								
340			32	3.3		CL		
342								
344						SP		
346								
348						CL		
350								
352					SP			
354								Tan fine-medium SAND, little grey Clay
356					SP			
358			3.6	<2.0				Tannish grey medium-fine SAND, little grey Silt
360					SP			
362								
364					SP-SC			
366								
368					MLCL			
370								
372					SP-SC			
374								
376					MLCL			
378								
380			78	<0.5	SP-SC			
382								
384					SP-SC			
386								
388					SP-SC			

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
390					Magothy			Tan medium SAND, little fine Sand, trace fine sand/silt	
392									
394									
396							SP		
398									
400			90	0.73					
402							SP-SC		Grey medium to fine SAND, little Clay/Silt
404									
406							SP-SC		Tan medium to fine SAND, little grey white Clay, little lignite
408							SP-SC		
410									
412							SP-SC		Tan medium to fine SAND, little grey white Clay, little lignite
414									
416							SP-SC		Tan medium to fine SAND, little grey white Clay, little lignite
418							SP-SC		
420			4.5	<2.5					
422							SP-SC		Tannish grey fine to medium SAND, little Clay, muscovite flakes
424									
426						SP-SC			
428									
430									
432						SM		Grey fine SAND and SILT/CLAY, several iron nodules	
434									
436									
438						SM		Grey fine SAND and SILT/CLAY	
440			0.68	<0.5					
442						SM		Grey fine-medium SAND, some Silt	
444									
446						SM		Grey fine-coarse SAND, little silt	
448								Grey-Black SILT/Clay, little fine sand	
450									
452						MLCL			
454									

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
456	20 40 60 80				Magothy	MLCL		Grey-Black SILT/Clay, little fine sand <i>(continued)</i>
458			1.3	<0.5				
460						SP		
462								
464								
466								
468								
470								
472								
474								Tannish grey medium to fine SAND
476						SW		
478								
480			<2.5	<2.5		SC		Tannish grey medium to fine SAND, little grey/black Clay
482								
484								
486						SW		Tannish grey fine-coarse SAND
488								
490								
492						SW		Tannish grey medium-fine SAND
494								
496								
498						SW		Tannish grey medium-coarse SAND
500								
502						SW		Tannish grey medium-coarse SAND
504			3.7	<0.5				
506								
508						SW		Tannish Grey coarse-medium SAND
510								
512								
514								
516						CL		Grey CLAY and fine-medium SAND
518								
520			1.1	<0.5				
522						SW-SC		Tannish grey medium-coarse SAND, little Clay/silt, flakes of lignite

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
522	20 40 60 80				Magothy			
524								Tannish grey medium-coarse SAND, little Clay/silt, flakes of lignite (continued)
526								
528								
530								
532						SW-SC		
534								
536								
538								
540								
542								
544								
546						SW		Tannish grey medium-coarse SAND
548								
550								
552						SW		Tannish grey medium-coarse SAND, lignite flakes
554								
556								
558								
560			0.54	<0.5		SW		Tannish grey medium-coarse SAND, lignite flakes
562								
564								
566						SW-SC		Greyish/tan fine-coarse SAND, little grey Silt/clay
568								
570								
572								
574								
576						SC		Tan coarse SAND to fine subrounded Gravel, little fine to medium sand, and grey silt/clay
578								
580			<2.0	<2.0				
582								
584								
586						SW-SC		Tan medium to coarse SAND, little fine Sand, little silt/clay
588								

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
590					Magothy	SW-SC		Tan medium to coarse SAND, little fine Sand, little silt/clay <i>(continued)</i>	
592									
594									
596									
598									
600			<2.0	<2.0			SW		Tan medium to coarse SAND, little fine Sand
602									
604							SW		Brown Tan medium SAND, little coarse Sand, trace silt
606									
608									
610							SW		Brown Tan medium-coarse SAND, little grey Clay
612									
614									
616							SW		Tan very coarse SAND, little medium Sand, trace white clay
618									
620			0.4	<0.5		SW		Tan medium SAND, little coarse Sand, trace fine subrounded gravel	
622									
624						SW		Brown-Tan medium SAND, little coarse Sand, trace silt	
626									
628									
630									
632						MLCL		Grey SILT/Clay, little fine-coarse sand, trace gravel	
634									
636									
638									
640		0.5				SM		Grey fine SAND, little medium Sand, little silt, one small orange layer	
642									
644			<0.5	<0.5		SW		Tan fine-medium SAND, flecks of black lignite, muscovite flakes, 1 iron nodule	
646									
648									
650						SW		Tan fine-medium SAND, flecks of black lignite, muscovite flakes, 1 iron nodule	
652									
654						ML		SILT little Clay, little fine to coarse sand	

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
656					Magothy	ML		SILT little Clay, little fine to coarse sand <i>(continued)</i>
658						SW		Tan, very coarse SAND-fine Gravel, little fine-medium sand, little silt
660		<2.0	<2.0					
662						SW		Tan coarse SAND - fine Gravel, little fine-medium sand
664								
666						GP		Tan fine GRAVEL, some coarse Sand, trace grey clay
668								
670						GP		Tan fine GRAVEL, some coarse Sand, trace grey clay
672								
674						SP		Tan medium SAND, little lignite
676								
678						CL		Brown grey CLAY, little fine-medium Sand
680								
682						SW		Tan medium SAND, little coarse Sand, little lignite
684		<0.5	<0.5					
686						CL		Greyish-tan white CLAY, little fine-coarse Sand
688								
690						SW-SC		Greyish-tan medium-coarse SAND, some fine Gravel, trace grey clay
692								
694						SW		Grey medium SAND, little coarse Sand, flecks of black lignite, little fine sand
696								
698					SW		Grey tan medium SAND, trace coarse Sand, trace grey clay	
700		<5.0	<5.0					
702					SW		Grey tan medium SAND, trace coarse Sand, trace grey clay	
704								
706					SW		Grey tan very coarse SAND, little fine Gravel, little medium sand, trace grey clay	
708								
710		<2.0	<2.0		SW		Grey tan very coarse SAND, little fine Gravel, little medium sand, trace grey clay	
712								
714		<2.0	<2.0		GW		Tan fine subrounded to subangular GRAVEL	
716								
718					GW		Tan fine to coarse subrounded GRAVEL; little coarse Sand	
720		<5.0	<5.0					

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
722					Magothy	GW		Tan fine to coarse subrounded GRAVEL; little coarse Sand <i>(continued)</i>
724						SP		Tan and orange coarse SAND - fine Gravel
726						SP GP		Tan and orange coarse SAND - fine Gravel
728								
730						SP-SC		Coarse SAND, little subrounded to subangular fine Gravel, little grey clay
732								
734						SC		Tannish grey coarse to medium SAND, little subrounded Gravel, trace fine sand, little grey clay
736								
738			<5.0	<5.0				
740								
742						CL		Grey CLAY, little coarse-medium Sand, trace fine gravel
744								
746								
748								
750					SW		Tan medium SAND, black flecks of lignite, little coarse sand, little fine sand	
752								
754								
756								
758					SW		Grey fine to medium SAND, trace Silt, trace coarse sand	
760								
762								
764								
766					SM		Tan fine-medium SAND, little Silt, laminae, interbedded with 0.5 in. grey clay, one laminae orange medium sand	
768								
770					SM		Tan fine-medium SAND, trace coarse Sand, little silt/clay	
772								
774								
776								
778								
780		0.3						
782								
784								
786								

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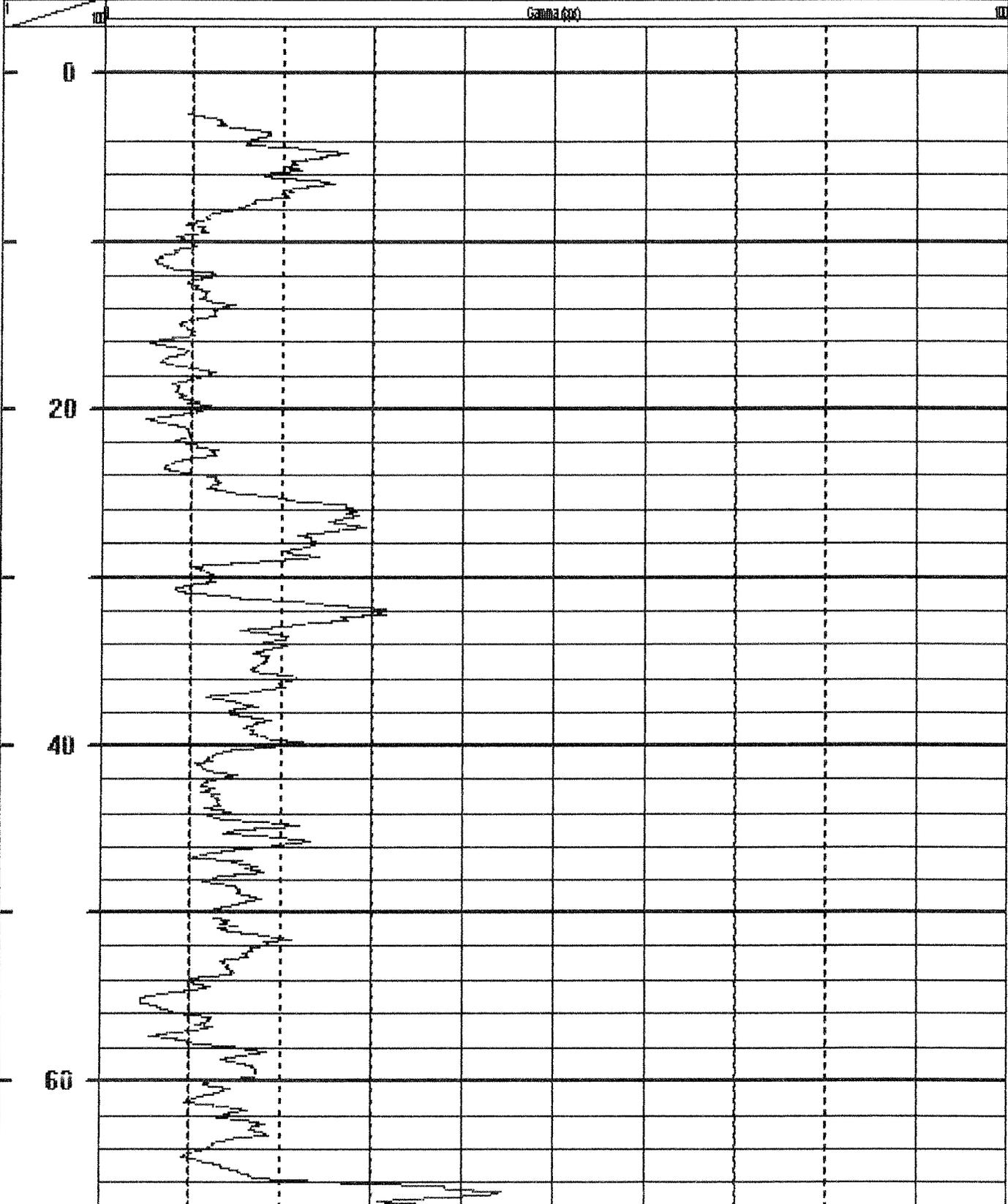
DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
788					Magothy			
790								Grey CLAY, little fine Sand, trace coarse sand, little silt
792								
794								
796						CL		
798								
800			<2.0	<2.0				
802								
804						SW-SM		Grey medium-coarse SAND, little fine Sand, trace silt
806								
808								
810						SW-SM		Grey medium-coarse SAND, little fine Sand, trace silt
812								
814								
816						SM		Greyish tan fine to medium SAND, little Silt and clay
818								
820		0						Grey fine SAND little Silt (silt ~20%), trace grey clay, (1 thin layer of grey clay)
822								
824			<0.5	<0.5				
826						SM		
828								
830								
832								
834								
836						SM		Grey medium SAND, little coarse Sand, little fine sand, little silt/clay
838								
840								Grey CLAY/SILT and fine SAND
842						CLML		
844								
846								
848								
850			<0.5	<0.5				Grey fine to coarse SAND and grey SILT/CLAY
852						SM		

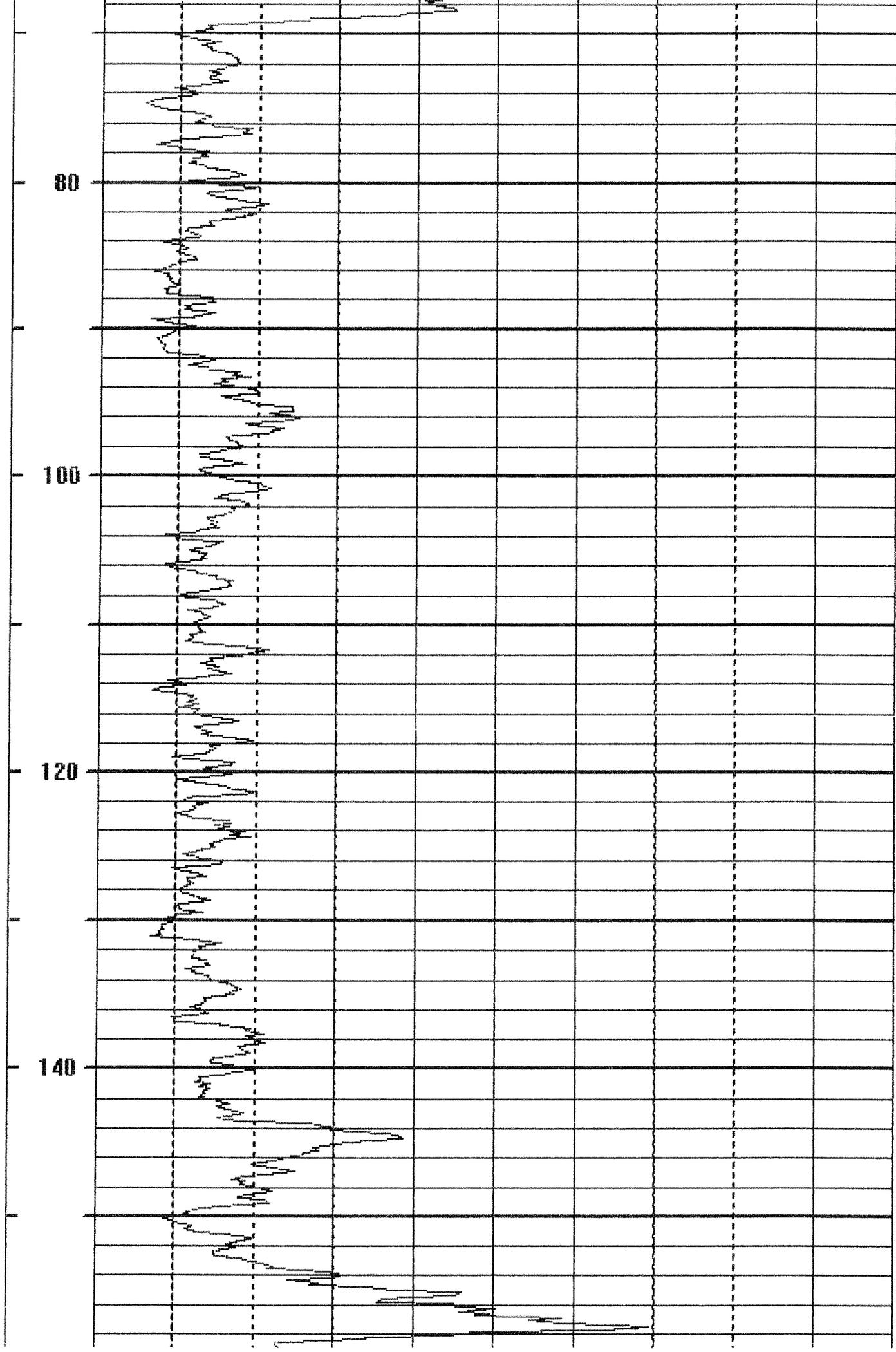
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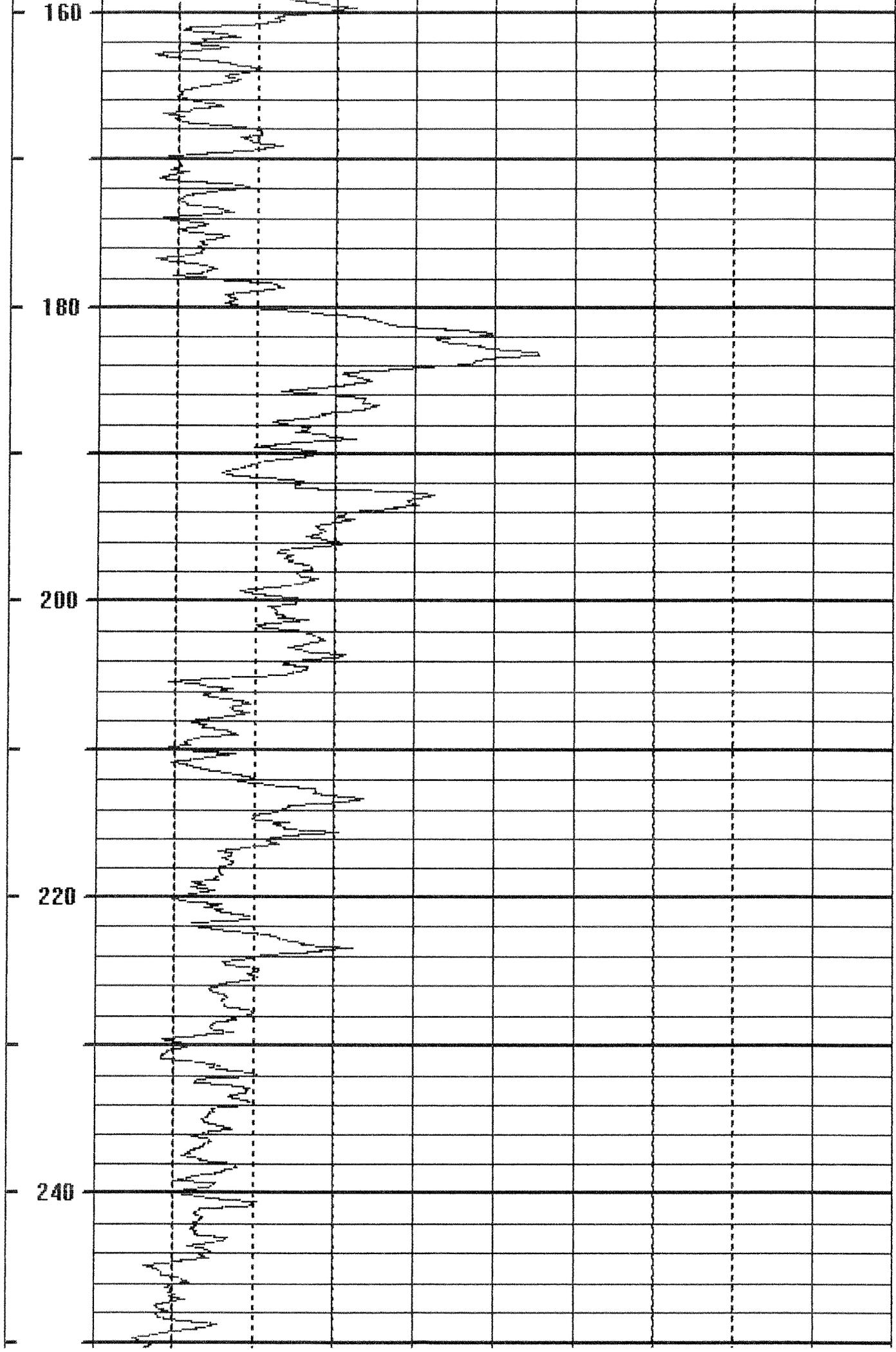
DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
854	20 40 60 80				Magothy			Brown fine SAND, little Silt (<i>continued</i>)	
856						SM			
858									
860			<0.5	<0.5					Grey CLAY/SILT little fine-coarse Sand, lignite
862									
864						CLML			
866									
868									
870									Grey CLAY/SILT and fine to coarse SAND
872									
874						CLML			
876									
878									
880		0				CL			Grey CLAY interbedded with fine Sand and Silt laminae
882									
884								Grey CLAY/SILT and angular fine-coarse Sand	
886									
888									
890									
892					CLML				
894									
896									
898									
900		0						Grey medium SAND, little fine Sand, little angular coarse little silt	
902					SWSM				
904								Grey medium-coarse SAND, little fine Gravel, little silt	
906					SM				
908								Grey medium-coarse SAND, little fine Gravel, little silt	
910					SM				
912					SC			Grey medium-coarse SAND and grey CLAY, little lignite	
914									
916								Grey Black SILT and CLAY, little black lignite, laminae	
918					Raritan	MLCL			
		0							

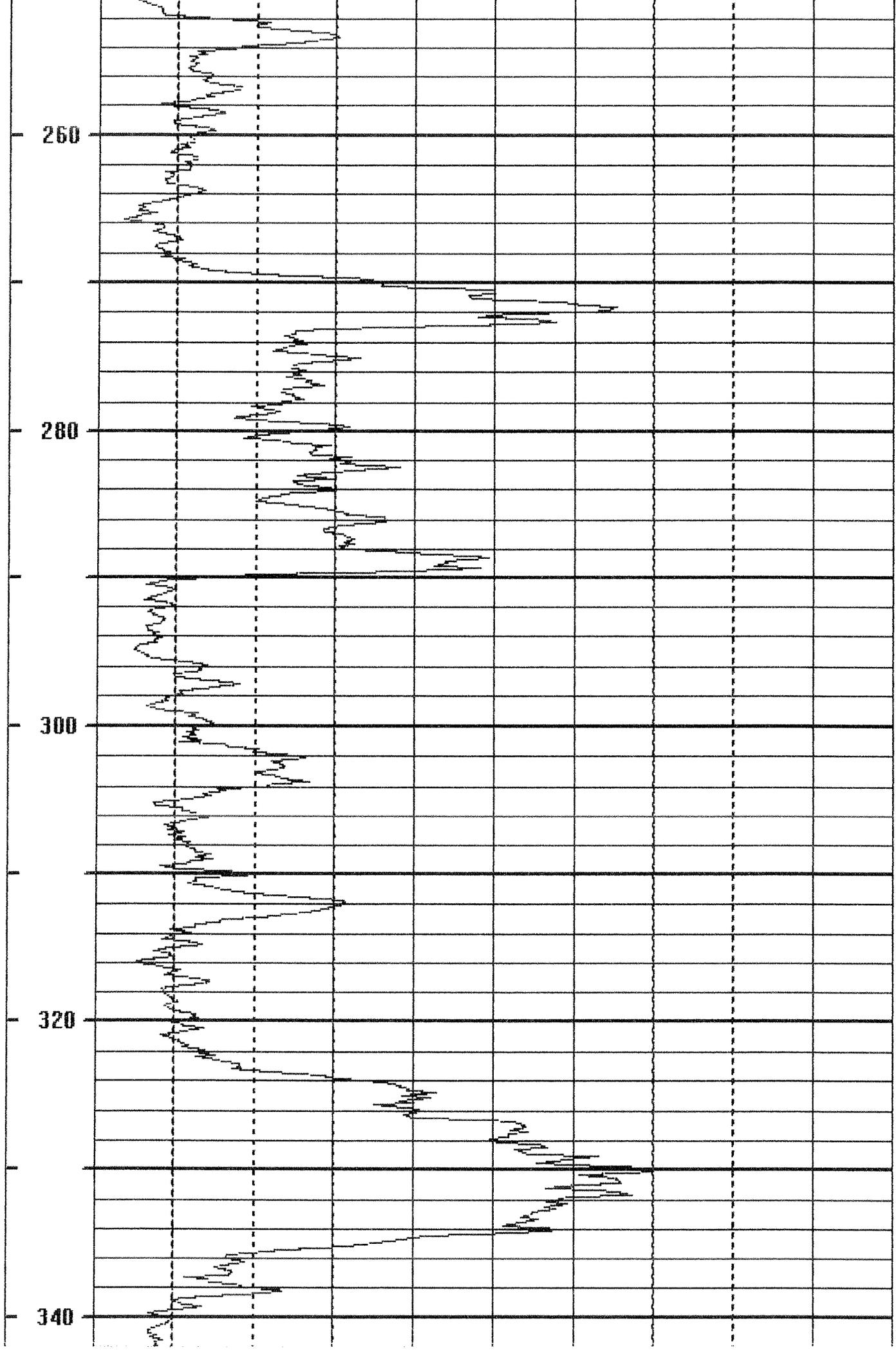
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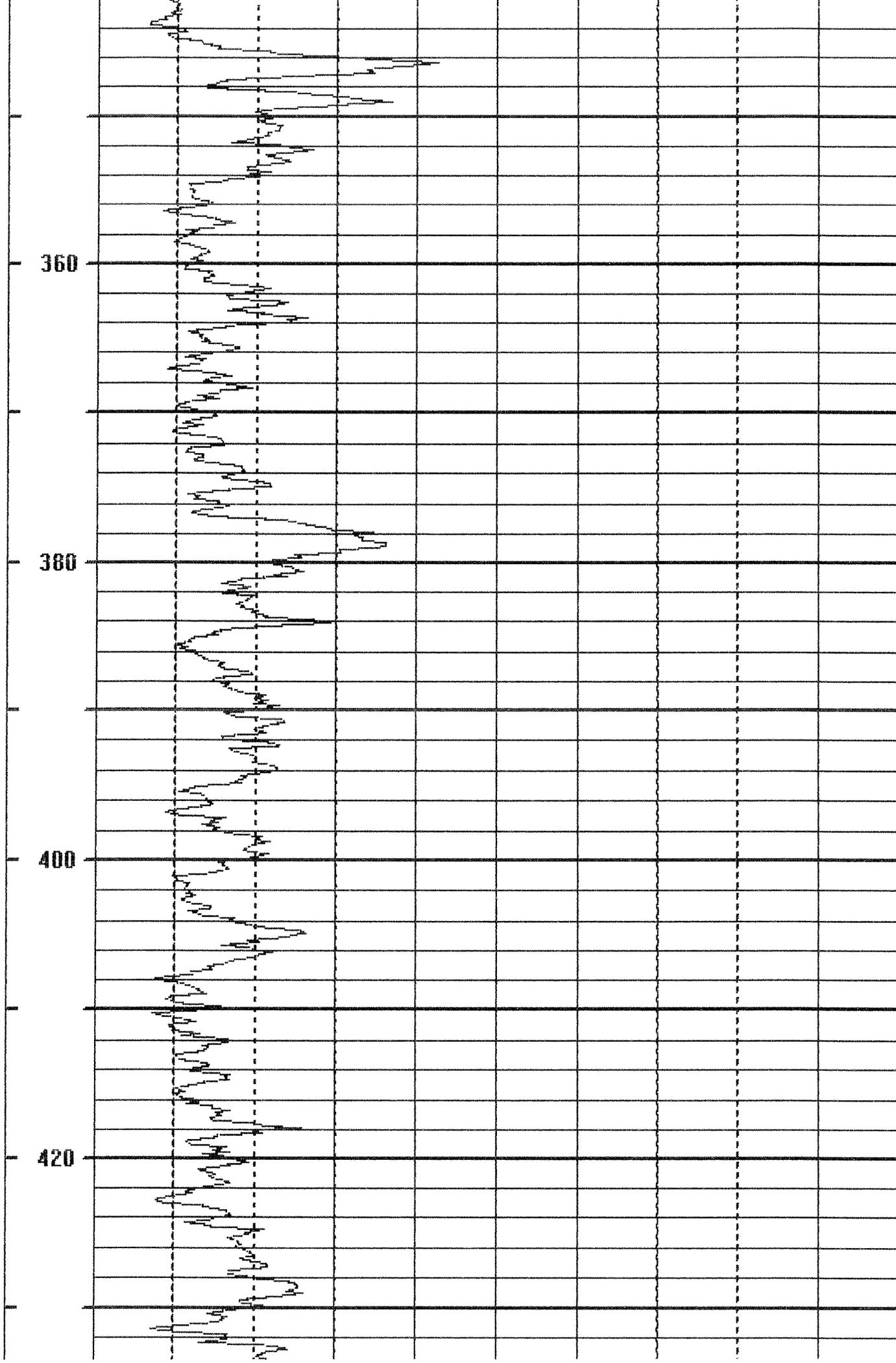
COMPANY: DELTA WELL & PUMP CO., INC.		Casing	
LOCATION: NWRP BETHPAGE			
Well	VPB-138	Depth Driller	
		Depth Logger	
Date	04/17/13	BH Fluid	
		Logged by:	CMC
File Name	729	Witness:	VALERIE

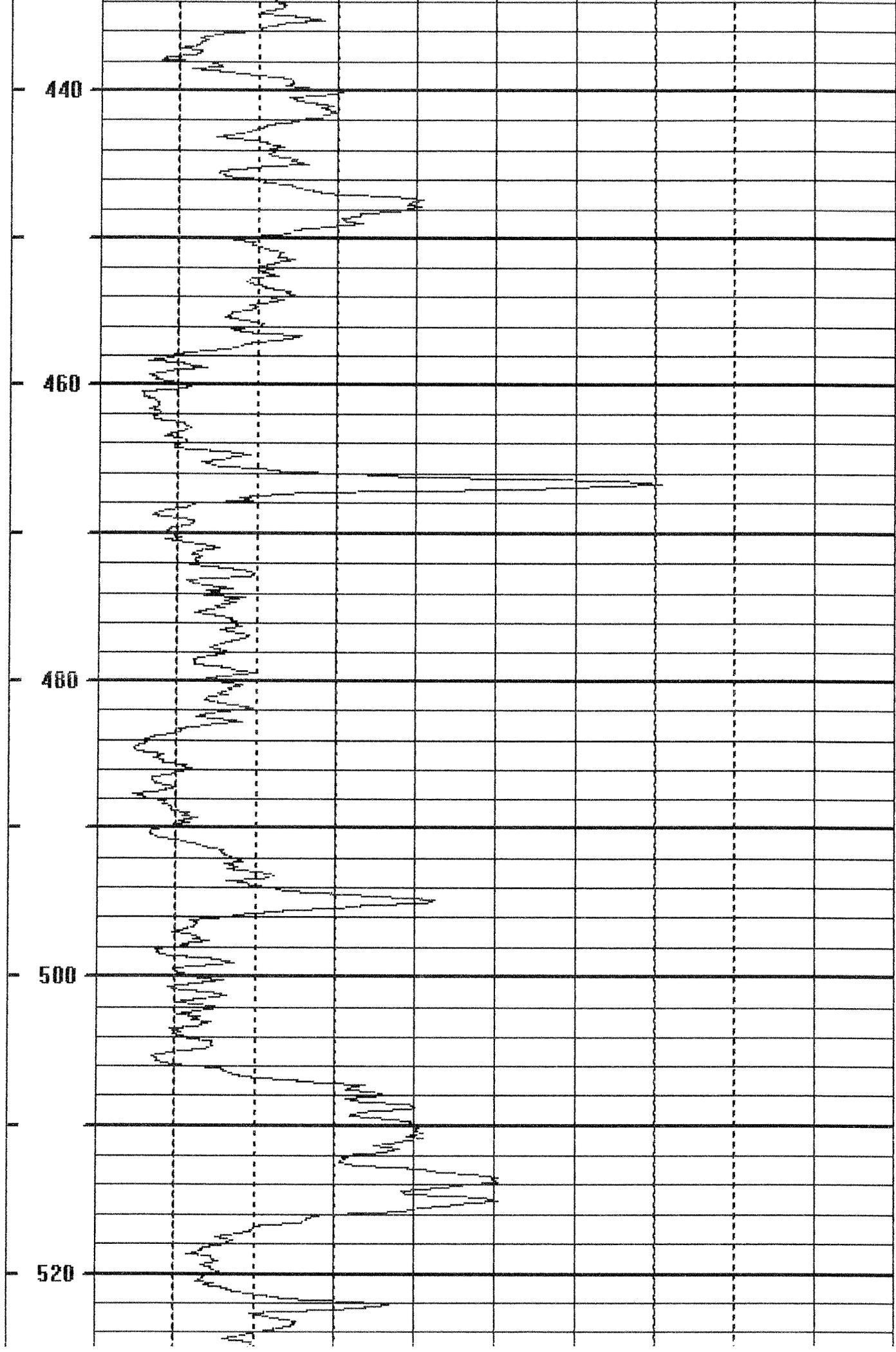


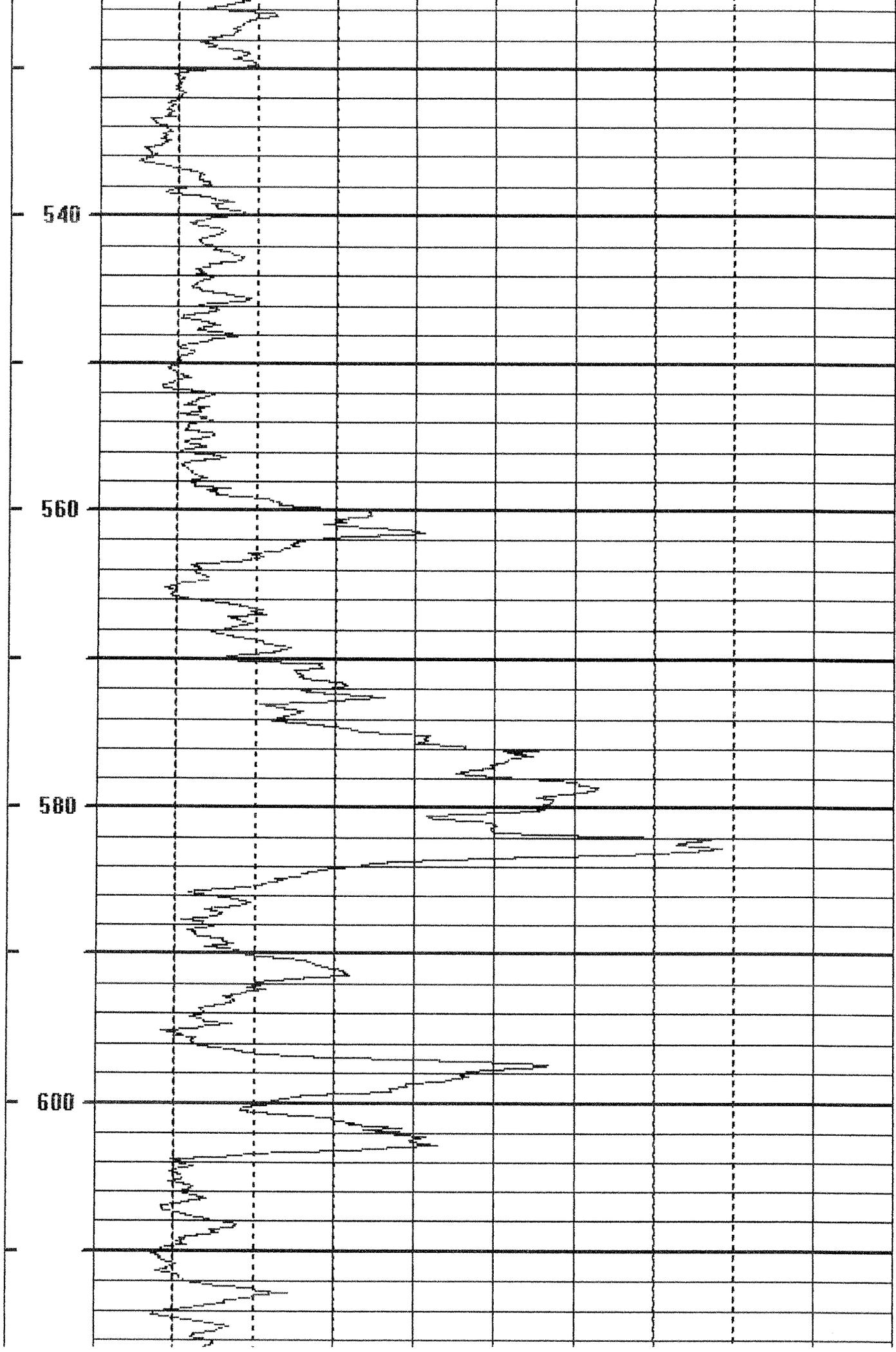


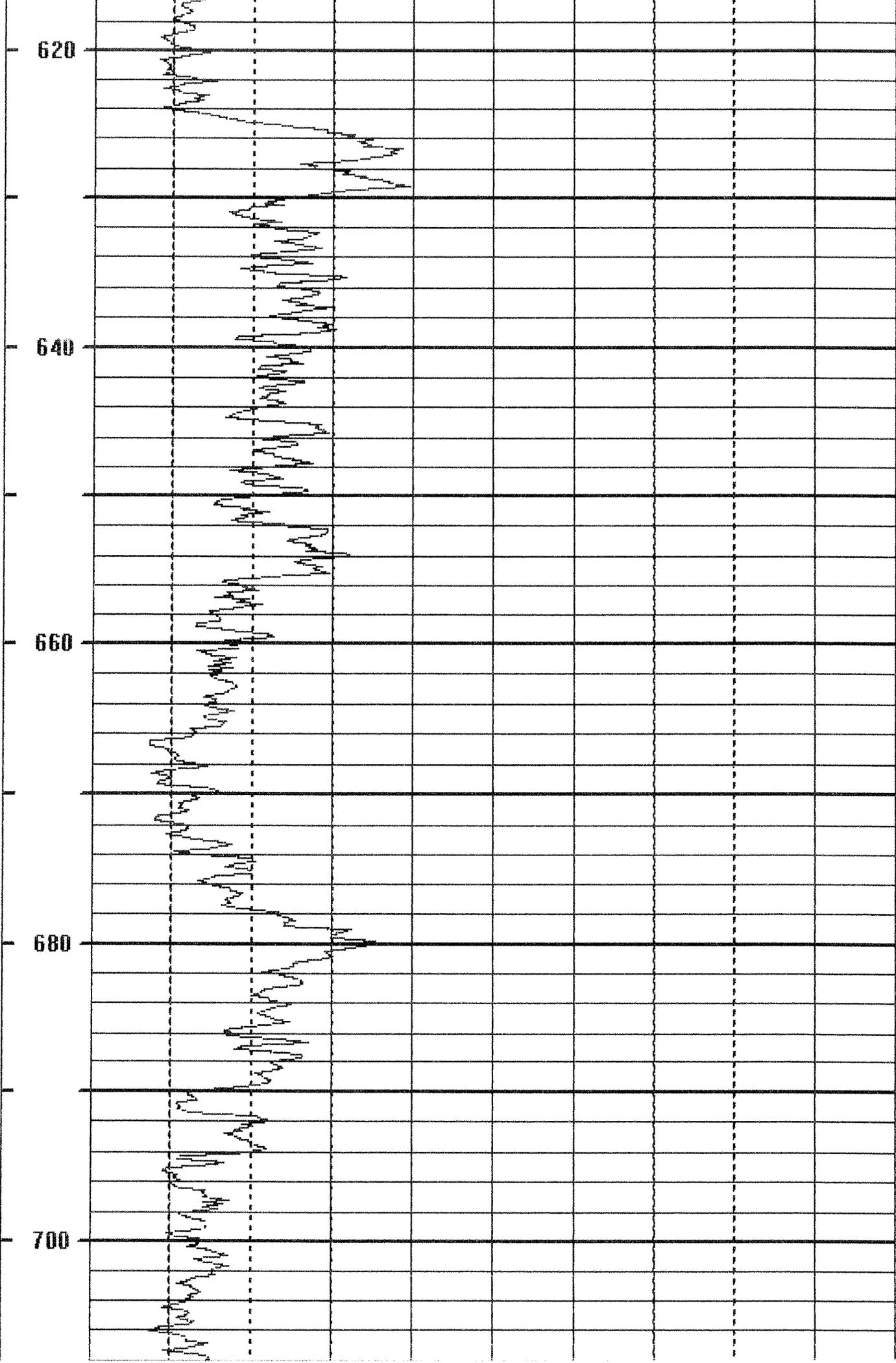


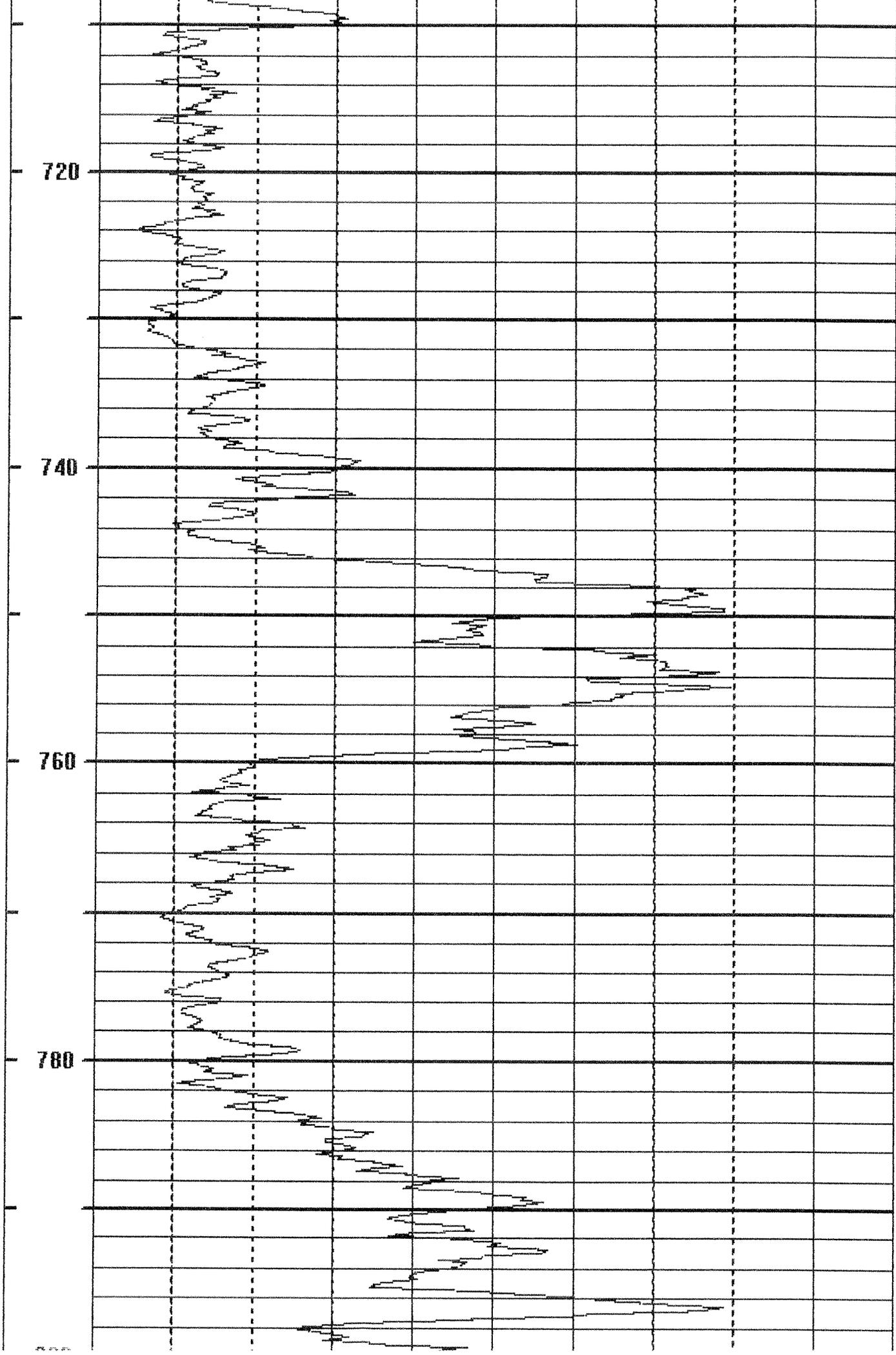


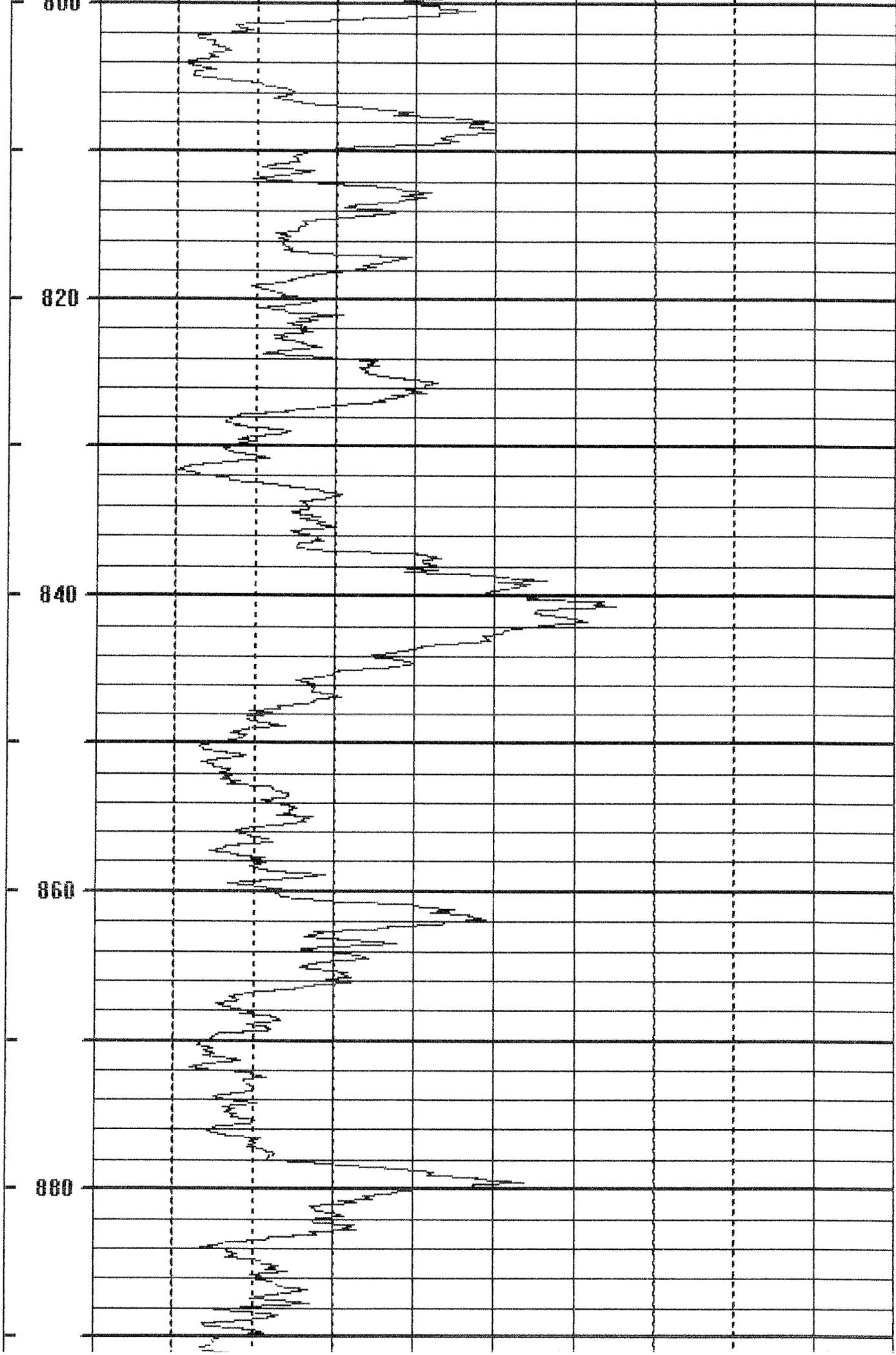








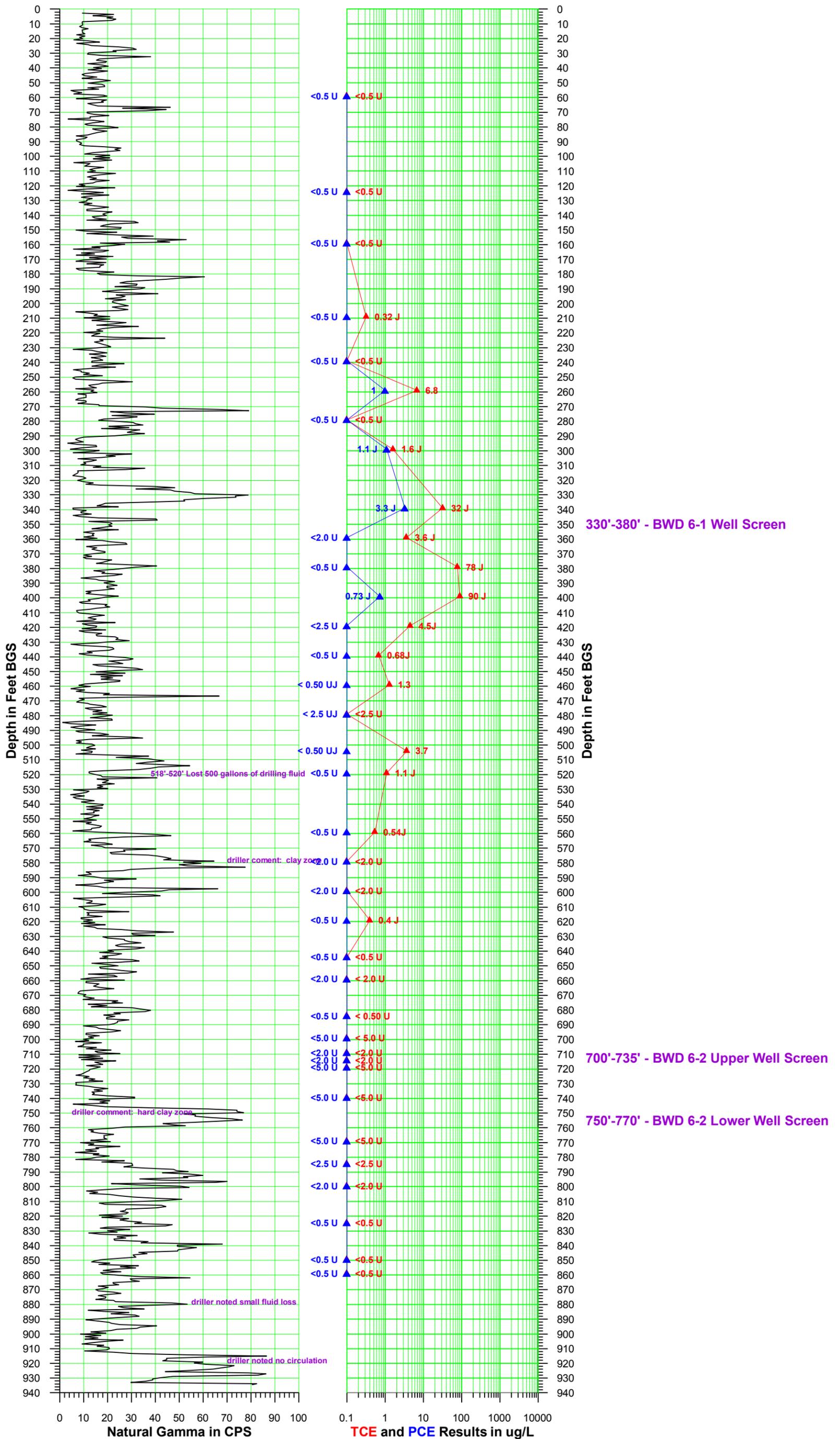




Section 2

VPB 138 Gamma and PCE/TCE Plot

Vertical Profile Boring VPB-138 Downward Run - April 18, 2013



Section 3

VPB 138 Groundwater Sample Log Sheets

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
60266526
Hilltop

Date: March 18-22, 25; 2013
VPB: 138

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
March 18, 2013	11:15	9.56	8.55	79	8.86	25.3	1064	58	60	Bright Orange
March 18, 2013	13:15	no recovery						98	100	
March 18, 2013	8:50	no recovery						118	120	
March 19, 2013	12:00	12.4	6.73	625	7.2	6.4	1009	123	125	Brown
		heavy rain equipment problems								
March 19, 2013	14:30	9.32	7.97	227	4.56	-3.2	954.4	158	160	Brown Cloudy
March 20, 2013	11:45	9.64	7.81	387	4.52	20	466.9	208	210	Brown. cloudy
March 21, 2013	11:00	8.58	8.74	238	9.3	2.1	168	238	240	Pale Brown Cloudy
March 21, 2013	14:15	8.22	7.23	138	9.92	5.7	1100	258	260	Brown Cloudy
March 21, 2013	15:30	8.1	5.81	158	8.38	46.8	418.6	278	280	Black grey Cloudy
March 22, 2013	10:15	8.4	7.5	120	4.55	14.0	1100 +	298	300	Brown very slight
		No Recovery					offscale	318	320	
March 25, 2013	10:45	11.58	5.95	519	3.86	29.3	541.3	338	340	Brown

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
60266526
Hilltop

Date: March 25-28, 2013
VPB: 138

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
March 25, 2013	12:45	8.66	5.90	451	9.54	4.0	1100+ off scale	358	360	Extremely Silty Brown
March 25, 2013	15:00	9.99	6.60	68	12.58	4.4	197	378	380	Brown
March 26, 2013	10:30	10.37	6.2	186	10.90	60.1	946.7	398	400	Brown Cloudy
March 26, 2013	12:30	11.58	5.95	519	2.82	34.1	1100+ off scale	418	420	Very Dark Brown
March 26, 2013	14:30	12.69	6.82	134	2.78	-15.9	see above	438	440	Grey Very Cloudy
March 27, 2013	9:45	10.74	10	564	4.5	-15.3	1100+ off scale	458	460	Brown Turbid Cloudy
March 27, 2013	12:00	12.48	9.10	573	2.01	16.3	see above	478	480	Very Silty Brown
March 27, 2013	14:15	no	recovery					498	500	
March 27, 2013	17:30	11.21	4.5	1566	5.98	180.2	1100	503	505	Brown
March 28, 2013	10:30	11.33	9.27	524	5.68	43.6	1100+ off scale	518	520	Brown Very Silty
March 28, 2013	14:30	no	recovery					538	540	

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
60266529
Hilltop

Date: March 28-29, 2013 & April 1, 2, 4, 5, 2013
VPB: 138

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color	
March 29, 2013	15:30	12.62	7.62	568	6.09	50.2	1100+ off scale	558	560	Very silty Brown	
March 29, 2013	10:30	13.04	7.63	464	3.55	15.8	see above	578	580	" "	
March 29, 2013	13:30	13.30	8.06	504	4.33	57.1	1100+ off scale	598	600	Very silty Brown	
April 1, 2013	10:45	16.2	5.8	822	2.68	121.2	off scale	618	620	Brown	
April 1, 2013	15:00	14.56	3.74*	214	3.19	193.1	176.6	643	645	Clear	
April 2, 2013	10:45	10.46	7.55	472	2.05	105.2	1100+ off scale	658	660	Brown	
April 2, 2013	13:00	no recovery						off scale	678	680	
April 4, 2013	12:00	12.31	5.78	138	5.91	393.2	861.8	683	685	Brown	
April 4, 2013	15:00	not enough sample							698	700	
April 5, 2013	10:45	13.45	8.32	198	2.84	-36	1100+ off scale	708	710	Very silty Brown	
April 5, 2013	14:35	not enough sample for YSI							713	715	Very silty Brown

* pH on YSI malfunctioning

Section 4

VPB 138 Analytical Data Validation

- Analytical Data Sheets
- Chain of Custody Records
- Validation Letter and Table

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1791	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 05/23/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1791_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 18, 2013 and March 19, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-031813-58-60	Ground water
VPB138-GW-031913-123-125	Ground water
VPB138-GW-031913-158-160	Ground water
TRIP BLANK_031813	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results

- | | |
|----|---------------------------------|
| NA | Field duplicates |
| ✓ | Internal standards |
| ✓ | Sample results/reporting issues |

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks and trip blank samples were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required. There were no detected target analytes reported in the trip blank sample. An equipment blank was not submitted with this sample set.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

There were no nonconformances identified with this data set.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1791-1
Client ID: 138-GW-031813-58-60
Project: Navy Clean WE15 NWIRP B
SDG: SG1791
Lab File ID: C0038.D

Sample Date: 18-MAR-13
Received Date: 20-MAR-13
Extract Date: 20-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121577

Analysis Date: 20-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		101.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1791-2
Client ID: GW-031913-123-125
Project: Navy Clean WE15 NWIRP B
SDG: SG1791
Lab File ID: C0039.D

Sample Date: 19-MAR-13
Received Date: 20-MAR-13
Extract Date: 20-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121577

Analysis Date: 20-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.3	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		101.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1791-3
Client ID: GW-031913-158-160
Project: Navy Clean WE15 NWIRP B
SDG: SG1791
Lab File ID: C0040.D

Sample Date: 19-MAR-13
Received Date: 20-MAR-13
Extract Date: 20-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121577

Analysis Date: 20-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.8	%					
Toluene-d8		100.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1791-4
Client ID: TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG1791
Lab File ID: C0037.D

Sample Date: 18-MAR-13
Received Date: 20-MAR-13
Extract Date: 20-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121577

Analysis Date: 20-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 21-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.2	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		110.	%					
Dibromofluoromethane		95.3	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1861	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/07/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1861_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 20, 2013 and March 21, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-032013-208-210	Ground water
VPB138-GW-032113-238-240	Ground water
VPB138-GW-032113-258-260	Ground water
VPB138-GW-032113-278-280	Ground water

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

There were no trip or equipment blanks associated with these samples.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

No non-conformances were identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1861-1
Client ID: GW-032013-208-210
Project: Navy Clean WE15 NWIRP B
SDG: SG1861
Lab File ID: C0096.D

Sample Date: 20-MAR-13
Received Date: 22-MAR-13
Extract Date: 22-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121704

Analysis Date: 22-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.32	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		97.9	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		111.	%					
Dibromofluoromethane		97.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1861-2
Client ID: GW-032113-238-240
Project: Navy Clean WE15 NWIRP B
SDG: SG1861
Lab File ID: C0097.D

Sample Date: 21-MAR-13
Received Date: 22-MAR-13
Extract Date: 22-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121704

Analysis Date: 22-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1861-3
Client ID: GW-032113-258-260
Project: Navy Clean WE15 NWIRP B
SDG: SG1861
Lab File ID: C0098.D

Sample Date: 21-MAR-13
Received Date: 22-MAR-13
Extract Date: 22-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121704

Analysis Date: 22-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		6.8	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.0	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		98.6	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		101.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1861-4
Client ID: GW-032113-278-280
Project: Navy Clean WE15 NWIRP B
SDG: SG1861
Lab File ID: C0099.D

Sample Date: 21-MAR-13
Received Date: 22-MAR-13
Extract Date: 22-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121704

Analysis Date: 22-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		101.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1923	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/07/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1923_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 23, 2013 and March 25, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-032313-298-300	Ground water
VPB138-GW-032513-338-340	Ground water
VPB138-GW-032513-358-360	Ground water
VPB138-GW-032513-378-380	Ground water
VPB138-GW-D-032513	Ground water
VPB138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- X Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated, negated, and/or rejected due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Field Duplicate Results

Samples VPB138-GW-032513-338-340 and VPB138-GW-D-032513 were collected as field duplicate pairs. The relative percent differences (RPDs) were reviewed for conformance with the QC criterion of ≤30% for aqueous matrices. This criterion applies if both results were greater than five times the limit of quantitation (LOQ).

All QC acceptance criteria were met.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory. Due to the nature of the sample matrix, VPB138-GW-032513-358-360 was analyzed at a four-fold dilution.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB138-GW-032313-298-300	WG	TETRACHLOROETHENE	1.1	0.50	UG/L	J	s
VPB138-GW-032313-298-300	WG	TRICHLOROETHENE	1.6	0.50	UG/L	J	s
VPB138-GW-032513-338-340	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.3	0.50	UG/L	J	s
VPB138-GW-032513-338-340	WG	CIS-1,2-DICHLOROETHENE	0.42	0.50	UG/L	J	s
VPB138-GW-032513-338-340	WG	TETRACHLOROETHENE	3.3	0.50	UG/L	J	s
VPB138-GW-032513-338-340	WG	TRICHLOROETHENE	32	0.50	UG/L	J	s
VPB138-GW-032513-358-360	WG	TRICHLOROETHENE	3.6	2.0	UG/L	J	s
VPB138-GW-032513-378-380	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	8.6	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	1,1-DICHLOROETHANE	0.66	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	1,1-DICHLOROETHENE	2.1	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	CARBON TETRACHLORIDE	1.6	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	CHLOROFORM	0.65	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	CIS-1,2-DICHLOROETHENE	1.4	0.50	UG/L	J	s
VPB138-GW-032513-378-380	WG	TRICHLOROETHENE	78	0.50	UG/L	J	s
VPB138-GW-D-032513	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.4	0.50	UG/L	J	s
VPB138-GW-D-032513	WG	CIS-1,2-DICHLOROETHENE	0.37	0.50	UG/L	J	s
VPB138-GW-D-032513	WG	TETRACHLOROETHENE	3.4	0.50	UG/L	J	s
VPB138-GW-D-032513	WG	TRICHLOROETHENE	32	0.50	UG/L	J	s

Attachment A

Non Conformance Summary Tables

Table A-1 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB138-GW-032313-298-300	1,2-DICHLOROETHANE-D4	136	70	120
VPB138-GW-032513-338-340	1,2-DICHLOROETHANE-D4	131	70	120
VPB138-GW-032513-358-360	1,2-DICHLOROETHANE-D4	125	70	120
VPB138-GW-032513-378-380	1,2-DICHLOROETHANE-D4	129	70	120
VPB138-GW-D-032513	1,2-DICHLOROETHANE-D4	131	70	120
VPB138-TRIP BLANK	1,2-DICHLOROETHANE-D4	122	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Client Eleanor Vivandou Contact Eleanor Vivandou Phone # (845) 425-4980 Fax # ()

Address Resolution Consultants / AECOM City Chestnut Ridge State NY Zip Code 10977

Purchase Order # 100 Schoolhouse Road Suite B1 Proj. Name / No. Bethpage 60260526 Katahdin Quota # FE WT

Bill (if different than above) Address

Sampler (Print / Sign) Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: 561923
 KATAHDIN PROJECT NUMBER

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS:

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO:

TEMP °C TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON
VPB138-6W-032313-298-300	3/25/13 / 11:30	GW	3	✓										
VPB138-6W-032513-378-380	3/25/13 / 2:45	GW	3	✓										
VPB138-6W-032513-338-340	3/25/2013 / 10:45	GW	3	✓										
VPB138-6W-032513-358-366	3/25/2013 / 12:45	GW	3	✓										
VPB138-6W-032513-378-380														
VPB138-6W-D-032513	3/25/2013 / 10:45	GW	3	✓										
VPB138-Trip blank														
Temperature Blank														

COMMENTS groundwater samples

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>3/25/2013 6-</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>3-28-13 09:00</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-1
Client ID: GW-032313-298-300
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0151.D

Sample Date: 23-MAR-13
Received Date: 26-MAR-13
Extract Date: 26-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121851

Analysis Date: 26-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		1.6	J ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.1	J ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		103.	%					
Toluene-d8		105.	%					
1,2-Dichloroethane-d4	*	136.	%					
Dibromofluoromethane		109.	%					

REC 10/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-2
Client ID: GW-032513-378-380
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0152.D

Sample Date: 25-MAR-13
Received Date: 26-MAR-13
Extract Date: 26-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121851

Analysis Date: 26-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		2.1 J	ug/L	1	1	1.0	0.35	0.50
Freon-113		8.6 J	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.66 J	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.4 J	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.65 J	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride		1.6 J	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		78 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		102.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	129.	%					
Dibromofluoromethane		103.	%					

REC 2/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-3
Client ID: GW-032513-338-340
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0153.D

Sample Date: 25-MAR-13
Received Date: 26-MAR-13
Extract Date: 26-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121851

Analysis Date: 26-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113		1.3 J	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.42 J	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		32 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		3.3 J	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		105.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		107.	%					

REC 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-4DL2
Client ID: GW-032513-358-360
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0172.D

Sample Date: 25-MAR-13
Received Date: 26-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	J	3.6	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		89.6	%					
Toluene-d8		97.2	%					
1,2-Dichloroethane-d4	*	125.	%					
Dibromofluoromethane		95.7	%					

REC 2/27/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-5
Client ID: VPB138-GW-D-032513
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0154.D

Sample Date: 25-MAR-13
Received Date: 26-MAR-13
Extract Date: 26-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121851

Analysis Date: 26-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113		1.4 J	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.37 J	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		32 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		3.4 J	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		104.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		102.	%					

REC 3/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1923-6
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG1923
Lab File ID: C0142.D

Sample Date: 25-MAR-13
Received Date: 26-MAR-13
Extract Date: 26-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121851

Analysis Date: 26-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 28-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		104.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1950	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/09/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1950_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 26, 2013.

Sample ID	Matrix/Sample Type
VPB138-EQUIPMENT RINSATE BLANK	Equipment blank
VPB138-GW-FB-032613	Field blank
VPB138-GW-032613-398-400	Ground water
VPB138-GW-032613-418-420	Ground water
VPB138-GW-032613-438-440	Ground water
VPB138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✗ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks/field blanks
- ✗ Surrogate spike recoveries

- ✗ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

CCV Linearity Nonconformances:

Nonconformances	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ
%Drift > 20%	J*	UJ*
* No guidance in NFG, thus AECOM professional judgment was used		

Qualified sample results are shown in Table 1. Nonconformances are summarized in Attachment A in Table A-1.

Laboratory Blanks/Equipment Blanks/Trip Blanks/Field Blanks

Laboratory method blanks, equipment rinsate blanks, field blanks, and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate, field and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-2. Qualified sample results are shown in Table 1.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
%R < 20% (see note 1)	J	R*
%RPD > UL (see note 2)	J	No qualification

Note: Actions are applied to the native unspiked sample only
*When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)

Notes:

1. Based on NFG 2008 VOC guidance, AECOM professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery.
2. RPD actions are based on professional judgment.

Nonconformances are summarized in Attachment A in Table A-3. Qualified sample results are shown in Table 1.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, sample VPB138-GW-032613-418-420 was analyzed at a five-fold dilution.



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978.905.2101 fax

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB138-EQUIPMENT RINSATE BLANK	WQ	TETRACHLOROETHENE		0.50	UG/L	UJ	c
VPB138-GW-032613-398-400	WG	1,1,1-TRICHLOROETHANE	1.0	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	7.5	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	1,1-DICHLOROETHANE	0.74	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	1,1-DICHLOROETHENE	1.8	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	CARBON TETRACHLORIDE	1.6	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	CHLOROFORM	0.43	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	CIS-1,2-DICHLOROETHENE	1.1	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	TETRACHLOROETHENE	0.73	0.50	UG/L	J	s
VPB138-GW-032613-398-400	WG	TRICHLOROETHENE	90	0.50	UG/L	J	m,s
VPB138-GW-032613-418-420	WG	TRICHLOROETHENE	4.5	2.5	UG/L	J	s
VPB138-GW-032613-438-440	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	3.7	0.50	UG/L	J	s
VPB138-GW-032613-438-440	WG	1,1-DICHLOROETHANE	0.92	0.50	UG/L	J	s
VPB138-GW-032613-438-440	WG	CIS-1,2-DICHLOROETHENE	0.35	0.50	UG/L	J	s
VPB138-GW-032613-438-440	WG	TRICHLOROETHENE	0.68	0.50	UG/L	J	s

Attachment A

Nonconformance Summary Tables

Table A-1 - Continuing Calibration Verification

CCV ID	Compound	% D	Limit	Associated Samples
WG121940-4	TETRACHLOROETHENE	21.7	< 20%	VPB138-EQUIPMENT RINSATE BLANK

Table A-2 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB138-GW-032613-398-400	1,2-DICHLOROETHANE-D4	125	70	120
VPB138-GW-032613-418-420	1,2-DICHLOROETHANE-D4	129	70	120
VPB138-GW-032613-438-440	1,2-DICHLOROETHANE-D4	126	70	120
VPB138-GW-FB-032613	1,2-DICHLOROETHANE-D4	127	70	120
VPB138-TRIP BLANK_SDG1950	1,2-DICHLOROETHANE-D4	123	70	120

Table A-3 - Matrix Spikes

Sample ID	Compound	MS % Recovery	Lower Limit	Upper Limit	RPD Limit
VPB138-GW-032613-398-400	TRICHLOROETHENE	67.4	70	125	20

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-1
Client ID: GW-032613-438-440
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0177.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113		3.7	J ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.92	J ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.35	J ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.68	J ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.5	%					
Toluene-d8		95.0	%					
1,2-Dichloroethane-d4	*	126.	%					
Dibromofluoromethane		96.1	%					

Fe 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-2DL
Client ID: GW-032613-418-420
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0178.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	J	4.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		88.0	%					
Toluene-d8		96.0	%					
1,2-Dichloroethane-d4	*	129.	%					
Dibromofluoromethane		94.5	%					

GC 10/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-3
Client ID: GW-032613-398-400
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0179.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113		7.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.74	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.43	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride		1.6	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane		1.0	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		90	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	0.73	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.8	%					
Toluene-d8		94.8	%					
1,2-Dichloroethane-d4	*	125.	%					
Dibromofluoromethane		97.4	%					

REC 10/27/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-4
Client ID: VPB138-GW-FB-032613
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0180.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.9	%					
Toluene-d8		93.2	%					
1,2-Dichloroethane-d4	*	127.	%					
Dibromofluoromethane		95.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-5RA
Client ID: RINSATE BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0196.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 28-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121940

Analysis Date: 28-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U UJ	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		79.9	%					
Toluene-d8		86.2	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		85.8	%					

REC 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1950-6
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG1950
Lab File ID: C0168.D

Sample Date: 26-MAR-13
Received Date: 27-MAR-13
Extract Date: 27-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121880

Analysis Date: 27-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		89.2	%					
Toluene-d8		95.8	%					
1,2-Dichloroethane-d4	*	123.	%					
Dibromofluoromethane		94.4	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG1996	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/07/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG1996_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 27, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-032713-458-460	Ground water
VPB138-GW-032713-478-480	Ground water
VPB138-GW-032713-503-505	Ground water
VPB138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✗ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

CCV Linearity Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ

Qualified sample results are shown in Table 1. Nonconformances are summarized in Attachment A in Table A-1.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-2.

No qualification was necessary in sample VPB138-GW-032713-478-480 as the results were all nondetect.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to the nature of the sample matrix, sample VPB138-GW-032713-478-480 was analyzed at a 5x dilution.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB138-GW-032713-458-460	WG	TETRACHLOROETHENE		0.50	UG/L	UJ	c
VPB138-GW-032713-478-480	WG	TETRACHLOROETHENE		2.5	UG/L	UJ	c
VPB138-GW-032713-503-505	WG	TETRACHLOROETHENE		0.50	UG/L	UJ	c

Attachment A**NonConformance Summary Tables****Table A-1 – Continuing Calibration Verification**

CCV ID	Compound	% D	Limit	Associated Samples
WG121940-4	TETRACHLOROETHENE	21.7	< 20%	VPB138-GW-032713-458-460 VPB138-GW-032713-478-480 VPB138-GW-032713-503-505

Table A-2 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB138-GW-032713-478-480	1,2-DICHLOROETHANE-D4	121.	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

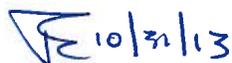
Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1996-1
Client ID: GW-032713-458-460
Project: Navy Clean WE15 NWIRP B
SDG: SG1996
Lab File ID: C0198.D

Sample Date: 27-MAR-13
Received Date: 28-MAR-13
Extract Date: 28-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121940

Analysis Date: 28-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 31-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		1.3	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	UJ ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		82.6	%					
Toluene-d8		86.7	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		90.0	%					


 E 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1996-2DL
Client ID: GW-032713-478-480
Project: Navy Clean WE15 NWIRP B
SDG: SG1996
Lab File ID: C0197.D

Sample Date: 27-MAR-13
Received Date: 28-MAR-13
Extract Date: 28-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121940

Analysis Date: 28-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 31-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	WJ ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		81.3	%					
Toluene-d8		86.2	%					
1,2-Dichloroethane-d4	*	121.	%					
Dibromofluoromethane		87.5	%					

REC/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1996-3
Client ID: GW-032713-503-505
Project: Navy Clean WE15 NWIRP B
SDG: SG1996
Lab File ID: C0199.D

Sample Date: 27-MAR-13
Received Date: 28-MAR-13
Extract Date: 28-MAR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG121940

Analysis Date: 28-MAR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 31-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.55	ug/L	1	1	1.0	0.35	0.50
Freon-113		2.4	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.41	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		3.7	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	UJ ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		79.9	%					
Toluene-d8		85.9	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		86.6	%					

REC 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1996-4RA
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG1996
Lab File ID: C0220.D

Sample Date: 27-MAR-13
Received Date: 28-MAR-13
Extract Date: 29-MAR-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG122003

Analysis Date: 29-MAR-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 31-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		107.	%					
1,2-Dichloroethane-d4		120.	%					
Dibromofluoromethane		106.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2041	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/07/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2041_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on March 28, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-032813-518-520	Ground water
VPB138-GW-032813-558-560	Ground water
VPB-138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✗ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards

✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB138-GW-032813-518-520	WG	TRICHLOROETHENE	1.1	0.50	UG/L	J	s
VPB138-GW-032813-558-560	WG	TRICHLOROETHENE	0.54	0.50	UG/L	J	s

Attachment A**Nonconformance Summary Tables****Table A-1 – Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB138-GW-032813-518-520	1,2-DICHLOROETHANE-D4	125	70	120
VPB138-GW-032813-558-560	1,2-DICHLOROETHANE-D4	128	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



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 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
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Page 1 of 1

Client: Resolution Consultants
Eleanor Villanueva
 Contact: Eleanor Villanueva Phone #: (845) 425-4980 Fax #: ()
 Address: 100 Red Schoolhouse Road City: Chestnut Ridge State: NY Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Bothpage 10266526 Katahdin Quote #: _____
 Bill (if different than above): _____ Address: P.O. #

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: SG-2041
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP'C: TEMP BLANK INTACT NOT INTACT

*	Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES															
					Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON						
	<u>VPB 138-GW-032813-518-520</u>	<u>3/28/2013 / 10:30</u>	<u>GW</u>	<u>3</u>	<u>✓</u>															
	<u>VPB-GW-032813-558-560</u>	<u>3/28/2013 / 15:30</u>	<u>GW</u>	<u>3</u>	<u>✓</u>															
	<u>TPB-138-Trip blank</u>	<u>/</u>	<u>W</u>	<u>1</u>	<u>✓</u>															
	<u>Temp Blank</u>	<u>/</u>																		

COMMENTS: HCL preservative - samples groundwater

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>3/28/13 6-</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2041-1
Client ID: GW-032813-518-520
Project: Navy Clean WE15 NWIRP B
SDG: SG2041
Lab File ID: C0224.D

Sample Date: 28-MAR-13
Received Date: 29-MAR-13
Extract Date: 29-MAR-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG122003

Analysis Date: 29-MAR-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		1.1	J ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		103.	%					
Toluene-d8		109.	%					
1,2-Dichloroethane-d4	*	125.	%					
Dibromofluoromethane		105.	%					

10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2041-2
Client ID: GW-032813-558-560
Project: Navy Clean WE15 NWIRP B
SDG: SG2041
Lab File ID: C0225.D

Sample Date: 28-MAR-13
Received Date: 29-MAR-13
Extract Date: 29-MAR-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG122003

Analysis Date: 29-MAR-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.54	J ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		103.	%					
Toluene-d8		107.	%					
1,2-Dichloroethane-d4	*	128.	%					
Dibromofluoromethane		101.	%					

FC 10/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2041-3
Client ID: VPB-138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2041
Lab File ID: C0221.D

Sample Date: 28-MAR-13
Received Date: 29-MAR-13
Extract Date: 29-MAR-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG122003

Analysis Date: 29-MAR-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		100.	%					
Toluene-d8		106.	%					
1,2-Dichloroethane-d4		118.	%					
Dibromofluoromethane		100.	%					

Data Validation Report

Project: Regional Groundwater Investigation - NWIRP Bethpage
 Laboratory: Katahdin Analytical Services, Inc.
 Service Request: SG2107
 Analyses/Method: EPA SW-846 Method 8260B for VOCs (GC/MS)
 Validation Level: Limited
 AECOM Project Number: 60266526.SA.DV
 Prepared by: Rick Purdy/AECOM Completed on: 08/08/2013
 Reviewed by: Lori Herberich/AECOM File Name: SG2107_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 1, 2013 and March 29, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-032913-578-580	Ground water
VPB138-GW-032913-598-600	Ground water
VPB138-GW-040113-618-620	Ground water
VPB138-GW-040113-643-645	Ground water
VPB138-TRIP BLANK_SDG2107	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results

- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

There were no MS/MSD samples submitted with this data set. No validation actions were taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to the nature of the matrix, samples VPB138-GW-032913-578-580 and VPB138-GW-032913-598-600 were analyzed at 4x dilutions.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

There were no nonconformances identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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Page 1 of 1

Client <i>Resolution Consultants Eleanor Vivandou</i>	Contact <i>Eleanor Vivandou</i>	Phone # <i>(845) 425-4980</i>	Fax # <i>()</i>
Address <i>106 Red Schoolhouse Road</i>	City <i>Chestnut Ridge</i>	State <i>NY</i>	Zip Code <i>10977</i>
Purchase Order #	Proj. Name / No. <i>Both page 100266526 F.I.WI</i>	Katahdin Quote #	
Bill (if different than above)	Address		

Sampler (Print / Sign) *Valerie Thayer* Copies To: *Valerie Thayer*

LAB USE ONLY WORK ORDER #: *USG2107*
 KATAHDIN PROJECT NUMBER _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C _____ TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	PRESERVATIVES																
				FIL	ON	FIL	ON	FIL	ON	FIL	ON	FIL	ON	FIL	ON	FIL	ON			
<i>VPB 138-GW-032913-578-580</i>	<i>3/29/2013 / 10:30</i>	<i>GW</i>	<i>3</i>	<i>X</i>																
<i>VPB 138-GW-032913-598-600</i>	<i>3/29/2013 / 13:30</i>	<i>GW</i>	<i>3</i>	<i>X</i>																
<i>VPB 138-GW-040113-643-645</i>	<i>4/01/2013 / 15:00</i>	<i>GW</i>	<i>3</i>	<i>X</i>																
<i>VPB 138-GW-040113-618-620</i>	<i>4/01/2013 / 10:45</i>	<i>GW</i>	<i>3</i>	<i>X</i>																
<i>Temperature Blank</i>	<i>/</i>	<i>W</i>	<i>1</i>	<i>X</i>																
<i>VPB 138-Trip Blank</i>	<i>/</i>	<i>W</i>	<i>1</i>																	
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COMMENTS *HCL preservatives for VOCs*

Relinquished By: (Signature) <i>Valerie Thayer</i>	Date / Time <i>4/01/2013 6:00</i>	Received By: (Signature) <i>[Signature]</i> <i>4-2-13 09:00</i>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2107-1DL
Client ID: GW-032913-578-580
Project: Navy Clean WE15 NWIRP B
SDG: SG2107
Lab File ID: F9210.D

Sample Date: 29-MAR-13
Received Date: 02-APR-13
Extract Date: 02-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122154

Analysis Date: 02-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U	2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		119.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		109.	%					
Dibromofluoromethane		108.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2107-2DL
Client ID: GW-032913-598-600
Project: Navy Clean WE15 NWIRP B
SDG: SG2107
Lab File ID: F9211.D

Sample Date: 29-MAR-13
Received Date: 02-APR-13
Extract Date: 02-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122154

Analysis Date: 02-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U	2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		113.	%					
Toluene-d8		111.	%					
1,2-Dichloroethane-d4		108.	%					
Dibromofluoromethane		105.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2107-3RA
Client ID: GW-040113-643-645
Project: Navy Clean WE15 NWIRP B
SDG: SG2107
Lab File ID: F9232.D

Sample Date: 01-APR-13
Received Date: 02-APR-13
Extract Date: 03-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122186

Analysis Date: 03-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		102.	%					
Toluene-d8		88.8	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		92.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2107-4
Client ID: GW-040113-618-620
Project: Navy Clean WE15 NWIRP B
SDG: SG2107
Lab File ID: F9213.D

Sample Date: 01-APR-13
Received Date: 02-APR-13
Extract Date: 02-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122154

Analysis Date: 02-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.40	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		113.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		110.	%					
Dibromofluoromethane		105.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2107-5
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2107
Lab File ID: F9209.D

Sample Date: 01-APR-13
Received Date: 02-APR-13
Extract Date: 02-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122154

Analysis Date: 02-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 03-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		109.	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		98.6	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Test-America, South Burlington, Vermont	
Service Request:	200-15858	
Analyses/Method:	EPA Method TO-15, VOCs Collected in Canisters - GC/MS	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 11/04/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2222_TO-15

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 3, 2013.

Sample ID	Matrix/Sample Type
VPB138 AIR-040113	Ambient air

Data validation activities were conducted with reference to *Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS) (USEPA, Method TO-15)* and the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate..

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks
- NA Surrogate spike recoveries
- NA Matrix duplicate (MD) results
- ✓ Laboratory control sample (LCS) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks

Laboratory method blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Blank results were reviewed for conformance with the QC acceptance criteria. Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

Surrogate compounds are not applicable for this analysis.

MD Results

MD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Analytical Data

Client: Katahdin Analytical Services

Job Number: 200-15858-1

Sdg Number: 200-15858

Client Sample ID: VPB138 AIR-040113

Lab Sample ID: 200-15858-1

Date Sampled: 04/03/2013 1610

Client Matrix: Air

Date Received: 04/04/2013 1030

TO-15 Volatile Organic Compounds in Ambient Air

Analysis Method:	TO-15	Analysis Batch:	200-54230	Instrument ID:	C.i
Prep Method:	Summa Canister	Prep Batch:	N/A	Lab File ID:	clna019.d
Dilution:	1.0			Initial Weight/Volume:	200 mL
Analysis Date:	04/12/2013 0401			Final Weight/Volume:	200 mL
Prep Date:	04/12/2013 0401			Injection Volume:	200 mL

Analyte	Result (ppb v/v)	Qualifier	DL	LOQ
1,1,1-Trichloroethane	0.080	U	0.20	0.20
1,1,2,2-Tetrachloroethane	0.040	U	0.20	0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.080	U	0.20	0.20
1,1,2-Trichloroethane	0.040	U	0.20	0.20
1,1-Dichloroethane	0.080	U	0.20	0.20
1,1-Dichloroethene	0.20	U	0.20	0.20
1,2-Dichloroethane	0.040	U	0.20	0.20
Carbon tetrachloride	0.040	U	0.20	0.20
Chlorobenzene	0.040	U	0.20	0.20
Chloroform	0.080	U	0.20	0.20
cis-1,2-Dichloroethene	0.20	U	0.20	0.20
Tetrachloroethene	0.040	U	0.20	0.20
trans-1,2-Dichloroethene	0.080	U	0.20	0.20
Trichloroethene	0.028	U	0.20	0.20
Xylene (total)	0.040	U	0.20	0.20

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2223	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/08/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2223_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 2, 2013 and April 4, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-040213-658-660	Ground water
VPB138-GW-040413-683-685	Ground water
VPB138-GW-040413-698-700	Ground water
VPB138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✗ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results

- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were negated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the initial and continuing calibration verification standard (ICV and CCV) recovery, percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL, ICV and/or CCV was as follows:

ICV Recovery Nonconformances:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > 120%	J	No qualification
20% ± %R < 80%	J	UJ
%R < 20% (see note)	J	R*

Notes: Based on NFG 2008 VOC guidance, professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.

Nonconformances are summarized in Attachment A in Table A-1. The sample results were nondetect for the nonconforming compound. No data qualification was necessary.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Sample results were qualified as follows:

Blank type	Blank result	Sample result	Action for samples
Method, Storage, Field, Trip, or Instrument*	Detects	Not detected	No qualification
		< LOQ	Report sample LOQ value with a U
		≥ LOQ and ≤ 2x the LOQ	Report the sample result with a U**
	> LOQ	≥ 2x the LOQ	No qualifications
		< LOQ	Report sample LOQ value with a U
		≥ LOQ and < blank contamination	Report the sample result with a U or reject the sample result as unusable R
		≥ LOQ and ≥ blank contamination	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
	TIC detected	Detects	If the result is ≤ 2x blank result, report the sample result U.** If the result is > 2x blank result, no qualification is required.**
* Qualifications based on instrument blank results affect only the sample analyzed immediately after the sample that has target compounds that exceed the calibration range or non-target compounds that exceed 100 ug/L.			
**Based on professional judgment.			

LOQ Limit of Quantitation

Nonconformances are summarized in Attachment A in Table A-2 and A-3. Qualified sample results are shown in Table 1.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, the following samples were analyzed at the indicated dilutions:

VPB138-GW-040413-698-700 (10x)

VPB139-GW-040213-658-660 (4x)

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOQ	Units	Validation Qualifiers	Validation Reason
VPB138-GW-040213-658-660	WG	TRICHLOROETHENE		2.0	UG/L	U	bl
VPB138-GW-040413-683-685	WG	TRICHLOROETHENE		0.50	UG/L	U	bl
VPB138-GW-040413-698-700	WG	TRICHLOROETHENE		5.0	UG/L	U	bl
VPB138-TRIP BLANK_SDG2223	WQ	TRICHLOROETHENE		0.50	UG/L	U	bl

Attachment A

Non Conformance Summary Tables

Table A-1 – Initial Calibration Verification Standard

ICV ID	Compound	% R	Limits
WG122544-4	1,1-DICHLOROETHENE	128.4	80% - 120%

Table A-2 - Laboratory Blanks

Blank ID	Compound	Result	QL	Units	Associated Samples
WG122307-2	TRICHLOROETHENE	0.44	0.50	UG/L	VPB138-GW-040213-658-660 VPB138-GW-040413-683-685 VPB138-GW-040413-698-700 VPB138-TRIP BLANK

Table A-3 - Field Blanks

Blank ID	Compound	Result	QL	Units	Associated Samples
VPB138-TRIP BLANK	TRICHLOROETHENE	0.40	0.50	UG/L	VPB138-GW-040213-658-660 VPB138-GW-040413-683-685 VPB138-GW-040413-698-700

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Client Resolution Consultants/AECOM Contact Eleanor Vitoudou (845) -425-4981 Phone # _____ Fax # _____
 Address 100 Schoolhouse Road City Chustnut Ridge State NY Zip Code 10977
 Purchase Order # _____ Proj. Name / No. Bothpage 60266526 Katahdin Quote # _____
 Bill (if different than above) Address FI, WI

Sampler (Print / Sign) Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: SG-2223
 KATAHDIN PROJECT NUMBER _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP'C _____ TEMP BLANK INTACT NOT INTACT

	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON
<i>VOCs HCL Anal.</i>											
<i>TOC sulfite acid pres</i>											
* VPB-138-GW-040413-698-700 Date: 04/04/13 Time: 15:00 Matrix: GW No. of Cntrs: 1	X										
VPB-138-GW-040413-683-685 Date: 04/04/13 Time: 13:00 Matrix: GW No. of Cntrs: 3	X										
VPB-138-GW-040213-658-660 Date: 04/02/13 Time: 10:45 Matrix: GW No. of Cntrs: 3	X										
VPB-138-W-FB-040413 Date: 04/04/13 Time: 13:15 Matrix: W No. of Cntrs: 3		X									
VPB-138-Equipment Blank-040113 Date: 04/01/13 Time: 13:30 Matrix: W No. of Cntrs: 3		X									
Temperature Blank											
VPB-138-Trip Blank		X									

COMMENTS VPB-138-GW-040413-698-700 - extremely silty - only enough for 1 vial

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>04/04/2013 6-</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>4-5-13 04:00</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2223-1DL
Client ID: -GW-040413-698-700
Project: Navy Clean WE15 NWIRP B
SDG: SG2223
Lab File ID: C0302.D

Sample Date: 04-APR-13
Received Date: 05-APR-13
Extract Date: 05-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122307

Analysis Date: 05-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 08-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	8.5	U ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		100.	%					
Toluene-d8		107.	%					
1,2-Dichloroethane-d4		117.	%					
Dibromofluoromethane		106.	%					

Fca/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2223-2
Client ID: -GW-040413-683-685
Project: Navy Clean WE15 NWIRP B
SDG: SG2223
Lab File ID: C0303.D

Sample Date: 04-APR-13
Received Date: 05-APR-13
Extract Date: 05-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122307

Analysis Date: 05-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 08-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.52	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.4	%					
Toluene-d8		107.	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		107.	%					

REC 4/7/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2223-3DL
Client ID: -GW-040213-658-660
Project: Navy Clean WE15 NWIRP B
SDG: SG2223
Lab File ID: C0304.D

Sample Date: 02-APR-13
Received Date: 05-APR-13
Extract Date: 05-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122307

Analysis Date: 05-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 08-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U U	1.8 2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		101.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		115.	%					
Dibromofluoromethane		107.	%					

REC 4/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2223-6
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2223
Lab File ID: C0298.D

Sample Date: 04-APR-13
Received Date: 05-APR-13
Extract Date: 05-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122307

Analysis Date: 05-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 08-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J U	0.40 0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		103.	%					
Toluene-d8		109.	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		111.	%					

REC 4/2/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2331	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/08/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2331_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 5, 2013, April 8, 2013 and April 9, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-040513-708-710	Ground water
VPB138-GW-040513-713-715	Ground water
VPB138-GW-040813-718.5-720.5	Ground water
VPB138-GW-040913-738.5-740.5	Ground water
VPB138-GW-040913-768.5-770.5	Ground water
VPB138-TRIP BLANKS_SDG2331	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✗ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific CCV was as follows:

CCV Linearity Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ

Qualified sample results are shown in Table 1. Nonconformances are summarized in Attachment A in Table A-1.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific LCS %Rs or RPDs was as follows:

Nonconformances ¹	Action	
	Detected Compounds	Nondetected Compounds
%R or RPD > UL	J	No qualification
%R < LL	J	UJ

Nonconformances are summarized in Attachment A in Table A-2. No results were qualified as the compound was not detected in the samples.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to limited sample volume the sample were analyzed at the dilutions indicated below:

VPB139-GW-040513-708-710	(4x)
VPB139-GW-040513-718.5-720.5	(10x)
VPB139-GW-040513-713-715	(4x)
VPB139-GW-040513-768.5-770.5	(10x)
VPB139-GW-040513-738.5-740.5	(10x)

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	QLLOD	Units	Validation Qualifiers	Validation Reason
VPB138-GW-040513-708-710	WG	1,1-DICHLOROETHENE		2.0	UG/L	UJ	c
VPB138-GW-040513-713-715	WG	1,1-DICHLOROETHENE		2.0	UG/L	UJ	c
VPB138-GW-040813-718.5-720.5	WG	1,1-DICHLOROETHENE		5.0	UG/L	UJ	c
VPB138-GW-040913-738.5-740.5	WG	1,1-DICHLOROETHENE		5.0	UG/L	UJ	c
VPB138-GW-040913-768.5-770.5	WG	1,1-DICHLOROETHENE		5.0	UG/L	UJ	c
VPB138-TRIP BLANKS_SDG2331	WQ	1,1-DICHLOROETHENE		0.50	UG/L	UJ	c

Attachment A

Non Conformance Summary Tables

Table A-1 – Continuing Calibration Verification

CCV ID	Compound	% D	Limit
WG122544-4	1,1-DICHLOROETHENE	21.5	> 20%

Table A-2 - Lab Control Samples

LCS ID	Compound	LCS % Recovery	LCSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit	Associated Samples
WG122544-1	1,1-DICHLOROETHENE	135		70	130			VPB138-GW-040513-708-710 VPB138-GW-040513-713-715 VPB138-GW-040813-718.5-720.5 VPB138-GW-040913-738.5-740.5 VPB138-GW-040913-768.5-770.5 VPB138-TRIP BLANKS

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



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 Fax: (207) 775-4029

CHAIN of CUSTODY

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Page 1 of 1

Client: Resolution Consultants Contact: Eleanor Vivandea Phone #: (845) 425-4980 Fax #: ()
 Address: 100 Red Schoolhouse Road City: Christina Ridge State: NY Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Bethpage 60266526 Katahdin Quote #: _____
 Bill (if different than above): _____ Address: FIWI

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: SG2331
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP'C: _____ TEMP BLANK INTACT NOT-INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	PRESERVATIVES																
				Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON	Fit. OY ON							
✓ VPB138-GW-040513-708-710	04/05/2013 / 10:45	GW	3	X																
/ VPB138-GW-040813-718.5-720.5	04/08/2013 / 13:15	GW	3	X																
/ VPB138-GW-040513-713-715	04/05/2013 / 14:30	GW	3	X																
✓ VPB138-GW-040913-708.5-720.5	04/09/2013 / 4:00 pm	GW	3	X																
✓ VPB138-GW-040913-738.5-740.5	04/09/2013 / 11:15	GW	3	X																
Temperature Blank	/	W	1	X																
VPB 138-Trip blanks	/	W	3	X																

COMMENTS: may contain drilling mud in samples submitted on this COC

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>4/9/2013 6-</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>4-10-13 09:00</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-1DL
Client ID: GW-040513-708-710
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9336.D

Sample Date: 05-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U	2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		105.	%					
Toluene-d8		111.	%					
1,2-Dichloroethane-d4		103.	%					
Dibromofluoromethane		95.8	%					

REC 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-2DL
Client ID: 040813-718.5-720.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9337.D

Sample Date: 08-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		104.	%					
Toluene-d8		99.9	%					
1,2-Dichloroethane-d4		97.3	%					
Dibromofluoromethane		93.0	%					

GC10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-3DL
Client ID: GW-040513-713-715
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9338.D

Sample Date: 05-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U	2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		98.0	%					
Toluene-d8		97.4	%					
1,2-Dichloroethane-d4		101.	%					
Dibromofluoromethane		94.2	%					

REC 10/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-4DL
Client ID: 040913-768.5-770.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9339.D

Sample Date: 09-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		105.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		100.	%					
Dibromofluoromethane		91.3	%					

REC 10/31/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-5DL
Client ID: 040913-738.5-740.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9340.D

Sample Date: 09-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		103.	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		101.	%					
Dibromofluoromethane		93.2	%					

R10/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2331-6
Client ID: VPB138-TRIP BLANKS
Project: Navy Clean WE15 NWIRP B
SDG: SG2331
Lab File ID: F9335.D

Sample Date: 05-APR-13
Received Date: 10-APR-13
Extract Date: 10-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122544

Analysis Date: 10-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U UJ	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		95.4	%					
Toluene-d8		96.0	%					
1,2-Dichloroethane-d4		93.6	%					
Dibromofluoromethane		90.0	%					

REC 10/21/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2412	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/12/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2412_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 11, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-041113-823.5-825.5	Ground water
VPB138-GW-041113-848.5-850.5	Ground water
VPB138-TRIP BLANK	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards

✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

No nonconformances were identified during data validation.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

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PLEASE BEAR DOWN AND
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Client: Resolution Consultants Contact: Ellenor Vitacoba Phone #: (845) 425-4980 Fax #: ()
 Address: 100 Red Schothouse Road City: Chestnut Ridge State: NY Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Bethpage 60266526 FI.WI. Katahdin Quote #: _____
 Bill (if different than above) Address: _____

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: 562412
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP'C: TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES																
				VOCS	HCL	FI	WI	FI	WI	FI	WI	FI	WI							
VPB138 - GW - 041113 - 823.5-825.5	04/11/2013 / 12:05	GW	2	X																
VPB138 - GW - 041113 - 848.5-850.5	04/11/2013 / 16:30	GW	3	X																
Tempusque Blank	/																			
VPB138 - Trip Blank	04/11/2013 /	GW	2	X																

COMMENTS

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>4/11/2013 6-</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>4-12-13 0900</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

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0066609 ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2412-1
Client ID: 041113-823.5-825.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2412
Lab File ID: C0424.D

Sample Date: 11-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		95.9	%					
Toluene-d8		100.	%					
1,2-Dichloroethane-d4		106.	%					
Dibromofluoromethane		96.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2412-2
Client ID: 041113-848.5-850.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2412
Lab File ID: C0425.D

Sample Date: 11-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		92.2	%					
Toluene-d8		98.9	%					
1,2-Dichloroethane-d4		106.	%					
Dibromofluoromethane		97.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2412-3
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2412
Lab File ID: C0421.D

Sample Date: 11-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.5	%					
Toluene-d8		99.7	%					
1,2-Dichloroethane-d4		102.	%					
Dibromofluoromethane		95.8	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2413	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/12/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2413_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 10, 2013 and April 11, 2013.

Sample ID	Matrix/Sample Type
VPB138-GW-041013-783.5-785.5	Ground water
VPB138-GW-041013-798.5-800.5	Ground water
VPB138-TRIP BLANK_SDG2413	Trip Blank

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of

data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to limited volume, the following samples were analyzed at the dilutions indicated below:

VPB138-GW-041013-783.5-785.5 (5x)

VPB138-GW-041013-798.5-800.5 (4x)



AECOM
250 Apollo Drive
Chelmsford, MA 01886-3140

978.905.2100 tel
978.905.2101 fax

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

There were no nonconformances identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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Page 1 of 1

Client: Resolution Consultants Contact: Eleanor Vidanbou Phone #: (845) 425 4880 Fax #: ()
 Address: 100 Red Schoolhouse Road City: Chatham Ridge State: NV Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Both pages 60266526 Katahdin Quote #: _____
 Bill (if different than above): _____ Address: _____

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: JSG-2413
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C: _____ TEMP BLANK INTACT NOT INTACT

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES															
					VOES	HCL pres.	FIL													
					OY	ON	OY	ON	OY	ON	OY	ON	OY	ON	OY	ON	OY	ON	OY	ON
*	VPB 138-GW-041013 798.5 - 800.5	4/10/2013 / 15:30	GW	3	X															
*	VPB 138-GW-041013 783.5 - 785.5	4/10/2013 / 13:00	GW	3	X															
	Temperature Blank	/																		
	VPB 138-Trip Blank	4/11/2013 /	W	2	X															

COMMENTS: * May contain drilling mud in samples

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>4/10/13 6-</u>	Received By: (Signature) <u>[Signature]</u> <u>4-12-13 09:00</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

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0000009 ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2413-1DL
Client ID: 041013-798.5-800.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2413
Lab File ID: C0426.D

Sample Date: 10-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	U	2.0	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		90.9	%					
Toluene-d8		98.0	%					
1,2-Dichloroethane-d4		107.	%					
Dibromofluoromethane		97.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2413-2DL
Client ID: 041013-783.5-785.5
Project: Navy Clean WE15 NWIRP B
SDG: SG2413
Lab File ID: C0427.D

Sample Date: 10-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		91.8	%					
Toluene-d8		100.	%					
1,2-Dichloroethane-d4		108.	%					
Dibromofluoromethane		95.2	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2413-3
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2413
Lab File ID: C0422.D

Sample Date: 11-APR-13
Received Date: 12-APR-13
Extract Date: 12-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122654

Analysis Date: 12-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		92.4	%					
Toluene-d8		96.0	%					
1,2-Dichloroethane-d4		100.	%					
Dibromofluoromethane		92.4	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG2457	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS) and EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/12/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG2457_8260B and 9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on April 9 and 12, 2013.

Sample ID	Matrix/Sample Type	Analysis
VPB138-GW-041213-858-860	Ground water	SW-846 Method 8260B
VPB138-SOIL-040913-743-745	Soil	SW-846 Method 9060
VPB138-TRIP BLANK	Trip Blank	SW-846 Method 8260B

The samples were analyzed in accordance with *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846* (USEPA, 1996), specifically:

- Method 8260B, *Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry*
- Method 9060A, *Total Organic Carbon*

Data validation activities were conducted with reference to these methods, *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (January 2010), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010) where applicable. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks

- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds), %Rs, and/or RF acceptance criteria were met; and/or
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and/or trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and/or trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds/analytes that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds/analytes detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

There were no nonconformances identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Page 1 of 1

Client: Resolution Consultants Contact: Eleanor Vivandow Phone #: (845) 425 4980 Fax #: ()

Address: 100 Red Schoolhouse Rd City: Chestnut Ridge State: NY Zip Code: 10977

Purchase Order #: _____ Proj. Name / No.: Bethpage 60266528 Katahdin Quote # _____

Bill (if different than above) Address: _____

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: SG2457

KATAHDIN PROJECT NUMBER: _____

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C _____ TEMP BLANK INTACT NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

* Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES																
				Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON							
<u>VPB 138-GW-041213-858-860</u>	<u>4/12/2013 10:30</u>	<u>GW</u>	<u>3</u>	<u>X</u>																
<u>VPB 138-Soil-040913-743-745</u>	<u>4/09/2013 12:15</u>	<u>Soil</u>	<u>1</u>																	
<u>Temp Blank</u>	<u>/</u>	<u>W</u>	<u>1</u>																	
<u>VPB 138-Trip Blank</u>	<u>/</u>	<u>W</u>	<u>1</u>	<u>X</u>																

COMMENTS: TOC USEPA SW-846 method 9060A

Relinquished By: (Signature) Valerie Thayer Date / Time: 4/15/2013 6

Received By: (Signature) [Signature] Date / Time: 4/15/2013 0900

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

000001 ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2457-1
Client ID: GW-041213-858-860
Project: Navy Clean WE15 NWIRP B
SDG: SG2457
Lab File ID: C0464.D

Sample Date: 12-APR-13
Received Date: 16-APR-13
Extract Date: 16-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122775

Analysis Date: 16-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 17-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		116.	%					
Dibromofluoromethane		103.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2457-2
Client ID: VPB138-TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG2457
Lab File ID: C0463.D

Sample Date: 12-APR-13
Received Date: 16-APR-13
Extract Date: 16-APR-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG122775

Analysis Date: 16-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 17-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		97.4	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		113.	%					
Dibromofluoromethane		102.	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG2457-3
Report Date: 03-MAY-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG2457

Sample Description
SOIL-040913-743-745

Matrix SL
Date Sampled 09-APR-13
Date Received 16-APR-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	1000 ug/gdrywt	480	100	360	SW846 M9060	WG122814	17-APR-13 13:42:59	N/A	N/A	
Total Solids	84. %	1	N/A	N/A	SM2540G	WG122771	18-APR-13 08:13:15	SM2540G	16-APR-13	

Section 5

VPB 138 Analytical Data Table

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Vertical Profile Boring 138, Analytical Data Table
 Naval Weapons Industrial Reserve Plant
 Bethpage - Bethpage, New York

Location		VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138
Sample Date	NYSDEC	3/18/2013	3/19/2013	3/19/2013	3/20/2013	3/21/2013	3/21/2013	3/21/2013	3/23/2013
Sample ID	Groundwater Guidance or Standard Value	VPB138-GW- 031813-58-60	VPB138-GW- 031913-123-125	VPB138-GW- 031913-158-160	VPB138-GW- 032013-208-210	VPB138-GW- 032113-238-240	VPB138-GW- 032113-258-260	VPB138-GW- 032113-278-280	VPB138-GW- 032313-298-300
Sample Interval	(Note 1)	58 - 60 ft	123 - 125 ft	158 - 160 ft	208 - 210 ft	238 - 240 ft	258 - 260 ft	278 - 280 ft	298 - 300 ft
Sample type code		N	N	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	1.0	< 0.50 U	1.1 J
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 0.50 U	0.32 J	< 0.50 U	6.8	< 0.50 U	1.6 J
Total VOC					0.32		7.8		2.7

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

Bold and Italics = Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Vertical Profile Boring 138, Analytical Data Table
 Naval Weapons Industrial Reserve Plant
 Bethpage - Bethpage, New York

Location		VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138
Sample Date	NYSDEC	3/25/2013	3/25/2013	3/25/2013	3/25/2013	3/26/2013	3/26/2013	3/26/2013	3/27/2013
Sample ID	Groundwater Guidance or Standard Value	VPB138-GW- 032513-338-340	VPB138-GW- D-032513	VPB138-GW- 032513-358-360	VPB138-GW- 032513-378-380	VPB138-GW- 032613-398-400	VPB138-GW- 032613-418-420	VPB138-GW- 032613-438-440	VPB138-GW- 032713-458-460
Sample Interval	(Note 1)	338 - 340 ft	338 - 340 ft	358 - 360 ft	378 - 380 ft	398 - 400 ft	418 - 420 ft	438 - 440 ft	458 - 460 ft
Sample type code		N	FD	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	1.0 J	< 2.5 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	< 0.50 U	< 2.5 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	1.3 J	1.4 J	< 2.0 U	8.6 J	7.5 J	< 2.5 U	3.7 J	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	< 0.50 U	< 2.5 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 U	0.66 J	0.74 J	< 2.5 U	0.92 J	< 0.50 U
1,1-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 2.0 U	2.1 J	1.8 J	< 2.5 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	< 0.50 U	< 2.5 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 0.50 U	< 0.50 U	< 2.0 U	1.6 J	1.6 J	< 2.5 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	< 0.50 U	< 2.5 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 0.50 U	< 0.50 U	< 2.0 U	0.65 J	0.43 J	< 2.5 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	0.42 J	0.37 J	< 2.0 U	1.4 J	1.1 J	< 2.5 U	0.35 J	< 0.50 U
TETRACHLOROETHENE	5	3.3 J	3.4 J	< 2.0 U	< 0.50 U	0.73 J	< 2.5 U	< 0.50 U	< 0.50 UJ
TRANS-1,2-DICHLOROETHENE	5	< 0.50 U	< 0.50 U	< 2.0 U	< 0.50 U	< 0.50 U	< 2.5 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	32 J	32 J	3.6 J	78 J	90 J	4.5 J	0.68 J	1.3
Total VOC		37.02	37.17	3.6	93.01	104.9	4.5	5.65	1.3

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

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Bold and Italics = Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Vertical Profile Boring 138, Analytical Data Table
 Naval Weapons Industrial Reserve Plant
 Bethpage - Bethpage, New York

Location		VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138
Sample Date	NYSDEC	3/27/2013	3/27/2013	3/28/2013	3/28/2013	3/29/2013	3/29/2013	4/1/2013	4/1/2013
Sample ID	Groundwater Guidance or Standard Value	VPB138-GW- 032713-478-480	VPB138-GW- 032713-503-505	VPB138-GW- 032813-518-520	VPB138-GW- 032813-558-560	VPB138-GW- 032913-578-580	VPB138-GW- 032913-598-600	VPB138-GW -040113-618-620	VPB138-GW- 040113-643-645
Sample Interval	(Note 1)	478 - 480 ft	503 - 505 ft	518 - 520 ft	558 - 560 ft	578 - 580 ft	598 - 600 ft	618 - 620 ft	643 - 645 ft
Sample type code		N	N	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 2.5 U	0.41 J	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 2.5 U	2.4	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 2.5 U	0.55 J	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 2.5 UJ	< 0.50 UJ	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 2.5 U	< 0.50 U	< 0.50 U	< 0.50 U	< 2.0 U	< 2.0 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	< 2.5 U	3.7	1.1 J	0.54 J	< 2.0 U	< 2.0 U	0.40 J	< 0.50 U
Total VOC			7.06	1.1	0.54			0.4	

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

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Yellow highlighted values exceed Groundwater Standards

Vertical Profile Boring 138, Analytical Data Table
 Naval Weapons Industrial Reserve Plant
 Bethpage - Bethpage, New York

Location		VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138	VPB138
Sample Date	NYSDEC	4/2/2013	4/4/2013	4/4/2013	4/5/2013	4/5/2013	4/8/2013	4/9/2013	4/9/2013
Sample ID	Groundwater Guidance or Standard Value	VPB138-GW- 040213-658-660	VPB138-GW- 040413-683-685	VPB138-GW- 040413-698-700	VPB138-GW- 040513-708-710	VPB138-GW- 040513-713-715	VPB138-GW- 040813-718.5-720.5	VPB138-GW- 40913-738.5-740.5	VPB138-GW- 40913-768.5-770.5
Sample Interval	(Note 1)	658 - 660 ft	683 - 685 ft	698 - 700 ft	708 - 710 ft	713 - 715 ft	718.5 - 720.5 ft	738.5 - 740.5 ft	768.5 - 770.5 ft
Sample type code		N	N	N	N	N	N	N	N
VOC (ug/L)									
1,1,1-TRICHLOROETHANE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
1,1,2,2-TETRACHLOROETHANE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
1,1,2-TRICHLOROETHANE	1	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
1,1-DICHLOROETHANE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
1,1-DICHLOROETHENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 UJ	< 2.0 UJ	< 5.0 UJ	< 5.0 UJ	< 5.0 UJ
1,2-DICHLOROETHANE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
CARBON TETRACHLORIDE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
CHLOROBENZENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
CHLOROFORM	7	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
CIS-1,2-DICHLOROETHENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
TETRACHLOROETHENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
TRANS-1,2-DICHLOROETHENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U
TRICHLOROETHENE	5	< 2.0 U	< 0.50 U	< 5.0 U	< 2.0 U	< 2.0 U	< 5.0 U	< 5.0 U	< 5.0 U

Total VOC

Notes:

ug/L = micrograms per Liter

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Ambient water quality standards and groundwater effluent limitations

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VOCs analyzed under method 8260B

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Bold and Italics = Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location		VPB138	VPB138	VPB138	VPB138	VPB138
Sample Date	NYSDEC	4/10/2013	4/10/2013	4/11/2013	4/11/2013	4/12/2013
Sample ID	Groundwater Guidance or Standard Value	VPB138-GW- 041013-783.5-785.5	VPB138-GW 041013-798.5-800.5	VPB138-GW- 041113-823.5-825.5	VPB138-GW- 041113-848.5-850.5	VPB138-GW- 041213-858-860
Sample Interval	(Note 1)	783.5 - 785.5 ft	798.5 - 800.5 ft	823.5 - 825.5 ft	848.5 - 850.5 ft	858 - 860 ft
Sample type code		N	N	N	N	N
VOC (ug/L)						
1,1,1-TRICHLOROETHANE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2,2-TETRACHLOROETHANE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1,2-TRICHLOROETHANE	1	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHANE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,1-DICHLOROETHENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
1,2-DICHLOROETHANE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
CARBON TETRACHLORIDE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROBENZENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
CHLOROFORM	7	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
CIS-1,2-DICHLOROETHENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
TETRACHLOROETHENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
TRANS-1,2-DICHLOROETHENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U
TRICHLOROETHENE	5	< 2.5 U	< 2.0 U	< 0.50 U	< 0.50 U	< 0.50 U

Total VOC

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance s
 Ambient water quality standards and groundwater effluent limitations

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Section 6

Monitoring Wells RE104D1, RE104D2, RE104D3

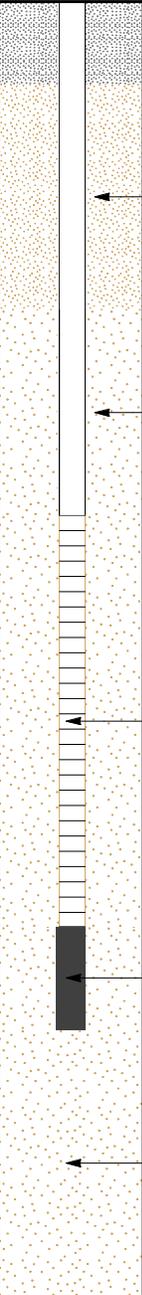
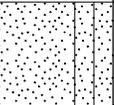
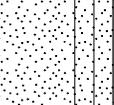
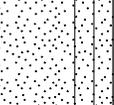
- Boring Logs
- Well Construction Logs
- Well Development Logs
- Groundwater Sample Log Sheets
- Analytical Data Validation
- Analytical Data Table

-Boring Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 207037.00	Easting: 1127745.61	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 90.53		Well Screen Interval (ft): 350-370
Start Date: 6/17/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 6/20/2013			Total Depth (ft): 388.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-353 ft bgs: See VPB 138 for Descriptions		<p>8" Diameter Steel Casing</p> <p>Bentonite Grout</p> <p>4" Diameter Schedule 80 PVC Riser</p>
50		Magothy					
100							
150							
200							
250							
300							

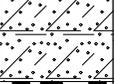
Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 207037.00	Easting: 1127745.61	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 90.53		Well Screen Interval (ft): 350-370
Start Date: 6/17/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 6/20/2013	Total Depth (ft): 388.0		

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction			
326		Magothy			0-353 ft bgs: See VPB 138 for Descriptions (<i>continued</i>)		4" Diameter Schedule 80 PVC Riser (<i>continued</i>)			
328										
330										
332										
334										#0 Filter Sand
336										
338										
340										
342										
344										#1 Filter Sand
346										
348										
350										
352										
354	0.0		SP-SM		SAND and Silty Sand layers of pale orange and tan fine-medium sand little grey silt; interbedded laminae fine to medium sand and black silt					
356										
358	0.0		SP-SM		SAND and Silty Sand; layers of pale orange and grey fine-medium sand; trace to little silt; interbedded black silt laminae		4" Diameter schedule 80 PVC, 10 Slot Well Screen (350-370 ft bgs)			
360										
362										
364	0.0		SP-SM		SAND and Silty Sand; orange and grey layers of fine-medium sand; little grey silt					
366										
368	0.0		SP-SM		SAND and Silty Sand; orange and grey layers of fine to medium sand muscovite flakes; grey silt with 0.2' layer of grey black; orange laminae		Sump			
370										
372										
374										
376										
378										
380										
382							#1 Sand to fill bottom of boring to sump			
384										
386										
388					End of boring at 388.0 ft. bgs.					

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 207000.04	Easting: 1127708.99	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 90.79		Well Screen Interval (ft): 710-730
Start Date: 5/17/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 6/6/2013			Total Depth (ft): 747.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-708 ft bgs: See VPB 138 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							
250							Bentonite Grout
300							
350							
400							
450							
500							
550							4" Diameter Schedule 80 PVC Riser
600							
650							

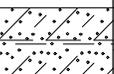
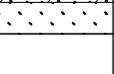
Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 207000.04	Easting: 1127708.99	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 90.79		Well Screen Interval (ft): 710-730
Start Date: 5/17/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 6/6/2013			Total Depth (ft): 747.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
670		Magothy			0-708 ft bgs: See VPB 138 for Descriptions (<i>continued</i>)		4" Diameter Schedule 80 PVC Riser (<i>continued</i>)
672							
674							
676							
678							
680							
682							
684							
686							
688							
690							#0 Filter Sand
692							
694							
696							
698							
700							
702							
704							
706							#1 Filter Sand
708							
710	0.0		SW		Greyish-white SAND; fine-coarse Sand; well-graded; little subrounded gravel; trace silt		
712							
714	0.0		GW		Greyish-white GRAVEL; some angular fine-coarse Sand; trace silt		
716							
718							
720	0.0		SW-SM		Light grey SAND; angular fine-coarse Sand; little subrounded-subangular gravel; trace-little silt		
722							
724	0.0		GP		Greyish-white GRAVEL; subrounded; fine-coarse Sand; angular; trace silt		4" Diameter schedule 80 PVC, 10 Slot Well Screen (710-730 ft bgs)
726							
728							
730	0.0		GW		Greyish-white GRAVEL; subrounded; fine-coarse Sand; angular; trace silt		
732							Sump
734							
736							
738							
740							
742							#1 Sand to fill bottom of boring to sump
744							
746							
					End of boring at 747.0 ft. bgs.		

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 206993.50	Easting: 1127695.55	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.74		Well Screen Interval (ft): 760-780
Start Date: 4/26/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 5/15/2013			Total Depth (ft): 801.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-763 ft bgs: See VPB 138 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							
250							
300							4" Diameter Schedule 80 PVC Riser
350							
400							
450							
500							
550							
600							
650							Bentonite Grout
700							

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Eiffel Gate & Hilltop Avenue, Town of Oyster Bay, NY	Northing: 206993.50	Easting: 1127695.55	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 93.74		Well Screen Interval (ft): 760-780
Start Date: 4/26/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 5/15/2013			Total Depth (ft): 801.0

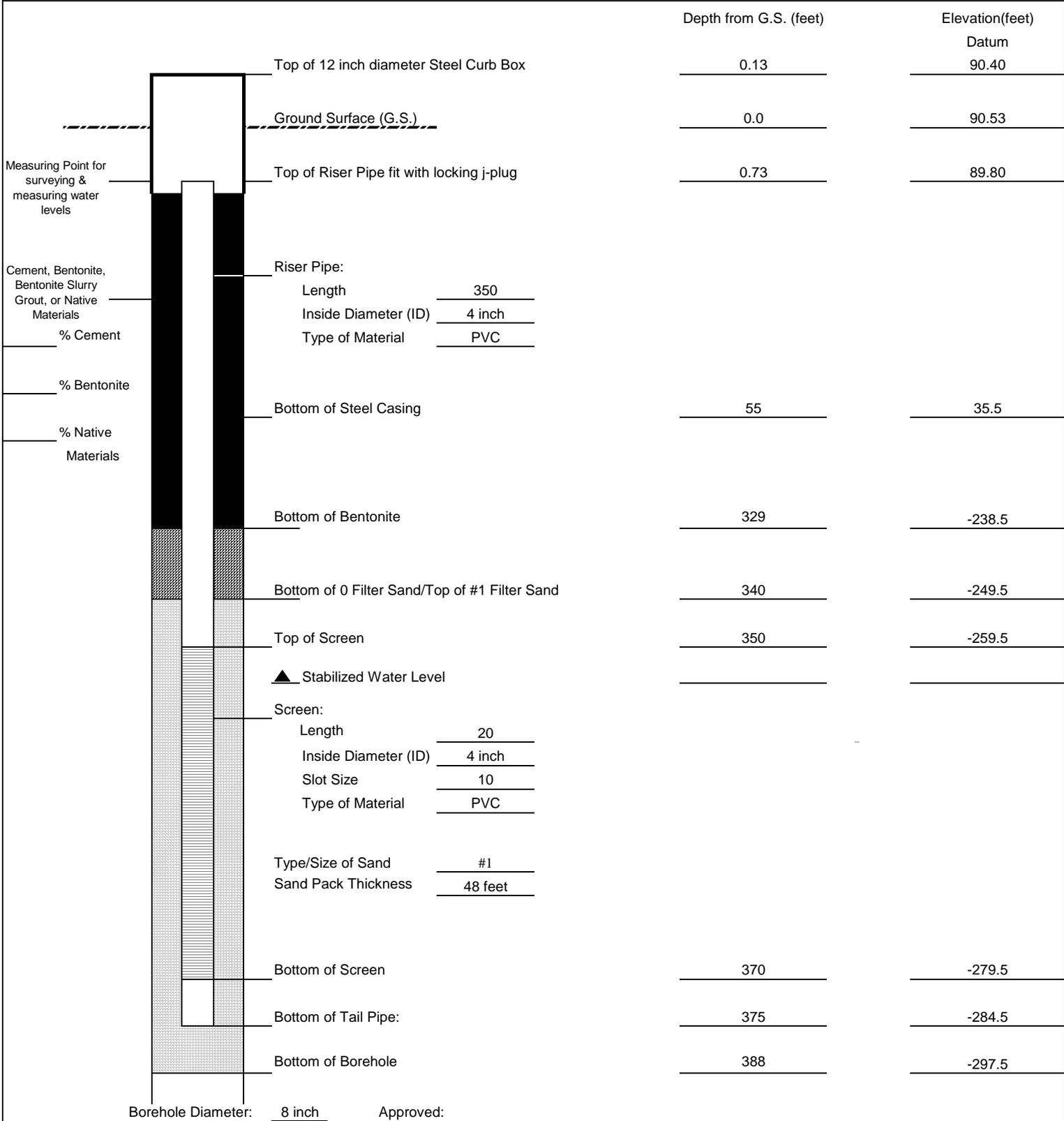
DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
720		Magothy			0-763 ft bgs: See VPB 138 for Descriptions (<i>continued</i>)		Bentonite Grout (<i>continued</i>)
722							
724							
726							
728							
730							
732							
734							
736							
738							
740							#0 Filter Sand
742							
744							
746							
748							
750							
752							#1 Filter Sand
754							
756							
758							
760							
762							
764	0.0		SM		Tan SILTY SAND; fine-medium Sand; some silt		
766							
768					No Recovery		
770			NSNR				4" Diameter schedule 80 PVC, 10 Slot Well Screen (760-780 ft bgs)
772							
774	0.0		SW		Tan SAND; fine-medium Sand; trace silt; orange laminae		
776							
778	0.0		SM		Tan SILTY SAND; medium Sand; poorly graded; angular; little silt		
780							Sump
782							
784							
786							
788							
790							
792							
794							#1 Sand to fill bottom of boring to sump
796							
798							
800							
					End of boring at 801.0 ft. bgs.		

-Well Construction Logs



Client: NAVFAC		WELL ID: RE104D1
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 6/20/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 207036.999 Easting: 1127745.610		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



Describe Measuring Point:

Ground Surface

Approved: _____

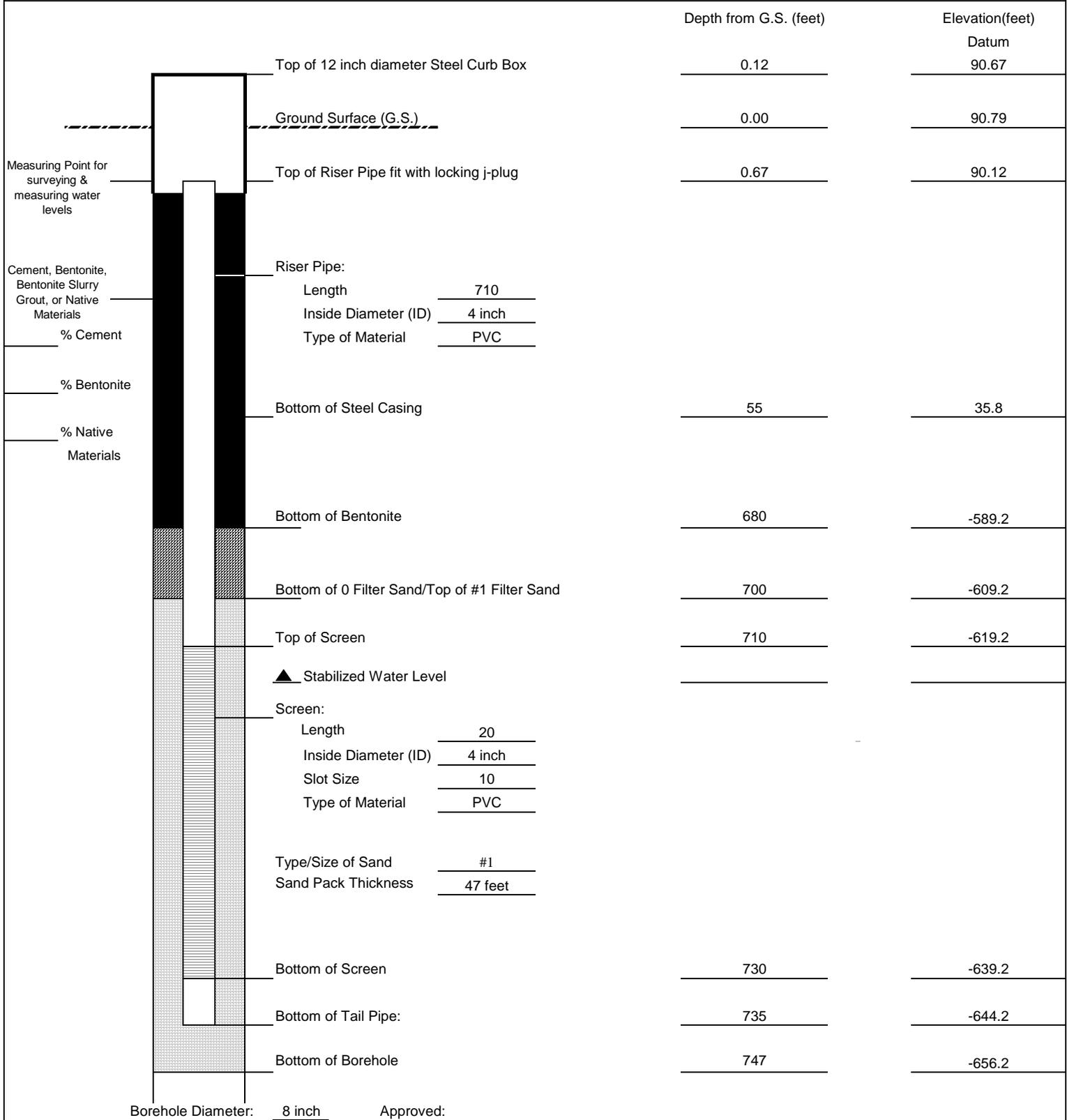
Signature _____

Date _____



Client: NAVFAC		WELL ID: RE104D2
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 6/3/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 207000.036 Easting: 1127708.991		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



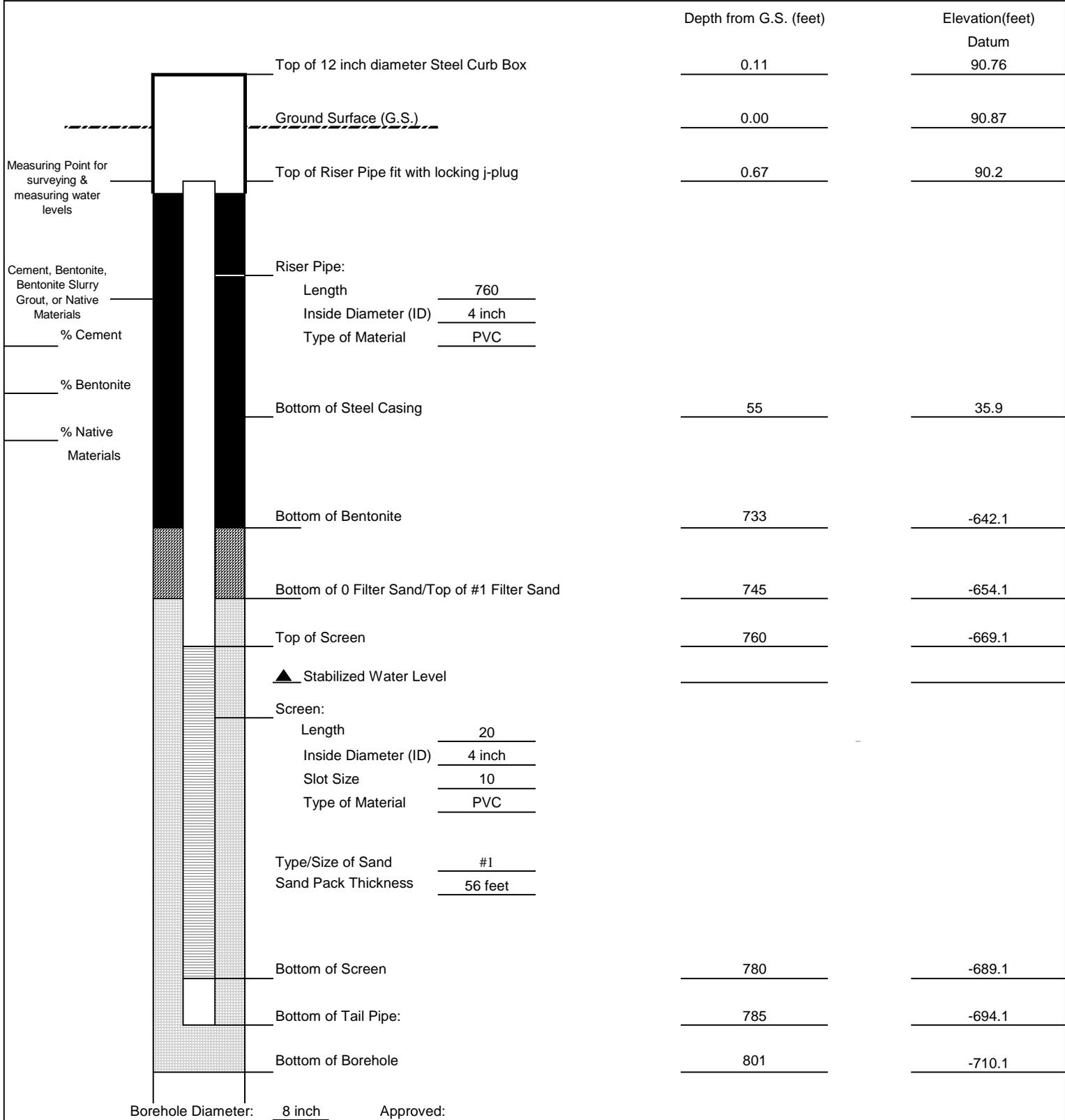
Describe Measuring Point: _____
 Ground Surface _____

Approved: _____
 Signature _____ Date _____



Client: NAVFAC	WELL ID: RE104D3	
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY	Date Installed: 5/15/13	
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 206993.502 Easting: 1127695.554	Contractor: DELTA WELL & PUMP	

MONITORING WELL CONSTRUCTION DETAIL



Describe Measuring Point: _____
 Ground Surface _____

Approved: _____
 Signature _____ Date _____

-Well Development Logs

NWIRP Page
 Site 1 Operable Unit 2
 Well Development Summary Table

VPB #	Well ID	Air Development Dates	Air Development Volume (Gallons)	Pump Development Dates	Pump Development Volume (Gallons)	Final Pump Depth (feet)	Final Turbidity (NTUs)	Total Volume (Gallons)
VPB-140	RE103D1	3/7/13	~4,000	3/8/13	3,000 4,000	90	2.17	8,000
	RE103D2	3/6/13	~4,000	3/11/13	4,000	90	7.46	8,000
	RE103D3	3/5/13	~4,000	3/12/13	5,000	90	36.32	9,000
	MW24I	4/26/13	~1,300	—	—	—	—	~1,300
	BPDW2-2	5/29/13	~6,000	—	—	—	2.72	~6,000
VPB138	RE104D1	7-11-13	~5,000	7-12-13	~3,000	370	20.2	~8,000
VPB138	RE104D3	7-9-13, 7-16-13	~8,500	7-17-13	~3,500	780	34.8	~9,000
VPB138	RE104D2	7-10-13	~4,000	7-15-13	~4,000	730	39.2	~8,000
	RE104D1	7-11-13		7-12-13	3,000	370	20.2	3,000

-Groundwater Sample Log Sheets



RESOLUTION
CONSULTANTS

Well ID: RE10401

Low Flow Ground Water Sample Collection Record

Client: MWIR - New Babbage Date: 1030 Time: Start 1300 am/pm am pm
 Project No: 50266526 Finish _____ am/pm
 Site Location: RE10401
 Weather Conds: cloudy, 55° Collector(s): PK, MZ

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 375 c. Length of Water Column _____ (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 35.17 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Bladder pump with drop tube

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% - D.O. 10%
 - pH + 1.0 unit - ORP + 10mV
 - Sp. Cond. 3% - Drawdown < 0.3'

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>XST</u>	<u>556</u>	<u>470363X</u>
<u>Hanna</u>	<u>HI98703</u>	<u>464514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>1300</u>									<u>35.17</u>	<u>setup</u>
<u>1335</u>									<u>OH, 350</u>	
<u>1350</u>		<u>15.04</u>	<u>5.07</u>	<u>0.062</u>	<u>4.49</u>	<u>275.5</u>	<u>7.00</u>	<u>310</u>		
<u>1400</u>		<u>14.92</u>	<u>5.64</u>	<u>0.079</u>	<u>4.11</u>	<u>250.1</u>	<u>>1000</u>			<u>cloudy off scale</u>
<u>1405</u>		<u>clean blow call</u>								
<u>1410</u>		<u>15.00</u>	<u>5.02</u>	<u>0.061</u>	<u>4.00</u>	<u>300.8</u>	<u>28.8</u>	<u>320</u>	<u>35.14</u>	
<u>1415</u>		<u>14.97</u>	<u>5.01</u>	<u>0.061</u>	<u>3.72</u>	<u>308.7</u>	<u>19.0</u>			

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time

Comments _____

Signature _____ Date _____



Well ID: RE1041DZ

Low Flow Ground Water Sample Collection Record

Client: NWIRP Bethpage Date: 10/30/13 Time: Start 1430 am/pm
 Project No: 60266526 Finish _____ am/pm
 Site Location: Hilltop
 Weather Conds: cloudy 55°F Collector(s): Mike Zobel

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length _____ c. Length of Water Column _____ (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 38.9 d. Calculated System Volume (see back) _____

2. WELL PURGE DATA

a. Purge Method: Bladder pump w/ drop tube

- b. Acceptance Criteria defined (see workplan)
- Temperature 3% - D.O. 10%
 - pH ± 1.0 unit - ORP ± 10 mV
 - Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>U73063X</u>
<u>Hanna</u>	<u>HI99703</u>	<u>464514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (μ S/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
1530	11	14.97	5.08	0.027	5.54	255.4	14.15	450	0.02	clear
1535		14.96	5.07	0.028	5.71	262.0	65.02	450	0.02	clear
1540		14.95	5.08	0.027	5.79	250.4	302.6	450	0.02	cloudy
1545		14.94	5.00	0.025	5.88	249.5	284.5	450	0.02	cloudy
1550		14.94	4.96	0.025	5.90	253.0	164.4	450	0.02	cloudy
1555		14.93	4.96	0.025	5.92	258.5	82.18	450	0.02	clear
1600		14.92	4.97	0.024	5.97	260.5	73.0	450	0.02	clear

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(continued on back)

If no or N/A - Explain below.

parameters stable pumped for 2 hrs 25 min turbidity at 10.1 NTU

3. SAMPLE COLLECTION: Method: bladder pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RE1041DZ-GW-103013</u>	<u>NOA</u>	<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1730</u>

Comments _____

Signature Mike Zobel Date 10-30-13



RESOLUTION CONSULTANTS

Well ID: RE 104 03

Low Flow Ground Water Sample Collection Record

Client: NWERP-Navy Bethesda Date: 10/31/13 Time: Start 800 am/pm
 Project No: 602665 LG Finish 1300 am/pm
 Site Location: RE 104-03
 Weather Conds: cloudy 50° Collector(s): PK-MZ

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 785 c. Length of Water Column 746.13 (a-b) Casing Diameter/Material 4" PVC
 b. Water Table Depth 38.87 d. Calculated System Volume (see back) _____ screen midpoint 770
 pump at 125
 drop tube length 645
 500 + 145

2. WELL PURGE DATA

a. Purge Method: bladder pump with drop tube

b. Acceptance Criteria defined (see workplan)
 - Temperature 3% - D.O. 10%
 - pH ± 1.0 unit - ORP ± 10 mV
 - Sp. Cond. 3% - Drawdown $< 0.3'$

c. Field Testing Equipment used:	Make	Model	Serial Number
	<u>VST</u>	<u>556</u>	<u>47363X</u>
	<u>Hanna</u>	<u>HT 98703</u>	<u>UG4514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (μ S/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
800									38.87	cat #1
845								280		OK
905		14.24	5.39	0.026	3.30	248.1				
910		14.25	5.38	0.026	3.47	257.1	47.0			increase 15%
915		14.85	5.36	0.025	3.63	265.5	47.0	320		
920		14.83	5.32	0.025	4.86	271.8				
925		14.81	5.31	0.024	4.87	275.4	46.3			

d. Acceptance criteria pass/fail (continued on back)

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

Turbidity spiked, invited 3hrs for sample

3. SAMPLE COLLECTION: Method: bladder pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RE10403-103113</u>	<u>VOA vial</u>	<u>3</u>	<u>HCl</u>	<u>8260B</u>	<u>1150</u>

Comments _____

Signature _____ Date _____

-Analytical Data Validation

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage		
Laboratory:	Katahdin Analytical Services, Inc.		
Service Request:	SG3428		
Analyses/Method:	EPA Method 415.1, Total Organic Carbon (TOC) and EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)		
Validation Level:	Limited Review		
AECOM Project Number:	60266526.SA.DV		
Prepared by:	Rick Purdy/AECOM	Completed on:	08/15/2013
Reviewed by:	Lori Herberich/AECOM	File Name:	SG3428_415.1 and 9060

SUMMARY

The samples listed below were collected from the Regional Groundwater Investigation - NWIRP Bethpage on May 7, 2013.

Sample ID	Matrix/Sample Type
RE104D3-EQUIPMENT-RINSATEBLANK-050713	Equipment blank
RE104D3SOIL-D-050713	Field Duplicate of RE104D3SOIL-050713-773-775
RE104D3SOIL-050713-773-775	Soil

A review of the quality control (QC) summary forms was performed to identify issues with data quality that would require qualification of specific data points.

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *Methods for the Chemical Analysis of Water and Wastes (EPA/600/4-79/020), Organic Carbon, Total (Combustion Or Oxidation), Method 415.1;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010).*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- X Laboratory blanks/equipment blanks

- NA Matrix spike (MS)/matrix duplicate (MD) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no results were qualified based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (x) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were negated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Laboratory blank contamination is summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1. Sample results were qualified as follows:

Blank Type	Blank Result	Sample Result	Action for Samples
ICB/CCB (Positive)	≥DL but ≤ LOQ	Nondetect	No action
		≥DL but ≤LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ	Use AECOM professional judgment (see below [1])
	>LOQ	≥DL but ≤LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ but < ICB/CCB Result	Qualify at level of Blank Result with a "U" or Qualify result as unusable
		>ICB/CCB but <10x the ICB/CCB result	Qualify as estimated (J)
		≥10x ICB/CCB	No action is taken based on AECOM professional judgment
PB / EB/ FB (Positive)	> LOQ	≥DL but ≤ LOQ	Qualify as nondetect (U) at the LOQ
		>LOQ but < 10x Blank Result	Qualify results as unusable
		≥10x Blank Result	No action
	≥DL but ≤LOQ	Nondetect	No action
		≥DL but ≤LOQ	Qualify as nondetect (U) at the LOQ
		> LOQ	Use AECOM professional judgment (see below [1])

[1] Establish an action level (AL) at 5x the blank contamination. If sample result is <AL, qualify the reported result with a U.

Qualified sample results are shown in Table 1. Because the TOC result in the equipment blank sample was negated due to contamination in the laboratory blank, no qualification of the associated soil samples was needed.

Matrix Spike (MS)/Matrix Duplicate (MD) and/or Matrix Spike Duplicate (MSD) Results

MS/MD/MSD analyses were not performed on samples in this data set. There were no data validation actions made on this basis.

Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of $\leq 30\%$ for aqueous matrices. This criterion applies if both results are greater than five times the Limit of Quantitation (LOQ). All QC acceptance criteria were met.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were $> 30\%$ for all nonaqueous samples.

All criteria were met.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOQ	Units	Validation Qualifiers	Validation Reason
RE104D3-EQUIPMENT-RINSATEBLANK-050713	WQ	TOTAL ORGANIC CARBON		1.0	MG/L	U	bl

Attachment A**Nonconformance Summary Tables****Table A-1 - Lab Blanks**

Blank ID	Compound	Result	LOQ	Units	Associated Samples
WG124970-1	TOTAL ORGANIC CARBON	0.20	1.0	MG/L	RE104D3-EQUIPMENT- RINSATEBLANK-050713

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
JN	The analyte was tentatively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to interferences caused by sample matrix.
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column precision
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG3428-1
Report Date: 05-JUN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG3428

Sample Description
104D3SOIL-D-050713

Matrix **Date Sampled** **Date Received**
SL 07-MAY-13 21-MAY-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	AnnL Method	QC Batch	AnnL Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	900 ug/drywt	470	100	350	SW846 M9060	WG124817	30-MAY-13 16:44:24	N/A	N/A	
Total Solids	85. %	1	N/A	N/A	SM2540G	WG124410	23-MAY-13 08:08:46	SM2540G	22-MAY-13	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG3428-2
Report Date: 05-JUN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG3428

Sample Description

SOIL-050713-773-775

Matrix Date Sampled Date Received
SL 07-MAY-13 21-MAY-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC in Soil	470 ug/gdrywt	480	100	360	SW846 M9060	WG124817	30-MAY-13 16:51:36	N/A	N/A	
Total Solids	82. %	I		N/A	SM2540G	WG124410	23-MAY-13 08:09:01	SM2540G	22-MAY-13	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG3428-3
Report Date: 05-JUN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG3428

Sample Description
RNSATEBLANK-050713

Matrix AQ Date Sampled 07-MAY-13 Date Received 21-MAY-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Ann. Method	QC Batch	Ann. Date	Prep. Method	Prep. Date	Footnotes
Total Organic Carbon	30.40 mg/L 1-0 U	1.0	.1023	.5	EPA 415.1	WG124970	30-MAY-13 14:49:18	N/A	N/A	

SE 11/22/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG4081	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited Review	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/16/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG4081_9060

SUMMARY

The samples listed below were collected from the Regional Groundwater Investigation - NWIRP Bethpage on May 31, 2013.

Sample ID	Matrix/Sample Type
RE104D2-SOIL-053113-728-730	Soil

A review of the quality control (QC) summary forms was performed to identify issues with data quality that would require qualification of specific data points.

Data validation activities were conducted with reference to:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010).*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following parameters (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- X Matrix spike (MS) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

✓ Sample results/reporting issues

The symbol (✓) indicates that no results were qualified based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Two additional aqueous samples were reported in this SDG but were not validated.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Laboratory and field blanks were free of contamination; qualification of data due to blank contamination was not required.

Matrix Spike (MS) Results

The matrix spike recovery was reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
$20\% \leq \%R < LL$	J	UJ
%R < 20%	J	R ¹

Note: Actions are applied to the native unspiked sample only
 1. Based on NFG 2008 VOC guidance, professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery.

Nonconformances resulting in qualified data are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicates were not submitted with this data set. There were no data validation actions made on this basis.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory. Percent solids were > 30% for all nonaqueous samples. No other issues were narrated.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. Validation actions were performed as noted above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE104D2-SOIL-053113-728-730	SO	TOTAL ORGANIC CARBON	760	340	UG/G	J	m

Attachment A**Nonconformance Summary Tables****Table A-1 - Matrix Spikes**

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
RE104D2-SOIL-053113-728-730	TOTAL ORGANIC CARBON	55	--	75	125	--	--

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to interferences caused by sample matrix.
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column precision
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4081-3
Report Date: 28-JUN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4081

Sample Description

SOIL-053113-728-730

Matrix Date Sampled Date Received
SL 31-MAY-13 13-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	760 ug/gdrywt	460	98.	340	SW846 M9060	WG125613	17-JUN-13 13:39:39	N/A	N/A	
Total Solids	87. %	1		N/A	SM2540G	WG125492	17-JUN-13 07:23:11	SM2540G	14-JUN-13	

SG4081-3

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG4415	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited Review	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/13/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG4415_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on June 14, 2013.

Sample ID	Matrix/Sample Type
RE104XSOIL-D-061413	Soil/Field Duplicate
RE104D1SOIL-061413-363-365	Soil

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010).*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- ✓ Matrix spike (MS)/matrix duplicate (MD) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no results were qualified based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. No results were qualified as a result of this review.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and
- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Laboratory and field blanks were free of contamination; qualification of data due to blank contamination was not required.

Matrix Spike (MS)/Matrix Duplicate (MD) and/or Matrix Spike Duplicate (MSD) Results

All MS/MD/MSD criteria were met and/or qualification of the data was not required.

Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of $\leq 50\%$ for solid matrices. This criterion applies if both results are greater than five times the Limit of Quantitation (LOQ). All QC acceptance criteria were met.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were $> 30\%$ for all nonaqueous samples. All criteria were met.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this data review.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4415-1
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15); MSA: 12S15180L,
Project: Navy Clean WE15 NWIRP Bethpage, NY
SDG: SG4415

Sample Description
SOIL061413-363-365

Matrix Date Sampled Date Received
SL 14-JUN-13 25-JUN-13

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
TOC in Soil	1420	490	100	SW846 M9060	WG126161	26-JUN-13 10:49:46	N/A	26-JUN-13	DW	
Total Solids	ug/drywt 82. %	1		SM2540G	WG126728	10-JUL-13 06:54:25	SM2540G	09-JUL-13	KP	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4415-2
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4415

Sample Description
RE104XSOIL-D-061413

Matrix SL
Date Sampled 14-JUN-13
Date Received 25-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC in Soil	550 ug/gdrywt	500	100	370	SW846 M9060	WG126161	26-JUN-13 11:31:51	N/A	26-JUN-13	
Total Solids	80. %	1		N/A	SM2540G	WG126728	10-JUL-13 06:54:32	SM2540G	09-JUL-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG8535	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Kristin Rutherford/AECOM	Completed on: 11/22/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG8535_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on October 30 and 31, 2013.

Sample ID	Matrix/Sample Type
GWD-103013	Field Duplicate of RE-105-D1-GW103013
RE-103-D1-GW103113	Ground water
RE-103-D2-GW103113	Ground water
RE-103-D3-GW103113	Ground water
RE-104-D1-GW103013	Ground water
RE-104-D2-GW103013	Ground water
RE-104-D3-GW103113	Ground water
RE-105-D1-GW103013	Ground water
RE-105-D2-GW103013	Ground water
TB-GW-103013	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008) and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). . In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity

- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✗ Surrogate spike recoveries
- ✗ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
%R < 20% (see note 1)	J	R*
%RPD > UL (see note 2)	J	No qualification
Note: Actions are applied to the native unspiked sample only (see note 3)		
*When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)		

Notes:

1. Based on NFG 2008 VOC guidance, professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.
2. In the absence of Region 2 guidance, RPD actions are based on professional judgment.
3. If a field duplicate sample was also collected for the native sample chosen for MS/MSD analysis, professional judgment is used to apply MS/MSD actions to the corresponding field duplicate sample as well as the native sample.

Nonconformances are summarized in Attachment A in Table A-2. Qualified sample results are shown in Table 1.

LCS Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of ≤30% for aqueous matrices. These criteria apply if both results were greater than five times the Limit of Quantitation (LOQ).

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
GWD-103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
GWD-103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.5	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHANE	0.37	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
GWD-103013	WG	CARBON TETRACHLORIDE	0.27	0.50	UG_L	J	s
GWD-103013	WG	CIS-1,2-DICHLOROETHENE	1.9	0.50	UG_L	J	s
GWD-103013	WG	TRICHLOROETHENE	70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,1-TRICHLOROETHANE	0.75	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	12	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLOROETHANE	0.70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHANE	1.5	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHENE	8.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CARBON TETRACHLORIDE	0.45	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CHLOROFORM	0.86	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CIS-1,2-DICHLOROETHENE	4.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TETRACHLOROETHENE	2.3	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TRICHLOROETHENE	810	5.0	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.6	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHANE	1.2	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CARBON TETRACHLORIDE	0.50	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CHLOROFORM	1.6	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-103-D2-GW103113	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	TRICHLOROETHENE	830	5.0	UG_L	J	s
RE-103-D3-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.6	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHANE	0.61	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHENE	0.54	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CHLOROFORM	0.68	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CIS-1,2-DICHLOROETHENE	0.76	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	6.5	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CHLOROFORM	0.40	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TETRACHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TRICHLOROETHENE	160	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	0.61	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	TRICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.9	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHANE	0.40	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	CHLOROFORM	0.46	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-105-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.0	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	TRICHLOROETHENE	75	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,1-TRICHLOROETHANE	0.86	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	21	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	1,1,2-TRICHLOROETHANE	1.1	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHANE	2.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHENE	5.4	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	CARBON TETRACHLORIDE	4.2	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CHLOROFORM	2.3	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	3.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TETRACHLOROETHENE	0.50	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TRICHLOROETHENE	1200	10	UG_L	J	s

Attachment A

Nonconformance Summary Tables

Table A-1 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
GWD-103013	1,2-DICHLOROETHANE-D4	121	70	120
GWD-103013RA	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113DL	1,2-DICHLOROETHANE-D4	143	70	120
RE-103-D2-GW103113	1,2-DICHLOROETHANE-D4	132	70	120
RE-103-D2-GW103113DL	1,2-DICHLOROETHANE-D4	137	70	120
RE-103-D3-GW103113	1,2-DICHLOROETHANE-D4	141	70	120
RE-104-D1-GW103013	1,2-DICHLOROETHANE-D4	124	70	120
RE-104-D1-GW103013RA	1,2-DICHLOROETHANE-D4	133	70	120
RE-104-D2-GW103013	1,2-DICHLOROETHANE-D4	131	70	120
RE-104-D2-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-104-D3-GW103113RA	1,2-DICHLOROETHANE-D4	134	70	120
RE-105-D1-GW103013	1,2-DICHLOROETHANE-D4	122	70	120
RE-105-D1-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-105-D2-GW103013	1,2-DICHLOROETHANE-D4	133	70	120
RE-105-D2-GW103013DL	1,2-DICHLOROETHANE-D4	136	70	120

DL – dilution analysis

RA - reanalysis

Table A-2 - Matrix Spikes

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
RE-105-D2-GW103013	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	143	145	73	126	2	20
RE-105-D2-GW103013	1,1-DICHLOROETHENE	128	131	70	130	2	20

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

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Page ____ of ____

Client: Resolution Consultants / AECOM Contact: Eleanora Vivarone Phone #: (845) 425-4980 Fax #: (845) 425-4989
 Address: Ruston Corporate Park City: Chestnut Ridge State: NY Zip Code: 10977
100 Reed Schoolhouse Rd Suite B-1
 Purchase Order #: _____ Proj. Name / No. NWIRP Bethpage 00266526 Katahdin Quote # _____

Bill (if different than above) Address _____
 Sampler (Print / Sign) _____ Copies To: _____

LAB USE ONLY WORK ORDER #: SG-8535
 KATAHDIN PROJECT NUMBER _____
 REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP °C TEMP BLANK INTACT NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	Filt.																
					YO	YN	YO	YN	YO	YN	YO	YN	YO	YN	YO	YN					
	RE-105-D1 GW 103013	10-30-13 / 1040	GW	3	✓																
	RE-105-D2 GW 103013	10-30-13 / 1200	GW	3	✓																
	GWD-103013	10-30-13 / 1010	GW	3	✓																
	RE 105 D2 GW MS 103013	10-30-13 / 1200	GW	3	✓																
	RE 105 D2 GW MS D 103013	10-30-13 / 1200	GW	3	✓																
	RE 105 D2 GW 103013	10-30-13 / 1200	GW	3	✓																
	RE 104 D1 GW 103013	10-30-13 / 1515	GW	3	✓																
	RE 104 D2 GW 103013	10-30-13 / 1730	GW	3	✓																
	RE 103 D1 GW 103113	10-31-13 / 1140	GW	3	✓																
	RE 104 D3 103113	10-31-13 / 1150	GW	3	✓																
	RE 103 D3 103113	10-31-13 / 1635	GW	3	✓																
	RE 103 D2 GW 103113	10-31-13 / 1540	GW	3	✓																
	/	/																			
	/	/																			
	/	/																			
	/	/																			

COMMENTS _____

Relinquished By: (Signature) <u>[Signature]</u>	Date / Time 10-31-13 / 18:00	Received By: (Signature) <u>[Signature]</u>	Date / Time 11-1-13 / 09:00	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

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Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-1
Client ID: RE-105-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4031.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.9	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.40	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.46	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	75	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.0	%					
Toluene-d8		91.1	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		98.8	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-3
Client ID: GWD-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4032.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.37	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	1.9	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.27	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	70	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.7	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	121.	%					
Dibromofluoromethane		95.9	%					

*KMR
12/21/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-4
Client ID: RE-105-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4039.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J M	5.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J MM	21	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	2.0	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	3.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	2.3	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	4.2	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.86	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J EMM	1200	ug/L	+ 20	+ 20	+ 20	0.28 5.6	0.50 10
Tetrachloroethene	J	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	1.1	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		90.6	%					
1,2-Dichloroethane-d4	*	133.	%					
Dibromofluoromethane		100.	%					

*KML
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-5
Client ID: RE-104-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4033.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	Y	1.7	ug/L	1	1	1.0	0.35	0.50
Freon-113	Y	6.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.79	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.40	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	160	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	1.7	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.6	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		99.5	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-6
Client ID: RE-104-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4034.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.61	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	1.4	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.2	%					
Toluene-d8		90.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		104.	%					

*KMR
12/21/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-7
Client ID: RE-103-D1-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4035.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	8.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	12	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.5	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	4.8	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.86	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.45	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.75	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	930 810	ug/L	1 + 10	1 + 10	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene	J	2.3	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.70	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		87.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		105.	%					

*KAR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-8RA
Client ID: RE-104-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4062.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.3	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	134.	%					
Dibromofluoromethane		104.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-9
Client ID: RE-103-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4057.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.54	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	1.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.61	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.76	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.68	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	340-120	ug/L	+ 2	+ 2	1.0-2.0	0.28	0.56 0.50 1.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.5	%					
Toluene-d8		86.9	%					
1,2-Dichloroethane-d4	*	141.	%					
Dibromofluoromethane		108.	%					

*KMR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-10
Client ID: RE-103-D2-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4037.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	5.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.2	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	1.6	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	850 830	ug/L	1 10	1 10	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		94.9	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	132.	%					
Dibromofluoromethane		102.	%					

KMR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-11
Client ID: TB-GW-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4030.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.5	%					
Toluene-d8		88.9	%					
1,2-Dichloroethane-d4		117.	%					
Dibromofluoromethane		99.4	%					

-Analytical Data Table

Location	Sample Date	Sample ID	Sample Interval	Sample type code	NYSDEC Groundwater Guidance or Standard Value (Note 1)	F9%\$(8% %\$# \$#&\$%	F9%\$(8& %\$# \$#&\$%	F9%\$(8' %\$# %&\$%
					F9%\$(18%: K %\$' \$%	F9%\$(18&: K %\$' \$%	F9%\$(18'!: K %\$' %%	
					B	B	B	
VOC (ug/L)								
1,1,1-TRICHLOROETHANE	5				0.72 J	0 '\$) \$!'	0 '\$) \$!'	
1,1,2,2-TETRACHLOROETHANE	5				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5				6.5 J	0 '\$) \$!'	0 '\$) \$!'	
1,1,2-TRICHLOROETHANE	1				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
1,1-DICHLOROETHANE	5				0.79 J	0 '\$) \$!'	0 '\$) \$!'	
1,1-DICHLOROETHENE	5				1.7 J	0 '\$) \$!'	0 '\$) \$!'	
1,2-DICHLOROETHANE	5				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
CARBON TETRACHLORIDE	5				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
CHLORO BENZENE	5				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
CHLOROFORM	7				0.40 J	0 '\$) \$!'	0 '\$) \$!'	
CIS-1,2-DICHLOROETHENE	5				2.1 J	0.61 J	0 '\$) \$!'	
TETRACHLOROETHENE	5				1.7 J	0 '\$) \$!'	0 '\$) \$!'	
TRANS-1,2-DICHLOROETHENE	5				0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'	
TRICHLOROETHENE	5				160 J	1.4 J	0 '\$) \$!'	
Total VOC					173.91	2.01		

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

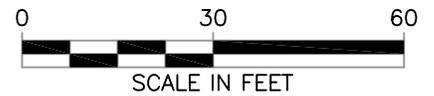
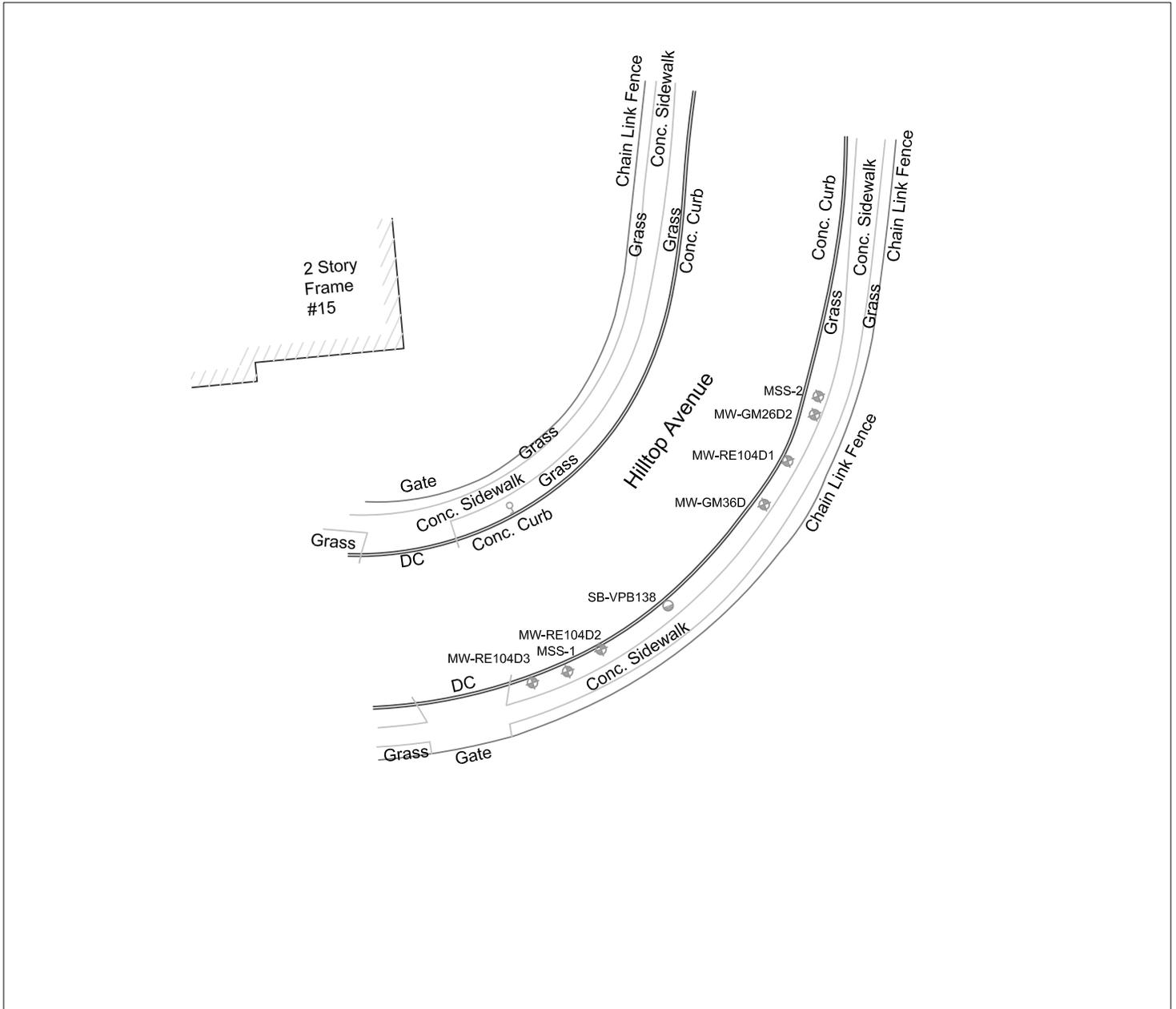
Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Section 7

Survey

-



Vertical Profile Boring 138 Survey Locations

Adapted from mapping provided by GeodCorp, 10/22/2013

SURVEY RESULTS, BEETHPAGE, LONG ISLAND, NY

Project No: 3276

Client: AECOM

Horizontal Datum: NAD 83(2011) NYLI3104

Vertical Datum: NAVD 88

Units: U.S. Survey Feet

Survey date: 10/14/2013

Description	Point	Northing	Easting	Latitude	Longitude	Ground	Rim	PVC
SB-VPB-137	1032	206694.84	1125135.13	40-43-58.38	73-29-29.94	93.77	N/A	N/A
SB-VPB-138	1073	207008.61	1127722.15	40-44-01.33	73-28-56.32	89.98	N/A	N/A
SB-VPB-139	1124	205055.04	1126639.88	40-43-42.09	73-29-10.52	87.50	N/A	N/A
MW-RE103D1	1029	206694.59	1125111.76	40-43-58.38	73-29-30.25	93.80	93.82	93.00
MW-RE103D2	1030	206692.99	1125160.34	40-43-58.36	73-29-29.62	93.63	93.64	92.73
MW-RE103D3	1031	206693.46	1125144.91	40-43-58.37	73-29-29.82	93.74	93.79	92.76
MW-RE104D1	1035	207037.00	1127745.61	40-44-01.61	73-28-56.01	90.53	90.40	89.80
MW-RE104D2	1037	207000.04	1127708.99	40-44-01.25	73-28-56.49	90.79	90.67	90.12
MW-RE104D3	1038	206993.50	1127695.55	40-44-01.19	73-28-56.66	90.87	90.76	90.20
MW-RE105D2	1123	205064.02	1126652.42	40-43-42.18	73-29-10.36	87.59	87.56	87.18
MW-RE105D1	1122	205072.87	1126664.43	40-43-42.27	73-29-10.20	87.62	87.69	87.23
MW-GM26D2	1034	207046.08	1127750.87	40-44-01.70	73-28-55.94	90.61	90.50	90.33
MW-GM36D	1036	207028.45	1127741.01	40-44-01.53	73-28-56.07	90.65	90.53	90.37
MSS-2	1071	207049.69	1127751.61	40-44-01.74	73-28-55.93	90.53	90.53	N/A
MSS-1	1072	206995.70	1127702.44	40-44-01.21	73-28-56.57	90.75	90.75	N/A

Appendix C

VPB 139 and RE105D1, RE105D2

**Vertical Profile Boring 139 and
RE105D1, RE105D2**

- 1. VPB 139 Boring and Gamma Log**
- 2. VPB 139 Gamma and PCE/TCE plot**
- 3. VPB 139 Groundwater Sample Log Sheets**
- 4. VPB 139 Analytical Data Validation**
 - Analytical Data Sheets
 - Chain of Custody Records
 - Validation Letter and Table
- 5. VPB 139 Analytical Data Table**
- 6. Monitoring Wells RE105D1, RE105D2**
 - Boring Logs
 - Well Construction Logs
 - Well Development Logs
 - Groundwater Sample Log Sheets
 - Analytical Data Validation
 - Analytical Data Table
- 7. Survey**

Section 1

VPB 139 Boring and Gamma Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic			Logged By: V. Thayer		
Location: Roosevelt Dr & Lincoln Blvd, Town of Oyster Bay, NY		Northing: 205055.05		Easting: 1126639.88	
Project #: 60266526		Ground Elevation (msl): 87.50		Well Screen Interval (ft):	
Start Date: 6/26/2013		Drilling Method: Mud Rotary		Water Level (ft):	
Finish Date: 8/15/2013				Total Depth (ft): 965.0	

Note: Unless denoted by a splitspoon sample (indicated by the presence of a PID reading), boundaries between strata are approximate only and may be transitional because they are based on screened wash samples collected during mud rotary drilling at 5 ft. intervals.

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
0								
2					Upper Glacial	SM		Brown fine-medium SAND, little silt/organics
4								Yellowish orange SAND, little silt
6						SM		
8								
10								
12								
14								
16						SM		Yellowish orange SAND, angular fine-coarse Sand, little silt, trace subrounded fine gravel
18								
20								
22								
24								
26								
28						SM		Yellowish orange SAND, angular fine-coarse Sand, little silt, trace subrounded fine gravel
30								
32								
34								
36						SW		Yellowish orange, well graded SAND, fine-coarse Sand, 30% coarse sand, subrounded gravel, trace silt
38								
40								
42								
44								
46						SM		Yellowish orange SAND, medium Sand, little fine sand, little silt
48								
50								
52								
54								
54								

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
56					Upper Glacial			Orangish Tan SILTY SAND, micaceous fine-medium Sand, trace coarse sand, little silt
58			85	0.42		SP		
60								Orangish Tan SAND with Silt, medium sand, little fine sand, trace coarse sand
62					SP-SM			
64								Orangish Tan SAND, medium Sand, little fine sand, little silt/clay
66					SM			
68								Orange SANDY SILT/Clay, fine-medium sand, 70% fines
70					MLCL			
72								Orange SILTY SAND, micaceous, fine-medium Sand, little Silt
74					SM			
76								Orange SILTY SAND, fine-coarse Sand, some silt 40%
78					SM			
80								Orange SILTY SAND, micaceous medium Sand, little fine sand, little silt 15-20%
82					SM			
84								Orange SILTY SAND, micaceous medium-coarse Sand, little fine sand, some silt
86					SM			
88								Orange SILTY SAND, fine-coarse Sand, few silt Note: Top of Magothy Formation not identified in the field. Upper Glacial assumed to end at approximately 100 ft bgs based on literature.
90			7.4	< 0.50	Magothy	SW-SM		
92								Orange SAND, fine-coarse Sand, trace silt
94						SW		
96								Orange SAND, coarse Sand, little medium sand, trace fine sand, trace silt
98						SW		
100								Orange poorly graded SILTY SAND, medium Sand, little silt
102						SM		
104								
106								
108								
110								
112								
114								
116								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
118	20 40 60 80				Magothy			Orange poorly graded SAND with Silt, medium sand, few silt
120				SP-SM			Orange poorly graded SAND with Silt, medium sand, few silt	
122								
124								
126						SP-SM		Orange poorly graded SAND with Silt, medium sand, few silt
128								
130								Black SANDY SILT, micaceous fine Sand, trace coarse sand, some black organics/lignite
132								
134						ML		
136								
138								
140								
142								
144						SP-SM		Grey SAND, micaceous medium Sand, little fine sand, lignite/black organics, one iron nodule, few silt
146								
148								
150			1.2	< 0.50	SP-SM		Grey SAND, micaceous medium Sand, little fine sand, lignite/black organics, one iron nodule, few silt	
152								
154							Orange Tan SILTY SAND	
156					SM			
158								
160					SM		Orangish Tan SILTY SAND, medium Sand, few iron nodules, silt 30%	
162								
164					CLML		White Orange CLAY, Grey Silt	
166								
168								
170					CL		Tan sandy lean CLAY	
172								
174							Tan CLAYEY/SILTY SAND, medium Sand, silt/clay, 30% iron nodules	
176					SM			
178								
180					SM		Tan SILTY SAND, medium Sand, little fine sand, little silt/clay	

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
182					Magothy	SM		Tan SILTY SAND, medium Sand, little fine sand, little silt/clay (continued)
184				SM		Tan SILTY SAND, medium Sand, little fine sand, little silt/clay		
186				SP-SM		Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
188						Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
190				SP-SM		Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
192						Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
194				SP-SM		Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
196						Tan SAND with Silt, medium sand, little fine sand; few iron nodules		
198			6.5	3.0		SP-SM		Tan SAND with Silt, medium sand, little fine sand; few iron nodules
200								Tan SAND with Silt, medium sand, little fine sand; few iron nodules
202				SM		Greyish Tan SILTY SAND, medium Sand, little silt		
204						Greyish Tan SAND with Silt, medium sand, little fine sand, few silt		
206				SP-SM		Greyish Tan SILTY SAND, medium Sand, little fine sand, little silt		
208					Greyish Tan SAND with Silt, medium sand, little fine sand, few silt			
210				SM	Tan poorly sorted SILTY SAND, medium Sand, little fine sand/silt			
212					Grey and Brown SILTY SAND, medium Sand, little fine sand, iron nodules			
214				MLCL	Grey lean CLAY			
216					Grey lean CLAY/SILT			
218				SW	Yellowish orange SAND			
220								
222								
224								
226								
228								
230								
232								
234								
236								
238								
240								
242								

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
244	20 40 60 80				Magothy			Yellowish orange SAND <i>(continued)</i>
246								
248						SW		
250								
252								
254								
256						SW-SM		Yellowish orange SAND with Silt, medium sand, little fine sand, few silt, few iron nodules
258								
260			8.1	1.7				Yellowish orange SAND with white Clay, medium sand, little fine sand, few clay/silt, few iron nodules
262						SM		
264								
266								
268								
270						SM		Yellowish orange SILTY SAND, medium Sand, little fine sand, little silt, little iron nodules
272								
274								
276								Grey SILT
278								
280			< 0.50	< 0.50		ML		
282								
284								Grey SILTY SAND
286						SM		
288								
290								Grey SILTY SAND
292						SM		
294								Grey SILTY SAND, medium Sand, little iron nodules, silt 40%
296								
298								
300			97	4.6		SM		
302								
304								Grey SANDY SILT, little fine-medium Sand; muscovite flakes; lignite flakes
306						ML		

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
308		0			Magothy	ML		Yellowish orange fine SAND, little medium Sand
310			SP			SM		Yellowish orange fine SAND, little Silt
312						SM		Yellowish orange thinly laminated with grey silt - black lignite and yellowish orange fine SAND little silt
314						SC		Light Grey brown medium SAND, little fine Sand, little clay, trace lignite, several iron nodules, muscovite flakes
316								Black mottled orange white grey CLAY
318								
320			< 0.50	< 0.50		CL		
322								
324								Black mottled orange white grey CLAY
326						CL		
328								
330						SC		Grey CLAYEY SAND, fine Sand, little clay Brownish grey SILTY SAND
332								
334								
336						SM		
338								
340			50	3.4				
342								
344								Brownish grey SILTY SAND, muscovite, lignite flakes
346						SM		
348								
350						SP		Light greyish brown angular medium SAND, little fine Sand, trace fines, lignite, muscovite flakes, trace iron nodules
352								
354						SM		Light greyish brown fine-coarse, angular SAND, little iron nodules, pieces of wood, lignite; little silt
356								
358								
360			82	< 0.50		SM		Light greyish brown fine-coarse, angular SAND, little iron nodules, pieces of wood, lignite; little silt
362								Grey laminated CLAY interbedded with several inches of brownish tan medium Sand
364		0				CL / SM		
366								
368						CL		Greyish with white streaks CLAY

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	
370					Magothy			Greyish with white streaks CLAY (<i>continued</i>)	
372						CL			
374									Whitish grey, angular medium SAND, greyish white CLAY
376									
378									
380									
382									
384									
386									
388									
390			190	1.3					Whitish-grey angular medium SAND, grey-orange Clay/silt
392									
394									Whitish-grey angular medium SAND; little grey Clay/silt, 10% iron nodules
396									
398									
400									Whitish-grey, angular medium SAND, one iron nodule, several pieces of lignite; trace to few Silt
402									
404								Grey SANDY CLAY, grey-white Clay/Silt	
406									
408									
410			21	< 0.50				Greyish CLAYEY SAND, 70% fine Sand, 10% medium sand, 20% clay/silt	
412									
414								Sandy lean CLAY	
416									
418									
420			16	< 0.50				Greyish brown SAND, medium Sand, silt/clay 10%	
422									
424									
426								Greyish brown SILTY SAND	
428									
430									
432									

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
434					Magothy	SP-SM		Greyish brown SAND, medium Sand, silt 10%
436								Greyish brown SILTY SAND
438								
440			0.53	< 0.50				
442						SM		
444								
446								
448								
450						SP		Grey SAND, fine Sand, little medium sand, trace silt
452								
454								
456						SP		Grey SAND, fine Sand, little medium sand, trace silt
458								
460						SP		Grey SAND, fine Sand, little medium sand, trace silt
462						CL		Grey CLAY
464								
466								
468								
470						CL		Sandy lean CLAY
472								Tan SAND, fine-medium
474								
476						SP		
478								
480								
482								
484		0				CL		Grey CLAY, microlaminated
486						CL		Grey CLAY
488								
490						SP-SM		Greyish brown SAND, few Silt
492								
494						SP-SM		Greyish brown SILTY SAND, medium Sand, little fine sand, few to little silt

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION		
496					Magothy	SP-SM		Greyish brown SILTY SAND, medium Sand, little fine sand, few to little silt (continued)		
498						SP-SM		Greyish brown SILTY SAND, medium Sand; little fine sand, little to few silt		
500						SP-SM		Greyish brown SILTY SAND; medium Sand, little fine sand, few silt/clay		
502										
504										
506						SP		13	< 0.50	Greyish brown medium SAND; few lignite flakes, little fine Sand
508										
510										
512						SM		0	Greyish brown medium SAND, little fine Sand, little silt	
514										
516										
518										
520										
522										
524						SM		52	< 0.50	Greyish brown poorly graded SAND; subrounded-subangular medium Sand, little fine sand
526										
528										
530										
532										
534										
536	SP	Greyish brown SAND, angular medium Sand, little fine sand, trace silt; poorly graded								
538										
540										
542										
544										
546										
548	SP	Greyish brown SAND; angular, medium Sand, little fine sand, trace silt								
550										
552										
554	SW	Greyish brown SAND; angular, fine-coarse Sand, (coarse sand 40%), trace silt, several iron nodules, well-graded								
556										

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
558	20 40 60 80				Magothy			
560						SW		Greyish brown SAND; angular, fine-coarse Sand, (coarse sand 40%), trace silt, several iron nodules, well-graded (continued)
562								
564								
566								
568								
570			18	< 0.50				
572						SW-SC		Greyish brown widely graded SAND with Clay, angular-subangular medium sand, little fine sand, trace coarse sand, few clay
574								
576								
578								
580						SW		Pale grey widely graded SAND, subangular fine-coarse Sand, orange stained trace fine gravel, trace fines
582								
584			< 1.0	< 1.0				
586						SW		Pale Grey widely graded SAND, subangular medium sand (60%) little coarse Sand, little fine sand, trace fines
588								
590								
592						SW-SC		Pale grey widely graded SAND with white Clay, few black flecks (Lignite)
594								
596						SW		Pale grey widely graded SAND, medium-coarse Sand, little fine sand, trace small gravel
598								
600			1.7	< 2.0				
602						SW		Pale Grey SAND with small gravel, coarse Sand 60%, little medium sand, little gravel
604		0						
606						SP		Yellowish orange fine-medium SAND, trace silt
608								
610								
612								
614								
616						SW		Greyish brown SAND, medium-coarse Sand, angular, few little fine sand, trace silt/clay
618								
620			< 5.0	< 5.0				

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
622					Magothy	SW		Greyish brown SAND, medium-coarse Sand, angular, few little fine sand, trace silt/clay (continued)
624						SP-SM		Greyish brown SAND with Silt, medium sand, trace coarse sand, few fine sand, few silt
626						SM		Greyish brown SILTY SAND, medium Sand, medium Sand, angular, little coarse sand, little fine sand, little silt/clay
628								
630								
632								
634						SM		Grey, orange, white SAND with microlaminae composed of black organics, white and orange medium Sand, some grey fine Sand little Silt
636								
638						SM		Greyish brown SAND with Silt, medium sand, little coarse sand subangular little fine sand, few black and white silt/clay
640		0						
642						SW-SM		Greyish brown SAND with Silt, medium sand, little fine sand, few black and white silt/clay
644			0.39	< 0.50				
646						SW-SM		Greyish brown SAND with Silt, medium sand, little fine sand, few black and white silt/clay
648								
650						SM		Greyish brown SAND with Silt, medium Sand, little fine sand little clay/silt
652								
654					SM		Greyish brown SAND with Silt, medium Sand, little fine sand little clay/silt	
656								
658					SM		Brownish Grey SILTY SAND, fine-coarse Sand, some silt/clay	
660			< 10	< 10				
662					SM		Greyish brown SILTY SAND; fine-medium Sand, some silt/clay	
664								
666					SM		Grey SILTY SAND, fine-medium Sand, some silt	
668								
670					SM		Grey SILTY SAND, fine-medium Sand, some silt	
672								
674					SM		Grey SILTY SAND, fine-medium Sand, some silt	
676								
678					SM		Grey SILTY SAND, fine-medium Sand, some silt	
680								
682					SM		Grey SILTY SAND, fine-medium Sand, some silt	

(Continued Next Page)

DEPTH (ft)	Gamma Ray	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
684	20 40 60 80		< 5.0	< 5.0	Magothy	SM		Greyish brown SILTY SAND, fine-medium Sand, little silt <i>(continued)</i>
686						SM		
688						SM		Greyish brown SILTY SAND, fine-coarse Sand; subangular; some silt
690								
692						SW		Greyish SAND, coarse Sand, little medium sand; subrounded few fine sand
694			3.0	< 1.0				
696								
698						SM-SC		Greyish brown SILTY/CLAYEY SAND, medium Sand, little silt/clay
700			82	< 0.50				
702						SW		Light brown (tan) SAND; coarse Sand; little medium sand, few fine sand, trace fine gravel
704								
706						SC		Tan SAND, coarse Sand, little medium-fine sand, few gravel, little white clay/silt
708								
710								
712						SW		Tan SAND, coarse Sand, angular, little fine gravel, few medium sand
714								
716								
718						SW		Tan SAND, coarse Sand (75%), medium sand (25%), trace grey clay
720			21	< 2.5				
722						SC-GC		Tan Clayey SAND, coarse Sand - fine gravel, white grey clay
724								
726						GC		Tan Clayey GRAVEL, fine Gravel subrounded; little white, black clay
728								
730								
732						SW		Brown widely graded SAND, medium Sand (50%), little coarse sand, little fine gravel, subangular-angular, few fine sand, trace few silt
734								
736								
738						SW		Tan SAND with Clay/Silt, medium sand little coarse sand, few fine sand, few white silt
740			1200	1.5				
742								
744						SW-SC		Tan SAND with Clay/Silt, medium sand little coarse sand, few fine sand, few white silt
746								

(Continued Next Page)

DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
748					Magothy	SW-SC		Tan SAND
750						SW		
752								
754						SW		
756								
758			4.3	< 2.0		SW		Tan SAND, coarse Sand, little medium sand, little fine gravel, trace fine sand, silt
760								
762						SW		
764								
766						SW		Tan SAND, coarse Sand, little medium sand, little fine gravel, trace fine sand, silt
768								
770			< 2.5	< 2.5		SW		Tan SAND, coarse Sand, little medium sand, little fine gravel, trace fine sand, silt
772								
774		0				SW		Grey SAND, medium Sand, little fine sand, trace fine gravel, trace silt
776								
778					SC			
780								
782					SC		SAND, coarse Sand, fine gravel little white clay	
784								
786					SC		Pale brown CLAYEY SAND, fine to coarse Sand, angular, trace fine gravel, angular, little white clay	
788								
790					SC		Pale brown CLAYEY SAND, medium Sand, little fine sand, little white clay	
792								
794					SC		Pale brown CLAYEY SAND, medium Sand, little fine sand, little white clay	
796								
798					SW		Tan SAND	
800			< 2.5	< 2.5				
802					SW			
804								
806					SM-SC		Greyish brown SAND, medium Sand, little fine sand, little silt, white clay	
808					SW			

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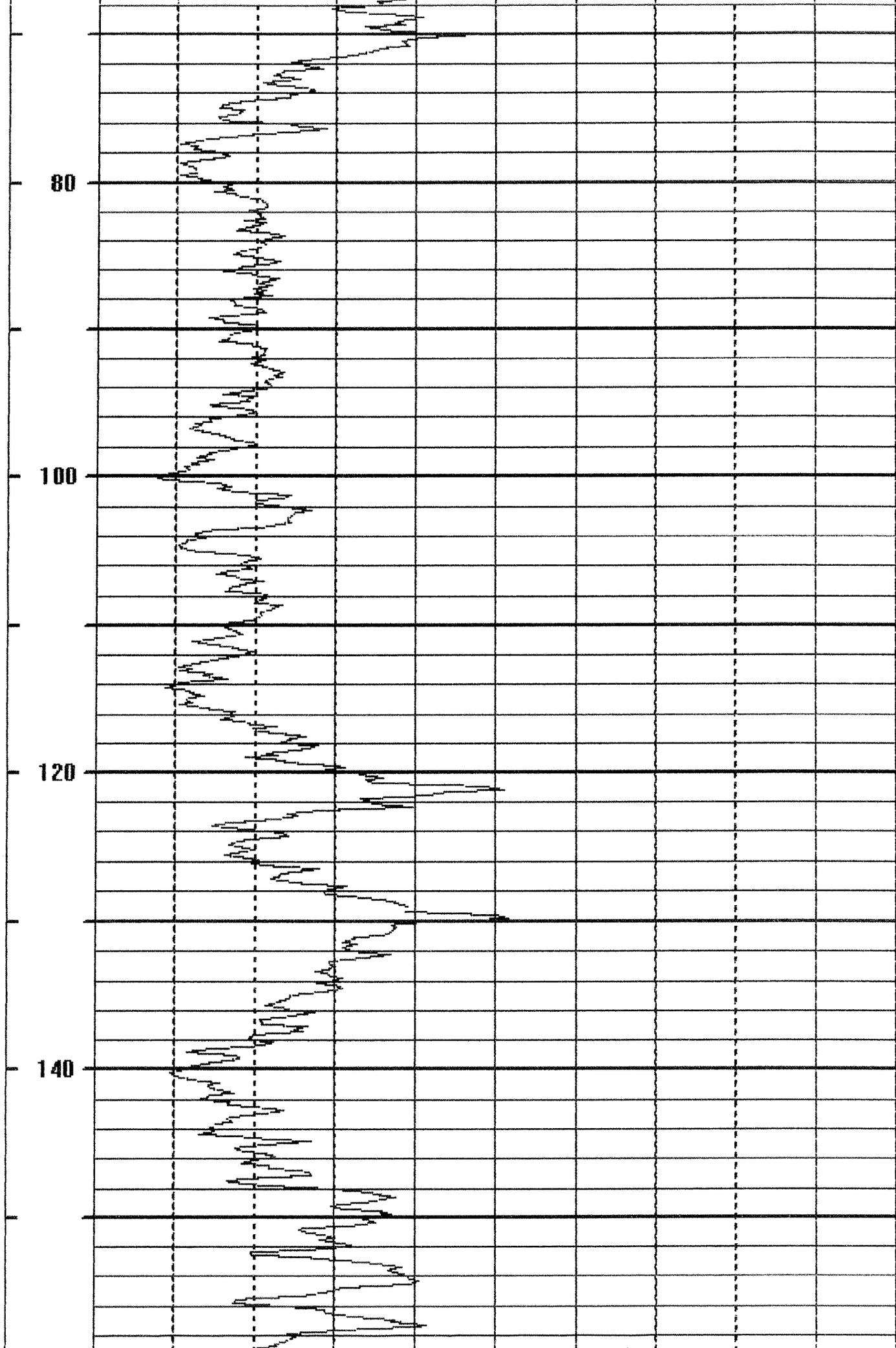
DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
810					Magothy			Greyish brown SAND, medium Sand, little coarse sand, little fine sand, trace silt <i>(continued)</i>
812						SW		
814								
816						SW		Greyish brown, SAND, medium Sand, little fine sand, trace silt
818								
820						SM		Greyish brown SILTY SAND, medium Sand, little fine sand, little silt
822								
824			< 2.5	< 2.5		SM		Greyish brown SILTY SAND, medium Sand, little fine sand, little silt
826								
828								
830		0						
832						SM-SC		Grey SILTY SAND, fine Sand, little medium sand, little silt/clay
834								
836						SM		Grey SILTY SAND, fine-medium Sand, silt (25%)
838								
840			< 0.50	< 0.50				
842						SM-SC		Grey SILTY SAND, fine-coarse Sand, some silt, white clay
844								
846						SP		Grey SAND, medium Sand, little fine sand, trace silt
848								
850								
852								
854						SW		Brown SAND, medium Sand, few fine sand, trace coarse sand, angular, trace silt, one iron nodule
856								
858								
860			< 10	< 10				
862						SM		Grey SAND, medium Sand, little fine sand, little silt
864								
866						ML		Grey SANDY SILT, Silt (60%) some fine sand, little medium sand, few lignite
868								
870								
872						SM		Grey SILTY SAND, medium Sand, angular, little fine sand, trace coarse sand, silt (30%)

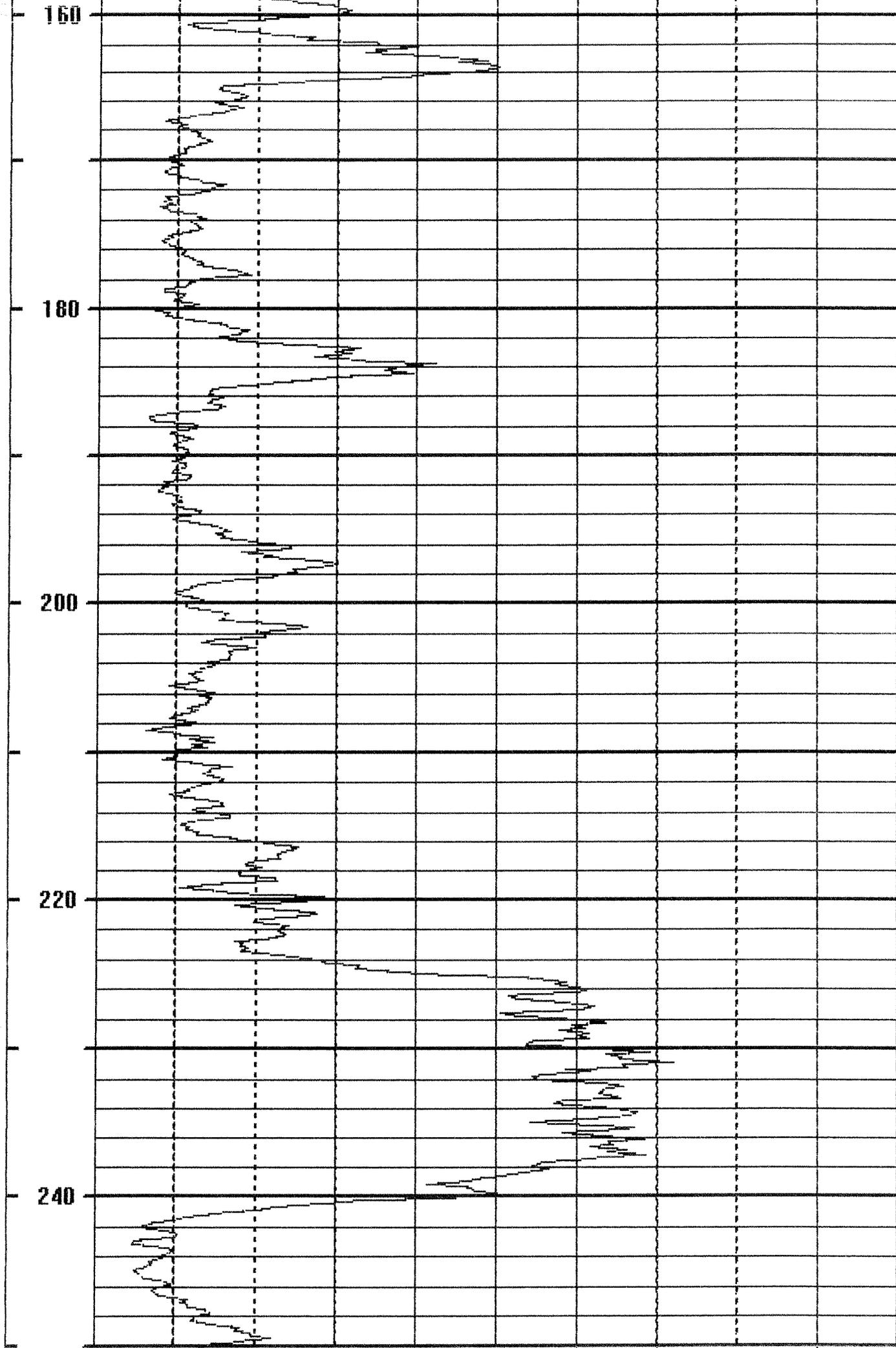
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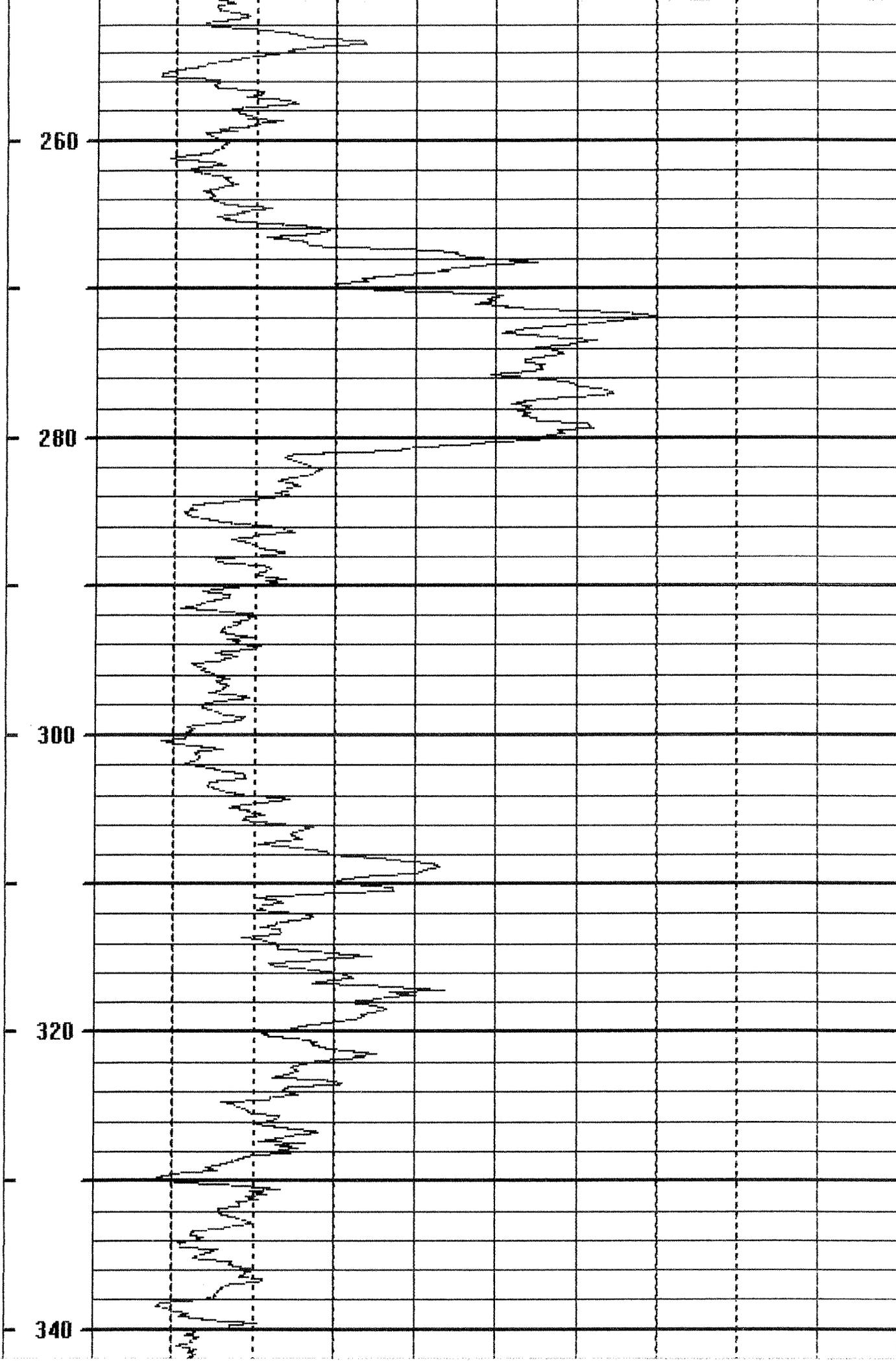
DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION
874					Magothy	ML		Grey SANDY SILT, Silt (60%) micaceous fine sand, few medium sand
876						SP-SM		Grey SAND with Silt, medium sand, few coarse sand, about 10% silt
878								
880			< 0.50	< 0.50				
882						SM		Grey SILTY SAND, medium Sand, trace coarse sand, about 25% silt
884								
886						ML		Grey SANDY SILT
888								
890								
892								
894						ML		Grey SANDY SILT, fine-medium Sand, trace coarse sand
896								
898								
900						SM		Grey SILTY SAND, micaceous, fine-medium Sand, silt (40%), few black flecks lignite, trace coarse sand
902								
904								
906								
908								
910								
912					SP-SM		Grey SAND, medium Sand, little coarse sand, few silt	
914								
916								
918								
920								
922					SM		Grey SILTY SAND, medium Sand, little fine sand, little silt	
924								
926					SW-SM		Grey widely graded SAND with Silt; medium-coarse sand, angular, little fine sand, few silt (~10%)	
928								
930			< 0.50	< 0.50	SW-SM		Grey widely graded SAND with Silt, medium-coarse sand, angular, little fine gravel, few silt	
932							Grey SANDY SILT	
934					Raritan	ML		

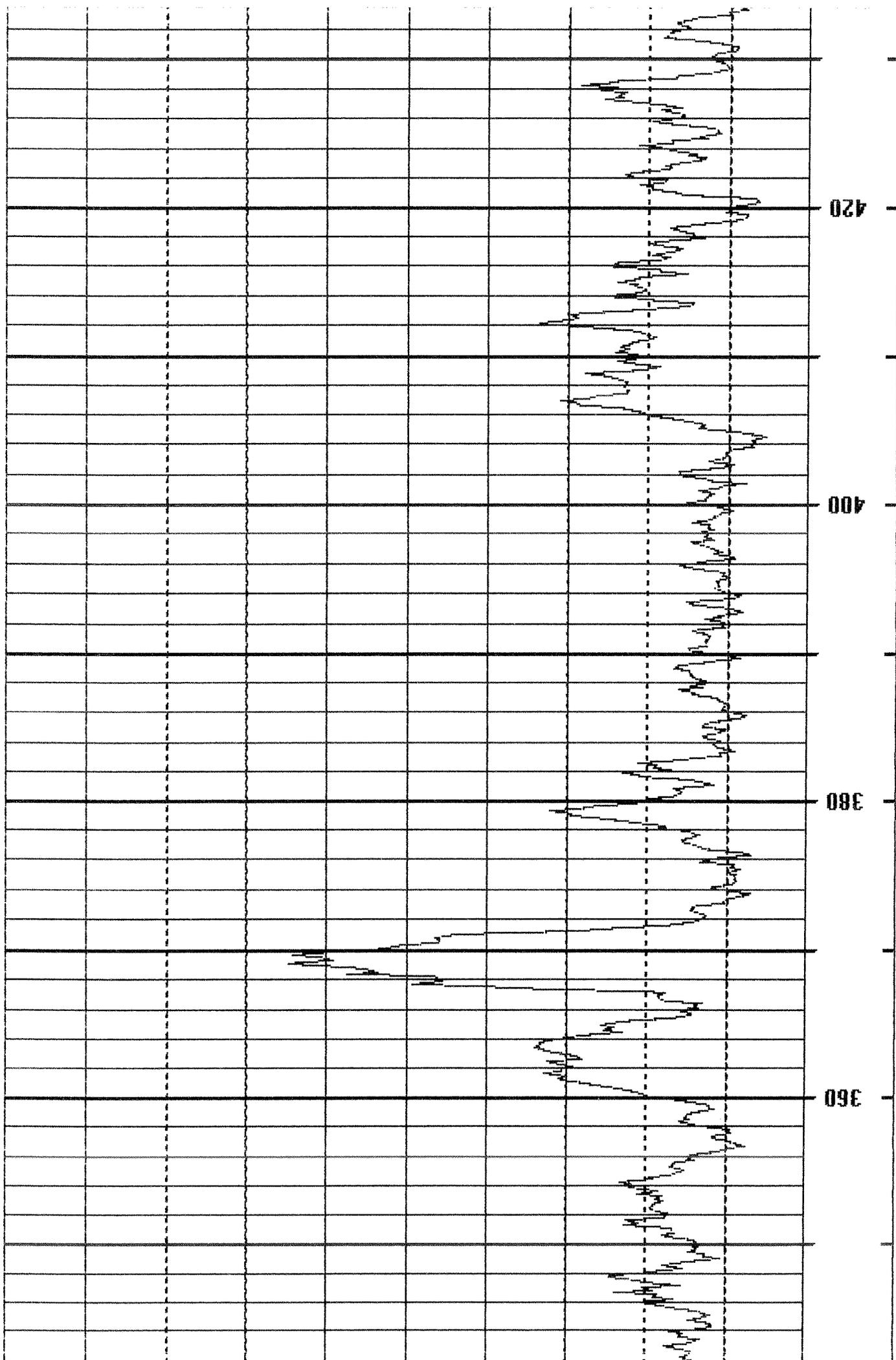
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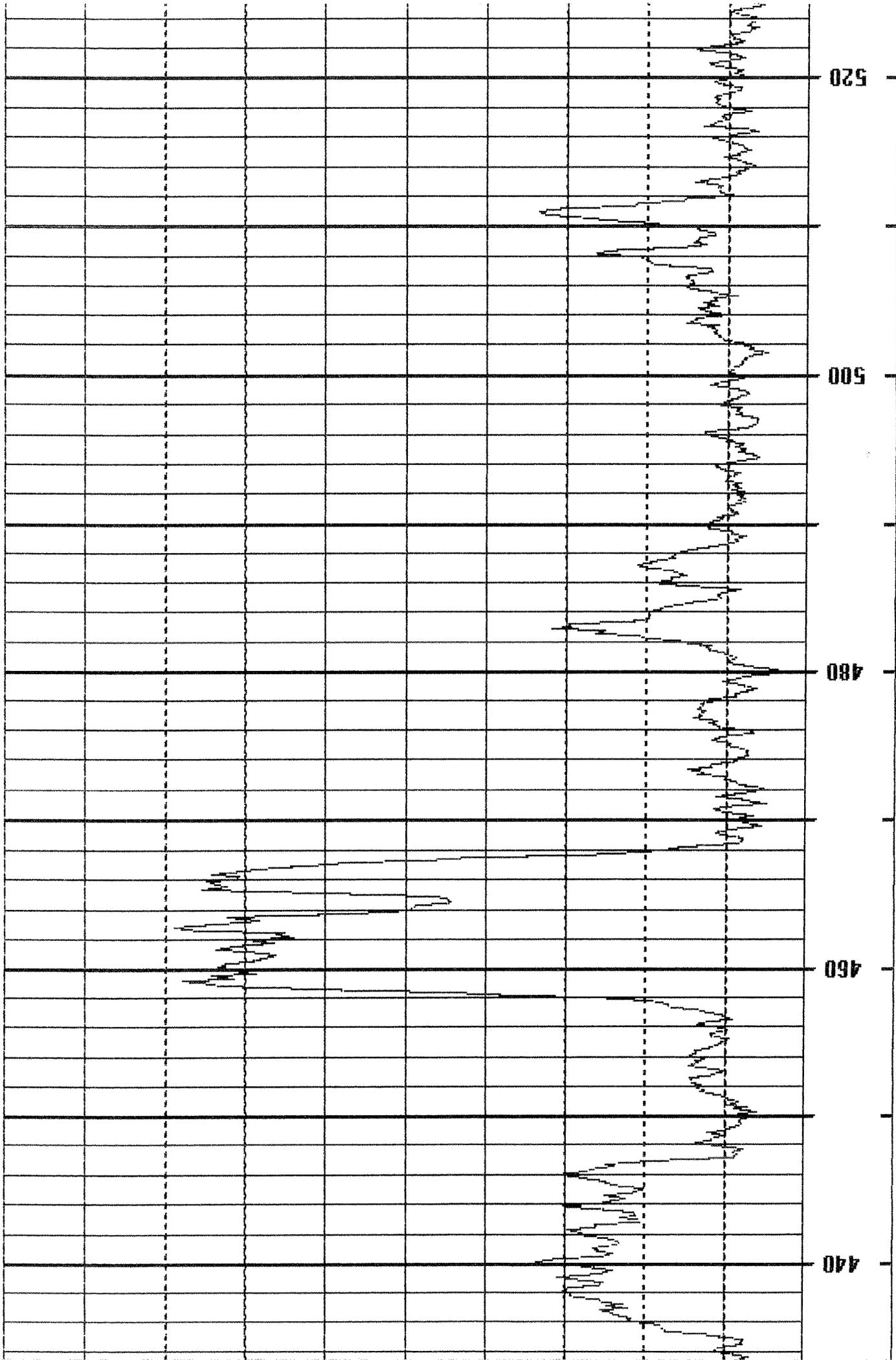
DEPTH (ft)	Gamma Ray 20 40 60 80	PID (ppm)	TCE (ppb)	PCE (ppb)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION				
936					Raritan			Grey SANDY SILT (<i>continued</i>)				
938												
940								< 10	< 10	ML		
942												
944												
946											ML	Grey SANDY SILT - fine Sand, few medium sand, 70% silt
948											CL	Grey lean CLAY, microlaminated
950								0				
952												
954								0			CL	Grey lean CLAY, little Silt; microlaminated
956											CL	
958												
960											CL	Grey with red mottling lean CLAY, microlaminated
962											CL	
964									0		CL	Grey lean CLAY microlaminated, several seams of lignite
End of boring at 965.0 ft. bgs.												

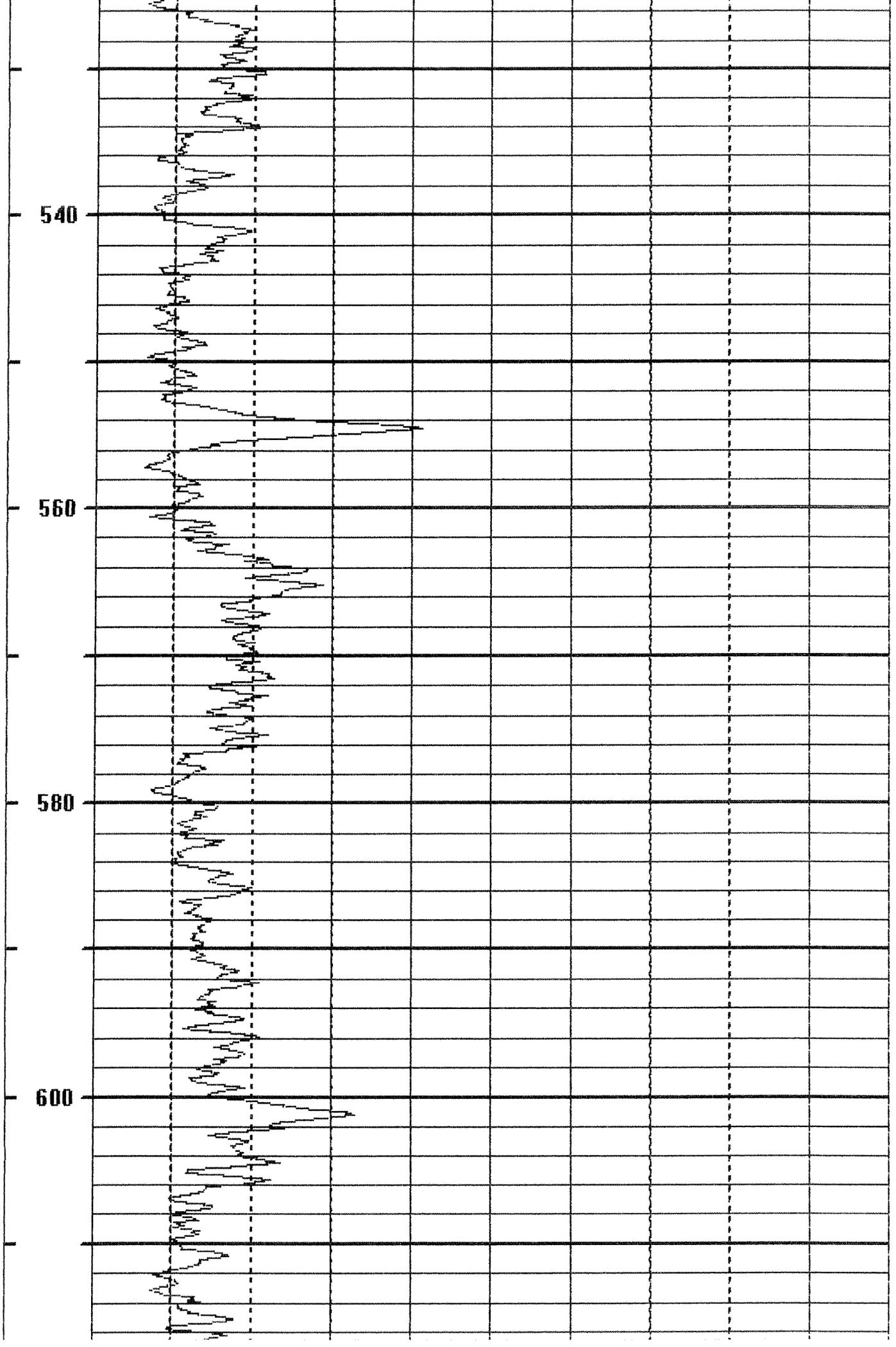


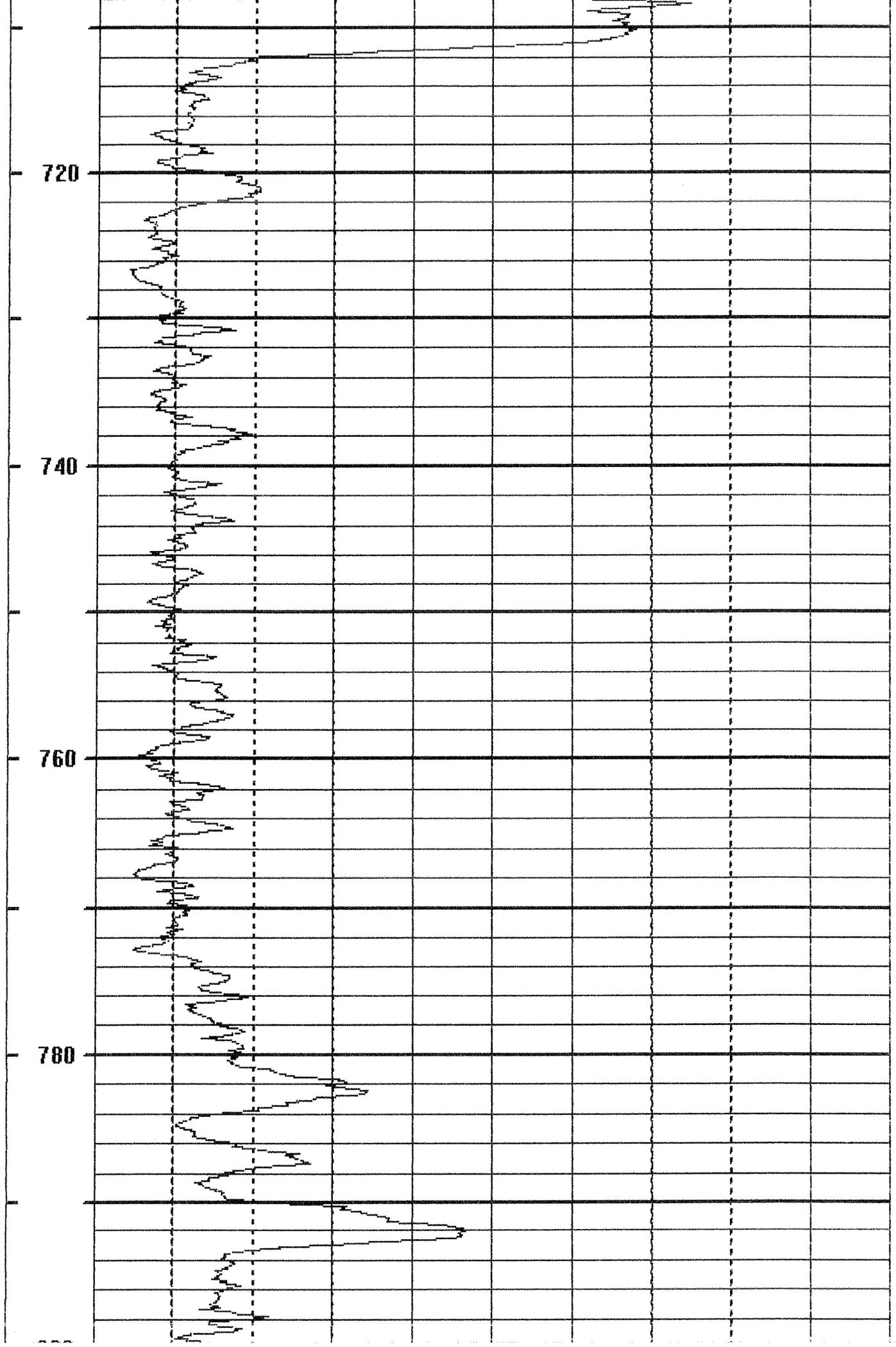


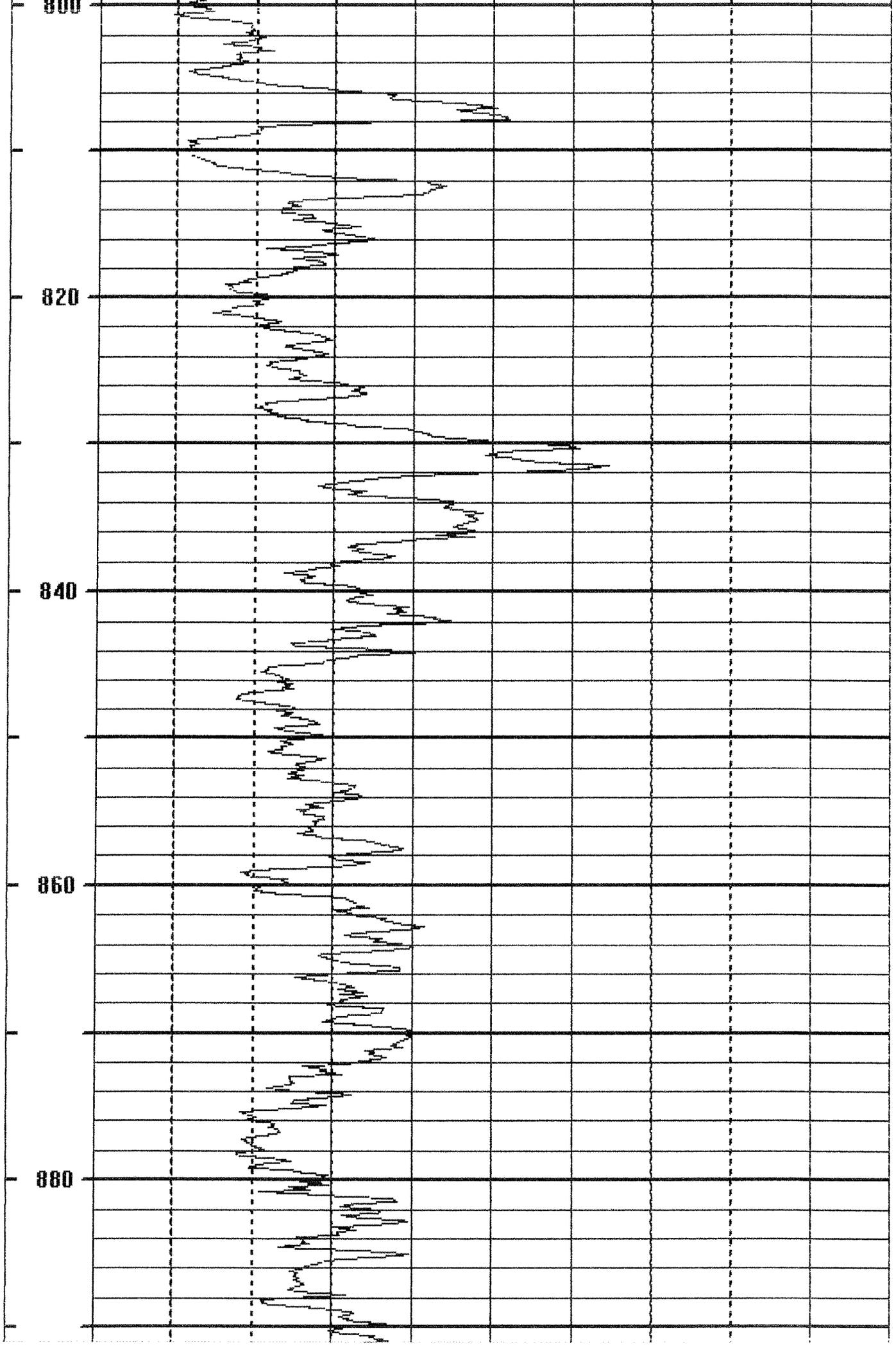


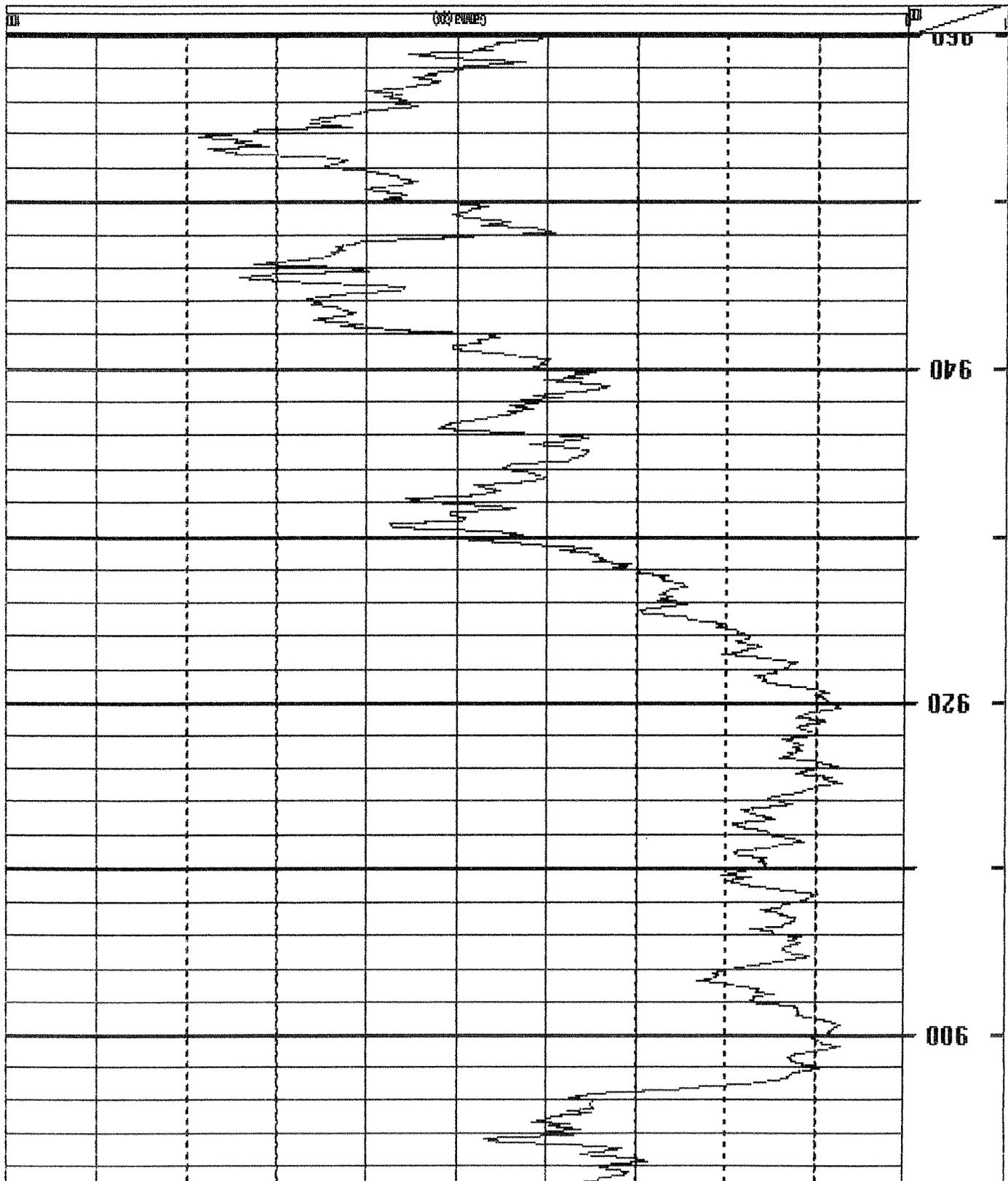








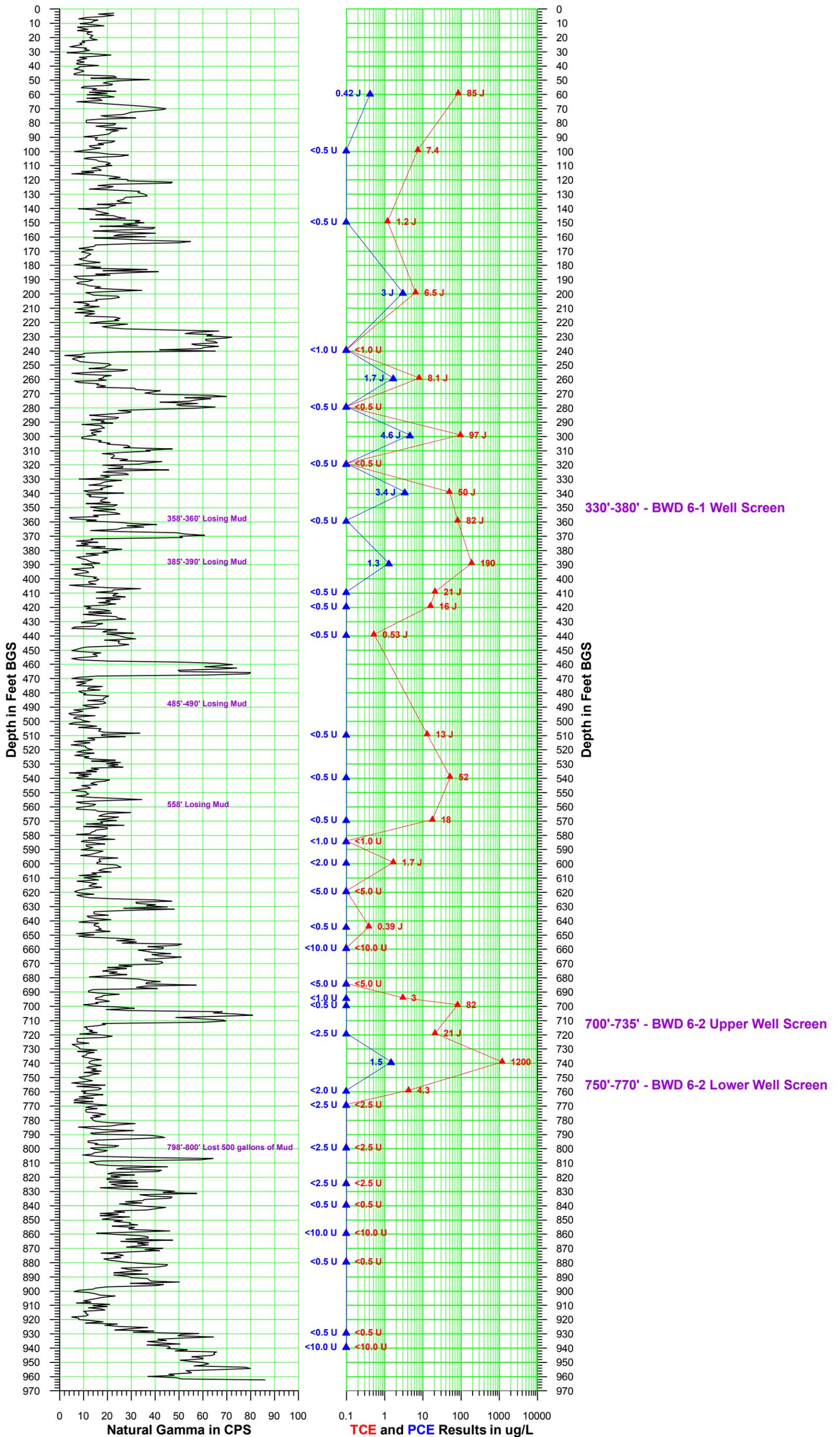




Section 2

VPB 139 Gamma and PCE/TCE Plot

Vertical Profile Boring VPB-139 Downward Run - August 6, 2013 Validated Analytical Data



Section 3

VPB 139 Groundwater Sample Log Sheets

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
60266526
Lincoln + Roosevelt

Date: 7/8 - 7/11/2013
VPB: 139

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color	
7/8/13	11:45	24.16	5.3	431	5.57	355	1100	58	60	Pale orange Cloudy	
7/8/13	13:50	25.46	6.18	733	10.52	101.5	1100 + off scale	98-	100	orange Very Cloudy	
7/9/13	10:00	25.91	7.92	400	6.50	43.8	1100	148	150	Light Brown	
7/9/13	12:60	26.04	6.89	519	5.48	45.8	1100	198	200	TAN Cloudy	
7/9/13	13:30	no recovery							218	220	
7/9/13	15:30	25.16	5.72	660	6.61	110	1100 + off scale	238	240	Dark Grey Very Silty	
7/10/13	10:00	23.91	6.73	172	5.20	155.5	385.7	258	260	Brownish Orange cloudy water	
7/10/13	12:00	28.07	4.91*	587	19.0	178.3	1100 + off scale	278	280	Extremely Silty Dark Grey	
7/10/13	13:15	no recovery									
7/10/13	15:00	24.84	4.04*	504	53.3	155	848.2	298	300	Brown Cloudy Water	
7/11/13	11:30	23.66	10.0	340	10.8	78.4	1100 + off scale	318	320	Turbid	
		no recovery									

* pH on YSI malfunctioning

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
60266526
Lincoln = Roosevelt

Date: 7/12/13; 7/15-7/19/2013
VPB: 139

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
7/12/13	11:15	21.7	3.4*	166	2.02	218.1	843.4	388	396	Tannish Gray cloudy
7/15/13	10:30	23.76	6.6	167	2.74	102	1100+ offscale	408	410	Brown
7/15/13	12:45	24.36	6.08	290	2.90	142	see above	418	420	
7/15/13	15:15	29.49	5.00	315	5.07	367	1100+ offscale	438	440	
7/16/13	10:30	24.34	5.67	564	2.02	151.1	1100+ offscale	458	460	
7/16/13	12:30	not enough sample for YSI						478	480	Very Silty Brown
7/16/13	15:00	no recovery						498	500	
7/17/13	10:00	not enough sample for YSI						508	510	
7/17/13	11:45	Dry						518	520	
7/17/13	15:00	27.19	6.0	481	8.06	101*	1100+	538	540	Brown Cloudy
7/18/13	10:30	no recovery					offscale	558	560	
7/18/13	12:15	28.33	5.5	400	1.77	369	900.3	568	576	Pale Brown
7/19/13		not enough GW for YSI						583	585	Very Brown Turbid

ORP not calibrating

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
100266526
Lincoln & Roosevelt

Date: 7-19, 7/22-7/26
VPB: 139

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
7/19/13	11:00	not enough		166	for YSI	turbidity	meter	598	600	Very Brown Turbid
7/22/13	11:00	26.38	6.38	622	4.77	147.4	1100+ off scale	618	620	Pale Turbid Water
7/22/13	15:15	25.58	6.46	186	7.85	52.2	see ABOVE	643	645	Light Brown
7/23/13	10:45	23.6	7.53	679	6.65	119	1100+ off scale	658	660	Very Brown/Grey Turbid
7/23/13	14:15	24.98	6.89	597	4.36	48.9	1100+ off scale	683	685	Very Silty Brown
7/23/13	16:30	24.96	5.6	569	5.19	135	see ABOVE	693	695	Brown
7/24/13	9:30	26.88	6.7	300	6.02	87.4	1100+ off scale	698	700	Brown
7/25/13	13:15	18.24	6.86	766	3.00	182.6	see above	718	720	Brownish Grey
7/25/13	15:45	not enough					sample for YSI + turbidity	738	740	Pale TAN
7/26/13	12:30	YSI not working					1100+ off scale	758	760	Very Silty Brown
7/26/13	14:30	YSI not working					see ABOVE	768	770	Very Silty Brown

Hydropunch Sample

Client:
Project No:
Site Location:

Navy
10206526
Lincoln & Roosevelt St
1

Date: 7/29/2013 - 8/2/2013
VPB: 139

Collector(s): Valerie Thayer

Sample Date	Time	Temp (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Starting depth(ft)	Ending depth(ft)	Color
7/29/2013	12:00	24	7.65	497	3.17	103	1100+ off scale	778	780	Very Silty Brown
7/29/2013	14:45	24.88	6.76	465	2.64	52.4	see above	798	800	Very Silty Brown
7/30/2013	9:45	not enough recovery for YSI & turbidity						823	825	Very Silty Brown
7/30/2013	15:15	21.88	7.41	70	4.68	37.4	929.2	838	840	Very Dark Brown
7/31/2013	10:45	21.85	7.3	668	2.73	118.3	1100+ off scale	858	860	Very Silty Brown
7/31/2013	13:15	24.6	6.68	95	4.84	32	709.2	878	880	
7/31/2013	15:45	no recovery						898	900	
7/31/2013	11:00	no recovery						918	920	
8/1/2013	13:00	20.23	7.13	473	4.77	154.1	1100+ off scale	928	930	milky grey color Very Dark Brown
8/2/2013	10:15	not enough sample for YSI and turbidity meter						938	940	Silty Grey

Section 4

VPB 139 Analytical Data Validation

- Analytical Data Sheets
- Chain of Custody Records
- Validation Letter and Table

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG4840	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/13/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG4840_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 10, 2013, July 8, 2013 and July 9, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-070813-58-60	Ground water
VPB139-GW-070813-98-100	Ground water
VPB139-GW-070913-148-150	Ground water
VPB139-GW-070913-198-200	Ground water
VPB139-GW-070913-238-240	Ground water
VPB139-GW-071013-258-260	Ground water
VPB139-071013-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks

- X Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues, sample VPB139-GW-070913-238-240 was analyzed at a two-fold dilution.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-GW-070813-58-60	WG	CHLOROFORM	0.86	0.50	UG/L	J	s
VPB139-GW-070813-58-60	WG	CIS-1,2-DICHLOROETHENE	0.30	0.50	UG/L	J	s
VPB139-GW-070813-58-60	WG	TETRACHLOROETHENE	0.42	0.50	UG/L	J	s
VPB139-GW-070813-58-60	WG	TRICHLOROETHENE	85	0.50	UG/L	J	s
VPB139-GW-070913-148-150	WG	CHLOROFORM	0.46	0.50	UG/L	J	s
VPB139-GW-070913-148-150	WG	TRICHLOROETHENE	1.2	0.50	UG/L	J	s
VPB139-GW-070913-198-200	WG	TETRACHLOROETHENE	3.0	0.50	UG/L	J	s
VPB139-GW-070913-198-200	WG	TRICHLOROETHENE	6.5	0.50	UG/L	J	s
VPB139-GW-071013-258-260	WG	TETRACHLOROETHENE	1.7	0.50	UG/L	J	s
VPB139-GW-071013-258-260	WG	TRICHLOROETHENE	8.1	0.50	UG/L	J	s

Attachment A**Non Conformance Summary Tables****Table A-1 - Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB139-GW-070813-58-60	1,2-DICHLOROETHANE-D4	124	70	120
VPB139-GW-070913-148-150	1,2-DICHLOROETHANE-D4	127	70	120
VPB139-GW-070913-198-200	1,2-DICHLOROETHANE-D4	130	70	120
VPB139-GW-071013-258-260	1,2-DICHLOROETHANE-D4	126	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
Co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-1
Client ID: GW-070813-58-60
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1840.D

Sample Date: 08-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.30 JJ	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.86 JJ	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		85 JJ	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	0.42 JJ	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		106.	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		109.	%					

GC10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-2
Client ID: GW-070813-98-100
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1838.D

Sample Date: 08-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		7.4	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		109.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4		120.	%					
Dibromofluoromethane		107.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-3
Client ID: GW-070913-148-150
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1841.D

Sample Date: 09-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.46	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		1.2	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		107.	%					
Toluene-d8		109.	%					
1,2-Dichloroethane-d4	*	127.	%					
Dibromofluoromethane		113.	%					

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Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-4
Client ID: GW-070913-198-200
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1842.D

Sample Date: 09-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		6.5 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		3.0 J	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		109.	%					
1,2-Dichloroethane-d4	*	130.	%					
Dibromofluoromethane		111.	%					

J 10/23/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-5DL
Client ID: GW-070913-238-240
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1837.D

Sample Date: 09-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene	U	1.0	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		107.	%					
Toluene-d8		107.	%					
1,2-Dichloroethane-d4		119.	%					
Dibromofluoromethane		108.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-6
Client ID: GW-071013-258-260
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1843.D

Sample Date: 10-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		8.1 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.7 J	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		108.	%					
Toluene-d8		109.	%					
1,2-Dichloroethane-d4	*	126.	%					
Dibromofluoromethane		113.	%					

Handwritten signature and date: 10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4840-7
Client ID: VPB139-071013-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG4840
Lab File ID: C1835.D

Sample Date: 10-JUL-13
Received Date: 11-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		105.	%					
Toluene-d8		106.	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		106.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG4882	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/13/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG4882_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 10, 2013 and July 11, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-071013-278-280	Ground water
VPB139-GW-071013-298-300	Ground water
VPB139-GW-071113-318-320	Ground water
VPB139-GW-071113-338-340	Ground water
VPB139-GW-071113-358-360	Ground water
VPB139-071113-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- X Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated, negated, and/or rejected due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;

- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.



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Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-GW-071013-298-300	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	4.7	0.50	UG/L	J	s
VPB139-GW-071013-298-300	WG	1,1-DICHLOROETHENE	0.69	0.50	UG/L	J	s
VPB139-GW-071013-298-300	WG	CIS-1,2-DICHLOROETHENE	1.3	0.50	UG/L	J	s
VPB139-GW-071013-298-300	WG	TETRACHLOROETHENE	4.6	0.50	UG/L	J	s
VPB139-GW-071013-298-300	WG	TRICHLOROETHENE	97	0.50	UG/L	J	s
VPB139-GW-071113-318-320	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	4.5	0.50	UG/L	J	s
VPB139-GW-071113-318-320	WG	1,1-DICHLOROETHANE	0.39	0.50	UG/L	J	s
VPB139-GW-071113-318-320	WG	1,1-DICHLOROETHENE	0.35	0.50	UG/L	J	s
VPB139-GW-071113-318-320	WG	CIS-1,2-DICHLOROETHENE	0.39	0.50	UG/L	J	s
VPB139-GW-071113-338-340	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	0.89	0.50	UG/L	J	s
VPB139-GW-071113-338-340	WG	CIS-1,2-DICHLOROETHENE	0.68	0.50	UG/L	J	s
VPB139-GW-071113-338-340	WG	TETRACHLOROETHENE	3.4	0.50	UG/L	J	s
VPB139-GW-071113-338-340	WG	TRICHLOROETHENE	50	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	1,1,1-TRICHLOROETHANE	0.22	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.7	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	1,1-DICHLOROETHANE	0.26	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	1,1-DICHLOROETHENE	0.64	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	CIS-1,2-DICHLOROETHENE	1.4	0.50	UG/L	J	s
VPB139-GW-071113-358-360	WG	TRICHLOROETHENE	82	0.50	UG/L	J	s

Attachment A**Non Conformance Summary Tables****Table A-1 – Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB139-GW-071013-278-280	1,2-DICHLOROETHANE-D4	124	70	120
VPB139-GW-071013-298-300	1,2-DICHLOROETHANE-D4	131	70	120
VPB139-GW-071113-318-320	1,2-DICHLOROETHANE-D4	131	70	120
VPB139-GW-071113-318-320	DIBROMOFLUOROMETHANE	116	85	115
VPB139-GW-071113-338-340	1,2-DICHLOROETHANE-D4	131	70	120
VPB139-GW-071113-358-360	1,2-DICHLOROETHANE-D4	135	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
Co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-1
Client ID: GW-071113-318-320
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1844.D

Sample Date: 11-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.35	ug/L	1	1	1.0	0.35	0.50
Freon-113		4.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.39	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.39	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		108.	%					
Toluene-d8		111.	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane	*	116.	%					

E 10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-2
Client ID: GW-071113-338-340
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1845.D

Sample Date: 11-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	0.89	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.68	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		3.4	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		107.	%					
Toluene-d8		111.	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		113.	%					

FE 10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-3
Client ID: GW-071013-278-280
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1839.D

Sample Date: 10-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		108.	%					
Toluene-d8		108.	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		109.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-4
Client ID: GW-071013-298-300
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1846.D

Sample Date: 10-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.69	ug/L	1	1	1.0	0.35	0.50
Freon-113		4.7	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.3	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		97	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		4.6	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		110.	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		114.	%					

FC 10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-5
Client ID: GW-071113-358-360
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1847.D

Sample Date: 11-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.64	J ug/L	1	1	1.0	0.35	0.50
Freon-113		5.7	J ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.26	J ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.4	J ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.22	J ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		82	J ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		107.	%					
Toluene-d8		111.	%					
1,2-Dichloroethane-d4	*	135.	%					
Dibromofluoromethane	*	115.	%					

J. 10/29/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4882-6
Client ID: VPB139-071113-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG4882
Lab File ID: C1836.D

Sample Date: 11-JUL-13
Received Date: 12-JUL-13
Extract Date: 12-JUL-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG126924

Analysis Date: 12-JUL-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 15-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		106.	%					
Toluene-d8		106.	%					
1,2-Dichloroethane-d4		118.	%					
Dibromofluoromethane		105.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5021	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/13/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5021_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 12, 2013 and July 15, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-071213-388-390	Ground water
VPB139-GW-071513-408-410	Ground water
VPB139-GW-071513-418-420	Ground water
VPB139-GW-071513-438-440	Ground water
VPB139-071513-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- X Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results

- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-GW-071513-408-410	WG	1,1,1-TRICHLOROETHANE	0.32	0.50	UG/L	J	s
VPB139-GW-071513-408-410	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	7.0	0.50	UG/L	J	s
VPB139-GW-071513-408-410	WG	1,1-DICHLOROETHANE	0.29	0.50	UG/L	J	s
VPB139-GW-071513-408-410	WG	1,1-DICHLOROETHENE	1.1	0.50	UG/L	J	s
VPB139-GW-071513-408-410	WG	CIS-1,2-DICHLOROETHENE	1.0	0.50	UG/L	J	s
VPB139-GW-071513-408-410	WG	TRICHLOROETHENE	21	0.50	UG/L	J	s
VPB139-GW-071513-418-420	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.1	0.50	UG/L	J	s
VPB139-GW-071513-418-420	WG	1,1-DICHLOROETHANE	0.35	0.50	UG/L	J	s
VPB139-GW-071513-418-420	WG	1,1-DICHLOROETHENE	1.2	0.50	UG/L	J	s
VPB139-GW-071513-418-420	WG	CIS-1,2-DICHLOROETHENE	1.2	0.50	UG/L	J	s
VPB139-GW-071513-418-420	WG	TRICHLOROETHENE	16	0.50	UG/L	J	s
VPB139-GW-071513-438-440	WG	TRICHLOROETHENE	0.53	0.50	UG/L	J	s

Attachment A**Non Conformance Summary Tables****Table A-1 – Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB139-071513-TB	1,2-DICHLOROETHANE-D4	122	70	120
VPB139-GW-071513-408-410	1,2-DICHLOROETHANE-D4	125	70	120
VPB139-GW-071513-418-420	1,2-DICHLOROETHANE-D4	124	70	120
VPB139-GW-071513-438-440	1,2-DICHLOROETHANE-D4	124	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5021-1RA
Client ID: GW-071213-388-390
Project: Navy Clean WE15 NWIRP B
SDG: SG5021
Lab File ID: C1934.D

Sample Date: 12-JUL-13
Received Date: 17-JUL-13
Extract Date: 18-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127190

Analysis Date: 18-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.77	ug/L	1	1	1.0	0.35	0.50
Freon-113		5.4	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.22	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.6	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		190	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene		1.3	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4		120.	%					
Dibromofluoromethane		108.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5021-2
Client ID: GW-071513-408-410
Project: Navy Clean WE15 NWIRP B
SDG: SG5021
Lab File ID: C1919.D

Sample Date: 15-JUL-13
Received Date: 17-JUL-13
Extract Date: 17-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127138

Analysis Date: 17-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.1	ug/L	1	1	1.0	0.35	0.50
Freon-113		7.0	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.29	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.32	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		21	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		102.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4	*	125.	%					
Dibromofluoromethane		108.	%					

REC/20/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5021-3
Client ID: GW-071513-418-420
Project: Navy Clean WE15 NWIRP B
SDG: SG5021
Lab File ID: C1920.D

Sample Date: 15-JUL-13
Received Date: 17-JUL-13
Extract Date: 17-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127138

Analysis Date: 17-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.2 J	ug/L	1	1	1.0	0.35	0.50
Freon-113		5.1 J	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.35 J	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.2 J	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		16 J	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		101.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		111.	%					

REC 10/30/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5021-4
Client ID: GW-071513-438-440
Project: Navy Clean WE15 NWIRP B
SDG: SG5021
Lab File ID: C1921.D

Sample Date: 15-JUL-13
Received Date: 17-JUL-13
Extract Date: 17-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127138

Analysis Date: 17-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.53	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		100.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		104.	%					

E 10/30/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5021-5
Client ID: VPB139-071513-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5021
Lab File ID: C1910.D

Sample Date: 15-JUL-13
Received Date: 17-JUL-13
Extract Date: 17-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127138

Analysis Date: 17-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 18-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		97.0	%					
Toluene-d8		102.	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		106.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5069	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/14/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5069_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 17, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-071713-508-510	Ground water
VPB139-GW-071713-538-540	Ground water
VPB139-071713-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- X Surrogate spike recoveries
- ✓ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards

✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required. The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformances	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on sample VPB139-GW-071713-538-540. The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-GW-071713-508-510	WG	1,1,1-TRICHLOROETHANE	0.42	0.50	UG/L	J	s
VPB139-GW-071713-508-510	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.6	0.50	UG/L	J	s
VPB139-GW-071713-508-510	WG	1,1-DICHLOROETHENE	0.96	0.50	UG/L	J	s
VPB139-GW-071713-508-510	WG	CIS-1,2-DICHLOROETHENE	0.92	0.50	UG/L	J	s
VPB139-GW-071713-508-510	WG	TRICHLOROETHENE	13	0.50	UG/L	J	s

Attachment A**Non Conformance Summary Tables****Table A-1 - Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB139-GW-071713-508-510	1,2-DICHLOROETHANE-D4	123	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



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Page ____ of ____

Client: Resolution Consultants Contact: Eleanor Vitajdovec Phone #: (845) 425-4980 Fax #: ()

Address: 100 Red Schoolhouse Road City: Chestnut Ridge State: NY Zip Code: 10977

Purchase Order #: _____ Proj. Name / No.: 60266526 Katahdin Quote #: _____

Bill (if different than above) Address: _____

Sampler (Print / Sign): Valerie Thayer Copies To: Val Thayer

LAB USE ONLY WORK ORDER #: 565069
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

| Filt. |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| OY | ON | OY |
| | | | | | | | | | | |

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C _____ TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.																
VPB139-6W-071713-508-510	7/17/13 / 10:00	GW	3	X															
VPB139-6W-071713-538-540	7/17/13 / 15:00	GW	3	X															
VPB139-6WMS/MSD-071713-538-540	7/17/13 / 15:00	GW	6	X															
VPB139-6W-071713-458-460	7/16/13 / 10:30	GW	3	X															
VPB139-6W-071713-478-480	7/17/13 / 12:50	GW	3	X															
Temp Blank	/		1																
Trip Blanks	/		2	X															

COMMENTS: On 7/18/13, samples 478-480 noted as trip blanks. VT
7-18-13/0920

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>7/17/13 6:00</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5069-1
Client ID: GW-071713-508-510
Project: Navy Clean WE15 NWIRP B
SDG: SG5069
Lab File ID: C1938.D

Sample Date: 17-JUL-13
Received Date: 18-JUL-13
Extract Date: 18-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127190

Analysis Date: 18-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.96	ug/L	1	1	1.0	0.35	0.50
Freon-113		5.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.92	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.42	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		13	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		100.	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	123.	%					
Dibromofluoromethane		109.	%					

REC/2013

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5069-2
Client ID: GW-071713-538-540
Project: Navy Clean WE15 NWIRP B
SDG: SG5069
Lab File ID: C1972.D

Sample Date: 17-JUL-13
Received Date: 18-JUL-13
Extract Date: 19-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127251

Analysis Date: 19-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.1	ug/L	1	1	1.0	0.35	0.50
Freon-113		7.0	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		1.4	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.34	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.43	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		52	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		95.4	%					
Toluene-d8		98.8	%					
1,2-Dichloroethane-d4		118.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
 Lab ID: SG5069-3
 Client ID: VPB139-071713-TB
 Project: Navy Clean WE15 NWIRP B
 SDG: SG5069
 Lab File ID: C1933.D

Sample Date: 17-JUL-13
 Received Date: 18-JUL-13
 Extract Date: 18-JUL-13
 Extracted By: REC
 Extraction Method: SW846 5030
 Lab Prep Batch: WG127190

Analysis Date: 18-JUL-13
 Analyst: REC
 Analysis Method: SW846 8260B
 Matrix: AQ
 % Solids: NA
 Report Date: 23-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.7	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4		118.	%					
Dibromofluoromethane		108.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5144	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 09/06/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5144_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 18, 2013.

Sample ID	Matrix/Sample Type
VPB139-071813-FIELD BLANK	Field blank
VPB139-GWD-071813-568-570	Field Duplicate of VPB139-GW-071813-568-570
VPB139-GW-071813-568-570	Ground water
VPB139-071813-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS) results
 - ✓ Field duplicates
 - ✓ Internal standards
 - ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria:

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and

- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. There were no positive results in the affected samples so qualification of the data was not necessary.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

Samples VPB139-GW-071813-568-570 and VPB139-GWD-071813-568-570 were submitted as a field duplicate pair associated with this sample set.

Field duplicate RPDs were reviewed for conformance with the AECOM QC criterion of $\leq 30\%$ for aqueous matrices. This criterion applies if both results were greater than five times the quantitation limit (QL).

All QC acceptance criteria were met.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A**Nonconformance Summary Tables****Table A-1 – Surrogates**

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
VPB139-071813-FIELD BLANK	1,2-DICHLOROETHANE-D4	121	70	120
VPB139-071813-TB	1,2-DICHLOROETHANE-D4	124	70	120

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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Address: 100 Red Schoolhouse Rd City: Chestnut Ridge State: NY Zip Code: 10977

Purchase Order #: ste B1 Proj. Name / No.: Beth page 60266526 Katahdin Quote #

Bill (if different than above) Address

Sampler (Print / Sign): Valerie Thayer Copies To: Valerie Thayer

LAB USE ONLY WORK ORDER #: 565144
 KATAHDIN PROJECT NUMBER

ANALYSIS AND CONTAINER TYPE
 PRESERVATIVES

REMARKS:

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO:

TEMP °C TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	PRESERVATIVES																
				Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON							
<u>VPB139-GW-071813</u> <u>568-570</u>	<u>07/18</u> <u>2013</u> / <u>12:15</u>	<u>GW</u>	<u>2</u>	X																
<u>VPB139-GW-071813</u> <u>568-570</u>	<u>07/18</u> <u>2013</u> / <u>12:15</u>	<u>GW</u>	<u>2</u>	X																
<u>VPB139-071813-</u> <u>Field Blank</u>	<u>07/18</u> <u>2013</u> / <u>11:30</u>	<u>W</u>	<u>2</u>	X																
<u>VPB139-071813-</u> <u>Field Blank</u>	<u>07/18</u> <u>2013</u> / <u>11:30</u>	<u>W</u>	<u>3</u>	X																
<u>Trip Blank</u>	<u>/</u>	<u>W</u>	<u>3</u>	X																
<u>Temperature Blank</u>	<u>/</u>																			

VOCs (AEL)
 8260
 TOC Analysis
 sulfonic Acid

COMMENTS

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>07/18</u> <u>2013</u> <u>6-</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

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000011
 ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5144-1RA
Client ID: GW-071813-568-570
Project: Navy Clean WE15 NWIRP B
SDG: SG5144
Lab File ID: C1998.D

Sample Date: 18-JUL-13
Received Date: 19-JUL-13
Extract Date: 22-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127394

Analysis Date: 22-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 22-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		2.0	ug/L	1	1	1.0	0.35	0.50
Freon-113		13	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.96	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.53	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.66	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		18	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.5	%					
Toluene-d8		93.6	%					
1,2-Dichloroethane-d4		109.	%					
Dibromofluoromethane		99.2	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5144-2RA
Client ID: GWD-071813-568-570
Project: Navy Clean WE15 NWIRP B
SDG: SG5144
Lab File ID: C1999.D

Sample Date: 18-JUL-13
Received Date: 19-JUL-13
Extract Date: 22-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127394

Analysis Date: 22-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 22-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		2.0	ug/L	1	1	1.0	0.35	0.50
Freon-113		12	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.87	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.51	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.73	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		17	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.9	%					
Toluene-d8		92.6	%					
1,2-Dichloroethane-d4		113.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5144-3
Client ID: 071813-FIELD BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG5144
Lab File ID: C1982.D

Sample Date: 18-JUL-13
Received Date: 19-JUL-13
Extract Date: 19-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127251

Analysis Date: 19-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 22-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.6	%					
Toluene-d8		103.	%					
1,2-Dichloroethane-d4	*	121.	%					
Dibromofluoromethane		106.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5144-5
Client ID: VPB139-071813-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5144
Lab File ID: C1981.D

Sample Date: 18-JUL-13
Received Date: 19-JUL-13
Extract Date: 19-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127251

Analysis Date: 19-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 22-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		99.6	%					
Toluene-d8		101.	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		102.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5281	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/14/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5281_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 19, 2013 and July 22, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-071913-583-585	Ground water
VPB139-GW-071913-598-600	Ground water
VPB139-GW-072213-618-620	Ground water
VPB139-GW-072213-643-645	Ground water
VPB139-072213-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and

- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, the following samples were analyzed at the indicated dilutions:

VPB139-GW-071913-598-600 (4x)

VPB139-GW-072213-583-585 (2x)

VPB139-GW-072213-618-620 (10x)

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

There were no nonconformances identified during this data review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5281-1
Client ID: GW-072213-643-645
Project: Navy Clean WE15 NWIRP B
SDG: SG5281
Lab File ID: C2049.D

Sample Date: 22-JUL-13
Received Date: 24-JUL-13
Extract Date: 24-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127507

Analysis Date: 24-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.92	ug/L	1	1	1.0	0.35	0.50
Freon-113		2.3	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.59	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.79	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	0.39	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		92.4	%					
Toluene-d8		93.6	%					
1,2-Dichloroethane-d4		109.	%					
Dibromofluoromethane		95.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5281-2DL
Client ID: GW-071913-598-600
Project: Navy Clean WE15 NWIRP B
SDG: SG5281
Lab File ID: C2050.D

Sample Date: 19-JUL-13
Received Date: 24-JUL-13
Extract Date: 24-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127507

Analysis Date: 24-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene	J	1.7	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		88.4	%					
Toluene-d8		91.4	%					
1,2-Dichloroethane-d4		102.	%					
Dibromofluoromethane		93.6	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5281-3DL
Client ID: GW-071913-583-585
Project: Navy Clean WE15 NWIRP B
SDG: SG5281
Lab File ID: C2051.D

Sample Date: 19-JUL-13
Received Date: 24-JUL-13
Extract Date: 24-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127507

Analysis Date: 24-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene	U	1.0	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		93.3	%					
Toluene-d8		94.4	%					
1,2-Dichloroethane-d4		106.	%					
Dibromofluoromethane		97.2	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5281-4DL
Client ID: GW-072213-618-620
Project: Navy Clean WE15 NWIRP B
SDG: SG5281
Lab File ID: C2052.D

Sample Date: 22-JUL-13
Received Date: 24-JUL-13
Extract Date: 24-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127507

Analysis Date: 24-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		88.7	%					
Toluene-d8		90.4	%					
1,2-Dichloroethane-d4		105.	%					
Dibromofluoromethane		92.8	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5281-5
Client ID: VPB139-072213-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5281
Lab File ID: C2048.D

Sample Date: 22-JUL-13
Received Date: 24-JUL-13
Extract Date: 24-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127507

Analysis Date: 24-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 25-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		92.8	%					
Toluene-d8		94.3	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		94.5	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5339	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/23/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5339_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 23, 2013 and July 24, 2013.

Sample ID	Matrix/Sample Type
VPB139-W-EB-072413	Equipment blank
VPB139-072413-TB	Ground water
VPB139-GW-072313-658-660	Ground water
VPB139-GW-072313-683-685	Ground water
VPB139-GW-072313-693-695	Ground water
VPB139-GW-072413-698-700	Ground water

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and

- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required. The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory. Due to matrix issues and limited volume, the samples listed below were analyzed at the indicated dilutions:

VPB139-GW-072313-693-695 (2x)
VPB139-GW-072313-683-685 (10x)
VPB139-GW-072313-658-660 (20x)

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.



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 Scarborough, ME 04074
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 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Client: Resolution Consultants Contact: Eleanor Vivudor Phone #: (845) 425-4980 Fax #: ()
 Address: 100 Red Schoolhouse Rd City: Chestnut Ridge State: NY Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Bethpage Katahdin Quote #: _____
 Bill (if different than above): _____ Address: _____

Sampler (Print / Sign) _____ Copies To: _____

LAB USE ONLY WORK ORDER #: SG 5339
 KATAHDIN PROJECT NUMBER: _____
 REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP °C _____ TEMP BLANK INTACT NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.	ANALYSIS AND CONTAINER TYPE PRESERVATIVES																
					Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON	Filt. OY ON							
					VOCs 826015																
					TOC EPA method SW-846 Method 9060f																
*	VPB139-GW-072313-693-695	7/23/13 16:30	GW	3	X																
* ✓	VPB139-GW-072313-683-685	7/23/13 14:15	GW	3	X																
*	VPB139-GW-072313-658-660	7/23/13 10:45	GW	3	X																
	VPB139-soil-072213-638-640	7/23/13 13:45	soil	1		X															
	VPB139-soil-072213-638-640	7/23/13 13:45	soil	1		X															
	VPB139-soil-ms/msd-072213-638-640	7/23/13 13:45	soil	1		X															
	VPB139-W-EB-072413-	7/24/13 12:00	distilled water	3	X																
	VPB139-GW-072413-698-700	7/24/13 10:00	GW	4	X																
	Temperature Blank	1	w	1																	
	Trip blanks	1	w	2	X																

COMMENTS: * Samples very turbid

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>7/24/13 6-</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-1DL
Client ID: GW-072313-693-695
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2075.D

Sample Date: 23-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.70	1.0
Freon-113	U	1.0	ug/L	2	1	2.0	0.62	1.0
trans-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.50	1.0
1,1-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.42	1.0
cis-1,2-Dichloroethene	U	1.0	ug/L	2	1	2.0	0.42	1.0
Chloroform	U	1.0	ug/L	2	1	2.0	0.64	1.0
Carbon Tetrachloride	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,1-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
1,2-Dichloroethane	U	1.0	ug/L	2	1	2.0	0.40	1.0
Trichloroethene		3.0	ug/L	2	1	2.0	0.56	1.0
Tetrachloroethene	U	1.0	ug/L	2	1	2.0	0.80	1.0
1,1,2-Trichloroethane	U	1.0	ug/L	2	1	2.0	0.66	1.0
Chlorobenzene	U	1.0	ug/L	2	1	2.0	0.44	1.0
1,1,2,2-Tetrachloroethane	U	1.0	ug/L	2	1	2.0	0.76	1.0
P-Bromofluorobenzene		94.1	%					
Toluene-d8		95.7	%					
1,2-Dichloroethane-d4		111.	%					
Dibromofluoromethane		96.6	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-2DL
Client ID: GW-072313-683-685
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2073.D

Sample Date: 23-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	5.0	ug/L	10	1	10.	3.5	5.0
Freon-113	U	5.0	ug/L	10	1	10.	3.1	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	1	10.	2.1	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	1	10.	2.1	5.0
Chloroform	U	5.0	ug/L	10	1	10.	3.2	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	1	10.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	1	10.	2.8	5.0
Tetrachloroethene	U	5.0	ug/L	10	1	10.	4.0	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	1	10.	3.3	5.0
Chlorobenzene	U	5.0	ug/L	10	1	10.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	1	10.	3.8	5.0
P-Bromofluorobenzene		91.1	%					
Toluene-d8		93.6	%					
1,2-Dichloroethane-d4		108.	%					
Dibromofluoromethane		97.6	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-3DL
Client ID: GW-072313-658-660
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2074.D

Sample Date: 23-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	10	ug/L	20	1	20.	7.0	10.
Freon-113	U	10	ug/L	20	1	20.	6.2	10.
trans-1,2-Dichloroethene	U	10	ug/L	20	1	20.	5.0	10.
1,1-Dichloroethane	U	10	ug/L	20	1	20.	4.2	10.
cis-1,2-Dichloroethene	U	10	ug/L	20	1	20.	4.2	10.
Chloroform	U	10	ug/L	20	1	20.	6.4	10.
Carbon Tetrachloride	U	10	ug/L	20	1	20.	4.4	10.
1,1,1-Trichloroethane	U	10	ug/L	20	1	20.	4.0	10.
1,2-Dichloroethane	U	10	ug/L	20	1	20.	4.0	10.
Trichloroethene	U	10	ug/L	20	1	20.	5.6	10.
Tetrachloroethene	U	10	ug/L	20	1	20.	8.0	10.
1,1,2-Trichloroethane	U	10	ug/L	20	1	20.	6.6	10.
Chlorobenzene	U	10	ug/L	20	1	20.	4.4	10.
1,1,2,2-Tetrachloroethane	U	10	ug/L	20	1	20.	7.6	10.
P-Bromofluorobenzene		93.3	%					
Toluene-d8		94.3	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		96.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-6
Client ID: VPB139-W-EB-072413
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2071.D

Sample Date: 24-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.5	%					
Toluene-d8		94.0	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		94.4	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-7
Client ID: GW-072413-698-700
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2072.D

Sample Date: 24-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		1.6	ug/L	1	1	1.0	0.35	0.50
Freon-113		4.2	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.88	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.61	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.76	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride		1.6	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.43	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene		82	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.9	%					
Toluene-d8		94.0	%					
1,2-Dichloroethane-d4		110.	%					
Dibromofluoromethane		98.0	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5339-8
Client ID: VPB139-072413-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5339
Lab File ID: C2070.D

Sample Date: 24-JUL-13
Received Date: 25-JUL-13
Extract Date: 25-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127569

Analysis Date: 25-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 26-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.0	%					
Toluene-d8		93.5	%					
1,2-Dichloroethane-d4		107.	%					
Dibromofluoromethane		95.7	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5339	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited Review	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/23/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5339_9060

SUMMARY

The samples listed below were collected from the Regional Groundwater Investigation - NWIRP Bethpage on July 22, 2013.

Sample ID	Matrix/Sample Type
VPB139-SOIL-D-072213-638-640	Field Duplicate of VPB139-SOIL-072213-638-640
VPB139-SOIL-072213-638-640	Soil

A review of the quality control (QC) summary forms was performed to identify issues with data quality that would require qualification of specific data points.

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010).*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- ✗ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no results were qualified based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a quality control (QC) nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and

- the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required. The QC acceptance criteria were met; qualification of the sample results was not required.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Nonconformances	Action ¹	
	Detected Compounds	Nondetected Compounds
%R > 125%	J	No qualification
20% ≤ %R < 75%	J	UJ
%R < 20%	J	R ²
%RPD > 20%	J	No qualification

Notes:
¹ Actions are applied to the native unspiked sample only
² When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (professional judgment)

Nonconformances resulting in qualified data are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) Results

The LCS/LCSD %Rs and/or RPDs were reviewed for conformance with the QC acceptance criteria.

The LCS and LCSD %Rs and RPDs were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of ≤50% for solid matrices. This criterion applies if both results are greater than five times the Limit of Quantitation (LOQ). The QC acceptance criteria were met for these samples.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples. All criteria were met.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-SOIL-072213-638-640	SO	TOTAL ORGANIC CARBON	3700	370	UG/G	J	m

Attachment A**Nonconformance Summary Tables****Table A-1 - Matrix Spikes**

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
VPB139-SOIL- 072213-638-640	TOTAL ORGANIC CARBON	138	128	75	125	ok	ok

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bt	Trip blank contamination
c	Calibration issue
d	Reporting limit raised due to interferences caused by sample matrix.
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column precision
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
 PRINT LEGIBLY IN PEN

Client: Resolution Consultants Contact: Eleanor Viñador Phone #: (845) 425-4980 Fax #: ()
 Address: 100 Red Schoolhouse Rd City: Chestnut Ridge State: NY Zip Code: 10977
 Purchase Order #: _____ Proj. Name / No.: Bethpage Katahdin Quote #: _____
 Bill (if different than above): _____ Address: _____

Sampler (Print / Sign) _____ Copies To: _____

LAB USE ONLY WORK ORDER #: SG 5339
 KATAHDIN PROJECT NUMBER: _____

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS: _____

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO: _____

TEMP °C _____ TEMP BLANK INTACT NOT INTACT

Fit.											
OY	ON	OY	ON								

* Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	VOCs	TOC	EPA Method	SW	Method											
<u>VPB139-GW-072313-693-695</u>	<u>7/23/13 16:30</u>	<u>GW</u>	<u>3</u>	<u>X</u>															
<u>VPB139-GW-072313-683-685</u>	<u>7/23/13 14:15</u>	<u>GW</u>	<u>3</u>	<u>X</u>															
<u>VPB139-GW-072313-658-660</u>	<u>7/23/13 10:45</u>	<u>GW</u>	<u>3</u>	<u>X</u>															
<u>VPB139-soil-072213-638-640</u>	<u>7/22/13 13:45</u>	<u>soil</u>	<u>1</u>						<u>X</u>										
<u>VPB139-soilB-072213-638-640</u>	<u>7/22/13 13:45</u>	<u>soil</u>	<u>1</u>						<u>X</u>										
<u>VPB139-soil-ms/msD 072213-638-640</u>	<u>7/22/13 13:45</u>	<u>soil</u>	<u>1</u>						<u>X</u>										
<u>VPB139-W-EB-072413-</u>	<u>7/24/13 12:00</u>	<u>Distilled Water</u>	<u>3</u>	<u>X</u>															
<u>VPB139-GW-072413-698-700</u>	<u>7/24/13 10:00</u>	<u>GW</u>	<u>4</u>	<u>X</u>															
<u>Temperature Blank</u>	<u>1</u>	<u>w</u>	<u>1</u>																
<u>Trip blanks</u>	<u>1</u>	<u>w</u>	<u>2</u>	<u>X</u>															

COMMENTS * Samples very turbid

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>7/24/13 6-</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

000003 ORIGINAL

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG5339-4
Report Date: 07-AUG-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG5339

Sample Description
SOIL-072213-638-640

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	3700 J ug/gdrywt	500	100	370	SW846 M9060	WG127987	30-JUL-13 15:17:25	N/A	N/A	
Total Solids	80. %	1		N/A	SM2540G	WG127738	30-JUL-13 07:30:53	SM2540G	29-JUL-13	

SG 12/1/13



ANALYTICAL SERVICES



Cert No ES7604

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG5339-5
Report Date: 07-AUG-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG5339

Sample Description
IL-D-072213-638-640

Matrix Date Sampled Date Received
SL 22-JUL-13 26-JUL-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	1200 ug/gdrywt	490	100	370	SW846.M9060	WG127987	30-JUL-13 16:03:39	N/A	N/A	
Total Solids	81. %	1		N/A	SM2540G	WG127738	30-JUL-13 07:31:03	SM2540G	29-JUL-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage		
Laboratory:	Katahdin Analytical Services, Inc.		
Service Request:	SG5387		
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)		
Validation Level:	Limited		
AECOM Project Number:	60266526.SA.DV		
Prepared by:	Rick Purdy/AECOM	Completed on:	08/14/2013
Reviewed by:	Lori Herberich/AECOM	File Name:	SG5387_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 25, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-072513-718-720	Ground water
VPB139-GW-072513-738-740	Ground water
VPB139-072513-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards

X Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS**Data Completeness**

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, sample VPB139-GW-072513-718-720 was analyzed at a five-fold dilution.

The concentration of trichloroethene in sample VPB139-GW-072513-738-740 is reported from the analysis of a twenty-fold dilution.

The presence of trichloroethene in sample VPB139-GW-072513-718-720 may be due to carryover from the previous sample. There was insufficient volume to reanalyze. Therefore the result for trichloroethene is qualified as estimated (J). This result may have a possible high bias or may be a false positive.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-GW-072513-718-720	WG	TRICHLOROETHENE	21	2.5	UG/L	J	co

Attachment A

Non Conformance Summary Tables

No quality control nonconformances were identified during this data review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5387-1
Client ID: GW-072513-738-740
Project: Navy Clean WE15 NWIRP B
SDG: SG5387
Lab File ID: C2111.D

Sample Date: 25-JUL-13
Received Date: 26-JUL-13
Extract Date: 29-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127785

Analysis Date: 29-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene		3.6	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane		1.2	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene		2.5	ug/L	1	1	1.0	0.21	0.50
Chloroform		2.1	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride		3.5	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.65	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	1200	ug/L	1 20	1	1.0 20	0.28 5.6	0.50 10.0
Tetrachloroethene		1.5	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane		1.0	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.8	%					
Toluene-d8		93.8	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		105.	%					

REC/30/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5387-2DL
Client ID: GW-072513-718-720
Project: Navy Clean WE15 NWIRP B
SDG: SG5387
Lab File ID: C2112.D

Sample Date: 25-JUL-13
Received Date: 26-JUL-13
Extract Date: 29-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127785

Analysis Date: 29-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene		21	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		96.7	%					
Toluene-d8		97.1	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		106.	%					

R 10/30/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5519	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/20/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5519_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 26, 2013, July 29, 2013 and July 30, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-072613-758-760	Ground water
VPB139-GW-072613-768-770	Ground water
VPB139-GW-072913-798-800	Ground water
VPB139-GW-073013-823-825	Ground water
VPB139-GW-073013-838-840	Ground water
VPB139-073013-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✗ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries

- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
 ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
 NA Field duplicates
 ✓ Internal standards
 ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

CCV Linearity Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
%D > 20%	J	UJ

Qualified sample results are shown in Table 1. Nonconformances are summarized in Attachment A in Table A-1.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, the samples listed below were analyzed at the indicated dilutions:

VPB139-GW-072613-758-760 (4x)
VPB139-GW-072613-768-770 (5x)
VPB139-GW-072913-798-800 (5x)
VPB139-GW-073013-823-825 (5x)

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
VPB139-073013-TB	WQ	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		0.50	UG/L	UJ	c
VPB139-GW-072613-758-760	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		2.0	UG/L	UJ	c
VPB139-GW-072613-768-770	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		2.5	UG/L	UJ	c
VPB139-GW-072913-798-800	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		2.5	UG/L	UJ	c
VPB139-GW-073013-823-825	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		2.5	UG/L	UJ	c
VPB139-GW-073013-838-840	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		0.50	UG/L	UJ	c

Attachment A

Non Conformance Summary Tables

Table A-1 - Continuing Calibration Verification

CCV ID	Compound	% D	Limit	Associated Samples
WG127940-4 (07/31/13 09:04)	1,1,2-TRICHLORO-1,2,2- TRIFLUOROETHANE	21.1	< 20%	VPB139-073013-TB VPB139-GW-072613-758-760 VPB139-GW-072613-768-770 VPB139-GW-072913-798-800 VPB139-GW-073013-823-825 VPB139-GW-073013-838-840

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



600 Technology Way
 Scarborough, ME 04074
 Tel: (207) 874-2400
 Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND
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Page ____ of ____

Client: Resolution Consultants Contact: Eleanor Vivandow Phone #: (914) 227 3942 Fax #: ()

Address: 100 Red Schoolhouse Rd City: Chestnut Ridge State: NY Zip Code: 10977

Purchase Order #: Suite D1 Proj. Name / No.: Bethpage 60266526 Katahdin Quote #

Bill (if different than above) Address

Sampler (Print / Sign): Valerie Thayer Copies To:

LAB USE ONLY WORK ORDER #: 565519
 KATAHDIN PROJECT NUMBER

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

REMARKS:

| Filter |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| OY ON |

SHIPPING INFO: FED EX UPS CLIENT

AIRBILL NO:

TEMP °C TEMP BLANK INTACT NOT INTACT

* Sample Description	Date / Time coll'd	Matrix	No. of Cntrs.
VPB139-6W-073013-838-840	07/30/2013 / 15:15	GW	4 ^{BT}
VPB139-6W-EB-072913	07/29/2013 / 13:00	GW	3
VPB139-6W-073013-823-825	07/30/13 / 11:00	GW	3
VPB139-6W-072613-758-760	07/26/13 / 12:30	GW	3
VPB139-6W-072913-798-800	07/29/13 / 12:00	GW	3
VPB139-6W-072613-768-770	07/26/13 / 14:30	GW	3
Temperature	/	W	1
Blank	/		
Trip Blanks	/	W	2

Vols. (HCL) 8260 B
 Equipment TAD Blank

COMMENTS

Relinquished By: (Signature) <u>Valerie Thayer</u>	Date / Time <u>7/30/13 6</u>	Received By: (Signature) <u>[Signature]</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

ORIGINAL

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-1
Client ID: GW-073013-838-840
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2183.D

Sample Date: 30-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U UJ	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.3	%					
Toluene-d8		96.0	%					
1,2-Dichloroethane-d4		113.	%					
Dibromofluoromethane		101.	%					

UJ 10/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-3DL
Client ID: GW-073013-823-825
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2184.D

Sample Date: 30-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U <i>UJ</i>	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		93.4	%					
Toluene-d8		93.8	%					
1,2-Dichloroethane-d4		112.	%					
Dibromofluoromethane		102.	%					

REC 8/1/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-4DL
Client ID: GW-072613-758-760
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2185.D

Sample Date: 26-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.4	2.0
Freon-113	U <i>45</i>	2.0	ug/L	4	1	4.0	1.2	2.0
trans-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	1.0	2.0
1,1-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.84	2.0
cis-1,2-Dichloroethene	U	2.0	ug/L	4	1	4.0	0.84	2.0
Chloroform	U	2.0	ug/L	4	1	4.0	1.3	2.0
Carbon Tetrachloride	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,1-Trichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
1,2-Dichloroethane	U	2.0	ug/L	4	1	4.0	0.80	2.0
Trichloroethene		4.3	ug/L	4	1	4.0	1.1	2.0
Tetrachloroethene	U	2.0	ug/L	4	1	4.0	1.6	2.0
1,1,2-Trichloroethane	U	2.0	ug/L	4	1	4.0	1.3	2.0
Chlorobenzene	U	2.0	ug/L	4	1	4.0	0.88	2.0
1,1,2,2-Tetrachloroethane	U	2.0	ug/L	4	1	4.0	1.5	2.0
P-Bromofluorobenzene		95.0	%					
Toluene-d8		95.0	%					
1,2-Dichloroethane-d4		111.	%					
Dibromofluoromethane		100.	%					

REC 6/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-5DL
Client ID: GW-072913-798-800
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2186.D

Sample Date: 29-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U UJ	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		95.6	%					
Toluene-d8		96.8	%					
1,2-Dichloroethane-d4		115.	%					
Dibromofluoromethane		101.	%					

Rec 8/1/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-6DL
Client ID: GW-072613-768-770
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2187.D

Sample Date: 26-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.8	2.5
Freon-113	U US	2.5	ug/L	5	1	5.0	1.6	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	1	5.0	1.0	2.5
Chloroform	U	2.5	ug/L	5	1	5.0	1.6	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	1	5.0	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	1	5.0	1.4	2.5
Tetrachloroethene	U	2.5	ug/L	5	1	5.0	2.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	1	5.0	1.6	2.5
Chlorobenzene	U	2.5	ug/L	5	1	5.0	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	1	5.0	1.9	2.5
P-Bromofluorobenzene		94.5	%					
Toluene-d8		96.7	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		101.	%					

Recalcs

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5519-7
Client ID: VPB139-073013-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5519
Lab File ID: C2182.D

Sample Date: 30-JUL-13
Received Date: 31-JUL-13
Extract Date: 31-JUL-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG127940

Analysis Date: 31-JUL-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 01-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U <i>UJ</i>	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.4	%					
Toluene-d8		94.0	%					
1,2-Dichloroethane-d4		106.	%					
Dibromofluoromethane		98.9	%					

GC 11/6/13

Data Validation Report

Project:	Regional Groundwater Investigation – NWIRP Bethpage	
Laboratory:	Test-America, South Burlington, Vermont	
Service Request:	200-17555	
Analyses/Method:	EPA Method TO-15, VOCs Collected in Canisters - GC/MS	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 11/04/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5561_TO-15

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on July 18, 2013.

Sample ID	Matrix/Sample Type
VPB139-AIR-071813	Ambient air

Data validation activities were conducted with reference to *Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS) (USEPA, Method TO-15) and the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks
- NA Surrogate spike recoveries
- NA Matrix duplicate (MD) results
- ✓ Laboratory control sample (LCS) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks

Laboratory method blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Blank results were reviewed for conformance with the QC acceptance criteria. Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

Surrogate compounds are not applicable to this analysis.

MD Results

MD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TestAmerica Burlington
 30 Community Drive
 Suite 11

South Burlington, VT 05403
 phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information		Project Manager: <u>Eleanor Vivandow</u>		Samples Collected By: <u>Vivandow</u> / of <u>1</u> COCs																																				
Company: <u>Resolution Consultants / AECOM</u>		Phone: <u>845-475-3542</u>																																						
Address: <u>100 Red Schoolhouse Rd Ste B1</u>		Email: <u>Eleanor.Vivandow@aecom.com</u>																																						
City/State/Zip: <u>Chastant Ridge NY 12977</u>		Site Contact: <u>Richard Thayer</u>																																						
Phone: <u>914 277 5442</u>		TA Contact: <u>Richard Thayer</u>																																						
FAX: <u>845 475 2989</u>		Analysis Turnaround Time																																						
Project Name: <u>24th page NY</u>		Standard (Specify)																																						
Site: <u>60266526</u>		Rush (Specify)																																						
PO #																																								
Sample Identification		Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1948	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)																				
<u>VFB139 - AIR - 071813</u>		<u>July 18 2013</u>	<u>8:25</u>	<u>3:17</u>	<u>-30</u>	<u>-9</u>	<u>3931</u>	<u>4307</u>	<u>X</u>																															
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 <p style="text-align: center;">200-17555 Chain of Custody</p>																																								
Special Instructions/QC Requirements & Comments:																																								
Samples Shipped by: <u>Eleanor Thayer</u>		Date/Time: <u>07/18/2013 6:00</u>		Samples Received by: <u>Richard Thayer</u>		Date/Time: <u>7/19/13 10:15</u>																																		
Samples Relinquished by:		Date/Time:		Relinquished by:		Date/Time:																																		
Lab Use Only		Shipper Name:		Opened by:		Condition:																																		

Analytical Data

Client: Katahdin Analytical Services

Job Number: 200-17555-1

Sdg Number: 200-17555

Client Sample ID: VPB139-AIR-071813

Lab Sample ID: 200-17555-1

Date Sampled: 07/18/2013 1517

Client Matrix: Air

Date Received: 07/19/2013 1015

TO-15 Volatile Organic Compounds in Ambient Air

Analysis Method: TO-15	Analysis Batch: 200-59119	Instrument ID: C.i
Prep Method: Summa Canister	Prep Batch: N/A	Lab File ID: c1f05.d
Dilution: 1.0		Initial Weight/Volume: 200 mL
Analysis Date: 07/29/2013 1317		Final Weight/Volume: 200 mL
Prep Date: 07/29/2013 1317		Injection Volume: 200 mL

Analyte	Result (ppb v/v)	Qualifier	DL	LOQ
1,1,1-Trichloroethane	0.080	U	0.20	0.20
1,1,2,2-Tetrachloroethane	0.040	U	0.20	0.20
1,1,2-Trichloro-1,2,2-trifluoroethane	0.080	U	0.20	0.20
1,1,2-Trichloroethane	0.040	U	0.20	0.20
1,1-Dichloroethane	0.080	U	0.20	0.20
1,1-Dichloroethene	0.20	U	0.20	0.20
1,2-Dichloroethane	0.040	U	0.20	0.20
Carbon tetrachloride	0.040	U	0.20	0.20
Chlorobenzene	0.040	U	0.20	0.20
Chloroform	0.080	U	0.20	0.20
cis-1,2-Dichloroethene	0.20	U	0.20	0.20
Tetrachloroethene	0.040	U	0.20	0.20
trans-1,2-Dichloroethene	0.080	U	0.20	0.20
Trichloroethene	0.028	U	0.20	0.20
Xylene (total)	0.040	U	0.20	0.20

Analyte	Result (ug/m3)	Qualifier	DL	LOQ
1,1,1-Trichloroethane	0.44	U	1.1	1.1
1,1,2,2-Tetrachloroethane	0.27	U	1.4	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane	0.61	U	1.5	1.5
1,1,2-Trichloroethane	0.22	U	1.1	1.1
1,1-Dichloroethane	0.32	U	0.81	0.81
1,1-Dichloroethene	0.79	U	0.79	0.79
1,2-Dichloroethane	0.16	U	0.81	0.81
Carbon tetrachloride	0.25	U	1.3	1.3
Chlorobenzene	0.18	U	0.92	0.92
Chloroform	0.39	U	0.98	0.98
cis-1,2-Dichloroethene	0.79	U	0.79	0.79
Tetrachloroethene	0.27	U	1.4	1.4
trans-1,2-Dichloroethene	0.32	U	0.79	0.79
Trichloroethene	0.15	U	1.1	1.1
Xylene (total)	0.17	U	0.87	0.87

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5614	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/16/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5614_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on August 1, 2013 and July 31, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-073113-858-860	Ground water
VPB139-GW-073113-878-880	Ground water
VPB139-GW-080113-928-930	Ground water
VPB139-080213-TB	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the initial calibration verification standard (ICV) recovery (%R) acceptance criteria were met;
- the continuing calibration verification standard (CCV) percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met; qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, the sample VPB139-GW-080113-858-860 was analyzed at a twenty-fold dilution.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

No nonconformances were identified during this review.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5614-1
Client ID: GW-080113-928-930
Project: Navy Clean WE15 NWIRP B
SDG: SG5614
Lab File ID: C2237.D

Sample Date: 01-AUG-13
Received Date: 02-AUG-13
Extract Date: 02-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128112

Analysis Date: 02-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 05-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		98.6	%					
Toluene-d8		97.8	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		102.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5614-2DL
Client ID: GW-073113-858-860
Project: Navy Clean WE15 NWIRP B
SDG: SG5614
Lab File ID: C2236.D

Sample Date: 31-JUL-13
Received Date: 02-AUG-13
Extract Date: 02-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128112

Analysis Date: 02-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 05-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	10	ug/L	20	1	20.	7.0	10.
Freon-113	U	10	ug/L	20	1	20.	6.2	10.
trans-1,2-Dichloroethene	U	10	ug/L	20	1	20.	5.0	10.
1,1-Dichloroethane	U	10	ug/L	20	1	20.	4.2	10.
cis-1,2-Dichloroethene	U	10	ug/L	20	1	20.	4.2	10.
Chloroform	U	10	ug/L	20	1	20.	6.4	10.
Carbon Tetrachloride	U	10	ug/L	20	1	20.	4.4	10.
1,1,1-Trichloroethane	U	10	ug/L	20	1	20.	4.0	10.
1,2-Dichloroethane	U	10	ug/L	20	1	20.	4.0	10.
Trichloroethene	U	10	ug/L	20	1	20.	5.6	10.
Tetrachloroethene	U	10	ug/L	20	1	20.	8.0	10.
1,1,2-Trichloroethane	U	10	ug/L	20	1	20.	6.6	10.
Chlorobenzene	U	10	ug/L	20	1	20.	4.4	10.
1,1,2,2-Tetrachloroethane	U	10	ug/L	20	1	20.	7.6	10.
P-Bromofluorobenzene		98.6	%					
Toluene-d8		96.5	%					
1,2-Dichloroethane-d4		113.	%					
Dibromofluoromethane		101.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5614-3
Client ID: GW-073113-878-880
Project: Navy Clean WE15 NWIRP B
SDG: SG5614
Lab File ID: C2238.D

Sample Date: 31-JUL-13
Received Date: 02-AUG-13
Extract Date: 02-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128112

Analysis Date: 02-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 05-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.0	%					
Toluene-d8		95.7	%					
1,2-Dichloroethane-d4		113.	%					
Dibromofluoromethane		100.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5614-4
Client ID: VPB139-080213-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG5614
Lab File ID: C2227.D

Sample Date: 01-AUG-13
Received Date: 02-AUG-13
Extract Date: 02-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128112

Analysis Date: 02-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 05-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		96.5	%					
Toluene-d8		96.8	%					
1,2-Dichloroethane-d4		110.	%					
Dibromofluoromethane		101.	%					

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG5704	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 08/19/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG5704_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on August 2, 2013.

Sample ID	Matrix/Sample Type
VPB139-GW-080213-938-940	Ground water
VPB139-080213-TB2	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008), and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The blank results were reviewed for conformance with the QC acceptance criteria.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Due to matrix issues and limited volume, sample VPB139-GW-080213-938-940 was analyzed at a twenty-fold dilution.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Non Conformance Summary Tables

No nonconformances were identified as a result of this data review.

Attachment B**Qualifier Codes and Explanations**

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5704-1DL
Client ID: GW-080213-938-940
Project: Navy Clean WE15 NWIRP B
SDG: SG5704
Lab File ID: C2289.D

Sample Date: 02-AUG-13
Received Date: 06-AUG-13
Extract Date: 06-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128278

Analysis Date: 06-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 07-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	10	ug/L	20	1	20.	7.0	10.
Freon-113	U	10	ug/L	20	1	20.	6.2	10.
trans-1,2-Dichloroethene	U	10	ug/L	20	1	20.	5.0	10.
1,1-Dichloroethane	U	10	ug/L	20	1	20.	4.2	10.
cis-1,2-Dichloroethene	U	10	ug/L	20	1	20.	4.2	10.
Chloroform	U	10	ug/L	20	1	20.	6.4	10.
Carbon Tetrachloride	U	10	ug/L	20	1	20.	4.4	10.
1,1,1-Trichloroethane	U	10	ug/L	20	1	20.	4.0	10.
1,2-Dichloroethane	U	10	ug/L	20	1	20.	4.0	10.
Trichloroethene	U	10	ug/L	20	1	20.	5.6	10.
Tetrachloroethene	U	10	ug/L	20	1	20.	8.0	10.
1,1,2-Trichloroethane	U	10	ug/L	20	1	20.	6.6	10.
Chlorobenzene	U	10	ug/L	20	1	20.	4.4	10.
1,1,2,2-Tetrachloroethane	U	10	ug/L	20	1	20.	7.6	10.
P-Bromofluorobenzene		95.0	%					
Toluene-d8		94.2	%					
1,2-Dichloroethane-d4		108.	%					
Dibromofluoromethane		98.3	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5704-2
Client ID: VPB139-080213-TB2
Project: Navy Clean WE15 NWIRP B
SDG: SG5704
Lab File ID: C2279.D

Sample Date: 02-AUG-13
Received Date: 06-AUG-13
Extract Date: 06-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG128278

Analysis Date: 06-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 07-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		95.8	%					
Toluene-d8		93.7	%					
1,2-Dichloroethane-d4		104.	%					
Dibromofluoromethane		96.1	%					

Section 5

VPB 139 Analytical Data Table

-

Location	Sample Date	Sample ID	Sample Interval	Sample type code	JD6% - +#, #&\$%	JD6% - +#, #&$%	JD6% - +#, #&$%	JD6% - +#, #&$%	JD6% - +#, #&$%	JD6% - +#, #&$%	JD6% - +#, #&$%
	NYSDEC Groundwater Guidance or Standard Value (Note 1)	JD6% -!; K!\$+\$, %! , !*\$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$	JD6% -!; K!$+$, %! , !*$
), !*\$), !*\$), !*\$), !*\$), !*\$), !*\$), !*\$), !*\$), !*\$), !*\$
		) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*$'zh	) , !*\$'zh
		B	B	B	B	B	B	B	B	B	B
VOC (ug/L)											
1,1,1-TRICHLOROETHANE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
1,1,2,2-TETRACHLOROETHANE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	4.7 J
1,1,2-TRICHLOROETHANE	1	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
1,1-DICHLOROETHANE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
1,1-DICHLOROETHENE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0.69 J
1,2-DICHLOROETHANE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
CARBON TETRACHLORIDE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
CHLOROBENZENE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
CHLOROFORM	7	0.86 J	0 '\$)' \$!)	0.46 J	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
CIS-1,2-DICHLOROETHENE	5	0.30 J	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	1.3 J
TETRACHLOROETHENE	5	0.42 J	0 '\$)' \$!)	0 '\$)' \$!)	3.0 J	0 '\$)' \$!)	1.7 J	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	4.6 J
TRANS-1,2-DICHLOROETHENE	5	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)
TRICHLOROETHENE	5	85 J	7.4	1.2 J	6.5 J	0 '\$)' \$!)	8.1 J	0 '\$)' \$!)	0 '\$)' \$!)	0 '\$)' \$!)	97 J
Total VOC		86.58	7.40	1.66	9.50		9.80				108.29

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location	Sample Date	Sample ID	Sample Interval	Sample type code	JD6% - +##% #&\$%	JD6% - +##% #&$%	JD6% - +##% #&$%	JD6% - +##% #&$%	JD6% - +##% #&$%	JD6% - +##% #&$%	JD6% - +##% #&$%
	NYSDEC	Groundwater Guidance or Standard Value	(Note 1)		B	: 8	B	B	B	B	B
VOC (ug/L)											
1,1,1-TRICHLOROETHANE	5				0.43 J	0.73 J	0.66 J	0 % \$ I	0 % \$ I	0 % \$ I	< 10 U
1,1,2,2-TETRACHLOROETHANE	5				0 % \$ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	< 10 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5				7.0	12	13	0 % \$ I	0 % \$ I	0 % \$ I	< 10 U
1,1,2-TRICHLOROETHANE	1				0 % \$ I	0 % $ I	0 % $ I	0 % $ I	< 2.0 U	< 5.0 U	0 % \$ I
1,1-DICHLOROETHANE	5				0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % \$ I	< 10 U
1,1-DICHLOROETHENE	5				1.1	2.0	2.0	0 % \$ I	0 % \$ I	0 % \$ I	0.92 J
1,2-DICHLOROETHANE	5				0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % \$ I	< 10 U
CARBON TETRACHLORIDE	5				0 % \$ I	0.79 J					
CHLOROBENZENE	5				0 % \$ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	< 10 U
CHLOROFORM	7				0.34 J	0.51 J	0.53 J	0 % \$ I	0 % \$ I	0 % \$ I	0.59 J
CIS-1,2-DICHLOROETHENE	5				1.4	0.87 J	0.96 J	0 % \$ I	0 % \$ I	0 % \$ I	< 10 U
TETRACHLOROETHENE	5				0 % \$ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	< 10 U
TRANS-1,2-DICHLOROETHENE	5				0 % \$ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	0 % $ I	< 10 U
TRICHLOROETHENE	5				52	17	18	0 % \$ I	1.7 J	0 % \$ I	0.39 J
Total VOC					62.27	33.11	35.15		1.70		4.99

Notes:

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Ambient water quality standards and groundwater effluent limitations

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Bold = Detected

Bold and Italics = Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location	Sample Date	Sample ID	Sample Interval	Sample type code	JD6% -	JD6% -	JD6% -	JD6% -	JD6% -	JD6% -	JD6% -	JD6% -
	NYSDEC	Groundwater Guidance or Standard Value (Note 1)			JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!$+& % !	JD6% -; K!\$+& % !
					* , ' ! * ,)	* - ' ! * -)	* - , ! + \$ \$	+ % ! + & \$	+ ' , ! + (\$	+) , ! + * \$	+ * , ! + + \$	+ - , ! , \$ \$
					* , ' ! * ,)	* - ' ! * -)	* - , ! + \$ \$	+ % ! + & \$	+ ' , ! + (\$	+) , ! + * \$	+ * , ! + + \$	+ - , ! , \$ \$
					B	B	B	B	B	B	B	B
VOC (ug/L)												
1,1,1-TRICHLOROETHANE	5	0)"\$1	0%"\$1	0.43 J	0 &)" 1	0.65 J	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
1,1,2,2-TETRACHLOROETHANE	5	0)"\$1	0%"\$1	0 \$") \$ 1	0 &)" 1	0 \$") \$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	0)"\$1	0%"\$1	4.2	0 &)" 1	0 \$") \$ 1	0 &)" 1	0 &)" 1 >	0 &)" 1 >	0 &)" 1 >	0 &)" 1 >	0 &)" 1 >
1,1,2-TRICHLOROETHANE	1	< 5.0 U	0%"\$1	0 \$") \$ 1	< 2.5 U	1.0	< 2.0 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U	< 2.5 U
1,1-DICHLOROETHANE	5	0)"\$1	0%"\$1	0.88 J	0 &)" 1	1.2	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
1,1-DICHLOROETHENE	5	0)"\$1	0%"\$1	1.6	0 &)" 1	3.6	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
1,2-DICHLOROETHANE	5	0)"\$1	0%"\$1	0 \$") \$ 1	0 &)" 1	0 \$") \$ 1	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
CARBON TETRACHLORIDE	5	0)"\$1	0%"\$1	1.6	0 &)" 1	3.5	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
CHLOROBENZENE	5	0)"\$1	0%"\$1	0 \$") \$ 1	0 &)" 1	0 \$") \$ 1	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
CHLOROFORM	7	0)"\$1	0%"\$1	0.76 J	0 &)" 1	2.1	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
CIS-1,2-DICHLOROETHENE	5	0)"\$1	0%"\$1	0.61 J	0 &)" 1	2.5	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
TETRACHLOROETHENE	5	0)"\$1	0%"\$1	0 \$") \$ 1	0 &)" 1	1.5	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
TRANS-1,2-DICHLOROETHENE	5	0)"\$1	0%"\$1	0 \$") \$ 1	0 &)" 1	0 \$") \$ 1	0 &)"\$ 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
TRICHLOROETHENE	5	0)"\$1	3.0	82	21 J	1200	4.3	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1	0 &)" 1
Total VOC				3.00	92.08	21.00	1216.05	4.30				

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

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Bold = Detected

Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Location	Sample Date	Sample ID	Sample Interval	Sample type code	J D6% - +# \$R\$%	J D6% - +# \$R\$%	J D6% - +# %R\$%	J D6% - +# %R\$%	J D6% - ,#R\$%	J D6% - ,#R\$%
	NYSDEC	Groundwater Guidance or Standard Value (Note 1)	J D6% -!; K !\$+ \$%! , & !, &)		J D6% -!; K !\$+ \$%! , ' !, (\$	J D6% -!; K !\$+ \$%! , ' !, (\$	J D6% -!; K !\$+ %%%! ,) !, *\$	J D6% -!; K !\$+ %%%! , + !, , \$	J D6% -!; K !\$, \$%%! - & !-' \$	J D6% -!; K !\$, \$%%! - ' !-' (\$
			, & !, &) Zh		, ' !, (\$ Zh	, ' !, (\$ Zh	,) !, *\$ Zh	, + !, , \$ Zh	- & !-' \$ Zh	- ' !-' (\$ Zh
					B	B	B	B	B	B
VOC (ug/L)										
1,1,1-TRICHLOROETHANE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
1,1,2,2-TETRACHLOROETHANE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	0 &") 'l >	0 \$") \$l >	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
1,1,2-TRICHLOROETHANE	1	< 2.5 U	0 \$") \$l	< 10 U	0 \$") \$l	0 \$") \$l	0 $" ) $l	0 $" ) $l	0 $" ) $l	< 10 U
1,1-DICHLOROETHANE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
1,1-DICHLOROETHENE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
1,2-DICHLOROETHANE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
CARBON TETRACHLORIDE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l	0 $" ) $l	0 $" ) $l	0 %$l
CHLOROBENZENE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
CHLOROFORM	7	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l	0 $" ) $l	0 $" ) $l	0 %$l
CIS-1,2-DICHLOROETHENE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
TETRACHLOROETHENE	5	0 &") 'l	0 $" ) $l	0 %$l	0 $" ) $l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l
TRANS-1,2-DICHLOROETHENE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			
TRICHLOROETHENE	5	0 &") 'l	0 \$") \$l	0 %\$l	0 \$") \$l	0 \$") \$l	0 %\$l			

Total VOC

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

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Yellow highlighted values exceed Groundwater Standards

Section 6

Monitoring Wells RE105D1, RE105D2,

- Boring Logs
- Well Construction Logs
- Well Development Logs
- Groundwater Sample Log Sheets
- Analytical Data Validation
- Analytical Data Table

-Boring Logs

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Roosevelt Dr & Lincoln Blvd, Town of Oyster Bay, NY	Northing: 205072.87	Easting: 1126664.43	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 87.62		Well Screen Interval (ft): 530-550
Start Date: 9/6/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 9/20/2013			Total Depth (ft): 567.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-530 ft bgs: See VBP 139 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							
250							Bentonite Grout
300							
350							
400							
450							4" Diameter Schedule 80 PVC Riser
500							

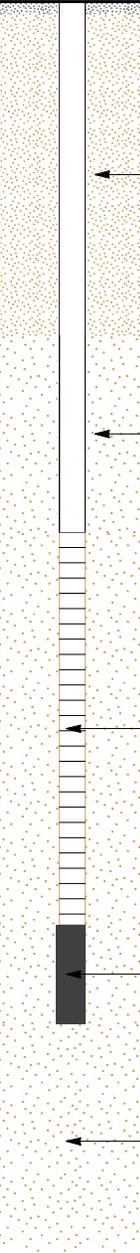
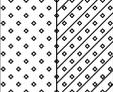
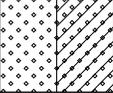
Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Roosevelt Dr & Lincoln Blvd, Town of Oyster Bay, NY	Northing: 205072.87	Easting: 1126664.43	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 87.62		Well Screen Interval (ft): 530-550
Start Date: 9/6/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 9/20/2013			Total Depth (ft): 567.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
504					0-530 ft bgs: See VBP 139 for Descriptions (<i>continued</i>)		4" Diameter Schedule 80 PVC Riser (<i>continued</i>)
506							
508							
510							
512							
514							#0 Filter Sand
516							
518							
520							
522							
524							
526							#1 Filter Sand
528							
530	0.0		SM		Light grey (10YR 7/1) SILTY SAND; medium Sand little fine sand		
532			SM		few seams of black lignite (microlaminated)		
534			SM		Brownish yellow (10YR 6/6) SILTY SAND medium Sand		
536	0.0		SM		little silt; at 531.7' strong brown (1.25") thickly laminated medium sand		
538			SM		Light grey (10YR 7/1) and very pale brown medium SAND little Silt at 536' microlaminated few black lignite and strong brown sand		
540	0.0		SM		Very pale brown (10YR 7/3) SILTY SAND; medium Sand; little fine sand; little silt; reddish yellow (0.25") at 540'; 541.9' - 542' grey clay; microlaminated		4" Diameter schedule 80 PVC, 10 Slot Well Screen (530-550 ft bgs)
542			SM				
544			SM				
546	0.0		SP-SM		Very pale brown (10YR 7/3) and light grey SILTY SAND laminated occasionally with black lignite; white medium sand		
548							
550							
552							Sump
554							
556							
558							
560							
562							#1 Sand to fill bottom of boring to sump
564							
566							
					End of boring at 567.0 ft. bgs.		

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Roosevelt Dr & Lincoln Blvd, Town of Oyster Bay, NY	Northing: 205064.02	Easting: 1126652.42	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 87.59		Well Screen Interval (ft): 730-750
Start Date: 8/19/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 9/3/2013			Total Depth (ft): 767.0

DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
0		Upper Glacial			0-730 ft bgs: See VPB 139 for Descriptions		
50							8" Diameter Steel Casing
100		Magothy					
150							
200							
250							
300							
350							Bentonite Grout
400							
450							
500							
550							
600							
650							4" Diameter Schedule 80 PVC Riser
700							

Client: Department of the Navy, Naval Facilities Engineering Command, Mid-Atlantic		Logged By: V. Thayer	
Location: Roosevelt Dr & Lincoln Blvd, Town of Oyster Bay, NY	Northing: 205064.02	Easting: 1126652.42	Drilling Company: Delta Well & Pump
Project #: 60266526	Ground Elevation (msl): 87.59		Well Screen Interval (ft): 730-750
Start Date: 8/19/2013	Drilling Method: Mud Rotary		Water Level (ft):
Finish Date: 9/3/2013			Total Depth (ft): 767.0

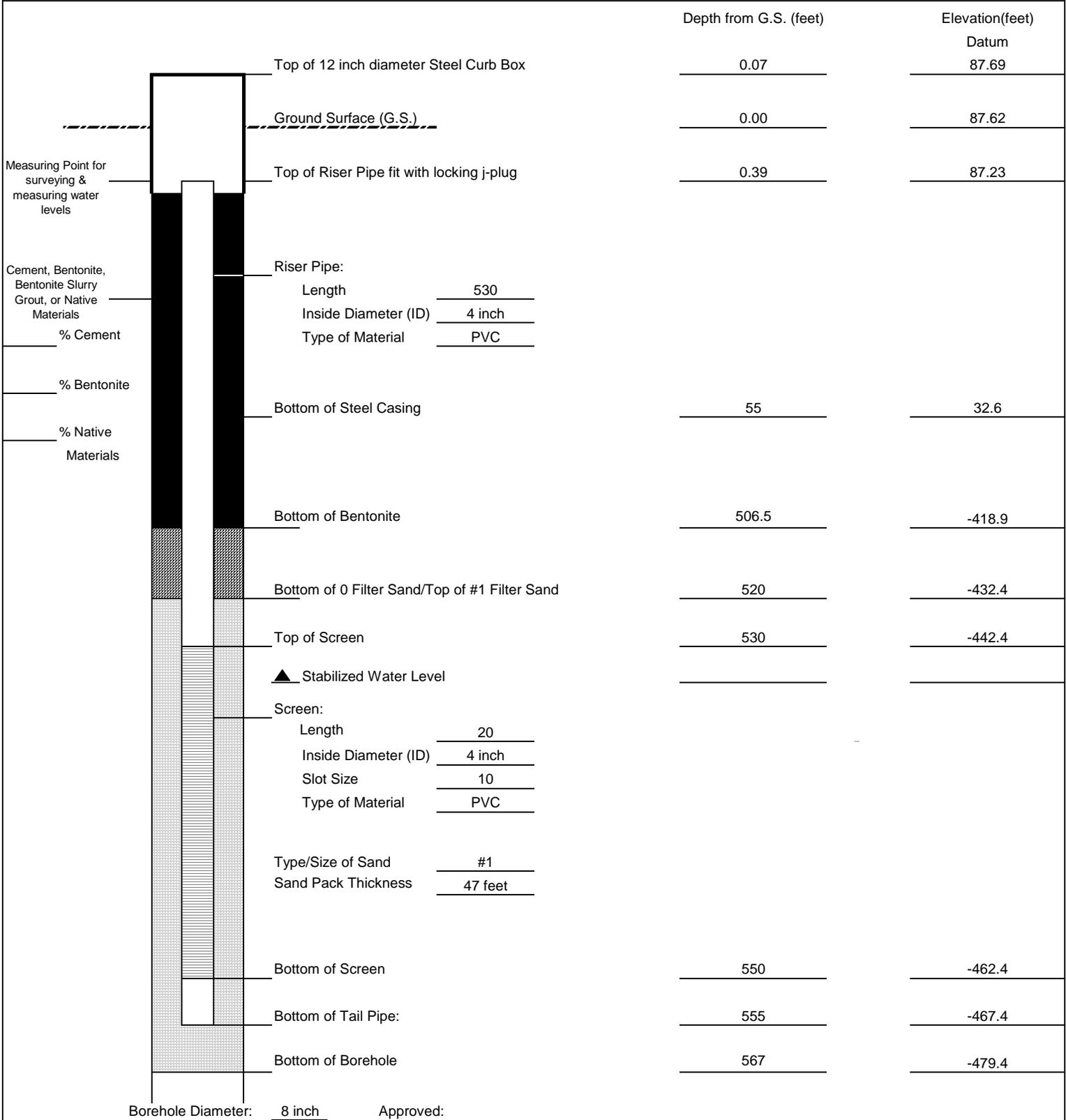
DEPTH (ft)	PID (ppm)	Formation	USCS	GRAPHIC LOG	MATERIAL DESCRIPTION	Well Completion	Well Construction
704					0-730 ft bgs: See VPB 139 for Descriptions (<i>continued</i>)		4" Diameter Schedule 80 PVC Riser (<i>continued</i>)
706							
708							
710							
712							
714							
716							
718							
720							
722							
724							#0 Filter Sand
726							
728							
730							
732	0.0		GP		White (10YR 8/1) and very pale brown (10YR 8/2) poorly graded; subrounded-subangular fine-coarse GRAVEL		
734							
736							
738	0.0		SW-SC		Light brownish grey (10YR 6/2) SAND; medium Sand; with silt/clay; 1 small gravel; bottom 1 in grey laminated clay		
740							
742	0.0		SW-SC		Light brownish grey (10YR 6/2) SAND; medium Sand with silt/clay (~15%); 0.25 inch layer of reddish yellow medium sand		4" Diameter schedule 80 PVC, 10 Slot Well Screen (730-750 ft bgs)
744							
746							
748	0.0		SW-SC		Light brownish grey (10YR 6/2) SAND; medium Sand with silt/clay (~15%)		
750							
752							
754							Sump
756							
758							
760							
762							
764							
766							#1 Sand to fill bottom of boring to sump
					End of boring at 767.0 ft. bgs.		

-Well Construction Logs



Client: NAVFAC		WELL ID: RE105D1
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 9/20/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 205072.866 Easting: 1126664.427		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



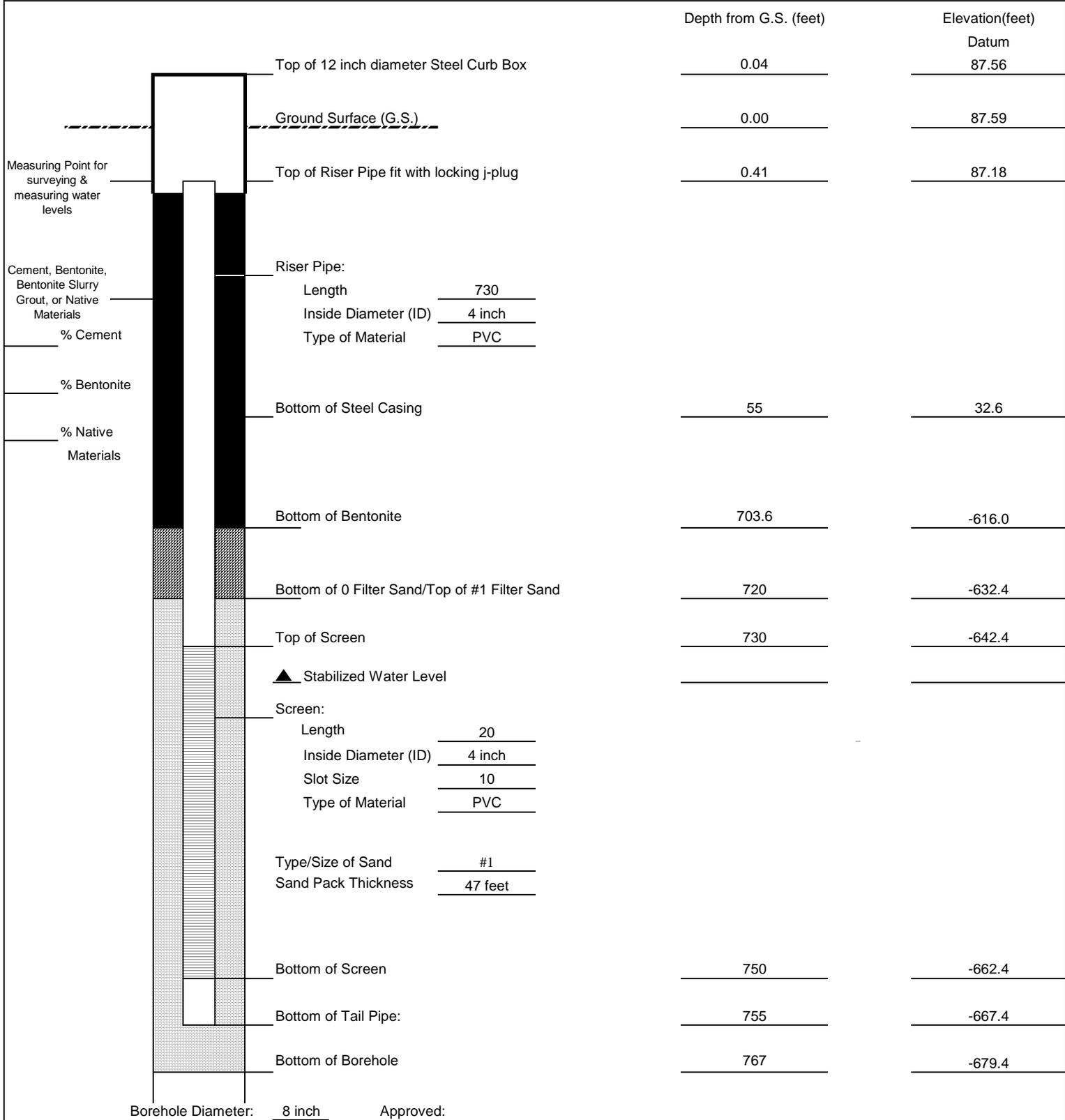
Describe Measuring Point: _____
 Ground Surface _____

Approved: _____
 Signature _____ Date _____



Client: NAVFAC		WELL ID: RE105D2
Project Number: 60266526		
Site Location: NWIRP BETHPAGE, NY		Date Installed: 9/5/13
Well Location:	Method: MUD ROTARY	Inspector: V. THAYER
Coords: Northing: 205064.024 Easting: 1126652.418		Contractor: DELTA WELL & PUMP

MONITORING WELL CONSTRUCTION DETAIL



Describe Measuring Point: _____
 Ground Surface _____

Approved: _____
 Signature _____ Date _____

-Well Development Logs

-Groundwater Sample Log Sheets



RESOLUTION CONSULTANTS

Well ID: RET-105 D1

Low Flow Ground Water Sample Collection Record

Client: NWIRP Navy Bath Page Date: 10/29/13 Time: Start 400 am/pm
 Project No: 6026 6526 10/30/13 Finish _____ am/pm
 Site Location: Lincoln & Roosevelt
 Weather Conds: sunny 40° Collector(s): Paul Kareth, Mike Zobel

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 554.9 c. Length of Water Column 511.98 (a-b) Casing Diameter/Material
37.33 (10/30/13) 4" PVC
 b. Water Table Depth 38.02 d. Calculated System Volume (see back) 334.22 screen 530-555

2. WELL PURGE DATA

a. Purge Method: bladder pump with drop tube
 b. Acceptance Criteria defined (see workplan)
 - Temperature 3% - D.O. 10%
 - pH +1.0 unit - ORP ±10mV
 - Sp. Cond. 3% - Drawdown < 0.3'
 drop tube length 415ft
 pump at 125ft
 intake at 5+0 ft

c. Field Testing Equipment used:

Make	Model	Serial Number
<u>YSI</u>	<u>556</u>	<u>1173163X</u>
<u>HANNA</u>	<u>HI 98703</u>	<u>464514X</u>

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
<u>840</u>	<u>0L</u>								<u>37.33</u>	<u>3 GPM</u>
<u>850</u>		<u>14.32</u>	<u>5.48</u>	<u>0.103</u>	<u>3.68</u>	<u>171.1</u>		<u>300</u>		
<u>910</u>		<u>14.40</u>	<u>5.35</u>	<u>0.098</u>	<u>2.12</u>	<u>236.1</u>	<u>4.98</u>	<u>300</u>	<u>37.39</u>	
<u>915</u>		<u>14.47</u>	<u>5.35</u>	<u>0.098</u>	<u>2.49</u>	<u>243.8</u>	<u>370</u>	<u>280</u>		
<u>920</u>		<u>14.33</u>	<u>5.48</u>	<u>0.111</u>	<u>2.87</u>	<u>235.9</u>	<u>250</u>	<u>275</u>		<u>2 CPM</u>
<u>925</u>		<u>14.50</u>	<u>5.38</u>	<u>0.111</u>	<u>2.05</u>	<u>240.0</u>	<u>59.8</u>	<u>375</u>		
<u>930</u>		<u>14.53</u>	<u>5.36</u>	<u>0.109</u>	<u>1.44</u>	<u>251.1</u>	<u>18.9</u>			

d. Acceptance criteria pass/fail

	Yes	No	N/A
Has required volume been removed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has required turbidity been reached	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have parameters stabilized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no or N/A - Explain below.

3. SAMPLE COLLECTION: Method: _____

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>RET-105-D1-103012</u>		<u>3</u>	<u>HCl</u>	<u>VOCs (8260)</u>	

Comments Start 3 CPM switched to 2 CPM

Signature _____ Date _____



RESOLUTION
CONSULTANTS

Well ID: REI 105DZ

Low Flow Ground Water Sample Collection Record

Client: NWIRP Navy Bellingham Date: 10/29/13 Time: Start 800 am/pm
 Project No: 60264226 10/30/13 Finish _____ am/pm
 Site Location: Lincoln & Roosevelt
 Weather Conds: Sunny 40-55° Collector(s): Paul Kaneth, Mike Zobel

1. WATER LEVEL DATA: (measured from Top of Casing)

a. Total Well Length 755.92 c. Length of Water Column 715.27 (a-b) Casing Diameter/Material
38.16 (10/30/13) _____
 b. Water Table Depth 38.16 d. Calculated System Volume (see back) 466.93 4" PVC

2. WELL PURGE DATA

a. Purge Method: Bladder pump with drop tube
 b. Acceptance Criteria defined (see workplan) screen = 730 - 750ft
 - Temperature 3% - D.O. 10% pump at 125ft
 - pH +1.0 unit - ORP +10mV drop tube length 615ft
 - Sp. Cond. 3% - Drawdown < 0.3' intake at 740ft (500+115ft)
 c. Field Testing Equipment used: Make Model Serial Number
YSI 536 U73063X
HANNA HI98703 U64514X

Time (24hr)	Volume Removed (Liters)	Temp. (°C)	pH	Spec. Cond. (µS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Flow Rate (ml/min)	Drawdown (feet)	Color/Odor
0920		14.71	5.32	0.062	6.04	159.2	4.90	350	0.03	clear
0925		14.78	5.24	0.061	5.38	181.8	3.65	350	0.04	clear
0930		14.85	5.20	0.060	4.91	201.1	2.88	350	0.04	clear
0935		14.87	5.17	0.060	4.50	216.6	2.16	350	0.04	clear
0940		14.93	5.15	0.059	4.21	226.9	11.4	350	0.04	clear
0945		15.04	5.15	0.059	4.06	223.9	18.9	350	0.04	clear
0950		15.00	5.07	0.059	4.26	232.8	23.2	350	0.04	clear

d. Acceptance criteria pass/fail Yes No N/A (continued on back)
 Has required volume been removed
 Has required turbidity been reached
 Have parameters stabilized
 If no or N/A - Explain below.

Turbidity stable around 50-60 ntu, pumped for 2hr 45min all other parameters stable.

3. SAMPLE COLLECTION: Method: bladder pump

Sample ID	Container Type	No. of Containers	Preservation	Analysis Req.	Time
<u>MW105DZ-GW-103013</u>		<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1200</u>
<u>MW105DZ-GWMS-103013</u>		<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1200</u>
<u>MW105DZ-GWMSD-103013</u>		<u>3</u>	<u>HCL</u>	<u>VOC</u>	<u>1200</u>

Comments _____

Signature Mike Zobel Date 10-30-13

-Analytical Data Validation

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG6469	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 09/09/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG6469_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on August 26, 2013.

Sample ID	Matrix/Sample Type
RE105D2-GW-082613-478-480	Ground water
TRIP BLANK-RE105D2-082613	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (USEPA, 1996), USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008), and Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (DoD, October 2010)*. In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- X Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✓ Surrogate spike recoveries
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS) results
- NA Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

Data qualification to the analytes associated with the specific ICAL and/or CCV was as follows:

ICAL Linearity Nonconformances:

Nonconformance	Actions	
	Detected Results	Nondetected Results
%RSD > 15% and quantitation based on mean RF	J	UJ

Qualified sample results are shown in Table 1. Nonconformances are summarized in Attachment A in Table A-1.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE105D2-GW-082613-478-480	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.1	0.50	UG/L	J	c
TRIP BLANK-RE105D2-082613	WQ	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE		0.50	UG/L	UJ	c

Attachment A**Nonconformance Summary Tables****Table A-1 - Initial Calibration**

Calibration Date/Time	Compound	% RSD	Limits
WG122544-4	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	18.9%	< 15%

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG6469-1RA
Client ID: GW-082613-478-480
Project: Navy Clean WE15 NWIRP B
SDG: SG6469
Lab File ID: C2675.D

Sample Date: 26-AUG-13
Received Date: 28-AUG-13
Extract Date: 29-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG129613

Analysis Date: 29-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 29-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113		1.1 J	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		102.	%					
Toluene-d8		100.	%					
1,2-Dichloroethane-d4		114.	%					
Dibromofluoromethane		102.	%					

R 12/8/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG6469-2
Client ID: RE105D2-082613-TB
Project: Navy Clean WE15 NWIRP B
SDG: SG6469
Lab File ID: C2648.D

Sample Date: 26-AUG-13
Received Date: 28-AUG-13
Extract Date: 28-AUG-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG129516

Analysis Date: 28-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 29-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		107.	%					
Toluene-d8		104.	%					
1,2-Dichloroethane-d4		120.	%					
Dibromofluoromethane		108.	%					


 12/9/13

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG6691	
Analyses/Method:	EPA SW-846 Method 9060 for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 12/04/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG6691_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on August 28, 2013.

Sample ID	Matrix/Sample Type
RE105D2-SOIL-082813-735-737	Soil

Data validation activities were conducted with reference to

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.), Method 9060A, Total Organic Carbon;*
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2010).*

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves;
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and the continuing calibration verification standard (CCV) method percent %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinse blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinse results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required. The QC acceptance criteria were met; qualification of the sample results was not required.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples. All criteria were met.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG6691-1
Report Date: 16-SEP-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG6691

Sample Description

SOIL-082813-735-737

Matrix Date Sampled Date Received
SL 28-AUG-13 05-SEP-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Fontnotes
TOC In Soil	3200 ug/gdrywt	520	110	390	SW846 M9060	WG130234	09-SEP-13 16:53:54	N/A	N/A	
Total Solids	77. %	1		N/A	SM2540G	WG130260	11-SEP-13 09:19:08	SM2540G	10-SEP-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG7261	
Analyses/Method:	EPA SW-846 Method 9060A for TOC (Carbonaceous analyzer, IR or FID)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Rick Purdy/AECOM	Completed on: 12/04/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG7261_9060

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on September 16, 2013.

Sample ID	Matrix/Sample Type
RE105D1-SOIL-091613-535-537	Soil

A review of the quality control (QC) summary forms was performed to identify issues with data quality that would require qualification of specific data points.

Data validation activities were conducted with reference to:

- *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846.)*, Method 9060A, *Total Organic Carbon*;
- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review* (January 2010).

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements, or professional judgment was used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity
- ✓ Holding times and sample preservation
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/equipment blanks
- NA Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- NA Field duplicates

✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (X) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. There were no data points qualified or rejected on the basis of this data review.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- all criteria were met for the calibration curves;
- the initial calibration verification (ICV) percent recovery (%R) criteria were met; and the continuing calibration verification standard (CCV) method %Rs were met

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks

Laboratory method blanks and equipment rinsate blanks were evaluated as to whether there were contaminants detected above the detection limit (DL). Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method and equipment rinsate results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated

results were nondetect or if qualification of sample results was not required. The QC acceptance criteria were met; qualification of the sample results was not required.

MS/MSD Results

MS/MSD analyses were not performed on samples reported in this SDG. There were no validation actions taken on this basis.

LCS/LCSD Results

The LCS/LCSD %Rs and/or relative percent recoveries (RPDs) were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

There were no field duplicate samples submitted with this data set. No validation actions were taken on this basis.

Sample Results/Reporting Issues

If applicable, nondetects in the samples are reported as undetected (U) at the Limit of Detection (LOD).

Any concentrations less than the LOQ but greater than the DL were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to elevated concentrations was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

Percent solids were > 30% for all nonaqueous samples. All criteria were met.

QUALIFICATION ACTIONS

No sample results were qualified as a result of this data review.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment A

Nonconformance Summary Tables

No nonconformances were identified during this review.

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG7261-1
Report Date: 07-OCT-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG7261

Sample Description
SOIL-091613-535-537

Matrix Date Sampled Date Received
SL 16-SEP-13 24-SEP-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
TOC In Soil	650 ug/gdrywt	500	110	380	SW846 M9060	WG131738	02-OCT-13 17:08:46	N/A	N/A	
Total Solids	80. %	1		N/A	SM2540G	WG131297	30-SEP-13 07:15:16	SM2540G	27-SEP-13	

Data Validation Report

Project:	Regional Groundwater Investigation - NWIRP Bethpage	
Laboratory:	Katahdin Analytical Services, Inc.	
Service Request:	SG8535	
Analyses/Method:	EPA SW-846 Method 8260B for VOCs (GC/MS)	
Validation Level:	Limited	
AECOM Project Number:	60266526.SA.DV	
Prepared by:	Kristin Rutherford/AECOM	Completed on: 11/22/2013
Reviewed by:	Lori Herberich/AECOM	File Name: SG8535_8260B

SUMMARY

The samples listed below were collected by Resolution Consultants from the Regional Groundwater Investigation - NWIRP Bethpage site on October 30 and 31, 2013.

Sample ID	Matrix/Sample Type
GWD-103013	Field Duplicate of RE-105-D1-GW103013
RE-103-D1-GW103113	Ground water
RE-103-D2-GW103113	Ground water
RE-103-D3-GW103113	Ground water
RE-104-D1-GW103013	Ground water
RE-104-D2-GW103013	Ground water
RE-104-D3-GW103113	Ground water
RE-105-D1-GW103013	Ground water
RE-105-D2-GW103013	Ground water
TB-GW-103013	Trip Blank

Data validation activities were conducted with reference to *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW846, specifically SW-846 Method 8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry* (USEPA, 1996), the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (June 2008) and *Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2* (DoD, October 2010). . In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or AECOM professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC))/sample integrity

- ✓ Holding times and sample preservation
- ✓ GC/MS performance checks
- ✓ Initial calibration/continuing calibration verification
- ✓ Laboratory blanks/trip blanks/equipment blanks
- ✗ Surrogate spike recoveries
- ✗ Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- ✓ Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- ✓ Field duplicates
- ✓ Internal standards
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Selected data points were estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.
- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria.

The QC acceptance criteria were met.

GC/MS Performance Checks

The data were reviewed to ensure that the 4-bromofluorobenzene (BFB) tuning was performed at the correct frequency and that the method acceptance criteria were met.

The QC acceptance criteria were met.

Initial Calibration/Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD), correlation coefficient (r)/coefficient of determination (r^2), and/or response factor method acceptance criteria were met;
- the continuing calibration verification standard (CCV) method percent difference or percent drift (%Ds) and RF acceptance criteria were met; and
- the retention time method acceptance criteria were met.

The QC acceptance criteria were met.

Laboratory Blanks/Equipment Blanks/Trip Blanks

Laboratory method blanks, equipment rinsate and trip blanks were evaluated as to whether there were contaminants detected above the detection limit (DL).

Data validation qualifications for individual samples are based on the maximum contaminant concentration detected in all associated blanks.

Method, equipment rinsate and trip blank results were reviewed for conformance with the QC acceptance criteria. Detected results in blanks are not discussed in this data validation report if the associated results were nondetect or if qualification of sample results was not required.

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Surrogate Spike Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria.

Data qualification on the basis of surrogate recovery nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > Upper Limit (UL)	J	No qualification
20% ≤ %R < Lower Limit (LL)	J	UJ
%R < 20%	J	R

Nonconformances are summarized in Attachment A in Table A-1. Qualified sample results are shown in Table 1.

MS/MSD Results

The MS/MSD %Rs and relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria.

Data qualification to the analytes associated with the specific MS/MSD nonconformances was as follows:

Nonconformance	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
20% ≤ %R < LL	J	UJ
%R < 20% (see note 1)	J	R*
%RPD > UL (see note 2)	J	No qualification
Note: Actions are applied to the native unspiked sample only (see note 3)		
*When the native sample concentration is >4X the concentration of the spike added (based on Region I criteria), evaluate the MS, MSD, and native sample with regards to %RSD rather than %R (AECOM professional judgment)		

Notes:

1. Based on NFG 2008 VOC guidance, professional judgment is used to reject (R) non-detects in all associated samples for any analyte with < 20% recovery. Also, professional judgment is used to estimate (UJ) rather the reject (R) sample results previously negated (U) on the basis of blank contamination.
2. In the absence of Region 2 guidance, RPD actions are based on professional judgment.
3. If a field duplicate sample was also collected for the native sample chosen for MS/MSD analysis, professional judgment is used to apply MS/MSD actions to the corresponding field duplicate sample as well as the native sample.

Nonconformances are summarized in Attachment A in Table A-2. Qualified sample results are shown in Table 1.

LCS Results

The LCS %Rs were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the QC criterion of ≤30% for aqueous matrices. These criteria apply if both results were greater than five times the Limit of Quantitation (LOQ).

The QC acceptance criteria were met and/or qualification of the sample results was not required.

Internal Standard Results

The internal standard (IS) recoveries were reviewed for conformance with the QC acceptance criteria.

All QC acceptance criteria were met.

Sample Results/Reporting Issues

Compounds that were not detected in the sample are reported as undetected (U) at the Limit of Detection (LOD).

Compounds detected at concentrations less than the LOQ but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

Any sample that was analyzed at a dilution due to high concentrations of target or non-target compounds or matrix interferences was checked to ensure that the results and/or sample specific LODs and LOQs were adjusted accordingly by the laboratory.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Nonconformance Summary Tables

Attachment B: Qualifier Codes and Explanations

Attachment C: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
GWD-103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
GWD-103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.5	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHANE	0.37	0.50	UG_L	J	s
GWD-103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
GWD-103013	WG	CARBON TETRACHLORIDE	0.27	0.50	UG_L	J	s
GWD-103013	WG	CIS-1,2-DICHLOROETHENE	1.9	0.50	UG_L	J	s
GWD-103013	WG	TRICHLOROETHENE	70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,1-TRICHLOROETHANE	0.75	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	12	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1,2-TRICHLOROETHANE	0.70	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHANE	1.5	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	1,1-DICHLOROETHENE	8.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CARBON TETRACHLORIDE	0.45	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CHLOROFORM	0.86	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	CIS-1,2-DICHLOROETHENE	4.8	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TETRACHLOROETHENE	2.3	0.50	UG_L	J	s
RE-103-D1-GW103113	WG	TRICHLOROETHENE	810	5.0	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5.6	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1,2-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHANE	1.2	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	1,1-DICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CARBON TETRACHLORIDE	0.50	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	CHLOROFORM	1.6	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-103-D2-GW103113	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-103-D2-GW103113	WG	TRICHLOROETHENE	830	5.0	UG_L	J	s
RE-103-D3-GW103113	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1.6	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHANE	0.61	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	1,1-DICHLOROETHENE	0.54	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CHLOROFORM	0.68	0.50	UG_L	J	s
RE-103-D3-GW103113	WG	CIS-1,2-DICHLOROETHENE	0.76	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.72	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	6.5	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	1,1-DICHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CHLOROFORM	0.40	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.1	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TETRACHLOROETHENE	1.7	0.50	UG_L	J	s
RE-104-D1-GW103013	WG	TRICHLOROETHENE	160	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	0.61	0.50	UG_L	J	s
RE-104-D2-GW103013	WG	TRICHLOROETHENE	1.4	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,1-TRICHLOROETHANE	0.79	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	9.9	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHANE	0.40	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	1,1-DICHLOROETHENE	1.8	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	CHLOROFORM	0.46	0.50	UG_L	J	s

Sample ID	Matrix	Compound	Result	LOD	Units	Validation Qualifiers	Validation Reason
RE-105-D1-GW103013	WG	CIS-1,2-DICHLOROETHENE	2.0	0.50	UG_L	J	s
RE-105-D1-GW103013	WG	TRICHLOROETHENE	75	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,1-TRICHLOROETHANE	0.86	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	21	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	1,1,2-TRICHLOROETHANE	1.1	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHANE	2.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	1,1-DICHLOROETHENE	5.4	0.50	UG_L	J	m,s
RE-105-D2-GW103013	WG	CARBON TETRACHLORIDE	4.2	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CHLOROFORM	2.3	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	CIS-1,2-DICHLOROETHENE	3.0	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TETRACHLOROETHENE	0.50	0.50	UG_L	J	s
RE-105-D2-GW103013	WG	TRICHLOROETHENE	1200	10	UG_L	J	s

Attachment A

Nonconformance Summary Tables

Table A-1 - Surrogates

Sample ID	Surrogate	% Recovery	Lower Limit	Upper Limit
GWD-103013	1,2-DICHLOROETHANE-D4	121	70	120
GWD-103013RA	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113	1,2-DICHLOROETHANE-D4	131	70	120
RE-103-D1-GW103113DL	1,2-DICHLOROETHANE-D4	143	70	120
RE-103-D2-GW103113	1,2-DICHLOROETHANE-D4	132	70	120
RE-103-D2-GW103113DL	1,2-DICHLOROETHANE-D4	137	70	120
RE-103-D3-GW103113	1,2-DICHLOROETHANE-D4	141	70	120
RE-104-D1-GW103013	1,2-DICHLOROETHANE-D4	124	70	120
RE-104-D1-GW103013RA	1,2-DICHLOROETHANE-D4	133	70	120
RE-104-D2-GW103013	1,2-DICHLOROETHANE-D4	131	70	120
RE-104-D2-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-104-D3-GW103113RA	1,2-DICHLOROETHANE-D4	134	70	120
RE-105-D1-GW103013	1,2-DICHLOROETHANE-D4	122	70	120
RE-105-D1-GW103013RA	1,2-DICHLOROETHANE-D4	135	70	120
RE-105-D2-GW103013	1,2-DICHLOROETHANE-D4	133	70	120
RE-105-D2-GW103013DL	1,2-DICHLOROETHANE-D4	136	70	120

DL – dilution analysis

RA - reanalysis

Table A-2 - Matrix Spikes

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit	RPD	RPD Limit
RE-105-D2-GW103013	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	143	145	73	126	2	20
RE-105-D2-GW103013	1,1-DICHLOROETHENE	128	131	70	130	2	20

Attachment B
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment C

Reason Codes and Explanations

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
co	Analyte carryover
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results



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 Fax: (207) 775-4029

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Page ____ of ____

Client: Resolution Consultants / AECOM Contact: Eleanora Vivandore Phone #: (845) 425-4980 Fax #: (845) 425-4989
 Address: Ruston Corporate Park City: Chestnut Ridge State: NY Zip Code: 10977
100 Reed Schoolhouse Rd Suite B-1
 Purchase Order #: _____ Proj. Name / No. NWIRP Bethpage 00266526 Katahdin Quote # _____

Bill (if different than above) Address _____
 Sampler (Print / Sign) _____ Copies To: _____

LAB USE ONLY WORK ORDER #: SG-8535
 KATAHDIN PROJECT NUMBER _____
 REMARKS: _____
 SHIPPING INFO: FED EX UPS CLIENT
 AIRBILL NO: _____
 TEMP °C TEMP BLANK INTACT NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

*	Sample Description	Date / Time col'd	Matrix	No. of Cntrs.	Filt.																
					YO	YN	YO	YN	YO	YN	YO	YN	YO	YN	YO	YN					
	RE 105-D1 GW 103013	10-30/1040	GW	3	✓																
	RE 105-D2 GW 103013	10-30/1200	GW	3	✓																
	GWD-103013	10-30/1010	GW	3	✓																
	RE 105D2 GW MS 103013	10-30/1200	GW	3	✓																
	RE 105D2 GW MS 103013	10-30/1200	GW	3	✓																
	RE 105D2 GW 103013	10-30/1200	GW	3	✓																
	RE 104 D1 GW 103013	10-30/1515	GW	3	✓																
	RE 104D2 GW 103013	10-30/1730	GW	3	✓																
	RE 103D1 GW 103113	10-31/1140	GW	3	✓																
	RE 104 D3 103113	10-31/1150	GW	3	✓																
	RE 103D3 GW 103113	10-31/1635	GW	3	✓																
	RE 103D2-GW-103113	10-31/1540	GW	3	✓																
	/	/																			
	/	/																			
	/	/																			
	/	/																			

COMMENTS _____

Relinquished By: (Signature) <u>[Signature]</u>	Date / Time <u>10-31-13 / 18:00</u>	Received By: (Signature) <u>[Signature]</u>	Date / Time <u>11-1-13 / 09:00</u>	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

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Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-1
Client ID: RE-105-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4031.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.9	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.40	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.46	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	75	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.0	%					
Toluene-d8		91.1	%					
1,2-Dichloroethane-d4	*	122.	%					
Dibromofluoromethane		98.8	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-3
Client ID: GWD-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4032.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	9.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.37	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	1.9	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.27	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	70	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.7	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	121.	%					
Dibromofluoromethane		95.9	%					

KMP
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-4
Client ID: RE-105-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4039.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J M	5.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J MM	21	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	2.0	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	3.0	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	2.3	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	4.2	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.86	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J EMM	1200	ug/L	+ 20	+ 20	+ 20	0.28 5.6	0.50 10
Tetrachloroethene	J	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	1.1	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		90.6	%					
1,2-Dichloroethane-d4	*	133.	%					
Dibromofluoromethane		100.	%					

*KML
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-5
Client ID: RE-104-D1-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4033.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	Y	1.7	ug/L	1	1	1.0	0.35	0.50
Freon-113	Y	6.5	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.79	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.40	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.72	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	160	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	J	1.7	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		91.6	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	124.	%					
Dibromofluoromethane		99.5	%					

KAR
12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-6
Client ID: RE-104-D2-GW103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4034.D

Sample Date: 30-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.61	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J	1.4	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.2	%					
Toluene-d8		90.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		104.	%					

KMR
 12/21/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-7
Client ID: RE-103-D1-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4035.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	8.8	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	12	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.5	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	4.8	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.86	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.45	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	J	0.75	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	930 810	ug/L	1 + 10	1 + 10	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene	J	2.3	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.70	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		90.6	%					
Toluene-d8		87.8	%					
1,2-Dichloroethane-d4	*	131.	%					
Dibromofluoromethane		105.	%					

*KAR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-8RA
Client ID: RE-104-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4062.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		93.3	%					
Toluene-d8		89.1	%					
1,2-Dichloroethane-d4	*	134.	%					
Dibromofluoromethane		104.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-9
Client ID: RE-103-D3-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4057.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 04-NOV-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG133775

Analysis Date: 04-NOV-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.54	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	1.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	0.61	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	0.76	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	0.68	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	E	340-120	ug/L	+ 2	+ 2	1.0-2.0	0.28	0.56 0.50 1.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		87.5	%					
Toluene-d8		86.9	%					
1,2-Dichloroethane-d4	*	141.	%					
Dibromofluoromethane		108.	%					

*KMR
12/2/13*

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-10
Client ID: RE-103-D2-GW103113
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4037.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	1.4	ug/L	1	1	1.0	0.35	0.50
Freon-113	J	5.6	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	J	1.2	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	J	2.1	ug/L	1	1	1.0	0.21	0.50
Chloroform	J	1.6	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	J	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	J E	850 830	ug/L	1 10	1 10	1.0 10	0.28 2.8	0.50 5.0
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	J	0.79	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		94.9	%					
Toluene-d8		89.2	%					
1,2-Dichloroethane-d4	*	132.	%					
Dibromofluoromethane		102.	%					

KMR
 12/2/13

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8535-11
Client ID: TB-GW-103013
Project: Navy Clean WE15 NWIRP B
SDG: SG8535
Lab File ID: C4030.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 01-NOV-13
Extracted By: DJP
Extraction Method: SW846 5030
Lab Prep Batch: WG133600

Analysis Date: 01-NOV-13
Analyst: DJP
Analysis Method: SW846 8260B
Matrix: AQ
% Solids: NA
Report Date: 11-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.35	0.50
Freon-113	U	0.50	ug/L	1	1	1.0	0.31	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.21	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	1	1.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	1	1.0	0.32	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	1	1.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	1	1.0	0.28	0.50
Tetrachloroethene	U	0.50	ug/L	1	1	1.0	0.40	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	1	1.0	0.33	0.50
Chlorobenzene	U	0.50	ug/L	1	1	1.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	1	1.0	0.38	0.50
P-Bromofluorobenzene		88.5	%					
Toluene-d8		88.9	%					
1,2-Dichloroethane-d4		117.	%					
Dibromofluoromethane		99.4	%					

-Analytical Data Table

Location	NYSDEC	F 9%) 8%	F 9%) 8&	F 9%) 8&
Sample Date	Groundwater	%\$# \$&\$%	, #&* #&\$%	%\$# \$&\$%
Sample ID	Guidance or Standard Value (Note 1)	F 9%) !8%: K %\$* %%	F 9%) 8&; K !\$, &* %!(+, ! (, \$	F 9%) !8&; K %\$* %%
Sample Interval			(+, !'(, \$ Zh	
Sample type code		B	B	B
VOC (ug/L)				
1,1,1-TRICHLOROETHANE	5	0.79 J	0 '\$) \$!'	0.86 J
1,1,2,2-TETRACHLOROETHANE	5	0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	5	9.9 J	1.1 J	21 J
1,1,2-TRICHLOROETHANE	1	0 '\$) \$!'	0 '\$) \$!'	1.1 J
1,1-DICHLOROETHANE	5	0.40 J	0 '\$) \$!'	2.0 J
1,1-DICHLOROETHENE	5	1.8 J	0 '\$) \$!'	5.4 J
1,2-DICHLOROETHANE	5	0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'
CARBON TETRACHLORIDE	5	0 '\$) \$!'	0 '\$) \$!'	4.2 J
CHLORO BENZENE	5	0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'
CHLOROFORM	7	0.46 J	0 '\$) \$!'	2.3 J
CIS-1,2-DICHLOROETHENE	5	2.0 J	0 '\$) \$!'	3.0 J
TETRACHLOROETHENE	5	0 '\$) \$!'	0 '\$) \$!'	0.50 J
TRANS-1,2-DICHLOROETHENE	5	0 '\$) \$!'	0 '\$) \$!'	0 '\$) \$!'
TRICHLOROETHENE	5	75 J	0 '\$) \$!'	1200 J
Total VOC		90.35	1.1	1240.36

Notes:

ug/L = micrograms per Liter

1 New York State Department of Environmental Conservation Division of Water Technical and Operation Guidance series (TOGS 1.1.1)

Ambient water quality standards and groundwater effluent limitations

Sample Type codes: N - normal environmental sample, FD - field duplicate

VOCs analyzed under method 8260B

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

Bold = Detected

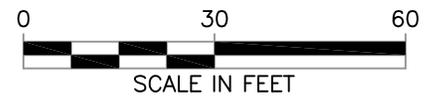
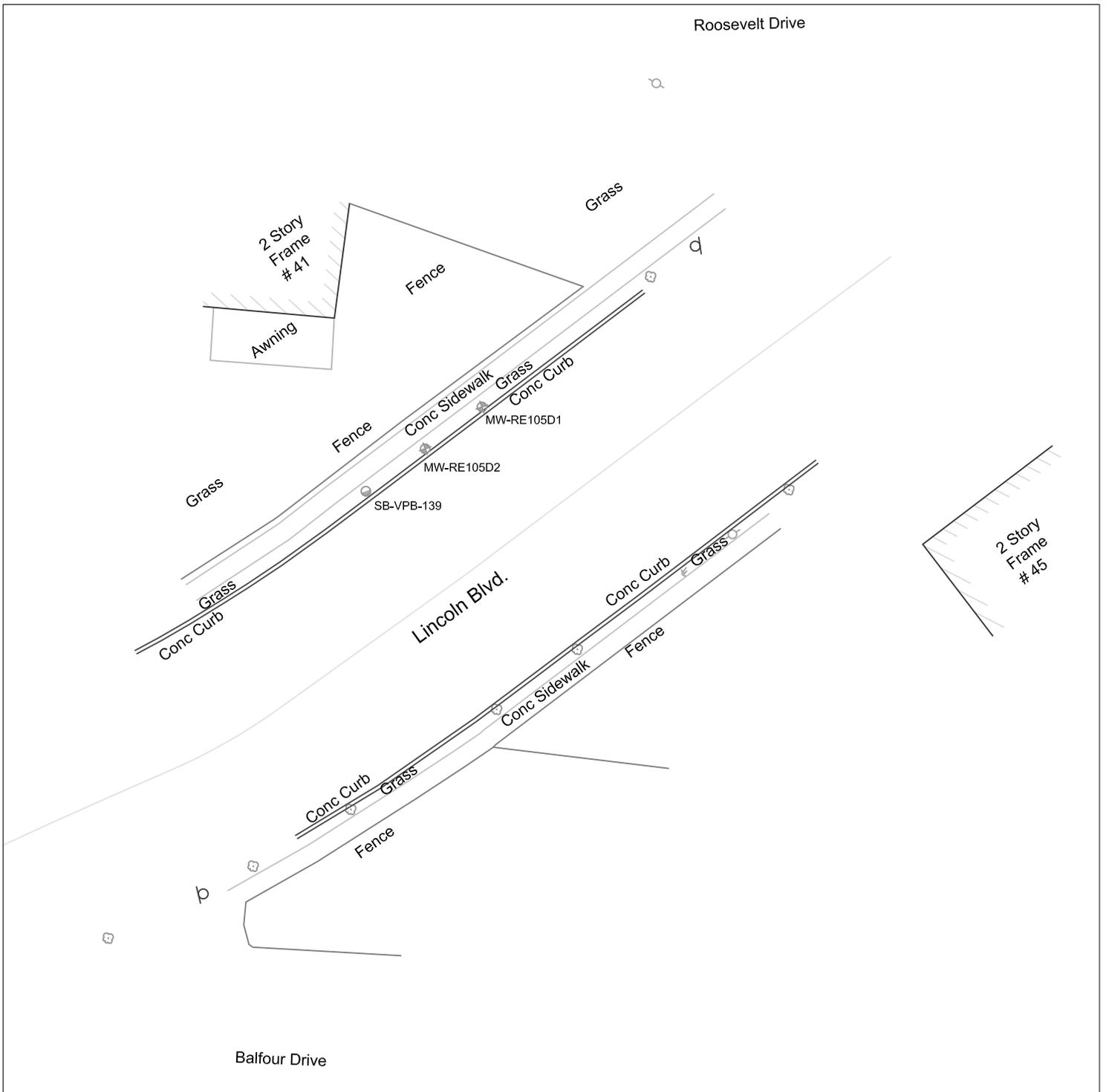
Bold and Italics=Not detect exceeds NYS Groundwater Standards

Yellow highlighted values exceed Groundwater Standards

Section 7

Survey

-



Vertical Profile Boring 139 Survey Locations

Adapted from mapping provided by GeodCorp, 10/22/2013

SURVEY RESULTS, BEETHPAGE, LONG ISLAND, NY

Project No: 3276

Client: AECOM

Horizontal Datum: NAD 83(2011) NYLI3104

Vertical Datum: NAVD 88

Units: U.S. Survey Feet

Survey date: 10/14/2013

Description	Point	Northing	Easting	Latitude	Longitude	Ground	Rim	PVC
SB-VPB-137	1032	206694.84	1125135.13	40-43-58.38	73-29-29.94	93.77	N/A	N/A
SB-VPB-138	1073	207008.61	1127722.15	40-44-01.33	73-28-56.32	89.98	N/A	N/A
SB-VPB-139	1124	205055.04	1126639.88	40-43-42.09	73-29-10.52	87.50	N/A	N/A
MW-RE103D1	1029	206694.59	1125111.76	40-43-58.38	73-29-30.25	93.80	93.82	93.00
MW-RE103D2	1030	206692.99	1125160.34	40-43-58.36	73-29-29.62	93.63	93.64	92.73
MW-RE103D3	1031	206693.46	1125144.91	40-43-58.37	73-29-29.82	93.74	93.79	92.76
MW-RE104D1	1035	207037.00	1127745.61	40-44-01.61	73-28-56.01	90.53	90.40	89.80
MW-RE104D2	1037	207000.04	1127708.99	40-44-01.25	73-28-56.49	90.79	90.67	90.12
MW-RE104D3	1038	206993.50	1127695.55	40-44-01.19	73-28-56.66	90.87	90.76	90.20
MW-RE105D2	1123	205064.02	1126652.42	40-43-42.18	73-29-10.36	87.59	87.56	87.18
MW-RE105D1	1122	205072.87	1126664.43	40-43-42.27	73-29-10.20	87.62	87.69	87.23
MW-GM26D2	1034	207046.08	1127750.87	40-44-01.70	73-28-55.94	90.61	90.50	90.33
MW-GM36D	1036	207028.45	1127741.01	40-44-01.53	73-28-56.07	90.65	90.53	90.37
MSS-2	1071	207049.69	1127751.61	40-44-01.74	73-28-55.93	90.53	90.53	N/A
MSS-1	1072	206995.70	1127702.44	40-44-01.21	73-28-56.57	90.75	90.75	N/A

Appendix D
Investigative Derived Waste

Frac Tank Analytical

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG1506-1
Report Date: 11-MAR-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG1506

Sample Description

IDWGW-030613

<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
AQ	06-MAR-13	07-MAR-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
pH(Laboratory)	9.5 pH	0.10	0.10	N/A	SW846 9040B	WG121117	07-MAR-13 13:42:00	N/A	N/A	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1506-1DL
Client ID: IDWGW-030613
Project: Navy Clean WE15 NWIRP B
SDG: SG1506
Lab File ID: C9873.D

Sample Date: 06-MAR-13
Received Date: 07-MAR-13
Extract Date: 11-MAR-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG121227

Analysis Date: 11-MAR-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 11-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	5.0	ug/L	10	5	50.	3.5	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	5	50.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	5	50.	2.1	5.0
Chloroform	U	5.0	ug/L	10	5	50.	3.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	5	50.	2.0	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	5	50.	2.2	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	5	50.	2.0	5.0
Trichloroethene	U	5.0	ug/L	10	5	50.	2.8	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	5	50.	3.3	5.0
Tetrachloroethene	U	5.0	ug/L	10	5	50.	4.0	5.0
Chlorobenzene	U	5.0	ug/L	10	5	50.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	5	50.	3.8	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	5	50.	2.1	5.0
Freon-113	U	5.0	ug/L	10	5	50.	3.1	5.0
1,2-Dichloroethane-D4		109.	%					
Toluene-D8		99.1	%					
P-Bromofluorobenzene		93.1	%					
Dibromofluoromethane		95.2	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG1611-3
Report Date: 15-MAR-13
Client PO: 60266526 ATS-3(WE15); MSA:12S15180L
Project: Navy Clean WE15 NWIRP Bethpage, NY
SDG: SG1611

Sample Description

IDWGW-031213

<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
AQ	12-MAR-13	13-MAR-13

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
pH(Laboratory)	6.8 pH	0.10	0.10	SW846 9040B	WG121341	14-MAR-13 09:10:00	N/A	N/A	KP	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1611-3
Client ID: IDWGW-031213
Project: Navy Clean WE15 NWIRP B
SDG: SG1611
Lab File ID: C9968.D

Sample Date: 12-MAR-13
Received Date: 13-MAR-13
Extract Date: 14-MAR-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG121352

Analysis Date: 14-MAR-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 15-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	J	0.96	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	J	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	J	0.65	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	E	680	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	J	0.61	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	J	1.3	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		132.	%					
Toluene-D8		112.	%					
P-Bromofluorobenzene		102.	%					
Dibromofluoromethane		118.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG1611-3DL
Client ID: IDWGW-031213
Project: Navy Clean WE15 NWIRP B
SDG: SG1611
Lab File ID: C9954.D

Sample Date: 12-MAR-13
Received Date: 13-MAR-13
Extract Date: 14-MAR-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG121352

Analysis Date: 14-MAR-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 15-MAR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	5.0	ug/L	10	5	50.	3.5	5.0
trans-1,2-Dichloroethene	U	5.0	ug/L	10	5	50.	2.5	5.0
1,1-Dichloroethane	U	5.0	ug/L	10	5	50.	2.1	5.0
Chloroform	U	5.0	ug/L	10	5	50.	3.2	5.0
1,1,1-Trichloroethane	U	5.0	ug/L	10	5	50.	2.0	5.0
Carbon Tetrachloride	U	5.0	ug/L	10	5	50.	2.2	5.0
1,2-Dichloroethane	U	5.0	ug/L	10	5	50.	2.0	5.0
Trichloroethene		590	ug/L	10	5	50.	2.8	5.0
1,1,2-Trichloroethane	U	5.0	ug/L	10	5	50.	3.3	5.0
Tetrachloroethene	U	5.0	ug/L	10	5	50.	4.0	5.0
Chlorobenzene	U	5.0	ug/L	10	5	50.	2.2	5.0
1,1,2,2-Tetrachloroethane	U	5.0	ug/L	10	5	50.	3.8	5.0
cis-1,2-Dichloroethene	U	5.0	ug/L	10	5	50.	2.1	5.0
Freon-113	U	5.0	ug/L	10	5	50.	3.1	5.0
1,2-Dichloroethane-D4	*	136.	%					
Toluene-D8		113.	%					
P-Bromofluorobenzene		104.	%					
Dibromofluoromethane		118.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4081-1
Client ID: IDWGW-061213
Project: Navy Clean WE15 NWIRP B
SDG: SG4081
Lab File ID: D4939.D

Sample Date: 12-JUN-13
Received Date: 13-JUN-13
Extract Date: 13-JUN-13
Extracted By: DJP
Extraction Method: EPA 624
Lab Prep Batch: WG126179

Analysis Date: 13-JUN-13
Analyst: DJP
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 27-JUN-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	J	0.79	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		105.	%					
Toluene-D8		93.8	%					
P-Bromofluorobenzene		88.5	%					
Dibromofluoromethane		97.2	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4526-1
Client ID: 062713-FRAC TANK #2
Project: Navy Clean WE15 NWIRP B
SDG: SG4526
Lab File ID: C1656.D

Sample Date: 27-JUN-13
Received Date: 28-JUN-13
Extract Date: 29-JUN-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG126396

Analysis Date: 29-JUN-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 03-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	J	2.7	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		126.	%					
Toluene-D8		100.	%					
P-Bromofluorobenzene		97.2	%					
Dibromofluoromethane		99.6	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4526-1
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4526

Sample Description
062713-FRAC TANK #2

Matrix AQ **Date Sampled** 27-JUN-13 **Date Received** 28-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOP	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
pH(Laboratory)	6.1 pH	0.10	0.10	N/A	SW846 9040B	WG126298	28-JUN-13 14:26:00	N/A	N/A	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4526-3
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4526

Sample Description
IDWS-062713-9607

Matrix SL
Date Sampled 27-JUN-13
Date Received 28-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Findings
Paint Filter Liquids Test	NFL			N/A	SW846 9095A	WG126430	01-JUL-13 11:54:00	N/A	N/A	
Total Solids	96. %	1		N/A	SM2540G	WG126391	02-JUL-13 06:51:43	SM2540G	01-JUL-13	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4526-4
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4526

Sample Description:
IDWS-062713-9650

Matrix: SL
Date Sampled: 27-JUN-13
Date Received: 28-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
Paint Filter Liquids Test	NFL			N/A	SW846 9095A	WG126430	01-JUL-13 11:55:00	N/A	N/A	
Total Solids	90. %	1		N/A	SM2540G	WG126391	02-JUL-13 06:51:51	SM2540G	01-JUL-13	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4526-1
Client ID: 062713-FRAC TANK #2
Project: Navy Clean WE15 NWIRP B
SDG: SG4526
Lab File ID: 7GG009.D

Sample Date: 27-JUN-13
Received Date: 28-JUN-13
Extract Date: 28-JUN-13
Extracted By: JH
Extraction Method: SW846 3510
Lab Prep Batch: WG126265

Analysis Date: 01-JUL-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 02-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.48	0.14	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.48	0.085	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.48	0.17	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.48	0.078	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.48	0.16	0.24
Tetrachloro-M-Xylene		92.8	%					
Decachlorobiphenyl		41.9	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: 062713-FRAC TANK #2

Matrix: WATER

SDG Name: SG4526

Percent Solids: 0.00

Lab Sample ID: SG4526-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	1.4	J		P	1	8.0	1.43	5.0
7440-39-3	BARIUM, TOTAL	30.2			P	1	5.0	0.23	3.0
7440-41-7	BERYLLIUM, TOTAL	0.50	U		P	1	5.0	0.10	0.50
7440-43-9	CADMIUM, TOTAL	3.0	U		P	1	5.0	0.05	3.0
7440-47-3	CHROMIUM, TOTAL	1.4	J		P	1	10	0.36	4.0
7439-92-1	LEAD, TOTAL	1.9	J		P	1	5.0	1.07	4.0
7439-97-6	MERCURY, TOTAL	0.10	U		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	6.0	J		P	1	10	0.28	4.0
7782-49-2	SELENIUM, TOTAL	7.0	U		P	1	10	2.36	7.0
7440-22-4	SILVER, TOTAL	4.0	U		P	1	10	0.27	4.0

Comments:

FORM I - IN

Katahdin Analytical Services 0000229

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4591-1
Client ID: 062813-FRAC TANK1
Project: Navy Clean WE15 NWIRP B
SDG: SG4591
Lab File ID: C1682.D

Sample Date: 28-JUN-13
Received Date: 29-JUN-13
Extract Date: 01-JUL-13
Extracted By: KP
Extraction Method: EPA 624
Lab Prep Batch: WG126444

Analysis Date: 01-JUL-13
Analyst: KP
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 11-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		113.	%					
Toluene-D8		95.7	%					
P-Bromofluorobenzene		90.6	%					
Dibromofluoromethane		95.5	%					



ANALYTICAL SERVICES



Cart No EB7604

Report of Analytical Results

Client: Eleanor Vivaudou
AECOM/Resolution Consultants
100 Red Schoolhouse Road, Suite B-1
Chestnut Ridge, NY 10977

Lab Sample ID: SG4591-1
Report Date: 12-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NW1R
SDG: SG4591

Sample Description
062813-FRAC TANK1

Matrix Date Sampled Date Received
AQ 28-JUN-13 29-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
pH(Laboratory)	8.5 pH	0.10	0.10	N/A	SW846 9040B	WG126401	29-JUN-13 15:52:00	N/A	N/A	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4591-1
Client ID: 062813-FRAC TANK1
Project: Navy Clean WE15 NWIRP B
SDG: SG4591
Lab File ID: 7GG023.D

Sample Date: 28-JUN-13
Received Date: 29-JUN-13
Extract Date: 01-JUL-13
Extracted By: JH
Extraction Method: SW846 3510
Lab Prep Batch: WG126408

Analysis Date: 01-JUL-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 10-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.48	0.14	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.48	0.085	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.48	0.17	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.48	0.078	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.48	0.16	0.24
Tetrachloro-M-Xylene		63.6	%					
Decachlorobiphenyl	*	16.4	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: 062813-FRAC TANK1

Matrix: WATER

SDG Name: SG4591

Percent Solids: 0.00

Lab Sample ID: SG4591-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	30.9			P	1	8.0	1.43	5.0
7440-39-3	BARIUM, TOTAL	171			P	1	5.0	0.23	3.0
7440-41-7	BERYLLIUM, TOTAL	4.4	J		P	1	5.0	0.10	0.50
7440-43-9	CADMIUM, TOTAL	0.21	J		P	1	5.0	0.05	3.0
7440-47-3	CHROMIUM, TOTAL	53.4			P	1	10	0.36	4.0
7439-92-1	LEAD, TOTAL	81.2			P	1	5.0	1.07	4.0
7439-97-6	MERCURY, TOTAL	0.12	J		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	37.7			P	1	10	0.28	4.0
7782-49-2	SELENIUM, TOTAL	7.0	U		P	1	10	2.36	7.0
7440-22-4	SILVER, TOTAL	4.0	U		P	1	10	0.27	4.0

Comments:

FORM I - IN

Katahdin Analytical Services 0000243

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDW-GW-7-17-13

Matrix: WATER

SDG Name: SG5068

Percent Solids: 0.00

Lab Sample ID: SG5068-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	16.9			P	1	8.0	1.43	5.0
7440-39-3	BARIUM, TOTAL	144			P	1	5.0	0.23	3.0
7440-41-7	BERYLLIUM, TOTAL	1.3	J		P	1	5.0	0.10	0.50
7440-43-9	CADMIUM, TOTAL	0.29	J		P	1	5.0	0.05	3.0
7440-47-3	CHROMIUM, TOTAL	23.3			P	1	10	0.36	4.0
7439-92-1	LEAD, TOTAL	34.4			P	1	5.0	1.07	4.0
7439-97-6	MERCURY, TOTAL	0.10	U		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	16.1			P	1	10	0.28	4.0
7782-49-2	SELENIUM, TOTAL	7.0	U		P	1	10	2.36	7.0
7440-22-4	SILVER, TOTAL	4.0	U		P	1	10	0.27	4.0

Comments:

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG5068-1
Report Date: 22-JUL-13
Client PO: 60266526 ATS-3(WE15); MSA:12S15180L
Project: Navy Clean WE15 NWIRP Bethpage, NY
SDG: SG5068

Sample Description

IDW-GW-7-17-13

<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
AQ	17-JUL-13	18-JUL-13

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
pH(Laboratory)	6.5 pH	0.10	0.10	SW846 9040B	WG127384	18-JUL-13 17:15:00	N/A	N/A	DW	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5068-1
Client ID: IDW-GW-7-17-13
Project: Navy Clean WE15 NWIRP B
SDG: SG5068
Lab File ID: C1959.D

Sample Date: 17-JUL-13
Received Date: 18-JUL-13
Extract Date: 19-JUL-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG127239

Analysis Date: 19-JUL-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 19-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene		16	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	J	0.33	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		120.	%					
Toluene-D8		101.	%					
P-Bromofluorobenzene		98.8	%					
Dibromofluoromethane		104.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5068-2
Client ID: TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG5068
Lab File ID: C1958.D

Sample Date: 17-JUL-13
Received Date: 18-JUL-13
Extract Date: 19-JUL-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG127239

Analysis Date: 19-JUL-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 19-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	U	0.50	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		121.	%					
Toluene-D8		104.	%					
P-Bromofluorobenzene		101.	%					
Dibromofluoromethane		107.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5068-1
Client ID: IDW-GW-7-17-13
Project: Navy Clean WE15 NWIRP B
SDG: SG5068
Lab File ID: 7GG211.D

Sample Date: 17-JUL-13
Received Date: 18-JUL-13
Extract Date: 18-JUL-13
Extracted By: JH
Extraction Method: SW846 3510
Lab Prep Batch: WG127184

Analysis Date: 19-JUL-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 22-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.26	ug/L	1	.5	0.52	0.15	0.26
Aroclor-1221	U	0.26	ug/L	1	.5	0.52	0.21	0.26
Aroclor-1232	U	0.26	ug/L	1	.5	0.52	0.092	0.26
Aroclor-1242	U	0.26	ug/L	1	.5	0.52	0.18	0.26
Aroclor-1248	U	0.26	ug/L	1	.5	0.52	0.21	0.26
Aroclor-1254	U	0.26	ug/L	1	.5	0.52	0.084	0.26
Aroclor-1260	U	0.26	ug/L	1	.5	0.52	0.18	0.26
Tetrachloro-M-Xylene	*	30.8	%					
Decachlorobiphenyl	*	9.71	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG6217-1DL
Client ID: GW-081913-FRACTANK
Project: Navy Clean WE15 NWIRP B
SDG: SG6217
Lab File ID: C2539.D

Sample Date: 19-AUG-13
Received Date: 20-AUG-13
Extract Date: 20-AUG-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG129102

Analysis Date: 20-AUG-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 21-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.5	ug/L	5	5	25.	1.8	2.5
trans-1,2-Dichloroethene	U	2.5	ug/L	5	5	25.	1.2	2.5
1,1-Dichloroethane	U	2.5	ug/L	5	5	25.	1.0	2.5
Chloroform	U	2.5	ug/L	5	5	25.	1.6	2.5
1,1,1-Trichloroethane	U	2.5	ug/L	5	5	25.	1.0	2.5
Carbon Tetrachloride	U	2.5	ug/L	5	5	25.	1.1	2.5
1,2-Dichloroethane	U	2.5	ug/L	5	5	25.	1.0	2.5
Trichloroethene	U	2.5	ug/L	5	5	25.	1.4	2.5
1,1,2-Trichloroethane	U	2.5	ug/L	5	5	25.	1.6	2.5
Tetrachloroethene	U	2.5	ug/L	5	5	25.	2.0	2.5
Chlorobenzene	U	2.5	ug/L	5	5	25.	1.1	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/L	5	5	25.	1.9	2.5
cis-1,2-Dichloroethene	U	2.5	ug/L	5	5	25.	1.0	2.5
Freon-113	U	2.5	ug/L	5	5	25.	1.6	2.5
1,2-Dichloroethane-D4		110.	%					
Toluene-D8		102.	%					
P-Bromofluorobenzene		99.6	%					
Dibromofluoromethane		99.2	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG6217-1
Report Date: 29-AUG-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWTR
SDG: SG6217

Sample Description
GW-081913-FRACTANK1

Matrix AQ Date Sampled 19-AUG-13 Date Received 20-AUG-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
pH(Laboratory)	8.7 pH	0.10	0.10	N/A	SW846 9040B	WG129096	20-AUG-13 11:37:00	N/A	N/A	

Report of Analytical Results

Client: AECOM Environment

Lab ID: SG6217-1

Client ID: GW-081913-FRACTANK

Project: Navy Clean WE15 NWIRP B

SDG: SG6217

Lab File ID: 7GH273.D

Sample Date: 19-AUG-13

Received Date: 20-AUG-13

Extract Date: 20-AUG-13

Extracted By: JH

Extraction Method: SW846 3510

Lab Prep Batch: WG129098

Analysis Date: 22-AUG-13

Analyst: JLP

Analysis Method: SW846 8082A

Matrix: AQ

% Solids: NA

Report Date: 29-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.49	0.15	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.49	0.20	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.49	0.087	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.49	0.18	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.49	0.20	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.49	0.080	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.49	0.17	0.24
Tetrachloro-M-Xylene	*	11.4	%					
Decachlorobiphenyl	*	5.15	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: GW-081913-FRACTANK1

Matrix: WATER

SDG Name: SG6217

Percent Solids: 0.00

Lab Sample ID: SG6217-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	42.0			P	1	40	7.15	25
7440-39-3	BARIUM, TOTAL	189			P	1	25	1.15	15
7440-41-7	BERYLLIUM, TOTAL	5.0	J		P	1	25	0.50	2.5
7440-43-9	CADMIUM, TOTAL	15	U		P	1	25	0.25	15
7440-47-3	CHROMIUM, TOTAL	66.7			P	1	50	1.80	20
7439-92-1	LEAD, TOTAL	71.2			P	1	25	5.35	20
7439-97-6	MERCURY, TOTAL	0.13	J		CV	1	0.50	0.03	0.25
7440-02-0	NICKEL, TOTAL	42.7	J		P	1	50	1.40	20
7782-49-2	SELENIUM, TOTAL	35	U		P	1	50	11.80	35
7440-22-4	SILVER, TOTAL	1.4	J		P	1	50	1.35	20

Comments:

FORM I - IN

Katahdin Analytical Services 0000249

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG7520-1
Client ID: GW-093013-FRACTANK
Project: Navy Clean WE15 NWIRP B
SDG: SG7520
Lab File ID: C3322.D

Sample Date: 30-SEP-13
Received Date: 01-OCT-13
Extract Date: 02-OCT-13
Extracted By: REC
Extraction Method: SW846 5030
Lab Prep Batch: WG131547

Analysis Date: 02-OCT-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 12-OCT-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene		150	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	J	0.61	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		96.7	%					
Toluene-D8		87.0	%					
P-Bromofluorobenzene		77.6	%					
Dibromofluoromethane		88.0	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG7520-1
Client ID: GW-093013-FRACTANK
Project: Navy Clean WE15 NWIRP B
SDG: SG7520
Lab File ID: 7GJ021.D

Sample Date: 30-SEP-13
Received Date: 01-OCT-13
Extract Date: 02-OCT-13
Extracted By: JH
Extraction Method: SW846 3510
Lab Prep Batch: WG131564

Analysis Date: 03-OCT-13
Analyst: CB
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 14-OCT-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.49	0.15	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.49	0.20	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.49	0.087	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.49	0.18	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.49	0.20	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.49	0.080	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.49	0.17	0.24
Tetrachloro-M-Xylene		84.5	%					
Decachlorobiphenyl	*	12.2	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: GW-093013-FRACTANK1

Matrix: WATER

SDG Name: SG7520

Percent Solids: 0.00

Lab Sample ID: SG7520-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		LOD
							LOQ	MDL	
7440-38-2	ARSENIC, TOTAL	29.4			P	1	8.0	1.43	5.0
7440-39-3	BARIUM, TOTAL	144			P	1	5.0	0.23	3.0
7440-41-7	BERYLLIUM, TOTAL	4.3	J		P	1	5.0	0.10	0.50
7440-43-9	CADMIUM, TOTAL	0.46	J		P	1	5.0	0.05	3.0
7440-47-3	CHROMIUM, TOTAL	36.2			P	1	10	0.36	4.0
7439-92-1	LEAD, TOTAL	72.9			P	1	5.0	1.07	4.0
7439-97-6	MERCURY, TOTAL	0.03	J		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	35.0			P	1	10	0.28	4.0
7782-49-2	SELENIUM, TOTAL	7.0	U		P	1	10	2.36	7.0
7440-22-4	SILVER, TOTAL	4.0	U		P	1	10	0.27	4.0

Comments:

FORM I - IN

Katahdin Analytical Services 0000224



REPORT OF ANALYTICAL RESULTS

Client: Rick Purdy
 AECOM
 701 Edgewater Drive
 Wakefield, MA 01880

Lab Sample ID: SG8534-001
Report Date: 11/13/2013
PO No.: 60266526 ATS-3(WE15); MSA:12S15180LA12
Project: Navy Clean WE15 NWIRP Bethpage, NY

Sample Description	Matrix	Filtered	Date Sampled	Date Received									
GW-103113-FRACTANK2	AQ	No(Total)	10/31/2013	11/01/2013									
Parameter	Result	Units	Adjusted PQL	Dilution Factor	PQL	Analytical Method	Analysis Date	By	Prep Method	Prepped Date	By	QC	Notes
ARSENIC	U 0.008	mg/L	0.008	1	0.008	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
BARIUM	0.0416	mg/L	0.0050	1	0.005	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
BERYLLIUM	U 0.00500	mg/L	0.00500	1	0.005	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
CADMIUM	U 0.00500	mg/L	0.00500	1	0.005	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
CHROMIUM	U 0.0100	mg/L	0.0100	1	0.01	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
LEAD	0.009	mg/L	0.005	1	0.005	SW846 6010	11/6/13	NAT	SW846 3010	11/3/13	EAM	GK03ICW2	
MERCURY	U 0.20	ug/L	0.20	1	0.2	SW846 7470	11/5/13	EAM	7470	11/4/13	ZS	GK04HGW2	
NICKEL	U 0.0100	mg/L	0.0100	1	0.01	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
SELENIUM	U 0.010	mg/L	0.010	1	0.01	SW846 6010	11/5/13	HHM	SW846 3010	11/3/13	EAM	GK03ICW2	
SILVER	U 0.0100	mg/L	0.0100	1	0.01	SW846 6010	11/6/13	NAT	SW846 3010	11/3/13	EAM	GK03ICW2	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG8534-1
Report Date: 13-NOV-13
Client PO: 60266526 ATS-3(WE15); MSA:12S15180L
Project: Navy Clean WE15 NWIRP Bethpage, NY
SDG: SG8534

Sample Description

GW-103113-FRACTANK2

Matrix Date Sampled Date Received
AQ 31-OCT-13 01-NOV-13

Parameter	Result	Adj PQL	Adj MDL	Anal. Method	QC Batch	Analysis Date	Prep. Method	Prep. Date	Analyst	Footnotes
pH(Laboratory)	6.3 pH	0.10	0.10	SW846 9040B	WG133641	01-NOV-13 16:26:00	N/A	N/A	ZS	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8534-1
Client ID: GW-103113-FRACTANF
Project: Navy Clean WE15 NWIRP B
SDG: SG8534
Lab File ID: F0904.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 05-NOV-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG133884

Analysis Date: 05-NOV-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 05-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene		110	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	J	0.52	ug/L	1	5	5.0	0.21	0.50
Freon-113	J	1.3	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4	*	137.	%					
Toluene-D8		113.	%					
P-Bromofluorobenzene		105.	%					
Dibromofluoromethane		115.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG8534-1
Client ID: GW-103113-FRACTANF
Project: Navy Clean WE15 NWIRP B
SDG: SG8534
Lab File ID: 7GK081.D

Sample Date: 31-OCT-13
Received Date: 01-NOV-13
Extract Date: 05-NOV-13
Extracted By: AM
Extraction Method: SW846 3510
Lab Prep Batch: WG133874

Analysis Date: 06-NOV-13
Analyst: CB
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 13-NOV-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.47	0.14	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.47	0.19	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.47	0.084	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.47	0.17	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.47	0.19	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.47	0.077	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.47	0.16	0.24
Tetrachloro-M-Xylene		71.6	%					
Decachlorobiphenyl	*	30.3	%					

Roll Off Analytical

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG0450-1
Client ID: IDWS 011813
Project: Navy Clean WE15 NWIRP B
SDG: SG0450
Lab File ID: G7746.D

Sample Date: 18-JAN-13
Received Date: 22-JAN-13
Extract Date: 23-JAN-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG119330

Analysis Date: 25-JAN-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 80.
Report Date: 28-JAN-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Phenol	U	300	ug/Kgdrywt	1	330	400	190	300
Bis(2-Chloroethyl)Ether	U	300	ug/Kgdrywt	1	330	400	98.	300
2-Chlorophenol	U	300	ug/Kgdrywt	1	330	400	200	300
1,3-Dichlorobenzene	U	300	ug/Kgdrywt	1	330	400	95.	300
1,4-Dichlorobenzene	U	300	ug/Kgdrywt	1	330	400	100	300
1,2-Dichlorobenzene	U	300	ug/Kgdrywt	1	330	400	110	300
2-Methylphenol	U	300	ug/Kgdrywt	1	330	400	240	300
2,2'-Oxybis(1-Chloropropane)	U	300	ug/Kgdrywt	1	330	400	110	300
3&4-Methylphenol	U	300	ug/Kgdrywt	1	330	400	230	300
N-Nitroso-Di-N-Propylamine	U	300	ug/Kgdrywt	1	330	400	100	300
Hexachloroethane	U	300	ug/Kgdrywt	1	330	400	120	300
Nitrobenzene	U	300	ug/Kgdrywt	1	330	400	110	300
Isophorone	U	300	ug/Kgdrywt	1	330	400	91.	300
2-Nitrophenol	U	300	ug/Kgdrywt	1	330	400	200	300
2,4-Dimethylphenol	U	300	ug/Kgdrywt	1	330	400	200	300
Bis(2-Chloroethoxy)Methane	U	300	ug/Kgdrywt	1	330	400	120	300
2,4-Dichlorophenol	U	300	ug/Kgdrywt	1	330	400	180	300
1,2,4-Trichlorobenzene	U	300	ug/Kgdrywt	1	330	400	98.	300
Naphthalene	U	300	ug/Kgdrywt	1	330	400	100	300
4-Chloroaniline	U	300	ug/Kgdrywt	1	330	400	140	300
Hexachlorobutadiene	U	300	ug/Kgdrywt	1	330	400	100	300
4-Chloro-3-Methylphenol	U	300	ug/Kgdrywt	1	330	400	200	300
2-Methylnaphthalene	U	300	ug/Kgdrywt	1	330	400	110	300
Hexachlorocyclopentadiene	U	300	ug/Kgdrywt	1	330	400	100	300
2,4,6-Trichlorophenol	U	300	ug/Kgdrywt	1	330	400	190	300
2,4,5-Trichlorophenol	U	750	ug/Kgdrywt	1	820	1000	190	750
2-Chloronaphthalene	U	300	ug/Kgdrywt	1	330	400	100	300
2-Nitroaniline	U	750	ug/Kgdrywt	1	820	1000	91.	750
Dimethyl Phthalate	U	300	ug/Kgdrywt	1	330	400	95.	300
Acenaphthylene	U	300	ug/Kgdrywt	1	330	400	85.	300
2,6-Dinitrotoluene	U	300	ug/Kgdrywt	1	330	400	96.	300
3-Nitroaniline	U	750	ug/Kgdrywt	1	820	1000	110	750
Acenaphthene	U	300	ug/Kgdrywt	1	330	400	79.	300
2,4-Dinitrophenol	U	750	ug/Kgdrywt	1	820	1000	460	750
4-Nitrophenol	U	750	ug/Kgdrywt	1	820	1000	380	750

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG0450-1
Client ID: IDWS 011813
Project: Navy Clean WE15 NWIRP B
SDG: SG0450
Lab File ID: G7746.D

Sample Date: 18-JAN-13
Received Date: 22-JAN-13
Extract Date: 23-JAN-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG119330

Analysis Date: 25-JAN-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 80.
Report Date: 28-JAN-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dibenzofuran	U	300	ug/Kgdrywt	1	330	400	96.	300
2,4-Dinitrotoluene	U	300	ug/Kgdrywt	1	330	400	100	300
Diethylphthalate	U	300	ug/Kgdrywt	1	330	400	97.	300
4-Chlorophenyl-Phenylether	U	300	ug/Kgdrywt	1	330	400	95.	300
Fluorene	U	300	ug/Kgdrywt	1	330	400	98.	300
4-Nitroaniline	U	750	ug/Kgdrywt	1	820	1000	160	750
4,6-Dinitro-2-Methylphenol	U	750	ug/Kgdrywt	1	820	1000	410	750
N-Nitrosodiphenylamine	U	300	ug/Kgdrywt	1	330	400	270	300
4-Bromophenyl-Phenylether	U	300	ug/Kgdrywt	1	330	400	100	300
Hexachlorobenzene	U	300	ug/Kgdrywt	1	330	400	100	300
Pentachlorophenol	U	750	ug/Kgdrywt	1	820	1000	290	750
Phenanthrene	U	300	ug/Kgdrywt	1	330	400	100	300
Anthracene	U	300	ug/Kgdrywt	1	330	400	100	300
Carbazole	U	300	ug/Kgdrywt	1	330	400	140	300
Di-N-Butylphthalate	U	300	ug/Kgdrywt	1	330	400	120	300
Fluoranthene	U	300	ug/Kgdrywt	1	330	400	130	300
Pyrene	U	300	ug/Kgdrywt	1	330	400	120	300
Butylbenzylphthalate	U	300	ug/Kgdrywt	1	330	400	110	300
3,3'-Dichlorobenzidene	U	300	ug/Kgdrywt	1	330	400	140	300
Benzo(a)anthracene	U	300	ug/Kgdrywt	1	330	400	100	300
Chrysene	U	300	ug/Kgdrywt	1	330	400	120	300
Bis(2-Ethylhexyl)Phthalate		860	ug/Kgdrywt	1	330	400	120	300
Di-N-Octylphthalate	U	300	ug/Kgdrywt	1	330	400	260	300
Benzo(b)fluoranthene	U	300	ug/Kgdrywt	1	330	400	160	300
Benzo(k)fluoranthene	U	300	ug/Kgdrywt	1	330	400	100	300
Benzo(a)pyrene	U	300	ug/Kgdrywt	1	330	400	110	300
Indeno(1,2,3-cd)pyrene	U	300	ug/Kgdrywt	1	330	400	150	300
Dibenzo(a,h)anthracene	U	300	ug/Kgdrywt	1	330	400	160	300
Benzo(g,h,i)perylene	U	300	ug/Kgdrywt	1	330	400	130	300
2-Fluorophenol		57.4						
Phenol-d6		66.0						
Nitrobenzene-d5		63.0						
2-Fluorobiphenyl		67.0						
2,4,6-Tribromophenol		55.4						
Terphenyl-d14		86.7						

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS 011813

Matrix: SOIL

SDG Name: SG0450

Percent Solids: 80.5

Lab Sample ID: SG0450-001

Concentration Units : mg/Kgdrywt

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	1.7		N*	P	1	0.65	0.06	0.40
7440-39-3	BARIUM, TOTAL	8.6			P	1	0.40	0.02	0.24
7440-41-7	BERYLLIUM, TOTAL	0.06	J		P	1	0.40	0.006	0.040
7440-43-9	CADMIUM, TOTAL	0.007	J		P	1	0.40	0.006	0.24
7440-47-3	CHROMIUM, TOTAL	4.2			P	1	0.81	0.02	0.32
7439-92-1	LEAD, TOTAL	3.2			P	1	0.40	0.07	0.32
7439-97-6	MERCURY, TOTAL	0.020	U		CV	1	0.039	0.006	0.020
7440-02-0	NICKEL, TOTAL	1.2			P	1	0.81	0.04	0.32
7782-49-2	SELENIUM, TOTAL	0.57	U		P	1	0.81	0.14	0.57
7440-22-4	SILVER, TOTAL	0.32	U		P	1	0.81	0.02	0.32

Comments:

FORM I - IN

Katahdin Analytical Services 0000324

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS 011813

Matrix: WATER

SDG Name: SG0450

Percent Solids: 0.00

Lab Sample ID: SG0450-002T

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	25	U		P	1	40	7.15	25
7440-39-3	BARIUM, TOTAL	214			P	1	25	1.15	15
7440-41-7	BERYLLIUM, TOTAL	2.5	U		P	1	25	0.50	2.5
7440-43-9	CADMIUM, TOTAL	15	U		P	1	25	0.25	15
7440-47-3	CHROMIUM, TOTAL	10.7	J		P	1	50	1.80	20
7439-92-1	LEAD, TOTAL	184			P	1	25	5.35	20
7439-97-6	MERCURY, TOTAL	0.06	J		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	15.1	J		P	1	50	1.40	20
7782-49-2	SELENIUM, TOTAL	35	U		P	1	50	11.80	35
7440-22-4	SILVER, TOTAL	20	U		P	1	50	1.35	20

Comments:

FORM I - IN

Katahdin Analytical Services 0000325

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG0450-1
Client ID: IDWS 011813
Project: Navy Clean WE15 NWIRP B
SDG: SG0450
Lab File ID: 7GA360.D

Sample Date: 18-JAN-13
Received Date: 22-JAN-13
Extract Date: 24-JAN-13
Extracted By: JMS
Extraction Method: SW846 3540
Lab Prep Batch: WG119379

Analysis Date: 29-JAN-13
Analyst: CB
Analysis Method: SW846 8082A
Matrix: SL
% Solids: 80.
Report Date: 31-JAN-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	9.9	ug/Kgdrywt	1	17	20.	7.0	9.9
Aroclor-1221	U	9.9	ug/Kgdrywt	1	17	20.	9.2	9.9
Aroclor-1232	U	12.	ug/Kgdrywt	1	17	20.	11.	12.
Aroclor-1242	U	9.9	ug/Kgdrywt	1	17	20.	6.7	9.9
Aroclor-1248	U	9.9	ug/Kgdrywt	1	17	20.	7.1	9.9
Aroclor-1254	U	9.9	ug/Kgdrywt	1	17	20.	5.4	9.9
Aroclor-1260	U	9.9	ug/Kgdrywt	1	17	20.	7.0	9.9
Tetrachloro-M-Xylene		95.3	%					
Decachlorobiphenyl		81.6	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG0450-1
Client ID: IDWS 011813
Project: Navy Clean WE15 NWIRP B
SDG: SG0450
Lab File ID: CGA4067.D

Sample Date: 18-JAN-13
Received Date: 22-JAN-13
Extract Date: 25-JAN-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG119423

Analysis Date: 29-JAN-13
Analyst: AC
Analysis Method: SW846 M8015C
Matrix: SL
% Solids: 80.
Report Date: 31-JAN-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Extractable TPH C9-C36		12.	mg/Kgdrywt	1	5	6.0	3.1	4.8
o-Terphenyl		54.2	%					



ANALYTICAL SERVICES



Cert No E87604

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG0450-1
Report Date: 28-JAN-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG0450

Sample Description

IDWS 011813

Matrix SL
Date Sampled 18-JAN-13
Date Received 22-JAN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC.Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
Cyanide, Reactive	U0.80 mg/Kg	1.0	0.16	0.80	SW846 7.3.3	WG119449	23-JAN-13 15:50:24	SW846 7.3.4	23-JAN-13	
Ignitability	>71. Deg. C	71.	71.	N/A	SW846 1010	WG119403	24-JAN-13 11:50:00	N/A	N/A	
Paint Filler Liquids Test	FLP			N/A	SW846 9095A	WG119401	24-JAN-13 14:47:00	N/A	N/A	
Sulfide, Reactive	U20. mg/Kg	27.	16.	20.	SW846 7.3.4	WG119450	23-JAN-13 14:17:00	SW846 7.3.4	23-JAN-13	
Total Solids	80. %	1		N/A	SM2540G	WG119332	24-JAN-13 08:15:02	ASTM D2216	23-JAN-13	
pH(Soil)	7.4 pH	0.10	0.10	N/A	SW846 9045C	WG119438	25-JAN-13 11:54:00	SW846 9045C	25-JAN-13	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2572-1
Client ID: IDWS041813-0010
Project: Navy Clean WE15 NWIRP B
SDG: SG2572
Lab File ID: T8134.D

Sample Date: 18-APR-13
Received Date: 19-APR-13
Extract Date: 24-APR-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG123124

Analysis Date: 24-APR-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 81.
Report Date: 30-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	2.3	ug/Kgdrywt	1	5	4.6	0.86	2.3
Freon-113	U	2.3	ug/Kgdrywt	1	5	4.6	0.84	2.3
trans-1,2-Dichloroethene	U	2.3	ug/Kgdrywt	1	5	4.6	0.66	2.3
1,1-Dichloroethane	U	2.3	ug/Kgdrywt	1	5	4.6	1.6	2.3
cis-1,2-Dichloroethene	U	2.3	ug/Kgdrywt	1	5	4.6	0.85	2.3
Chloroform	U	2.3	ug/Kgdrywt	1	5	4.6	0.32	2.3
Carbon Tetrachloride	U	2.3	ug/Kgdrywt	1	5	4.6	1.2	2.3
1,1,1-Trichloroethane	U	2.3	ug/Kgdrywt	1	5	4.6	0.39	2.3
1,2-Dichloroethane	U	2.3	ug/Kgdrywt	1	5	4.6	0.93	2.3
Trichloroethene	J	0.55	ug/Kgdrywt	1	5	4.6	0.55	2.3
Tetrachloroethene	U	2.3	ug/Kgdrywt	1	5	4.6	1.1	2.3
1,1,2-Trichloroethane	U	2.3	ug/Kgdrywt	1	5	4.6	0.90	2.3
Chlorobenzene	U	2.3	ug/Kgdrywt	1	5	4.6	0.47	2.3
1,1,2,2-Tetrachloroethane	U	2.3	ug/Kgdrywt	1	5	4.6	0.78	2.3
p-Bromofluorobenzene		91.2	%					
Toluene-D8		104.	%					
1,2-Dichloroethane-D4		118.	%					
Dibromofluoromethane		115.	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2572-1
Client ID: IDWS041813-0010
Project: Navy Clean WE15 NWIRP B
SDG: SG2572
Lab File ID: N8241.D

Sample Date: 18-APR-13
Received Date: 19-APR-13
Extract Date: 22-APR-13
Extracted By: JMS
Extraction Method: SW846 3540
Lab Prep Batch: WG122987

Analysis Date: 25-APR-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 81.
Report Date: 26-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Phenol	U	270	ug/Kgdrywt	1	330	360	170	270
Bis(2-Chloroethyl)Ether	U	270	ug/Kgdrywt	1	330	360	90.	270
2-Chlorophenol	U	270	ug/Kgdrywt	1	330	360	180	270
1,3-Dichlorobenzene	U	270	ug/Kgdrywt	1	330	360	86.	270
1,4-Dichlorobenzene	U	270	ug/Kgdrywt	1	330	360	95.	270
1,2-Dichlorobenzene	U	270	ug/Kgdrywt	1	330	360	97.	270
2-Methylphenol	U	270	ug/Kgdrywt	1	330	360	220	270
2,2'-Oxybis(1-Chloropropane)	U	270	ug/Kgdrywt	1	330	360	98.	270
3&4-Methylphenol	U	270	ug/Kgdrywt	1	330	360	210	270
N-Nitroso-Di-N-Propylamine	U	270	ug/Kgdrywt	1	330	360	92.	270
Hexachloroethane	U	270	ug/Kgdrywt	1	330	360	110	270
Nitrobenzene	U	270	ug/Kgdrywt	1	330	360	100	270
Isophorone	U	270	ug/Kgdrywt	1	330	360	83.	270
2-Nitrophenol	U	270	ug/Kgdrywt	1	330	360	180	270
2,4-Dimethylphenol	U	270	ug/Kgdrywt	1	330	360	180	270
Bis(2-Chloroethoxy)Methane	U	270	ug/Kgdrywt	1	330	360	110	270
2,4-Dichlorophenol	U	270	ug/Kgdrywt	1	330	360	170	270
1,2,4-Trichlorobenzene	U	270	ug/Kgdrywt	1	330	360	90.	270
Naphthalene	U	270	ug/Kgdrywt	1	330	360	96.	270
4-Chloroaniline	U	270	ug/Kgdrywt	1	330	360	130	270
Hexachlorobutadiene	U	270	ug/Kgdrywt	1	330	360	92.	270
4-Chloro-3-Methylphenol	U	270	ug/Kgdrywt	1	330	360	180	270
2-Methylnaphthalene	U	270	ug/Kgdrywt	1	330	360	100	270
Hexachlorocyclopentadiene	U	270	ug/Kgdrywt	1	330	360	91.	270
2,4,6-Trichlorophenol	U	270	ug/Kgdrywt	1	330	360	170	270
2,4,5-Trichlorophenol	U	680	ug/Kgdrywt	1	820	910	170	680
2-Chloronaphthalene	UL	270	ug/Kgdrywt	1	330	360	96.	270
2-Nitroaniline	U	680	ug/Kgdrywt	1	820	910	83.	680
Dimethyl Phthalate	U	270	ug/Kgdrywt	1	330	360	86.	270
Acenaphthylene	U	270	ug/Kgdrywt	1	330	360	78.	270
2,6-Dinitrotoluene	U	270	ug/Kgdrywt	1	330	360	88.	270
3-Nitroaniline	U	680	ug/Kgdrywt	1	820	910	100	680
Acenaphthene	U	270	ug/Kgdrywt	1	330	360	72.	270
2,4-Dinitrophenol	U	680	ug/Kgdrywt	1	820	910	420	680
4-Nitrophenol	U	680	ug/Kgdrywt	1	820	910	340	680

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2572-1
Client ID: IDWS041813-0010
Project: Navy Clean WE15 NWIRP B
SDG: SG2572
Lab File ID: N8241.D

Sample Date: 18-APR-13
Received Date: 19-APR-13
Extract Date: 22-APR-13
Extracted By: JMS
Extraction Method: SW846 3540
Lab Prep Batch: WG122987

Analysis Date: 25-APR-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 81.
Report Date: 26-APR-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dibenzofuran	U	270	ug/Kgdrywt	1	330	360	88.	270
2,4-Dinitrotoluene	U	270	ug/Kgdrywt	1	330	360	94.	270
Diethylphthalate	U	270	ug/Kgdrywt	1	330	360	89.	270
4-Chlorophenyl-Phenylether	U	270	ug/Kgdrywt	1	330	360	86.	270
Fluorene	U	270	ug/Kgdrywt	1	330	360	90.	270
4-Nitroaniline	U	680	ug/Kgdrywt	1	820	910	150	680
4,6-Dinitro-2-Methylphenol	U	680	ug/Kgdrywt	1	820	910	370	680
N-Nitrosodiphenylamine	U	270	ug/Kgdrywt	1	330	360	240	270
4-Bromophenyl-Phenylether	U	270	ug/Kgdrywt	1	330	360	94.	270
Hexachlorobenzene	U	270	ug/Kgdrywt	1	330	360	91.	270
Pentachlorophenol	U	680	ug/Kgdrywt	1	820	910	260	680
Phenanthrene	U	270	ug/Kgdrywt	1	330	360	92.	270
Anthracene	U	270	ug/Kgdrywt	1	330	360	93.	270
Carbazole	U	270	ug/Kgdrywt	1	330	360	120	270
Di-N-Butylphthalate	U	270	ug/Kgdrywt	1	330	360	110	270
Fluoranthene	U	270	ug/Kgdrywt	1	330	360	120	270
Pyrene	U	270	ug/Kgdrywt	1	330	360	110	270
Butylbenzylphthalate	U	270	ug/Kgdrywt	1	330	360	100	270
3,3'-Dichlorobenzidine	U	270	ug/Kgdrywt	1	330	360	130	270
Benzo(a)anthracene	U	270	ug/Kgdrywt	1	330	360	95.	270
Chrysene	U	270	ug/Kgdrywt	1	330	360	100	270
Bis(2-Ethylhexyl)Phthalate	J	120	ug/Kgdrywt	1	330	360	110	270
Di-N-Octylphthalate	U	270	ug/Kgdrywt	1	330	360	230	270
Benzo(b)fluoranthene	U	270	ug/Kgdrywt	1	330	360	150	270
Benzo(k)fluoranthene	U	270	ug/Kgdrywt	1	330	360	92.	270
Benzo(a)pyrene	U	270	ug/Kgdrywt	1	330	360	100	270
Indeno(1,2,3-cd)pyrene	U	270	ug/Kgdrywt	1	330	360	140	270
Dibenzo(a,h)anthracene	U	270	ug/Kgdrywt	1	330	360	140	270
Benzo(g,h,i)perylene	U	270	ug/Kgdrywt	1	330	360	120	270
2-Fluorophenol		66.1						
Phenol-d6		71.0						
Nitrobenzene-d5		71.9						
2-Fluorobiphenyl		78.9						
2,4,6-Tribromophenol		66.7						
Terphenyl-d14		95.7						

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS041813-0010

Matrix: SOIL

SDG Name: SG2572

Percent Solids: 81.3

Lab Sample ID: SG2572-001

Concentration Units : mg/Kgdrywt

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	1.5			P	1	0.68	0.06	0.42
7440-39-3	BARIUM, TOTAL	10.8			P	1	0.42	0.02	0.25
7440-41-7	BERYLLIUM, TOTAL	0.09	J		P	1	0.42	0.006	0.042
7440-43-9	CADMIUM, TOTAL	0.05	J		P	1	0.42	0.007	0.25
7440-47-3	CHROMIUM, TOTAL	5.3			P	1	0.85	0.02	0.34
7439-92-1	LEAD, TOTAL	5.4			P	1	0.42	0.07	0.34
7439-97-6	MERCURY, TOTAL	0.014	U		CV	1	0.027	0.004	0.014
7440-02-0	NICKEL, TOTAL	2.1			P	1	0.85	0.04	0.34
7782-49-2	SELENIUM, TOTAL	0.23	J		P	1	0.85	0.14	0.59
7440-22-4	SILVER, TOTAL	0.34	U		P	1	0.85	0.02	0.34

Comments:

FORM I - IN

Katahdin Analytical Services 0000472

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS041813-0010

Matrix: WATER

SDG Name: SG2572

Percent Solids: 0.00

Lab Sample ID: SG2572-002T

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TCLP	25	U		P	1	40	7.15	25
7440-39-3	BARIUM, TCLP	201			P	1	25	1.15	15
7440-41-7	BERYLLIUM, TCLP	2.5	U		P	1	25	0.50	2.5
7440-43-9	CADMIUM, TCLP	15	U		P	1	25	0.25	15
7440-47-3	CHROMIUM, TCLP	1.8	J		P	1	50	1.80	20
7439-92-1	LEAD, TCLP	12.3	J		P	1	25	5.35	20
7439-97-6	MERCURY, TCLP	0.10	U		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TCLP	15.9	J		P	1	50	1.40	20
7782-49-2	SELENIUM, TCLP	35	U		P	1	50	11.80	35
7440-22-4	SILVER, TCLP	20	U		P	1	50	1.35	20

Comments:

FORM I - IN

Katahdin Analytical Services 0000473

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS041813-9700

Matrix: SOIL

SDG Name: SG2572

Percent Solids: 84.8

Lab Sample ID: SG2572-003

Concentration Units : mg/Kgdrywt

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	2.1			P	1	0.55	0.05	0.34
7440-39-3	BARIUM, TOTAL	8.6			P	1	0.34	0.02	0.20
7440-41-7	BERYLLIUM, TOTAL	0.06	J		P	1	0.34	0.005	0.034
7440-43-9	CADMIUM, TOTAL	0.11	J		P	1	0.34	0.005	0.20
7440-47-3	CHROMIUM, TOTAL	3.6			P	1	0.68	0.02	0.27
7439-92-1	LEAD, TOTAL	2.7			P	1	0.34	0.06	0.27
7439-97-6	MERCURY, TOTAL	0.014	U		CV	1	0.028	0.004	0.014
7440-02-0	NICKEL, TOTAL	0.68			P	1	0.68	0.03	0.27
7782-49-2	SELENIUM, TOTAL	0.48	U		P	1	0.68	0.12	0.48
7440-22-4	SILVER, TOTAL	0.27	U		P	1	0.68	0.02	0.27

Comments:

FORM I - IN

Katahdin Analytical Services 0000474

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDWS041813-9700

Matrix: WATER

SDG Name: SG2572

Percent Solids: 0.00

Lab Sample ID: SG2572-004T

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TCLP	25	U		P	1	40	7.15	25
7440-39-3	BARIUM, TCLP	211			P	1	25	1.15	15
7440-41-7	BERYLLIUM, TCLP	2.5	U		P	1	25	0.50	2.5
7440-43-9	CADMIUM, TCLP	15	U		P	1	25	0.25	15
7440-47-3	CHROMIUM, TCLP	3.8	J		P	1	50	1.80	20
7439-92-1	LEAD, TCLP	20	U		P	1	25	5.35	20
7439-97-6	MERCURY, TCLP	0.10	U		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TCLP	13.4	J		P	1	50	1.40	20
7782-49-2	SELENIUM, TCLP	35	U		P	1	50	11.80	35
7440-22-4	SILVER, TCLP	20	U		P	1	50	1.35	20

Comments:

FORM I - IN

Katahdin Analytical Services 0000475

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2572-1
Client ID: IDWS041813-0010
Project: Navy Clean WE15 NWIRP B
SDG: SG2572
Lab File ID: 7GE019.D

Sample Date: 18-APR-13
Received Date: 19-APR-13
Extract Date: 23-APR-13
Extracted By: JH
Extraction Method: SW846 3540
Lab Prep Batch: WG123034

Analysis Date: 02-MAY-13
Analyst: CB
Analysis Method: SW846 8082A
Matrix: SL
% Solids: 81.
Report Date: 06-MAY-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	8.9	ug/Kgdrywt	1	17	18.	6.3	8.9
Aroclor-1221	U	8.9	ug/Kgdrywt	1	17	18.	8.3	8.9
Aroclor-1232	U	10.	ug/Kgdrywt	1	17	18.	9.7	10.
Aroclor-1242	U	8.9	ug/Kgdrywt	1	17	18.	6.1	8.9
Aroclor-1248	U	8.9	ug/Kgdrywt	1	17	18.	6.4	8.9
Aroclor-1254	U	8.9	ug/Kgdrywt	1	17	18.	4.9	8.9
Aroclor-1260	U	8.9	ug/Kgdrywt	1	17	18.	6.3	8.9
Tetrachloro-M-Xylene		58.7	%					
Decachlorobiphenyl		67.0	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG2572-1
Client ID: IDWS041813-0010
Project: Navy Clean WE15 NWIRP B
SDG: SG2572
Lab File ID: AGD20086.D

Sample Date: 18-APR-13
Received Date: 19-APR-13
Extract Date: 23-APR-13
Extracted By: JH
Extraction Method: SW846 3550
Lab Prep Batch: WG123038

Analysis Date: 24-APR-13
Analyst: JLP
Analysis Method: SW846 M8015C
Matrix: SL
% Solids: 81.
Report Date: 03-MAY-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Extractable TPH C9-C36		14	mg/Kgdrywt	1	5	5.5	2.8	4.2
o-Terphenyl		52.7	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG2572-3
Report Date: 06-MAY-13
Client PO: 60266526 ATS-3(WEI5)
Project: Navy Clean WEI5 NWIR
SDG: SG2572

Sample Description
IDWS041813-9700

Matrix SL
Date Sampled 18-APR-13
Date Received 19-APR-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC-Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
Cyanide, Reactive	U0.80 mg/Kg	1.0	0.16	0.80	SW846 7.3.3	WG123152	24-APR-13 14:52:48	SW846 7.3.4	23-APR-13	
Ignitability	>71. Deg. C	71.	71.	N/A	SW846 1010	WG123644	01-MAY-13 13:17:00	N/A	N/A	
Paint Filler Liquids Test	NFL			N/A	SW846 9095A	WG123234	26-APR-13 07:01:00	N/A	N/A	
Sulfide, Reactive	U20 mg/Kg	27	16	20	SW846 7.3.4	WG123277	23-APR-13 15:25:00	SW846 7.3.4	23-APR-13	
Total Solids	85. %	1		N/A	SM2540G	WG122984	23-APR-13 00:00:00	SM2540G	22-APR-13	
pH(Soil)	7.6 pH	0.10	0.10	N/A	SW846 9045C	WG122982	23-APR-13 07:06:00	SW846 9045C	22-APR-13	

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4526-1
Client ID: 062713-FRAC TANK #2
Project: Navy Clean WE15 NWIRP B
SDG: SG4526
Lab File ID: C1656.D

Sample Date: 27-JUN-13
Received Date: 28-JUN-13
Extract Date: 29-JUN-13
Extracted By: REC
Extraction Method: EPA 624
Lab Prep Batch: WG126396

Analysis Date: 29-JUN-13
Analyst: REC
Analysis Method: EPA 624
Matrix: AQ
% Solids: NA
Report Date: 03-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
1,1-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.35	0.50
trans-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.25	0.50
1,1-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.21	0.50
Chloroform	U	0.50	ug/L	1	5	5.0	0.32	0.50
1,1,1-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Carbon Tetrachloride	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,2-Dichloroethane	U	0.50	ug/L	1	5	5.0	0.20	0.50
Trichloroethene	J	2.7	ug/L	1	5	5.0	0.28	0.50
1,1,2-Trichloroethane	U	0.50	ug/L	1	5	5.0	0.33	0.50
Tetrachloroethene	U	0.50	ug/L	1	5	5.0	0.40	0.50
Chlorobenzene	U	0.50	ug/L	1	5	5.0	0.22	0.50
1,1,2,2-Tetrachloroethane	U	0.50	ug/L	1	5	5.0	0.38	0.50
cis-1,2-Dichloroethene	U	0.50	ug/L	1	5	5.0	0.21	0.50
Freon-113	U	0.50	ug/L	1	5	5.0	0.31	0.50
1,2-Dichloroethane-D4		126.	%					
Toluene-D8		100.	%					
P-Bromofluorobenzene		97.2	%					
Dibromofluoromethane		99.6	%					

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: 062713-FRAC TANK #2

Matrix: WATER

SDG Name: SG4526

Percent Solids: 0.00

Lab Sample ID: SG4526-001

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	1.4	J		P	1	8.0	1.43	5.0
7440-39-3	BARIUM, TOTAL	30.2			P	1	5.0	0.23	3.0
7440-41-7	BERYLLIUM, TOTAL	0.50	U		P	1	5.0	0.10	0.50
7440-43-9	CADMIUM, TOTAL	3.0	U		P	1	5.0	0.05	3.0
7440-47-3	CHROMIUM, TOTAL	1.4	J		P	1	10	0.36	4.0
7439-92-1	LEAD, TOTAL	1.9	J		P	1	5.0	1.07	4.0
7439-97-6	MERCURY, TOTAL	0.10	U		CV	1	0.20	0.01	0.10
7440-02-0	NICKEL, TOTAL	6.0	J		P	1	10	0.28	4.0
7782-49-2	SELENIUM, TOTAL	7.0	U		P	1	10	2.36	7.0
7440-22-4	SILVER, TOTAL	4.0	U		P	1	10	0.27	4.0

Comments:

FORM I - IN

Katahdin Analytical Services 0000229

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG4526-1
Client ID: 062713-FRAC TANK #2
Project: Navy Clean WE15 NWIRP B
SDG: SG4526
Lab File ID: 7GG009.D

Sample Date: 27-JUN-13
Received Date: 28-JUN-13
Extract Date: 28-JUN-13
Extracted By: JH
Extraction Method: SW846 3510
Lab Prep Batch: WG126265

Analysis Date: 01-JUL-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: AQ
% Solids: NA
Report Date: 02-JUL-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	0.24	ug/L	1	.5	0.48	0.14	0.24
Aroclor-1221	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1232	U	0.24	ug/L	1	.5	0.48	0.085	0.24
Aroclor-1242	U	0.24	ug/L	1	.5	0.48	0.17	0.24
Aroclor-1248	U	0.24	ug/L	1	.5	0.48	0.19	0.24
Aroclor-1254	U	0.24	ug/L	1	.5	0.48	0.078	0.24
Aroclor-1260	U	0.24	ug/L	1	.5	0.48	0.16	0.24
Tetrachloro-M-Xylene		92.8	%					
Decachlorobiphenyl		41.9	%					

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4526-3
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4526

Sample Description
IDWS-062713-9607

Matrix SL
Date Sampled 27-JUN-13
Date Received 28-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anat. Method	QC Batch	Anat. Date	Prep. Method	Prep. Date	Footnotes
Paint Filter Liquids Test	NFL			N/A	SW846 9095A	WG126430	01-JUL-13 11:54:00	N/A	N/A	
Total Solids	96. %	I		N/A	SM2540G	WG126391	02-JUL-13 06:51:43	SM2540G	01-JUL-13	

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG4526-4
Report Date: 11-JUL-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG4526

Sample Description
IDWS-062713-9650

Matrix SL Date Sampled 27-JUN-13 Date Received 28-JUN-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anal. Method	QC Batch	Anal. Date	Prep. Method	Prep. Date	Footnotes
Paint Filter Liquids Test	NFL			N/A	SW846 9095A	WG126430	01-JUL-13 11:55:00	N/A	N/A	
Total Solids	90. %	1		N/A	SM2540G	WG126391	02-JUL-13 06:51:51	SM2540G	01-JUL-13	

Report of Analytical Results

Client: AECOM Environment

Lab ID: SG5569-2

Client ID: IDW-S-073113

Project: Navy Clean WE15 NWIRP B

SDG: SG5569

Lab File ID: T8538.D

Sample Date: 31-JUL-13

Received Date: 01-AUG-13

Extract Date: 08-AUG-13

Extracted By: REC

Extraction Method: SW846 5035

Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13

Analyst: REC

Analysis Method: SW846 8260B

Matrix: SL

% Solids: 80.

Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dichlorodifluoromethane	U	4.8	ug/Kgdrywt	1	10	9.6	0.88	4.8
Trichlorofluoromethane	U	4.8	ug/Kgdrywt	1	10	9.6	0.87	4.8
Freon-113	U	2.4	ug/Kgdrywt	1	5	4.8	0.86	2.4
Methyl Acetate	U	2.9	ug/Kgdrywt	1	5	4.8	2.6	2.9
Methyl tert-butyl Ether	U	2.4	ug/Kgdrywt	1	5	4.8	1.0	2.4
Cyclohexane	U	2.4	ug/Kgdrywt	1	5	4.8	1.3	2.4
Methylcyclohexane	U	2.4	ug/Kgdrywt	1	5	4.8	0.92	2.4
1,2-Dibromoethane	U	2.4	ug/Kgdrywt	1	5	4.8	1.2	2.4
Isopropylbenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.88	2.4
Chloromethane	U	4.8	ug/Kgdrywt	1	10	9.6	1.3	4.8
Bromomethane	U	4.8	ug/Kgdrywt	1	10	9.6	1.0	4.8
Vinyl Chloride	U	4.8	ug/Kgdrywt	1	10	9.6	0.84	4.8
Chloroethane	U	4.8	ug/Kgdrywt	1	10	9.6	1.2	4.8
Methylene Chloride	U	12	ug/Kgdrywt	1	25	24.	7.6	12.
Acetone	J	8.4	ug/Kgdrywt	1	25	24.	4.9	12.
Carbon Disulfide	U	2.4	ug/Kgdrywt	1	5	4.8	0.75	2.4
1,1-Dichloroethene	U	2.4	ug/Kgdrywt	1	5	4.8	0.89	2.4
1,1-Dichloroethane	UL	2.4	ug/Kgdrywt	1	5	4.8	1.6	2.4
cis-1,2-Dichloroethene	U	2.4	ug/Kgdrywt	1	5	4.8	0.87	2.4
trans-1,2-Dichloroethene	U	2.4	ug/Kgdrywt	1	5	4.8	0.68	2.4
Chloroform	U	2.4	ug/Kgdrywt	1	5	4.8	0.34	2.4
1,2-Dichloroethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.96	2.4
2-Butanone	U	12	ug/Kgdrywt	1	25	24.	5.7	12.
1,1,1-Trichloroethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.40	2.4
Carbon Tetrachloride	U	2.4	ug/Kgdrywt	1	5	4.8	1.2	2.4
Bromodichloromethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.58	2.4
1,2-Dichloropropane	U	2.4	ug/Kgdrywt	1	5	4.8	1.3	2.4
cis-1,3-Dichloropropene	U	2.4	ug/Kgdrywt	1	5	4.8	0.69	2.4
Trichloroethene	U	2.4	ug/Kgdrywt	1	5	4.8	0.57	2.4
Dibromochloromethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.96	2.4
1,1,2-Trichloroethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.93	2.4
Benzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.88	2.4
trans-1,3-Dichloropropene	U	2.4	ug/Kgdrywt	1	5	4.8	0.82	2.4
Bromoform	U	2.4	ug/Kgdrywt	1	5	4.8	0.67	2.4
4-Methyl-2-Pentanone	U	12	ug/Kgdrywt	1	25	24.	5.7	12.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: T8538.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 80.
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
2-Hexanone	U	12	ug/Kgdrywt	1	25	24.	4.6	12.
Tetrachloroethene	U	2.4	ug/Kgdrywt	1	5	4.8	1.2	2.4
1,1,2,2-Tetrachloroethane	U	2.4	ug/Kgdrywt	1	5	4.8	0.81	2.4
Toluene	U	2.4	ug/Kgdrywt	1	5	4.8	1.3	2.4
Chlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.49	2.4
Ethylbenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.62	2.4
Styrene	U	2.4	ug/Kgdrywt	1	5	4.8	0.49	2.4
m+p-Xylenes	U	4.8	ug/Kgdrywt	1	10	9.6	1.6	4.8
o-Xylene	U	2.4	ug/Kgdrywt	1	5	4.8	1.2	2.4
Xylenes (Total)	U	7.2	ug/Kgdrywt	1	15	14.	1.2	7.2
1,3-Dichlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.60	2.4
1,4-Dichlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.42	2.4
1,2-Dichlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.75	2.4
1,2-Dibromo-3-Chloropropane	U	2.4	ug/Kgdrywt	1	5	4.8	1.4	2.4
1,2,4-Trichlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.76	2.4
1,2,3-Trichlorobenzene	U	2.4	ug/Kgdrywt	1	5	4.8	0.73	2.4
Dibromofluoromethane		99.2	%					
1,2-Dichloroethane-d4		96.9	%					
Toluene-d8		95.2	%					
P-Bromofluorobenzene	*	76.1	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2RA
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: T8552.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 80.
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dichlorodifluoromethane	U	4.3	ug/Kgdrywt	1	10	8.6	0.79	4.3
Trichlorofluoromethane	U	4.3	ug/Kgdrywt	1	10	8.6	0.78	4.3
Freon-113	U	2.2	ug/Kgdrywt	1	5	4.3	0.77	2.2
Methyl Acetate	U	2.6	ug/Kgdrywt	1	5	4.3	2.3	2.6
Methyl tert-butyl Ether	U	2.2	ug/Kgdrywt	1	5	4.3	0.95	2.2
Cyclohexane	U	2.2	ug/Kgdrywt	1	5	4.3	1.2	2.2
Methylcyclohexane	U	2.2	ug/Kgdrywt	1	5	4.3	0.82	2.2
1,2-Dibromoethane	U	2.2	ug/Kgdrywt	1	5	4.3	1.0	2.2
Isopropylbenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.79	2.2
Chloromethane	U	4.3	ug/Kgdrywt	1	10	8.6	1.2	4.3
Bromomethane	U	4.3	ug/Kgdrywt	1	10	8.6	0.95	4.3
Vinyl Chloride	U	4.3	ug/Kgdrywt	1	10	8.6	0.75	4.3
Chloroethane	U	4.3	ug/Kgdrywt	1	10	8.6	1.1	4.3
Methylene Chloride	U	11	ug/Kgdrywt	1	25	22.	6.8	11.
Acetone	U	11	ug/Kgdrywt	1	25	22.	4.4	11.
Carbon Disulfide	U	2.2	ug/Kgdrywt	1	5	4.3	0.67	2.2
1,1-Dichloroethene	U	2.2	ug/Kgdrywt	1	5	4.3	0.80	2.2
1,1-Dichloroethane	U	2.2	ug/Kgdrywt	1	5	4.3	1.5	2.2
cis-1,2-Dichloroethene	U	2.2	ug/Kgdrywt	1	5	4.3	0.78	2.2
trans-1,2-Dichloroethene	U	2.2	ug/Kgdrywt	1	5	4.3	0.61	2.2
Chloroform	U	2.2	ug/Kgdrywt	1	5	4.3	0.30	2.2
1,2-Dichloroethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.86	2.2
2-Butanone	U	11	ug/Kgdrywt	1	25	22.	5.1	11.
1,1,1-Trichloroethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.36	2.2
Carbon Tetrachloride	U	2.2	ug/Kgdrywt	1	5	4.3	1.1	2.2
Bromodichloromethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.52	2.2
1,2-Dichloropropane	U	2.2	ug/Kgdrywt	1	5	4.3	1.2	2.2
cis-1,3-Dichloropropene	U	2.2	ug/Kgdrywt	1	5	4.3	0.62	2.2
Trichloroethene	U	2.2	ug/Kgdrywt	1	5	4.3	0.51	2.2
Dibromochloromethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.86	2.2
1,1,2-Trichloroethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.83	2.2
Benzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.79	2.2
trans-1,3-Dichloropropene	U	2.2	ug/Kgdrywt	1	5	4.3	0.74	2.2
Bromoform	U	2.2	ug/Kgdrywt	1	5	4.3	0.60	2.2
4-Methyl-2-Pentanone	U	11	ug/Kgdrywt	1	25	22.	5.1	11.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2RA
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: T8552.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 80.
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
2-Hexanone	U	11	ug/Kgdrywt	1	25	22.	4.1	11.
Tetrachloroethene	U	2.2	ug/Kgdrywt	1	5	4.3	1.0	2.2
1,1,2,2-Tetrachloroethane	U	2.2	ug/Kgdrywt	1	5	4.3	0.72	2.2
Toluene	U	2.2	ug/Kgdrywt	1	5	4.3	1.2	2.2
Chlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.44	2.2
Ethylbenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.56	2.2
Styrene	U	2.2	ug/Kgdrywt	1	5	4.3	0.44	2.2
m+p-Xylenes	U	4.3	ug/Kgdrywt	1	10	8.6	1.5	4.3
o-Xylene	U	2.2	ug/Kgdrywt	1	5	4.3	1.1	2.2
Xylenes (Total)	U	6.4	ug/Kgdrywt	1	15	13.	1.1	6.4
1,3-Dichlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.53	2.2
1,4-Dichlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.38	2.2
1,2-Dichlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.67	2.2
1,2-Dibromo-3-Chloropropane	U	2.2	ug/Kgdrywt	1	5	4.3	1.3	2.2
1,2,4-Trichlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.68	2.2
1,2,3-Trichlorobenzene	U	2.2	ug/Kgdrywt	1	5	4.3	0.65	2.2
Dibromofluoromethane	*	54.9	%					
1,2-Dichloroethane-d4	*	47.3	%					
Toluene-d8		102.	%					
P-Bromofluorobenzene		86.9	%					

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-3
Client ID: TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: T8537.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 100
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dichlorodifluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.92	5.0
Trichlorofluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.91	5.0
Freon-113	U	2.5	ug/Kgdrywt	1	5	5.0	0.90	2.5
Methyl Acetate	U	3.0	ug/Kgdrywt	1	5	5.0	2.7	3.0
Methyl tert-butyl Ether	U	2.5	ug/Kgdrywt	1	5	5.0	1.1	2.5
Cyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Methylcyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	0.96	2.5
1,2-Dibromoethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
Isopropylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
Chloromethane	U	5.0	ug/Kgdrywt	1	10	10.	1.4	5.0
Bromomethane	U	5.0	ug/Kgdrywt	1	10	10.	1.1	5.0
Vinyl Chloride	U	5.0	ug/Kgdrywt	1	10	10.	0.87	5.0
Chloroethane	U	5.0	ug/Kgdrywt	1	10	10.	1.3	5.0
Methylene Chloride	U	12	ug/Kgdrywt	1	25	25.	7.9	12.
Acetone	J	12	ug/Kgdrywt	1	25	25.	5.1	12.
Carbon Disulfide	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,1-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.93	2.5
1,1-Dichloroethane	UL	2.5	ug/Kgdrywt	1	5	5.0	1.7	2.5
cis-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.91	2.5
trans-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.71	2.5
Chloroform	U	2.5	ug/Kgdrywt	1	5	5.0	0.35	2.5
1,2-Dichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
2-Butanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.
1,1,1-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.42	2.5
Carbon Tetrachloride	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Bromodichloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.60	2.5
1,2-Dichloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
cis-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.72	2.5
Trichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.59	2.5
Dibromochloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.97	2.5
Benzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
trans-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.86	2.5
Bromoform	U	2.5	ug/Kgdrywt	1	5	5.0	0.70	2.5
4-Methyl-2-Pentanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-3
Client ID: TRIP BLANK
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: T8537.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: 100
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
2-Hexanone	U	12	ug/Kgdrywt	1	25	25.	4.8	12.
Tetrachloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.84	2.5
Toluene	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Chlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
Ethylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.65	2.5
Styrene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
m+p-Xylenes	U	5.0	ug/Kgdrywt	1	10	10.	1.7	5.0
o-Xylene	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Xylenes (Total)	U	7.5	ug/Kgdrywt	1	15	15.	1.3	7.5
1,3-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.62	2.5
1,4-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.44	2.5
1,2-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,2-Dibromo-3-Chloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.5	2.5
1,2,4-Trichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.79	2.5
1,2,3-Trichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.76	2.5
Dibromofluoromethane		104.	%					
1,2-Dichloroethane-d4		102.	%					
Toluene-d8		104.	%					
P-Bromofluorobenzene		99.3	%					

Form 4
Method Blank Summary

Lab Name : Katahdin Analytical Services **SDG :** SG5569
Project : Navy Clean WE15 NWIRP Bethpage, NY **Lab Sample ID :** WG128428-2
Lab File ID : T8532.D **Date Analyzed :** 08-AUG-13
Instrument ID : GCMS-T **Time Analyzed :** 11:06
Heated Purge : Yes

This Method Blank applies to the following samples, LCS, MS and MSD:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
Laboratory Control S	WG128428-1	T8531.D	08/08/13	10:18
TRIP BLANK	SG5569-3	T8537.D	08/08/13	14:39
IDW-S-073113	SG5569-2	T8538.D	08/08/13	15:20

Report of Analytical Results

Client:
Lab ID: WG128428-2
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: T8532.D

Sample Date:
Received Date:
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dichlorodifluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.92	5.0
Trichlorofluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.91	5.0
Freon-113	U	2.5	ug/Kgdrywt	1	5	5.0	0.90	2.5
Methyl Acetate	U	3.0	ug/Kgdrywt	1	5	5.0	2.7	3.0
Methyl tert-butyl Ether	U	2.5	ug/Kgdrywt	1	5	5.0	1.1	2.5
Cyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Methylcyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	0.96	2.5
1,2-Dibromoethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
Isopropylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
Chloromethane	U	5.0	ug/Kgdrywt	1	10	10.	1.4	5.0
Bromomethane	U	5.0	ug/Kgdrywt	1	10	10.	1.1	5.0
Vinyl Chloride	U	5.0	ug/Kgdrywt	1	10	10.	0.87	5.0
Chloroethane	U	5.0	ug/Kgdrywt	1	10	10.	1.3	5.0
Methylene Chloride	U	12	ug/Kgdrywt	1	25	25.	7.9	12.
Acetone	U	12	ug/Kgdrywt	1	25	25.	5.1	12.
Carbon Disulfide	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,1-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.93	2.5
1,1-Dichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.7	2.5
cis-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.91	2.5
trans-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.71	2.5
Chloroform	U	2.5	ug/Kgdrywt	1	5	5.0	0.35	2.5
1,2-Dichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
2-Butanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.
1,1,1-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.42	2.5
Carbon Tetrachloride	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Bromodichloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.60	2.5
1,2-Dichloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
cis-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.72	2.5
Trichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.59	2.5
Dibromochloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.97	2.5
Benzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
trans-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.86	2.5
Bromoform	U	2.5	ug/Kgdrywt	1	5	5.0	0.70	2.5

Report of Analytical Results

Client:
Lab ID: WG128428-2
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: T8532.D

Sample Date:
Received Date:
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
4-Methyl-2-Pentanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.
2-Hexanone	U	12	ug/Kgdrywt	1	25	25.	4.8	12.
Tetrachloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.84	2.5
Toluene	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Chlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
Ethylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.65	2.5
Styrene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
m+p-Xylenes	U	5.0	ug/Kgdrywt	1	10	10.	1.7	5.0
o-Xylene	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Xylenes (Total)	U	7.5	ug/Kgdrywt	1	15	15.	1.3	7.5
1,3-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.62	2.5
1,4-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.44	2.5
1,2-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,2-Dibromo-3-Chloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.5	2.5
1,2,4-Trichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.79	2.5
1,2,3-Trichlorobenzene	J	1.4	ug/Kgdrywt	1	5	5.0	0.76	2.5
Dibromofluoromethane		101.	%					
1,2-Dichloroethane-d4		97.6	%					
Toluene-d8		105.	%					
P-Bromofluorobenzene		97.6	%					

LCS Recovery Report

Client:
Lab ID: WG128428-1
Client ID: LCS
Project:
SDG: SG5569
LCS File ID: T8531.D

Sample Date:
Received Date:
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Recovery (%)	Conc Added	Conc Recovered	Conc Units	Limits
Dichlorodifluoromethane	95.6	50.0	47.8	ug/Kg	35-135
Trichlorofluoromethane	112.	50.0	56.0	ug/Kg	25-185
Freon-113	89.0	50.0	44.5	ug/Kg	67-135
Methyl Acetate	97.0	50.0	48.5	ug/Kg	72-133
Methyl tert-butyl Ether	104.	100.	104.	ug/Kg	81-125
Cyclohexane	112.	50.0	56.2	ug/Kg	75-128
Methylcyclohexane	106.	50.0	52.8	ug/Kg	71-127
1,2-Dibromoethane	103.	50.0	51.4	ug/Kg	70-125
Isopropylbenzene	121.	50.0	60.6	ug/Kg	75-130
Chloromethane	100.	50.0	50.2	ug/Kg	50-130
Bromomethane	112.	50.0	55.8	ug/Kg	30-160
Vinyl Chloride	107.	50.0	53.5	ug/Kg	60-125
Chloroethane	109.	50.0	54.5	ug/Kg	40-155
Methylene Chloride	117.	50.0	58.6	ug/Kg	55-140
Acetone	125.	50.0	62.6	ug/Kg	20-160
Carbon Disulfide	109.	50.0	54.3	ug/Kg	45-160
1,1-Dichloroethene	111.	50.0	55.5	ug/Kg	65-135
1,1-Dichloroethane	* 131.	50.0	65.6	ug/Kg	75-125
cis-1,2-Dichloroethene	110.	50.0	55.2	ug/Kg	65-125
trans-1,2-Dichloroethene	108.	50.0	54.0	ug/Kg	65-135
Chloroform	111.	50.0	55.4	ug/Kg	70-125
1,2-Dichloroethane	105.	50.0	52.4	ug/Kg	70-135
2-Butanone	106.	50.0	52.9	ug/Kg	30-160
1,1,1-Trichloroethane	110.	50.0	55.2	ug/Kg	70-135
Carbon Tetrachloride	112.	50.0	56.2	ug/Kg	65-135
Bromodichloromethane	111.	50.0	55.7	ug/Kg	70-130
1,2-Dichloropropane	107.	50.0	53.4	ug/Kg	70-120
cis-1,3-Dichloropropene	108.	50.0	54.0	ug/Kg	70-125
Trichloroethene	110.	50.0	55.0	ug/Kg	75-125
Dibromochloromethane	110.	50.0	55.1	ug/Kg	65-130
1,1,2-Trichloroethane	105.	50.0	52.5	ug/Kg	60-125
Benzene	107.	50.0	53.3	ug/Kg	75-125
trans-1,3-Dichloropropene	111.	50.0	55.3	ug/Kg	65-125
Bromoform	108.	50.0	54.2	ug/Kg	55-135
4-Methyl-2-Pentanone	101.	50.0	50.4	ug/Kg	45-145

LCS Recovery Report

Client:
Lab ID: WG128428-1
Client ID: LCS
Project:
SDG: SG5569
LCS File ID: T8531.D

Sample Date:
Received Date:
Extract Date: 08-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128428

Analysis Date: 08-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Recovery (%)	Conc Added	Conc Recovered	Conc Units	Limits
2-Hexanone	97.2	50.0	48.6	ug/Kg	45-145
Tetrachloroethene	99.4	50.0	49.7	ug/Kg	65-140
1,1,2,2-Tetrachloroethane	108.	50.0	53.8	ug/Kg	55-130
Toluene	103.	50.0	51.5	ug/Kg	70-125
Chlorobenzene	112.	50.0	56.0	ug/Kg	75-125
Ethylbenzene	105.	50.0	52.3	ug/Kg	75-125
Styrene	107.	50.0	53.7	ug/Kg	75-125
m+p-Xylenes	110.	100.	110.	ug/Kg	80-125
o-Xylene	115.	50.0	57.3	ug/Kg	75-125
Xylenes (Total)	112.	150.	168.	ug/Kg	81-114
1,3-Dichlorobenzene	113.	50.0	56.3	ug/Kg	70-125
1,4-Dichlorobenzene	104.	50.0	51.9	ug/Kg	70-125
1,2-Dichlorobenzene	110.	50.0	55.1	ug/Kg	75-120
1,2-Dibromo-3-Chloropropane	114.	50.0	57.0	ug/Kg	40-135
1,2,4-Trichlorobenzene	95.2	50.0	47.6	ug/Kg	65-130
1,2,3-Trichlorobenzene	91.6	50.0	45.8	ug/Kg	60-135
Dibromofluoromethane	104.				64-130
1,2-Dichloroethane-d4	105.				58-134
Toluene-d8	101.				85-115
P-Bromofluorobenzene	98.2				85-120

Form 4
Method Blank Summary

Lab Name : Katahdin Analytical Services **SDG :** SG5569
Project : Navy Clean WE15 NWIRP Bethpage, NY **Lab Sample ID :** WG128500-2
Lab File ID : T8551.D **Date Analyzed :** 09-AUG-13
Instrument ID : GCMS-T **Time Analyzed :** 11:11
Heated Purge : Yes

This Method Blank applies to the following samples, LCS, MS and MSD:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
Laboratory Control S	WG128500-1	T8549.D	08/09/13	09:43
IDW-S-073113	SG5569-2RA	T8552.D	08/09/13	11:52

Report of Analytical Results

Client:
Lab ID: WG128500-2
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: T8551.D

Sample Date:
Received Date:
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dichlorodifluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.92	5.0
Trichlorofluoromethane	U	5.0	ug/Kgdrywt	1	10	10.	0.91	5.0
Freon-113	U	2.5	ug/Kgdrywt	1	5	5.0	0.90	2.5
Methyl Acetate	U	3.0	ug/Kgdrywt	1	5	5.0	2.7	3.0
Methyl tert-butyl Ether	U	2.5	ug/Kgdrywt	1	5	5.0	1.1	2.5
Cyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Methylcyclohexane	U	2.5	ug/Kgdrywt	1	5	5.0	0.96	2.5
1,2-Dibromoethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
Isopropylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
Chloromethane	U	5.0	ug/Kgdrywt	1	10	10.	1.4	5.0
Bromomethane	U	5.0	ug/Kgdrywt	1	10	10.	1.1	5.0
Vinyl Chloride	U	5.0	ug/Kgdrywt	1	10	10.	0.87	5.0
Chloroethane	U	5.0	ug/Kgdrywt	1	10	10.	1.3	5.0
Methylene Chloride	U	12	ug/Kgdrywt	1	25	25.	7.9	12.
Acetone	U	12	ug/Kgdrywt	1	25	25.	5.1	12.
Carbon Disulfide	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,1-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.93	2.5
1,1-Dichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.7	2.5
cis-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.91	2.5
trans-1,2-Dichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.71	2.5
Chloroform	U	2.5	ug/Kgdrywt	1	5	5.0	0.35	2.5
1,2-Dichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
2-Butanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.
1,1,1-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.42	2.5
Carbon Tetrachloride	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Bromodichloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.60	2.5
1,2-Dichloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
cis-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.72	2.5
Trichloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	0.59	2.5
Dibromochloromethane	U	2.5	ug/Kgdrywt	1	5	5.0	1.0	2.5
1,1,2-Trichloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.97	2.5
Benzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.92	2.5
trans-1,3-Dichloropropene	U	2.5	ug/Kgdrywt	1	5	5.0	0.86	2.5
Bromoform	U	2.5	ug/Kgdrywt	1	5	5.0	0.70	2.5

Report of Analytical Results

Client:
Lab ID: WG128500-2
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: T8551.D

Sample Date:
Received Date:
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
4-Methyl-2-Pentanone	U	12	ug/Kgdrywt	1	25	25.	5.9	12.
2-Hexanone	U	12	ug/Kgdrywt	1	25	25.	4.8	12.
Tetrachloroethene	U	2.5	ug/Kgdrywt	1	5	5.0	1.2	2.5
1,1,2,2-Tetrachloroethane	U	2.5	ug/Kgdrywt	1	5	5.0	0.84	2.5
Toluene	U	2.5	ug/Kgdrywt	1	5	5.0	1.4	2.5
Chlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
Ethylbenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.65	2.5
Styrene	U	2.5	ug/Kgdrywt	1	5	5.0	0.51	2.5
m+p-Xylenes	U	5.0	ug/Kgdrywt	1	10	10.	1.7	5.0
o-Xylene	U	2.5	ug/Kgdrywt	1	5	5.0	1.3	2.5
Xylenes (Total)	U	7.5	ug/Kgdrywt	1	15	15.	1.3	7.5
1,3-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.62	2.5
1,4-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.44	2.5
1,2-Dichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.78	2.5
1,2-Dibromo-3-Chloropropane	U	2.5	ug/Kgdrywt	1	5	5.0	1.5	2.5
1,2,4-Trichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.79	2.5
1,2,3-Trichlorobenzene	U	2.5	ug/Kgdrywt	1	5	5.0	0.76	2.5
Dibromofluoromethane		108.	%					
1,2-Dichloroethane-d4		102.	%					
Toluene-d8		107.	%					
P-Bromofluorobenzene		100.	%					

LCS Recovery Report

Client:
Lab ID: WG128500-1
Client ID: LCS
Project:
SDG: SG5569
LCS File ID: T8549.D

Sample Date:
Received Date:
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Recovery (%)	Conc Added	Conc Recovered	Conc Units	Limits
Dichlorodifluoromethane	105.	50.0	52.3	ug/Kg	35-135
Trichlorofluoromethane	121.	50.0	60.7	ug/Kg	25-185
Freon-113	96.0	50.0	48.0	ug/Kg	67-135
Methyl Acetate	101.	50.0	50.6	ug/Kg	72-133
Methyl tert-butyl Ether	105.	100.	105.	ug/Kg	81-125
Cyclohexane	117.	50.0	58.4	ug/Kg	75-128
Methylcyclohexane	102.	50.0	51.1	ug/Kg	71-127
1,2-Dibromoethane	101.	50.0	50.6	ug/Kg	70-125
Isopropylbenzene	120.	50.0	60.1	ug/Kg	75-130
Chloromethane	110.	50.0	55.0	ug/Kg	50-130
Bromomethane	125.	50.0	62.7	ug/Kg	30-160
Vinyl Chloride	119.	50.0	59.4	ug/Kg	60-125
Chloroethane	118.	50.0	59.2	ug/Kg	40-155
Methylene Chloride	131.	50.0	65.4	ug/Kg	55-140
Acetone	130.	50.0	65.0	ug/Kg	20-160
Carbon Disulfide	120.	50.0	59.9	ug/Kg	45-160
1,1-Dichloroethene	122.	50.0	61.2	ug/Kg	65-135
1,1-Dichloroethane	116.	50.0	57.9	ug/Kg	75-125
cis-1,2-Dichloroethene	116.	50.0	57.8	ug/Kg	65-125
trans-1,2-Dichloroethene	116.	50.0	57.9	ug/Kg	65-135
Chloroform	116.	50.0	57.9	ug/Kg	70-125
1,2-Dichloroethane	108.	50.0	54.0	ug/Kg	70-135
2-Butanone	108.	50.0	53.9	ug/Kg	30-160
1,1,1-Trichloroethane	112.	50.0	56.1	ug/Kg	70-135
Carbon Tetrachloride	114.	50.0	57.1	ug/Kg	65-135
Bromodichloromethane	112.	50.0	55.9	ug/Kg	70-130
1,2-Dichloropropane	106.	50.0	52.9	ug/Kg	70-120
cis-1,3-Dichloropropene	107.	50.0	53.6	ug/Kg	70-125
Trichloroethene	104.	50.0	52.1	ug/Kg	75-125
Dibromochloromethane	110.	50.0	55.1	ug/Kg	65-130
1,1,2-Trichloroethane	105.	50.0	52.3	ug/Kg	60-125
Benzene	104.	50.0	51.9	ug/Kg	75-125
trans-1,3-Dichloropropene	111.	50.0	55.4	ug/Kg	65-125
Bromoform	106.	50.0	52.8	ug/Kg	55-135
4-Methyl-2-Pentanone	98.6	50.0	49.3	ug/Kg	45-145

LCS Recovery Report

Client:
Lab ID: WG128500-1
Client ID: LCS
Project:
SDG: SG5569
LCS File ID: T8549.D

Sample Date:
Received Date:
Extract Date: 09-AUG-13
Extracted By: REC
Extraction Method: SW846 5035
Lab Prep Batch: WG128500

Analysis Date: 09-AUG-13
Analyst: REC
Analysis Method: SW846 8260B
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Recovery (%)	Conc Added	Conc Recovered	Conc Units	Limits
2-Hexanone	101.	50.0	50.4	ug/Kg	45-145
Tetrachloroethene	93.0	50.0	46.5	ug/Kg	65-140
1,1,2,2-Tetrachloroethane	108.	50.0	54.1	ug/Kg	55-130
Toluene	103.	50.0	51.6	ug/Kg	70-125
Chlorobenzene	110.	50.0	54.8	ug/Kg	75-125
Ethylbenzene	103.	50.0	51.7	ug/Kg	75-125
Styrene	108.	50.0	54.1	ug/Kg	75-125
m+p-Xylenes	108.	100.	108.	ug/Kg	80-125
o-Xylene	113.	50.0	56.7	ug/Kg	75-125
Xylenes (Total)	110.	150.	165.	ug/Kg	81-114
1,3-Dichlorobenzene	114.	50.0	57.2	ug/Kg	70-125
1,4-Dichlorobenzene	103.	50.0	51.7	ug/Kg	70-125
1,2-Dichlorobenzene	110.	50.0	55.0	ug/Kg	75-120
1,2-Dibromo-3-Chloropropane	112.	50.0	56.2	ug/Kg	40-135
1,2,4-Trichlorobenzene	94.6	50.0	47.3	ug/Kg	65-130
1,2,3-Trichlorobenzene	90.8	50.0	45.4	ug/Kg	60-135
Dibromofluoromethane	109.				64-130
1,2-Dichloroethane-d4	106.				58-134
Toluene-d8	100.				85-115
P-Bromofluorobenzene	100.				85-120

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: N9382.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 80.
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Phenol	U	280	ug/Kgdrywt	1	330	380	180	280
Bis(2-Chloroethyl)Ether	U	280	ug/Kgdrywt	1	330	380	92.	280
2-Chlorophenol	U	280	ug/Kgdrywt	1	330	380	190	280
1,3-Dichlorobenzene	U	280	ug/Kgdrywt	1	330	380	89.	280
1,4-Dichlorobenzene	U	280	ug/Kgdrywt	1	330	380	98.	280
1,2-Dichlorobenzene	U	280	ug/Kgdrywt	1	330	380	100	280
2-Methylphenol	U	280	ug/Kgdrywt	1	330	380	230	280
2,2'-Oxybis(1-Chloropropane)	U	280	ug/Kgdrywt	1	330	380	100	280
3&4-Methylphenol	U	280	ug/Kgdrywt	1	330	380	210	280
N-Nitroso-Di-N-Propylamine	U	280	ug/Kgdrywt	1	330	380	95.	280
Hexachloroethane	U	280	ug/Kgdrywt	1	330	380	110	280
Nitrobenzene	U	280	ug/Kgdrywt	1	330	380	100	280
Isophorone	U	280	ug/Kgdrywt	1	330	380	86.	280
2-Nitrophenol	U	280	ug/Kgdrywt	1	330	380	190	280
2,4-Dimethylphenol	U	280	ug/Kgdrywt	1	330	380	190	280
Bis(2-Chloroethoxy)Methane	U	280	ug/Kgdrywt	1	330	380	110	280
2,4-Dichlorophenol	U	280	ug/Kgdrywt	1	330	380	170	280
1,2,4-Trichlorobenzene	U	280	ug/Kgdrywt	1	330	380	92.	280
Naphthalene	U	280	ug/Kgdrywt	1	330	380	99.	280
4-Chloroaniline	U	280	ug/Kgdrywt	1	330	380	140	280
Hexachlorobutadiene	U	280	ug/Kgdrywt	1	330	380	95.	280
4-Chloro-3-Methylphenol	U	280	ug/Kgdrywt	1	330	380	190	280
2-Methylnaphthalene	U	280	ug/Kgdrywt	1	330	380	100	280
Hexachlorocyclopentadiene	U	280	ug/Kgdrywt	1	330	380	94.	280
2,4,6-Trichlorophenol	U	280	ug/Kgdrywt	1	330	380	180	280
2,4,5-Trichlorophenol	U	700	ug/Kgdrywt	1	820	940	180	700
2-Chloronaphthalene	U	280	ug/Kgdrywt	1	330	380	99.	280
2-Nitroaniline	U	700	ug/Kgdrywt	1	820	940	86.	700
Dimethyl Phthalate	U	280	ug/Kgdrywt	1	330	380	89.	280
Acenaphthylene	U	280	ug/Kgdrywt	1	330	380	80.	280
2,6-Dinitrotoluene	U	280	ug/Kgdrywt	1	330	380	90.	280
3-Nitroaniline	U	700	ug/Kgdrywt	1	820	940	110	700
Acenaphthene	U	280	ug/Kgdrywt	1	330	380	74.	280
2,4-Dinitrophenol	U	700	ug/Kgdrywt	1	820	940	430	700
4-Nitrophenol	U	700	ug/Kgdrywt	1	820	940	350	700

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: N9382.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: 80.
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Dibenzofuran	U	280	ug/Kgdrywt	1	330	380	90.	280
2,4-Dinitrotoluene	U	280	ug/Kgdrywt	1	330	380	97.	280
Diethylphthalate	U	280	ug/Kgdrywt	1	330	380	91.	280
4-Chlorophenyl-Phenylether	U	280	ug/Kgdrywt	1	330	380	89.	280
Fluorene	U	280	ug/Kgdrywt	1	330	380	92.	280
4-Nitroaniline	U	700	ug/Kgdrywt	1	820	940	150	700
4,6-Dinitro-2-Methylphenol	U	700	ug/Kgdrywt	1	820	940	380	700
N-Nitrosodiphenylamine	U	280	ug/Kgdrywt	1	330	380	250	280
4-Bromophenyl-Phenylether	U	280	ug/Kgdrywt	1	330	380	97.	280
Hexachlorobenzene	U	280	ug/Kgdrywt	1	330	380	94.	280
Pentachlorophenol	U	700	ug/Kgdrywt	1	820	940	270	700
Phenanthrene	U	280	ug/Kgdrywt	1	330	380	95.	280
Anthracene	U	280	ug/Kgdrywt	1	330	380	96.	280
Carbazole	U	280	ug/Kgdrywt	1	330	380	130	280
Di-N-Butylphthalate	U	280	ug/Kgdrywt	1	330	380	120	280
Fluoranthene	U	280	ug/Kgdrywt	1	330	380	120	280
Pyrene	U	280	ug/Kgdrywt	1	330	380	120	280
Butylbenzylphthalate	U	280	ug/Kgdrywt	1	330	380	110	280
3,3'-Dichlorobenzidene	U	280	ug/Kgdrywt	1	330	380	130	280
Benzo(a)anthracene	U	280	ug/Kgdrywt	1	330	380	98.	280
Chrysene	U	280	ug/Kgdrywt	1	330	380	110	280
Bis(2-Ethylhexyl)Phthalate	JB	210	ug/Kgdrywt	1	330	380	110	280
Di-N-Octylphthalate	U	280	ug/Kgdrywt	1	330	380	240	280
Benzo(b)fluoranthene	U	280	ug/Kgdrywt	1	330	380	150	280
Benzo(k)fluoranthene	U	280	ug/Kgdrywt	1	330	380	95.	280
Benzo(a)pyrene	U	280	ug/Kgdrywt	1	330	380	110	280
Indeno(1,2,3-cd)pyrene	U	280	ug/Kgdrywt	1	330	380	140	280
Dibenzo(a,h)anthracene	U	280	ug/Kgdrywt	1	330	380	150	280
Benzo(g,h,i)perylene	U	280	ug/Kgdrywt	1	330	380	120	280
2-Fluorophenol		58.9						
Phenol-d6		66.0						
Nitrobenzene-d5		56.3						
2-Fluorobiphenyl		69.5						
2,4,6-Tribromophenol		56.8						
Terphenyl-d14		88.9						

Method Blank Summary

Lab Name : Katahdin Analytical Services **SDG :** SG5569
Project : Navy Clean WE15 NWIRP Bethpage, NY **Lab Sample ID :** WG128217-1
Lab File ID : N9376.D **Date Extracted :** 05-AUG-13
Instrument ID : GCMS-N **Date Analyzed :** 07-AUG-13
Matrix : SL **Time Analyzed :** 11:36

This Method Blank applies to the following samples, LCS, MS and MSD:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
Laboratory Control S	WG128217-2	N9377.D	08/07/13	12:19
Laboratory Control S	WG128217-3	N9378.D	08/07/13	13:02
IDW-S-073113	SG5569-2	N9382.D	08/07/13	15:54

Report of Analytical Results

Client:
Lab ID: WG128217-1
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: N9376.D

Sample Date:
Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Phenol	U	250	ug/Kgdrywt	1	330	330	160	250
Bis(2-Chloroethyl)Ether	U	250	ug/Kgdrywt	1	330	330	81.	250
2-Chlorophenol	U	250	ug/Kgdrywt	1	330	330	160	250
1,3-Dichlorobenzene	U	250	ug/Kgdrywt	1	330	330	78.	250
1,4-Dichlorobenzene	U	250	ug/Kgdrywt	1	330	330	86.	250
1,2-Dichlorobenzene	U	250	ug/Kgdrywt	1	330	330	88.	250
2-Methylphenol	U	250	ug/Kgdrywt	1	330	330	200	250
2,2'-Oxybis(1-Chloropropane)	U	250	ug/Kgdrywt	1	330	330	89.	250
3&4-Methylphenol	U	250	ug/Kgdrywt	1	330	330	190	250
N-Nitroso-Di-N-Propylamine	U	250	ug/Kgdrywt	1	330	330	83.	250
Hexachloroethane	U	250	ug/Kgdrywt	1	330	330	96.	250
Nitrobenzene	U	250	ug/Kgdrywt	1	330	330	91.	250
Isophorone	U	250	ug/Kgdrywt	1	330	330	75.	250
2-Nitrophenol	U	250	ug/Kgdrywt	1	330	330	170	250
2,4-Dimethylphenol	U	250	ug/Kgdrywt	1	330	330	160	250
Bis(2-Chloroethoxy)Methane	U	250	ug/Kgdrywt	1	330	330	96.	250
2,4-Dichlorophenol	U	250	ug/Kgdrywt	1	330	330	150	250
1,2,4-Trichlorobenzene	U	250	ug/Kgdrywt	1	330	330	81.	250
Naphthalene	U	250	ug/Kgdrywt	1	330	330	87.	250
4-Chloroaniline	U	250	ug/Kgdrywt	1	330	330	120	250
Hexachlorobutadiene	U	250	ug/Kgdrywt	1	330	330	83.	250
4-Chloro-3-Methylphenol	U	250	ug/Kgdrywt	1	330	330	170	250
2-Methylnaphthalene	U	250	ug/Kgdrywt	1	330	330	92.	250
Hexachlorocyclopentadiene	U	250	ug/Kgdrywt	1	330	330	82.	250
2,4,6-Trichlorophenol	U	250	ug/Kgdrywt	1	330	330	160	250
2,4,5-Trichlorophenol	U	620	ug/Kgdrywt	1	820	820	160	620
2-Chloronaphthalene	U	250	ug/Kgdrywt	1	330	330	87.	250
2-Nitroaniline	U	620	ug/Kgdrywt	1	820	820	75.	620
Dimethyl Phthalate	U	250	ug/Kgdrywt	1	330	330	78.	250
Acenaphthylene	U	250	ug/Kgdrywt	1	330	330	70.	250
2,6-Dinitrotoluene	U	250	ug/Kgdrywt	1	330	330	79.	250
3-Nitroaniline	U	620	ug/Kgdrywt	1	820	820	94.	620
Acenaphthene	U	250	ug/Kgdrywt	1	330	330	65.	250
2,4-Dinitrophenol	U	620	ug/Kgdrywt	1	820	820	380	620

Report of Analytical Results

Client:
Lab ID: WG128217-1
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: N9376.D

Sample Date:
Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
4-Nitrophenol	U	620	ug/Kgdrywt	1	820	820	310	620
Dibenzofuran	U	250	ug/Kgdrywt	1	330	330	79.	250
2,4-Dinitrotoluene	U	250	ug/Kgdrywt	1	330	330	85.	250
Diethylphthalate	U	250	ug/Kgdrywt	1	330	330	80.	250
4-Chlorophenyl-Phenylether	U	250	ug/Kgdrywt	1	330	330	78.	250
Fluorene	U	250	ug/Kgdrywt	1	330	330	81.	250
4-Nitroaniline	U	620	ug/Kgdrywt	1	820	820	130	620
4,6-Dinitro-2-Methylphenol	U	620	ug/Kgdrywt	1	820	820	340	620
N-Nitrosodiphenylamine	U	250	ug/Kgdrywt	1	330	330	220	250
4-Bromophenyl-Phenylether	U	250	ug/Kgdrywt	1	330	330	85.	250
Hexachlorobenzene	U	250	ug/Kgdrywt	1	330	330	82.	250
Pentachlorophenol	U	620	ug/Kgdrywt	1	820	820	240	620
Phenanthrene	U	250	ug/Kgdrywt	1	330	330	83.	250
Anthracene	U	250	ug/Kgdrywt	1	330	330	84.	250
Carbazole	U	250	ug/Kgdrywt	1	330	330	110	250
Di-N-Butylphthalate	U	250	ug/Kgdrywt	1	330	330	100	250
Fluoranthene	U	250	ug/Kgdrywt	1	330	330	110	250
Pyrene	U	250	ug/Kgdrywt	1	330	330	100	250
Butylbenzylphthalate	U	250	ug/Kgdrywt	1	330	330	93.	250
3,3'-Dichlorobenzidene	U	250	ug/Kgdrywt	1	330	330	110	250
Benzo(a)anthracene	U	250	ug/Kgdrywt	1	330	330	86.	250
Chrysene	U	250	ug/Kgdrywt	1	330	330	95.	250
Bis(2-Ethylhexyl)Phthalate	J	190	ug/Kgdrywt	1	330	330	98.	250
Di-N-Octylphthalate	U	250	ug/Kgdrywt	1	330	330	210	250
Benzo(b)fluoranthene	U	250	ug/Kgdrywt	1	330	330	130	250
Benzo(k)fluoranthene	U	250	ug/Kgdrywt	1	330	330	83.	250
Benzo(a)pyrene	U	250	ug/Kgdrywt	1	330	330	93.	250
Indeno(1,2,3-cd)pyrene	U	250	ug/Kgdrywt	1	330	330	120	250
Dibenzo(a,h)anthracene	U	250	ug/Kgdrywt	1	330	330	130	250
Benzo(g,h,i)perylene	U	250	ug/Kgdrywt	1	330	330	100	250
2-Fluorophenol		49.4						
Phenol-d6		52.0						
Nitrobenzene-d5		48.9						
2-Fluorobiphenyl		56.8						

Report of Analytical Results

Client:
Lab ID: WG128217-1
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: N9376.D

Sample Date:
Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
2,4,6-Tribromophenol		46.5						
Terphenyl-d14		75.7						

LCS/LCSD Recovery Report

LCS ID: WG128217-2
LCSD ID: WG128217-3
Project:
SDG: SG5569
Report Date: 09-AUG-13
LCS File ID: N9377.D

Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217
LCSD File ID: N9378.D

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA

Compound	Spike Amt	LCS Conc	LCS Rec (%)	LCSD Conc	LCSD Rec (%)	Conc Units	RPD (%)	RPD Limit	Limits
Phenol	3330	2130	64.0	2560	76.9	ug/Kgdrywt	18	50	40-100
Bis(2-Chloroethyl)Ether	1670	957.	57.3	1150	68.9	ug/Kgdrywt	18	50	40-105
2-Chlorophenol	3330	2100	63.1	2470	74.2	ug/Kgdrywt	16	50	45-105
1,3-Dichlorobenzene	1670	1040	62.3	1210	72.4	ug/Kgdrywt	15	50	40-100
1,4-Dichlorobenzene	1670	1060	63.5	1250	74.8	ug/Kgdrywt	16	50	35-105
1,2-Dichlorobenzene	1670	1080	64.7	1250	74.8	ug/Kgdrywt	14	50	45-100
2-Methylphenol	3330	2090	62.8	2500	75.1	ug/Kgdrywt	18	50	40-105
2,2'-Oxybis(1-Chloropropane)	1670	639.	38.3	762.	45.6	ug/Kgdrywt	18	50	20-115
3&4-Methylphenol	3330	2120	63.7	2580	77.5	ug/Kgdrywt	20	50	40-105
N-Nitroso-Di-N-Propylamine	1670	1030	61.7	1240	74.2	ug/Kgdrywt	18	50	40-115
Hexachloroethane	1670	982.	58.8	1170	70.0	ug/Kgdrywt	17	50	35-110
Nitrobenzene	1670	1050	62.9	1240	74.2	ug/Kgdrywt	16	50	40-115
Isophorone	1670	1110	66.5	1310	78.4	ug/Kgdrywt	16	50	45-110
2-Nitrophenol	3330	2140	64.3	2530	76.0	ug/Kgdrywt	17	50	40-110
2,4-Dimethylphenol	3330	2070	62.2	2390	71.8	ug/Kgdrywt	14	50	30-105
Bis(2-Chloroethoxy)Methane	1670	997.	59.7	1160	69.5	ug/Kgdrywt	15	50	45-110
2,4-Dichlorophenol	3330	2260	67.9	2710	81.4	ug/Kgdrywt	18	50	45-110
1,2,4-Trichlorobenzene	1670	1070	64.1	1240	74.2	ug/Kgdrywt	15	50	45-110
Naphthalene	1670	1180	70.6	1380	82.6	ug/Kgdrywt	16	50	40-105
4-Chloroaniline	1670	964.	57.7	1090	65.3	ug/Kgdrywt	12	50	10-100
Hexachlorobutadiene	1670	1050	62.9	1220	73.0	ug/Kgdrywt	15	50	40-115
4-Chloro-3-Methylphenol	3330	2710	81.4	3020	90.7	ug/Kgdrywt	11	50	45-115
2-Methylnaphthalene	1670	1250	74.8	1460	87.4	ug/Kgdrywt	15	50	45-105
Hexachlorocyclopentadiene	1670	542.	32.4	630.	37.7	ug/Kgdrywt	15	50	10-70
2,4,6-Trichlorophenol	3330	2510	75.4	2740	82.3	ug/Kgdrywt	9	50	45-110
2,4,5-Trichlorophenol	3330	2750	82.6	3040	91.3	ug/Kgdrywt	10	50	50-110
2-Chloronaphthalene	1670	838.	50.2	955.	57.2	ug/Kgdrywt	13	50	45-105
2-Nitroaniline	1670	1350	80.8	1530	91.6	ug/Kgdrywt	12	50	45-120
Dimethyl Phthalate	1670	1550	92.8	1660	99.4	ug/Kgdrywt	7	50	50-110
Acenaphthylene	1670	1270	76.0	1410	84.4	ug/Kgdrywt	10	50	45-105
2,6-Dinitrotoluene	1670	1570	94.0	1670	100.	ug/Kgdrywt	6	50	50-110
3-Nitroaniline	1670	1260	75.4	1320	79.0	ug/Kgdrywt	5	50	25-110
Acenaphthene	1670	1330	79.6	1460	87.4	ug/Kgdrywt	9	50	45-110
2,4-Dinitrophenol	3330	1690	50.8	1840	55.2	ug/Kgdrywt	8	50	15-130

LCS/LCSD Recovery Report

LCS ID: WG128217-2
LCSD ID: WG128217-3
Project:
SDG: SG5569
Report Date: 09-AUG-13
LCS File ID: N9377.D

Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217
LCSD File ID: N9378.D

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA

Compound	Spike Amt	LCS Conc	LCS Rec (%)	LCSD Conc	LCSD Rec (%)	Conc Units	RPD (%)	RPD Limit	Limits
4-Nitrophenol	3330	3400	102.	3590	108.	ug/Kgdrywt	5	50	15-140
Dibenzofuran	1670	1430	85.6	1540	92.2	ug/Kgdrywt	7	50	50-105
2,4-Dinitrotoluene	1670	1610	96.4	1740	104.	ug/Kgdrywt	8	50	50-115
Diethylphthalate	1670	1600	95.8	1710	102.	ug/Kgdrywt	7	50	50-115
4-Chlorophenyl-Phenylether	1670	1430	85.6	1530	91.6	ug/Kgdrywt	7	50	45-110
Fluorene	1670	1470	88.0	1580	94.6	ug/Kgdrywt	7	50	50-110
4-Nitroaniline	1670	1640	98.2	1720	103.	ug/Kgdrywt	5	50	35-115
4,6-Dinitro-2-Methylphenol	3330	2670	80.2	2900	87.1	ug/Kgdrywt	8	50	30-135
N-Nitrosodiphenylamine	1670	1260	75.4	1330	79.6	ug/Kgdrywt	5	50	50-115
4-Bromophenyl-Phenylether	1670	1410	84.4	1510	90.4	ug/Kgdrywt	7	50	45-115
Hexachlorobenzene	1670	1370	82.0	1470	88.0	ug/Kgdrywt	7	50	45-120
Pentachlorophenol	3330	2770	83.2	2930	88.0	ug/Kgdrywt	6	50	25-120
Phenanthrene	1670	1570	94.0	1660	99.4	ug/Kgdrywt	6	50	50-110
Anthracene	1670	1640	98.2	1740	104.	ug/Kgdrywt	6	50	55-105
Carbazole	1670	1680	100.	1750	105.	ug/Kgdrywt	4	50	45-115
Di-N-Butylphthalate	1670	1710	102.	1740	104.	ug/Kgdrywt	2	50	55-110
Fluoranthene	1670	1640	98.2	1680	100.	ug/Kgdrywt	2	50	55-115
Pyrene	1670	1630	97.6	1730	104.	ug/Kgdrywt	6	50	45-125
Butylbenzylphthalate	1670	1570	94.0	1630	97.6	ug/Kgdrywt	4	50	50-125
3,3'-Dichlorobenzidine	3330	2670	80.2	2680	80.5	ug/Kgdrywt	0	50	10-130
Benzo(a)anthracene	1670	1410	84.4	1480	88.6	ug/Kgdrywt	5	50	50-110
Chrysene	1670	1640	98.2	1700	102.	ug/Kgdrywt	4	50	55-110
Bis(2-Ethylhexyl)Phthalate	1670	1710	102.	1820	109.	ug/Kgdrywt	6	50	45-125
Di-N-Octylphthalate	1670	1640	98.2	1740	104.	ug/Kgdrywt	6	50	40-130
Benzo(b)fluoranthene	1670	1480	88.6	1580	94.6	ug/Kgdrywt	6	50	45-115
Benzo(k)fluoranthene	1670	1540	92.2	1620	97.0	ug/Kgdrywt	5	50	45-125
Benzo(a)pyrene	1670	1560	93.4	1660	99.4	ug/Kgdrywt	6	50	50-110
Indeno(1,2,3-cd)pyrene	1670	1480	88.6	1580	94.6	ug/Kgdrywt	6	50	40-120
Dibenzo(a,h)anthracene	1670	1560	93.4	1680	100.	ug/Kgdrywt	7	50	40-125
Benzo(g,h,i)perylene	1670	1360	81.4	1380	82.6	ug/Kgdrywt	1	50	40-125
2-Fluorophenol			60.2		71.7				35-105
Phenol-d6			60.6		72.9				40-100
Nitrobenzene-d5			60.3		72.8				35-100
2-Fluorobiphenyl			72.5		83.4				45-105

LCS/LCSD Recovery Report

LCS ID: WG128217-2
LCSD ID: WG128217-3
Project:
SDG: SG5569
Report Date: 09-AUG-13
LCS File ID: N9377.D

Received Date:
Extract Date: 05-AUG-13
Extracted By: KF
Extraction Method: SW846 3550
Lab Prep Batch: WG128217
LCSD File ID: N9378.D

Analysis Date: 07-AUG-13
Analyst: JCG
Analysis Method: SW846 8270D
Matrix: SL
% Solids: NA

2,4,6-Tribromophenol	74.4	81.8	35-125
Terphenyl-d14	98.3	105.	30-125

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDW-S-073113

Matrix: WATER

SDG Name: SG5569

Percent Solids: 0.00

Lab Sample ID: SG5569-001T

Concentration Units : ug/L

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		LOD
							LOQ	MDL	
7440-38-2	ARSENIC, TCLP	25	U		P	1	40	7.15	25
7440-39-3	BARIUM, TCLP	134			P	1	25	1.15	15
7440-43-9	CADMIUM, TCLP	0.97	J		P	1	25	0.25	15
7440-47-3	CHROMIUM, TCLP	3.4	J		P	1	50	1.80	20
7439-92-1	LEAD, TCLP	20	U		P	1	25	5.35	20
7439-97-6	MERCURY, TCLP	0.01	J		CV	1	0.20	0.01	0.10
7782-49-2	SELENIUM, TCLP	35	U		P	1	50	11.80	35
7440-22-4	SILVER, TCLP	20	U		P	1	50	1.35	20

Comments:

FORM I - IN

INORGANIC ANALYSIS DATA SHEET

Lab Name: Katahdin Analytical Services

Client Field ID: IDW-S-073113

Matrix: SOIL

SDG Name: SG5569

Percent Solids: 80.1

Lab Sample ID: SG5569-002

Concentration Units : mg/Kgdrywt

CAS No.	Analyte	Concentration	C	Q	M	DF	ADJUSTED		
							LOQ	MDL	LOD
7440-38-2	ARSENIC, TOTAL	3.2			P	1	0.86	0.07	0.54
7440-39-3	BARIUM, TOTAL	10.7			P	1	0.54	0.03	0.32
7440-41-7	BERYLLIUM, TOTAL	0.09	J		P	1	0.54	0.008	0.054
7440-43-9	CADMIUM, TOTAL	0.06	J		P	1	0.54	0.009	0.32
7440-47-3	CHROMIUM, TOTAL	10.2			P	1	1.1	0.03	0.43
7439-92-1	LEAD, TOTAL	4.2			P	1	0.54	0.09	0.43
7439-97-6	MERCURY, TOTAL	0.016	U		CV	1	0.032	0.005	0.016
7440-02-0	NICKEL, TOTAL	1.4			P	1	1.1	0.05	0.43
7782-49-2	SELENIUM, TOTAL	0.75	U		P	1	1.1	0.18	0.75
7440-22-4	SILVER, TOTAL	0.04	J		P	1	1.1	0.03	0.43

Comments:

FORM I - IN

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2RE
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: 7GH104.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 07-AUG-13
Extracted By: JH
Extraction Method: SW846 3540
Lab Prep Batch: WG128368

Analysis Date: 08-AUG-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: SL
% Solids: 80.
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	9.7	ug/Kgdrywt	1	17	19.	6.9	9.7
Aroclor-1221	U	9.7	ug/Kgdrywt	1	17	19.	9.0	9.7
Aroclor-1232	U	11.	ug/Kgdrywt	1	17	19.	11.	11.
Aroclor-1242	U	9.7	ug/Kgdrywt	1	17	19.	6.6	9.7
Aroclor-1248	U	9.7	ug/Kgdrywt	1	17	19.	7.0	9.7
Aroclor-1254	U	9.7	ug/Kgdrywt	1	17	19.	5.4	9.7
Aroclor-1260	U	9.7	ug/Kgdrywt	1	17	19.	6.9	9.7
Tetrachloro-M-Xylene	*	123.	%					
Decachlorobiphenyl	*	126.	%					

Form 4
Method Blank Summary

Lab Name : Katahdin Analytical Services	SDG : SG5569
Project : Navy Clean WE15 NWIRP Bethpage, NY	Lab Sample ID : WG128368-1
Lab File ID : 7GH101.D	Date Extracted : 07-AUG-13
Matrix : SL	Extraction Method : SW846 3540
Column A	Column B
Instrument ID : GC07	Instrument ID : GC07
Date Analyzed : 08-AUG-13	Date Analyzed : 08-AUG-13
Time Analyzed : 13:27	Time Analyzed : 13:27

This Method Blank applies to the following samples, LCS, MS and MSD:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
Laboratory Control S	WG128368-2	7GH102.D	08/08/13	14:01
Laboratory Control S	WG128368-3	7GH103.D	08/08/13	14:35
IDW-S-073113	SG5569-2RE	7GH104.D	08/08/13	15:10

Report of Analytical Results

Client:
Lab ID: WG128368-1
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: 7GH101.D

Sample Date:
Received Date:
Extract Date: 07-AUG-13
Extracted By: JH
Extraction Method: SW846 3540
Lab Prep Batch: WG128368

Analysis Date: 08-AUG-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: SL
% Solids: NA
Report Date: 09-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Aroclor-1016	U	8.5	ug/Kgdrywt	1	17	17.	6.0	8.5
Aroclor-1221	U	8.5	ug/Kgdrywt	1	17	17.	7.9	8.5
Aroclor-1232	U	10.	ug/Kgdrywt	1	17	17.	9.3	10.
Aroclor-1242	U	8.5	ug/Kgdrywt	1	17	17.	5.8	8.5
Aroclor-1248	U	8.5	ug/Kgdrywt	1	17	17.	6.1	8.5
Aroclor-1254	U	8.5	ug/Kgdrywt	1	17	17.	4.7	8.5
Aroclor-1260	U	8.5	ug/Kgdrywt	1	17	17.	6.0	8.5
Tetrachloro-M-Xylene		98.5	%					
Decachlorobiphenyl	*	130.	%					

LCS/LCSD Recovery Report

LCS ID: WG128368-2
LCSD ID: WG128368-3
Project:
SDG: SG5569
Report Date: 09-AUG-13
LCS File ID: 7GH102.D

Received Date:
Extract Date: 07-AUG-13
Extracted By: JH
Extraction Method: SW846 3540
Lab Prep Batch: WG128368
LCSD File ID: 7GH103.D

Analysis Date: 08-AUG-13
Analyst: JLP
Analysis Method: SW846 8082A
Matrix: SL
% Solids: NA

Compound	Spike Amt	LCS Conc	LCS Rec (%)	LCSD Conc	LCSD Rec (%)	Conc Units	RPD (%)	RPD Limit	Limits
Aroclor-1016	167.	209.	125.	171.	102.	ug/Kgdrywt	20	30	40-140
Aroclor-1260	167.	226.	135.*	183.	110.	ug/Kgdrywt	21	30	60-130
Tetrachloro-M-Xylene			86.2		86.5				56-115
Decachlorobiphenyl			126.*		105.				60-125

Report of Analytical Results

Client: AECOM Environment
Lab ID: SG5569-2
Client ID: IDW-S-073113
Project: Navy Clean WE15 NWIRP B
SDG: SG5569
Lab File ID: AGH20095.D

Sample Date: 31-JUL-13
Received Date: 01-AUG-13
Extract Date: 02-AUG-13
Extracted By: JH
Extraction Method: SW846 3550
Lab Prep Batch: WG128096

Analysis Date: 06-AUG-13
Analyst: AC
Analysis Method: SW846 M8015C
Matrix: SL
% Solids: 80.
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Extractable TPH C9-C36		41	mg/Kgdrywt	1	5	5.9	3.1	4.5
o-Terphenyl		86.2	%					

Report of Analytical Results

Client:
Lab ID: WG128096-1
Client ID: Method Blank Sample
Project:
SDG: SG5569
Lab File ID: AGH20073A.

Sample Date:
Received Date:
Extract Date: 02-AUG-13
Extracted By: JH
Extraction Method: SW846 3550
Lab Prep Batch: WG128096

Analysis Date: 05-AUG-13
Analyst: AC
Analysis Method: SW846 M8015C
Matrix: SL
% Solids: NA
Report Date: 12-AUG-13

Compound	Qualifier	Result	Units	Dilution	LOQ	ADJ LOQ	ADJ MDL	ADJ LOD
Extractable TPH C9-C36	U	3.8	mg/Kgdrywt	1	5	5.0	2.6	3.8
o-Terphenyl		95.6	%					

LCS/LCSD Recovery Report

LCS ID: WG128096-2
LCSD ID: WG128096-3
Project:
SDG: SG5569
Report Date: 12-AUG-13
LCS File ID: AGH20074A.

Received Date:
Extract Date: 02-AUG-13
Extracted By: JH
Extraction Method: SW846 3550
Lab Prep Batch: WG128096
LCSD File ID: AGH20075A.D

Analysis Date: 05-AUG-13
Analyst: AC
Analysis Method: SW846 M8015C
Matrix: SL
% Solids: NA

Compound	Spike Amt	LCS Conc	LCS Rec (%)	LCSD Conc	LCSD Rec (%)	Conc Units	RPD (%)	RPD Limit	Limits
Extractable TPH C9-C36	16.7	16.9	101.	15.7	94.0	mg/Kgdrywt	7	50	56-124
o-Terphenyl			102.*		100.				28-101

Report of Analytical Results

Client: Rick Purdy
AECOM
701 Edgewater Drive
Wakefield, MA 01880

Lab Sample ID: SG5569-2
Report Date: 12-AUG-13
Client PO: 60266526 ATS-3(WE15)
Project: Navy Clean WE15 NWIR
SDG: SG5569

Sample Description

IDW-S-073113

Matrix Date Sampled Date Received
SL 31-JUL-13 01-AUG-13

Parameter	Result	Adj LOQ	Adj MDL	Adj LOD	Anat. Method	QC.Batch	Anat. Date	Prep. Method	Prep. Date	Footnotes
Cyanide, Reactive	U0.80 mg/Kg	1.0	0.16	0.80	SW846 7.3.3	WG128392	07-AUG-13 14:38:24	SW846 7.3.4	06-AUG-13	
Ignitability	>71. Deg. C	71.	71.	N/A	SW846 1010	WG128252	05-AUG-13 10:05:00	N/A	N/A	
Point Filter Liquids Test	NFL			N/A	SW846 9095A	WG128625	12-AUG-13 08:55:00	N/A	N/A	
Sulfide, Reactive	U20 mg/Kg	27.	16.39	20	SW846 7.3.4	WG128283	06-AUG-13 10:00:00	SW846 7.3.4	N/A	
Total Solids	80. %	1	1	N/A	SM2540G	WG128212	06-AUG-13 07:25:51	SM2540G	05-AUG-13	
pH(Soil)	7.1 pH	0.10	0.10	N/A	SW846 9045C	WG128208	05-AUG-13 11:50:00	SW846 9045C	05-AUG-13	

Roll Off Manifests

PURE SOIL TECHNOLOGIES
655 S. HOPE CHAPEL RD
JACKSON N.J. 08527
732-657-8551

Date: 07/29/13 Ticket #: 177366
Time: 15:52 Plant: P1
*** Recycled ***

Customer: 0006418 Job: 1307030
AWT ENVIRONMENTAL SERVIC NWIRP- NAVAL WEAPONS IN
3220 BORDENTOWN PIKE 999 SOUTH OYSTER BAY RD
PARLIN, NJ 8859 BETHPAGE, NY 11714
(732) 613-1660

P.O.#:

Carrier: FCI
FCI Phase: 0
Truck: AG398G
License:

Zone:

Product: JR66 DEFAULT ZONE NAME
JR66 SOIL

JMF:
(Daily) Loads: 2 Amount: 37.83 Tn 34.32 Mg
(To-Date) Loads: 2 Amount: 37.83 Tn 34.32 Mg

Gross: 32.95*Tn 65900*lb 29.89*Mg
Tare: 15.21*Tn 30420*lb 13.80*Mg
Net: 17.74 Tn 35480 lb 16.09 Mg
* - Manual Weight

Received By: _____
Weighmaster: GUSTAVE PENKALSKI NJWMS#30306



FREEHOLD CARTAGE INC.

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(732) 462-1001 • FAX (732) 308-0924

658

BILL OF LADING

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S 429371

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS NWRP Naval Weapons 999 South Oseph Hwy Bethesda MD NY		PHONE (AREA CODE) 747		APPOINTMENT TIME	
FCI REP. LOADING (PRINT) X Reeler	PROCEDURE Remove	EQUIP. SPOTTED 9700	EQUIP. REMOVED	TIME AT SHIPPER 11:00	(MILITARY TIME ONLY) 11:30
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED	

BROKER:	MANIFEST / DOCUMENT NO.
PO#:	WO#: 971535

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	Soil				01	(w)	20	Y		
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE Michael Zobel / Environmental Scientist a. behalf of USNAVY	SHIPPER'S SIGNATURE X <i>Michael Zobel</i>	DATE LOADED 7/29/13
I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT.		MO. DAY YR.

CONSIGNEE NAME/ADDRESS Pure Soil Jackson NJ		PHONE (AREA CODE) 747		APPOINTMENT TIME	
FCI REP. UNLOADING (PRINT) X Reeler	PROCEDURE Demol	EQUIP. SPOTTED 9700	EQUIP. REMOVED	TIME AT CONSIGNEE 15:45	(MILITARY TIME ONLY) 16:15
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED	

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X	DATE UNLOADED 7/29/13
		MO. DAY YR.

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator

S 429371



P.O. Drawer 43
Farmingdale, NJ 07727
Phone: 732.308.1113 Fax: 732.462.9626

15954

NON-HAZARDOUS MATERIAL MANIFEST

You must return 4 copies of this manifest upon delivery.

GENERATOR

AGENT / CONSULTANT

Generator Name: NAVPAC NAVAL WEAPONS DIV RESER
Address: 990 SOUTH OYSTER BAY ROAD
City, State, Zip: BETHPAGE, NY 11714

Name: AWT ENVIRONMENTAL SERVICES INC
Contact Name: MARIO POSTORINO
Phone: 732-813-1660

Approval Number
1307030

Description of Material
Non Hazardous Petroleum Contaminated Soil

*** Must be Initialed By Authorized Agent.*

	SITE	**INITIALS
Time Arrive:	<u>10:55</u>	<u>CP</u>
Time Depart:	<u>11:25</u>	<u>CP</u>

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Lora B. FLY
Generator/Authorized Agent Name (Print)

[Signature]
Signature

7/29/13
Shipment Date

TRANSPORTER

Transporter Name: FCI
Address: PT. BARCLAY
City, State, Zip: 070000 Freehold NJ 07728

Driver Name (Print): H. Reem
Vehicle License No/State/EPA No: AG3986
Truck Number: 747

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

H. Reem
Driver Signature

7/29/13
Date

H. Reem
Driver Signature

7/29/13
Date

DESTINATION

Site Name: Pure Soil Technologies Inc. Phone: 732-657-8551
Address: 655 S. Hope Chapel Rd, Jackson, NJ 08527

Business hours are: Monday through Friday 7 AM to 5 PM; Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge, the foregoing is true and accurate.

Name of Authorized Agent

[Signature]
Signature

7/29/13
Receipt Date

Form: PST

TRANSPORTER COPY

PURE SOIL TECHNOLOGIES
655 S. HOPE CHAPEL RD
JACKSON N.J. 08527
732-657-8551

Date: 07/30/13 Ticket #: 177417
Time: 15:44 Plant: P1
*** Recycled ***

Customer: 0006418 Job: 1307030
AWT ENVIRONMENTAL SERVIC NWIRP- NAVAL WEAPONS IN
3220 BORDENTOWN PIKE 999 SOUTH OYSTER BAY RD
PARLIN, NJ 8859 BETHPAGE, NY 11714
(732) 613-1660

Carrier: FCI P.O.#:
FCI Phase: 0
Truck: AN197L
License:

Product: JR66 DEFAULT ZONE NAME

JR66 SOIL

JMF:

(Daily) Loads: 1 Amount: 15.92 Tn 14.44 Mg
(To-Date) Loads: 3 Amount: 53.75 Tn 48.76 Mg

Gross: 30.70*Tn 61400*lb 27.85*Mg
Tare: 14.78*Tn 29560*lb 13.41*Mg
Net: 15.92 Tn 31840 lb 14.44 Mg
* - Manual Weight

Received By: _____
Weighmaster: DARYL SIMMONS NJWMS#30600



FREEHOLD CARTAGE INC.

P.O. BOX 5010 • FREEHOLD, NJ 07728-5010
(732) 462-1001 • FAX (732) 308-0924

776

BILL OF LADING
FCI EPA ID NO. NJD054126164

S 429518

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS NWIRP-Naval Weapons IND. RES. 999 South Oyster Bay rd Bethpage, NY 11714		PHONE (AREA CODE) 732-613-1660 TRACTOR 705 TRAILER N/A		APPOINTMENT TIME	
FCI REP. LOADING (PRINT) Brian Pawcoast	PROCEDURE Removal	EQUIP. SPOTTED N/A	EQUIP. REMOVED 9607	TIME AT SHIPPER (MILITARY TIME ONLY) ARRIVAL TIME 11:15 DEPARTURE TIME 11:45	
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED	

BROKER:

PO#: WO#: 971536 MANIFEST / DOCUMENT NO. 11,965

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	Soil	N/A	N/A	N/A	1	cm	20	cy	N/A	5
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE Michael Zobe / Environmental Scientist on behalf of USNAVY	SHIPPER'S SIGNATURE X <i>[Signature]</i>	DATE LOADED 7/30/13 MO. DAY YR.
--	---	---------------------------------------

CONSIGNEE NAME/ADDRESS Pure Soil Technologies 655 S. Hope Chapel Rd Jackson, MS 39207		PHONE (AREA CODE) 732-657-8651 TRACTOR 705 TRAILER N/A		APPOINTMENT TIME	
FCI REP. UNLOADING (PRINT) Brian Pawcoast	PROCEDURE dump	EQUIP. SPOTTED 9607	EQUIP. REMOVED 9607	TIME AT CONSIGNEE (MILITARY TIME ONLY) ARRIVAL TIME 15:15 DEPARTURE TIME 15:45	
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED	

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X _____	DATE UNLOADED 7/30/13 MO. DAY YR.
-------------------------	--------------------------------	---

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator

S 429518



PURE SOIL TECHNOLOGIES

P.O. Drawer 43
Farmingdale, NJ 07727
Phone: 732.308.1113 Fax: 732.482.9626

16965

NON-HAZARDOUS MATERIAL MANIFEST

You must return 4 copies of this manifest upon delivery.

GENERATOR

AGENT / CONSULTANT

Generator Name: NMWP NAVAL WEAPONS IND. RESER

Name: AWT ENVIRONMENTAL SERVICES, INC.

Address: 999 SOUTH OYSTER BAY ROAD

Contact Name: MARIO POSTORINO

City, State, Zip: BETHPAGE, NY 11714

Phone: 732-513-1880

<p>Approval Number</p> <p><u>1307030</u></p>	<p>Description of Material</p> <p>Non Hazardous Petroleum Contaminated Soil</p>	<p><i>** Must be Initialed By Authorized Agent.</i></p> <table border="1"> <thead> <tr> <th></th> <th>SITE</th> <th>**INITIALS</th> </tr> </thead> <tbody> <tr> <td>Time Arrive:</td> <td><u>11⁰⁰</u></td> <td><u>[Signature]</u></td> </tr> <tr> <td>Time Depart:</td> <td><u>11⁴⁵</u></td> <td><u>[Signature]</u></td> </tr> </tbody> </table>		SITE	**INITIALS	Time Arrive:	<u>11⁰⁰</u>	<u>[Signature]</u>	Time Depart:	<u>11⁴⁵</u>	<u>[Signature]</u>
	SITE	**INITIALS									
Time Arrive:	<u>11⁰⁰</u>	<u>[Signature]</u>									
Time Depart:	<u>11⁴⁵</u>	<u>[Signature]</u>									

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Lora B. Fly

[Signature]

7-30-13

Generator/Authorized Agent Name (Print)

Signature

Shipment Date

TRANSPORTER

Transporter Name: Freehold Cartage Inc.

Driver Name (Print): Brian Pincus

Address: 825 Hwy 33

Vehicle License No/State/EPA No: AN 197L NJ
NTD054126164

City, State, Zip: Freehold, NJ 07728

Truck Number: 705

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature]

Driver Signature

7/30/13

Date

[Signature]

Driver Signature

Date

DESTINATION

Site Name: Pure Soil Technologies Inc.

Phone: 732-657-8551

Address: 655 S. Hope Chapel Rd., Jackson, NJ 08527

Business hours are: Monday through Friday, 7 AM to 5 PM. Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature]

7-30-13

Name of Authorized Agent

Signature

Receipt Date

Form: PST

Inc SOIL TECHNOLOGIES
655 S. HOPE CHAPEL RD
JACKSON N.J. 08527
732-657-8551

Date: 07/29/13 Ticket #: 177365
Time: 15:27 Plant: P1
*** Recycled ***

Customer: 0006418 Job: 1307030
AWT ENVIRONMENTAL SERVIC NWIRP- NAVAL WEAPONS IN
3220 BORDENTOWN PIKE ~~999 SOUTH OYSTER BAY RD.~~
PARLIN, NJ 8859 BETHPAGE, NY 11714
(732) 613-1660

Carrier: FCI
FCI
Truck: AA396E
License:

P.O.#:
Phase: 0
Zone:

Product: JR66 DEFAULT ZONE NAME
JR66 SOIL

JMF:
(Daily) Loads: 1 Amount: 20.09 Tn 18.23 Mg
(To-Date) Loads: 1 Amount: 20.09 Tn 18.23 Mg

Gross: 34.71*Tn 69420*lb 31.49*Mg
Tare: 14.62*Tn 29240*lb 13.26*Mg
Net: 20.09 Tn 40180 lb 18.23 Mg
* - Manual Weight

Received By: _____
Weighmaster: GUSTAVE PENKALSKI NJWMS#30306



FREEHOLD CARTAGE INC.

P.O. BOX 5010 • FREEHOLD, NJ 07728-5010
(732) 462-1001 • FAX (732) 308-0924

657

BILL OF LADING

FCI EPA ID NO. NJD054126164

S 436446

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS NAAI WEAPONS IND. BETHPAGE N.Y.		PHONE 626		APPOINTMENT TIME N/A	
FCI REP. LOADING (PRINT) AL J.		PROCEDURE R10	EQUIP. SPOTTED	EQUIP. REMOVED R-20 0010	TIME AT SHIPPER (MILITARY TIME ONLY) 10:55 ARRIVAL TIME 11:25 DEPARTURE TIME
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED	

BROKER:	MANIFEST / DOCUMENT NO. 16963
PO#: WO#: 971537	

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	PETRO. CONT. SOIL	N/A			1	CM	15	Y	N/A	S
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE Michael Zabel / Environmental Scientist U.S. NAVY	SHIPPER'S SIGNATURE X <i>Michael Zabel</i>	DATE LOADED 7/29/13
I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT.		MO. DAY YR.

CONSIGNEE NAME/ADDRESS PURE SOIL JACKSON, NJ		PHONE 626		APPOINTMENT TIME N/A	
FCI REP. UNLOADING (PRINT) AL J.		PROCEDURE R10	EQUIP. SPOTTED	EQUIP. REMOVED 0010	TIME AT CONSIGNEE (MILITARY TIME ONLY) 15:00 ARRIVAL TIME 15:25 DEPARTURE TIME
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED	

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X	DATE UNLOADED 7/29/13
		MO. DAY YR.

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator

S 436446



PURE SOIL TECHNOLOGIES
 P.O. Drawer 43
 Farmingdale, NJ 07727
 Phone: 732.308.1113 Fax: 732.462.9625

16963

NON-HAZARDOUS MATERIAL MANIFEST
 You must return 4 copies of this manifest upon delivery.

GENERATOR

AGENT / CONSULTANT

Generator Name: NAVY NAVAL WEAPONS IND. RESER
 Address: 989 SOUTH OYSTER BAY ROAD
 City, State, Zip: BETHPAGE, NY 11714

Name: AWT ENVIRONMENTAL SERVICES, INC.
 Contact Name: MARIO POSTORINO
 Phone: 732-613-1000

Approval Number	Description of Material	<i>** Must be Initialed By Authorized Agent</i>	
		SITE	INITIALS
1307030	Non Hazardous Petroleum Contaminated Soil	Time Arrive: <u>10:55</u>	<u>MP</u>
		Time Depart: <u>11:25</u>	<u>MP</u>

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Generator/Authorized Agent Name (Print): Lara B. Fly
 Signature: [Signature]
 Shipment Date: 7/29/13

TRANSPORTER

Transporter Name: FREEHOLD CARRIAGE Driver Name (Print): AL JOHNSON
 Address: RT. 33, FREEHOLD, NJ Vehicle License No./State/EPA No: 1A396E NJ 15939
 City, State, Zip: FREEHOLD NJ Truck Number: 620

I hereby certify that the above named material was picked up at the generator site listed above. I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature: [Signature] Date: 7/29/13
 Driver Signature: [Signature] Date: 7/29/13

DESTINATION

Site Name: Pure Soil Technologies Inc. Phone: 732-657-8551
 Address: 655 S. Hope Chapel Rd, Jackson, NJ 08527

Business hours are: Monday through Friday, 7 AM to 5 PM. Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent: _____ Signature: _____ Receipt Date: _____

Form: PST

TRANSPORTER COPY



S 422898

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS <i>NAVAL WEAPONS</i> <i>BETHPAGE, N.Y.</i>		PHONE (AREA CODE) TRACTOR <i>626</i>		TRAILER <i>-</i>		APPOINTMENT TIME <i>10:10</i>	
FCI REP. LOADING (PRINT) <i>AL J.</i>	PROCEDURE <i>R10</i>	EQUIP. SPOTTED	EQUIP. REMOVED <i>9093</i>	TIME AT SHIPPER <i>07:30</i>	(MILITARY TIME ONLY) <i>07:45</i>		
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED			

BROKER:		MANIFEST / DOCUMENT NO. <i>16967</i>					
PO #:	WO #:						

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	<i>PERTO. PONT. SOIL</i>	<i>N/A</i>			<i>1</i>	<i>DM</i>	<i>15</i>	<i>Y.</i>	<i>N/A</i>	<i>S.</i>
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE <i>Jim Christopher, Generator</i>	SHIPPER'S SIGNATURE <i>[Signature]</i> X _____ <small>I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT.</small>	DATE LOADED <i>9/20/13</i> MO. DAY YR.
--	--	--

CONSIGNEE NAME/ADDRESS <i>PURE SOIL</i> <i>JACKSON, NJ</i>		PHONE (AREA CODE) TRACTOR		TRAILER		APPOINTMENT TIME <i>10:10</i>	
FCI REP. UNLOADING (PRINT)	PROCEDURE	EQUIP. SPOTTED	EQUIP. REMOVED	TIME AT CONSIGNEE <i>07:30</i>	(MILITARY TIME ONLY) <i>07:45</i>		
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED			

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X _____	DATE UNLOADED <i>1/1</i> MO. DAY YR.
-------------------------	--------------------------------	--

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator

S 422898



350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS NAVAL WEAPONS		PHONE		APPOINTMENT TIME	
BETHPAGE, N.Y.		(AREA CODE) 626	TRACTOR	TRAILER	N/A
FCI REP. LOADING (PRINT)	PROCEDURE	EQUIP. SPOTTED	EQUIP. REMOVED	TIME AT SHIPPER (MILITARY TIME ONLY)	
AL J.	R10		R-20 0417	07:00 07:45	
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED	

BROKER:		MANIFEST / DOCUMENT NO. 16968
PO #:	WO #:	

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/IUN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	PETRO. CONT. SOIL	N/A				CM	15	Y.	N/A	5.
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE J. Christopher Goodenget	SHIPPER'S SIGNATURE X	DATE LOADED 9/19/13
I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT.		MO. DAY YR.

CONSIGNEE NAME/ADDRESS PURE SOIL		PHONE		APPOINTMENT TIME	
JACKSON, N.J.		(AREA CODE)	TRACTOR	TRAILER	N/A
FCI REP. UNLOADING (PRINT)	PROCEDURE	EQUIP. SPOTTED	EQUIP. REMOVED	TIME AT CONSIGNEE (MILITARY TIME ONLY)	
				: :	
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED	

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X _____	DATE UNLOADED 1/1
		MO. DAY YR.

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator



S 418327

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

5533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS <i>NWTRF NAVAL WEAPONS</i> <i>999 S. OYSTERS BAY RD.</i> <i>Bethpage, NY</i>		PHONE (AREA CODE) TRACTOR <i>652</i>		TRAILER		APPOINTMENT TIME :	
FCI REP. LOADING (PRINT) <i>Bill Burns</i>	PROCEDURE <i>RE</i>	EQUIP. SPOTTED	EQUIP. REMOVED <i>0406</i>	TIME AT SHIPPER <i>7:00</i>	(MILITARY TIME ONLY) ARRIVAL TIME <i>7:50</i>		
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED			

BROKER:		MANIFEST / DOCUMENT NO. <i>16969</i>					
PO #:	WO #:						

(X) FORM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	<i>NWTRF NAVAL WEAPONS</i>				<i>01CM</i>		<i>204</i>			<i>5</i>
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE <i>Christopher Gochig</i>	SHIPPER'S SIGNATURE <i>X</i>	DATE LOADED <i>9/19/13</i>
I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT.		MO. DAY YR.

CONSIGNEE NAME/ADDRESS <i>Pure Soil</i> <i>Jackson, MS</i>		PHONE (AREA CODE) TRACTOR <i>652</i>		TRAILER		APPOINTMENT TIME :	
FCI REP. UNLOADING (PRINT) <i>Bill Burns</i>	PROCEDURE <i>empty</i>	EQUIP. SPOTTED	EQUIP. REMOVED	TIME AT CONSIGNEE	(MILITARY TIME ONLY) ARRIVAL TIME DEPARTURE TIME		
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED			

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE <i>X</i>	DATE UNLOADED <i>1/1</i>
		MO. DAY YR.

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDf
Gold - Retained by Generator

S 418327



FREEHOLD CARTAGE INC.

P.O. BOX 5010 • FREEHOLD, NJ 07728-5010
(732) 462-1001 • FAX (732) 308-0924

391

BILL OF LADING
FCI EPA ID NO. NJD054126164

S 425401

350 Pigeon Point Road
New Castle, DE 19720
Phone: (302) 658-2005
Fax: (302) 658-6229

175 Bartow Mun. Airport
Bartow, FL 33830
Phone: (863) 533-4599
Fax: (863) 533-1613

533 Dunham Road
Maple Heights, OH 44137
Phone: (330) 835-3473
Fax: (330) 835-3732

108 Monahan Avenue
Dunmore, PA 18512
Phone: (570) 342-7232
Fax: (570) 342-7367

132 Myrtle Beach Hwy.
Sumter, SC 29153
Phone: (803) 773-2611
Fax: (803) 773-2942

SHIPPER NAME/ADDRESS NAVAL WEAPONS IND. BETHPAGE, N.Y.		PHONE (AREA CODE) _____ TRACTOR 626 TRAILER _____		APPOINTMENT TIME N/A	
FCI REP. LOADING (PRINT) AL J.	PROCEDURE R/O	EQUIP. SPOTTED	EQUIP. REMOVED R-20 9650	TIME AT SHIPPER (MILITARY TIME ONLY) 10:30 10:50	ARRIVAL TIME DEPARTURE TIME
COMMENTS OR DELAYS AT SHIPPER				EQUIPMENT USED	

BROKER:	971555	MANIFEST / DOCUMENT NO. 16966
PO#:	WO# 971335	

(X) HM	PROPER U.S. D.O.T. SHIPPING NAME	U.S. D.O.T. HAZARDOUS CLASS	NA/UN/NO.	PACKING GROUP	NO. CONT.	CONT. TYPE	NET QUANTITY	UNIT MEASURE	WASTE NO.	FORM
1	PETRO. CONT. SOIL	N/A				RM	15	Y	N/A	S
2										
3										

SPECIAL HANDLING INSTRUCTIONS INCLUDING CONTAINER EXEMPTION NUMBER.

SHIPPER'S CERTIFICATION: This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, U.S. EPA and the State. The materials described above were consigned to the Transporter named. The consignee can and will accept the shipment and has a valid permit to do so if required. I certify that the foregoing is true and correct to the best of my knowledge.

Payment to the contractor for waste removal does not constitute payment to the carrier and if the contractor does not pay the carrier, the shipper is obligated to pay the agreed rate offered to the contractor.

PLEASE PRINT NAME/TITLE Michael Zobel Environmental Services at	SHIPPER'S SIGNATURE X [Signature]	DATE LOADED 8/11/13
I HAVE READ THE ABOVE AND UNDERSTAND AND AGREE TO ALL OF ITS CONTENT		MO. DAY YR.

CONSIGNEE NAME/ADDRESS PURE SOIL JACKSON, NJ		PHONE (AREA CODE) _____ TRACTOR 626 TRAILER _____		APPOINTMENT TIME N/A	
FCI REP. UNLOADING (PRINT) AL J.	PROCEDURE R/O	EQUIP. SPOTTED	EQUIP. REMOVED 9650	TIME AT CONSIGNEE (MILITARY TIME ONLY) 14:45 15:10	ARRIVAL TIME DEPARTURE TIME
COMMENTS OR DELAYS AT CONSIGNEE				EQUIPMENT USED	

PLEASE PRINT NAME/TITLE	CONSIGNEE SIGNATURE X [Signature]	DATE UNLOADED 8/11/13
		MO. DAY YR.

AR H-0257	MD HWH-167	MO H-1490	OH UPW-0190713-OH	TX 40705
CT CT-HW-307	2001-OPV-2335	ND WH-429	OK UPW-0190713-OH	WI 11602
DE DE-HW-203	ME ME-HWT-47	NH TNH-0047	ONTARIO, CANADA A 840943	WV UPW-0190713-OH
DE-SW-203	ME-WOT-47	NJ S-2265	PA PA-AH-0067	
IL UPW-0190713-OH	MI UPW-0190713-OH	15939	QUEBEC, CANADA QC-6ML-047	
MA MA-294	MN UPW-0190713-OH	NY NJ-113	RI RI-535	

White - FCI Original
Yellow - FCI Billing
Blue - FCI Office/Customer
Green - Retained by TSDF
Gold - Retained by Generator

S 425401

PURE SOIL TECHNOLOGIES
655 S. HOPE CHAPEL RD
JACKSON N.J. 08527
732-657-8551

Date: 08/01/13 Ticket #: 177488
Time: 15:07 Plant: P1
*** Recycled ***

Customer: 0006418 Job: 1307030
AWT ENVIRONMENTAL SERVIC NWIRP- NAVAL WEAPONS IN
3220 BOROENTOWN PIKE 999 SOUTH OYSTER BAY RD
PARLIN, NJ 8859 BETHPAGE, NY 11714
(732) 613-1660

Carrier: FCI
FCI
Truck: AA396E
License:

P.O.#:

Phase: 0

Zone:

Product: JR66 DEFAULT ZONE NAME
JR66 SDIL
JMF:

(Daily) Loads: 1 Amount: 15.51 Tn 14.07 Mg
(To-Date) Loads: 4 Amount: 69.26 Tn 62.83 Mg

Gross: 30.01*Tn 60020*lb 27.23*Mg
Tare: 14.50*Tn 29000*lb 13.15*Mg
Net: 15.51 Tn 31020 lb 14.07 Mg

* - Manual Weight

Received By: _____
Weighmaster: DARYL SIMMONS NJWMS#30600



PURE SOIL TECHNOLOGIES

P.O. Drawer 43
Farmingdale, NJ 07727
Phone: 732.308.1113 Fax: 732.462.9626

16966

NON-HAZARDOUS MATERIAL MANIFEST

You must return 4 copies of this manifest upon delivery.

GENERATOR

Generator Name: NWIRP-NAVAL WEAPONS IND. RESER
Address: 999 SOUTH OYSTER BAY ROAD
City, State, Zip: BETHPAGE, NY 11714

AGENT / CONSULTANT

Name: AWT ENVIRONMENTAL SERVICES, INC
Contact Name: MARIO POSTORINO
Phone: 732-613-1660

Approval Number
1307030

Description of Material
Non Hazardous Petroleum
Contaminated Soil

*** Must be Initialed By Authorized Agent.*

	SITE	**INITIALS
Time Arrive:	<u>10:30</u>	<u>MZ</u>
Time Depart:	<u>10:50</u>	<u>MZ</u>

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Lowry B Fly
Generator/Authorized Agent Name (Print)

[Signature]
Signature

8/1/13
Shipment Date

TRANSPORTER

Transporter Name: FREEHOLD CARTAGE
Address: RT. 33, FREEHOLD NJ
City, State, Zip: FREEHOLD NJ

Driver Name (Print): AL JOHNSON
Vehicle License No./State/EPA No: AA 396 EN 15939
Truck Number: 626

I hereby certify that the above named material was picked-up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature]
Driver Signature

8/1/13
Date

[Signature]
Driver Signature

8/1/13
Date

DESTINATION

Site Name: Pure Soil Technologies Inc. Phone: 732-657-8551
Address: 655 S. Hope Chapel Rd., Jackson, NJ 08527

Business hours are: Monday through Friday 7 AM to 5 PM. Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature]
Name of Authorized Agent Signature

8-1-13
Receipt Date

PURE SOIL TECHNOLOGIES
655 S. HOPE CHAPEL RD
JACKSON N.J. 08527
732-657-8551

Date: 11/08/13 Ticket #: 182761
Time: 12:35 Plant: P1
*** Recycled ***

Customer: 0906418 Job: 1307030
AWT ENVIRONMENTAL SERVIC NWIRP- NAVAL WEAPONS IN
3220 BORDENTOWN PIKE 999 SOUTH OYSTER BAY RD
PARLIN, NJ 3859 BETHPAGE, NY 11714
(732) 613-1360

Carrier: FCI P.O.#:
FCI Phase: 0
Truck: AA402E
License:

Zone:
Product: JR66 DEFAULT ZONE NAME
JR66 SOIL
JMF:
(Daily) Loads: 2 Amount: 55.02 Tn 31.77 Mg
(To-Date) Loads: 9 Amount: 159.24 Tn 144.46 Mg

Gross: 33.07 Tn 66140 lb 30.00 Mg
Tara: 15.38 Tn 30760 lb 13.95 Mg
Net: 17.69 Tn 35380 lb 16.05 Mg

Received By: 
Weighmaster: LARRY CORREA NJHMS# 30175



PURE SOIL TECHNOLOGIES

P.O. Drawer 43
Farmingdale, NJ 07727
Phone: 732.308.1113 Fax: 732.462.9626

16970

Box # 0812

66140

NON-HAZARDOUS MATERIAL MANIFEST

You must return 4 copies of this manifest upon delivery.

GENERATOR

AGENT / CONSULTANT

Generator Name: NWIRP-NAVAL WEAPONS IND. RESER

Name: AWT ENVIRONMENTAL SERVICES, INC.

Address: 999 SOUTH OYSTER BAY ROAD

Contact Name: MARIO POSTORINO

City, State, Zip: BETHPAGE, NY 11714

Phone: 732-613-1660

Approval Number
1307030

Description of Material
Non Hazardous Petroleum Contaminated Soil

<i>** Must be Initialed By Authorized Agent.</i>		
	SITE	**INITIALS
Time Arrive:	<u>0840</u>	<u>MS</u>
Time Depart:	<u>0900</u>	<u>MS</u>

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Lova B. Fry
Generator/Authorized Agent Name (Print)

[Signature]
Signature

11-8-13
Shipment Date

TRANSPORTER

Transporter Name: FREEHOLD CARTAGE

Driver Name (Print): FRITZ BARTH

Address: Hwy # 33

Vehicle License No/State/EPA No: AA402E NJ 15439-2007

City, State, Zip: FREEHOLD NJ 07728

Truck Number: 625

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature]
Driver Signature

11/8/13
Date

[Signature]
Driver Signature

11/8/13
Date

DESTINATION

Site Name: Pure Soil Technologies Inc.

Phone: 732-657-8551

Address: 655 S. Hope Chapel Rd., Jackson, NJ 08527

Business hours are: Monday through Friday 7 AM to 5 PM. Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature]
Name of Authorized Agent

[Signature]
Signature

11-8-13
Receipt Date



PURE SOIL, LLC
 P.O. Drawer 43
 Farmingdale, NJ 07727
 Phone: 732-308-1113 / Fax: 732-962-9626

Box # 0312

20703

63420

NON-HAZARDOUS MATERIAL MANIFEST

You must return 4 copies of this manifest upon delivery.

GENERATOR (Site Location)

Generator Name: NWIRP-NAVAL WEAPONS INC. RESERVE
 Address: 999 SOUTH OYSTER BAY ROAD
 City, State, Zip: BETHPAGE, NY 11714

AGENT / CONSULTANT

Name: AWT ENVIRONMENTAL SERVICES, INC.
 Contact Name: MARIO POSTORINO
 Phone: 732-613-1660

Approval Number
1307030

Description of Material
Non Hazardous Petroleum Contaminated Soil

<i>** Must be Initialed By Authorized Agent.</i>	
	SITE **INITIALS
Time Arrive: <u>0710</u>	<u>BB</u>
Time Depart: <u>0810</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations.

Lora B. Fly
 Generator/Authorized Agent Name (Print)

[Signature]
 Signature

11-08-13
 Shipment Date

TRANSPORTER

Transporter Name: Freehold Cartage inc.
 Address: 825 Hwy 33 &
 City, State, Zip: Freehold NJ 07728

Driver Name (Print): Bill Burns
 Vehicle License No/State/EPA No: AA393E NJ
 Truck Number: 626

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 11-08-13
 Driver Signature Date

[Signature] 11-08-13
 Driver Signature Date

DESTINATION

Site Name: Pure Soil, LLC Phone: 732-657-8551
 Address: 655 S. Hope Chapel Rd., Jackson, NJ 08527

Business hours are: Monday through Friday 7 AM to 5 PM. Saturday By Appointment Only.

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature]
 Name of Authorized Agent

[Signature]
 Signature

11-8-13
 Receipt Date

Form: PST