Introduction

This Data Report has been prepared by Tetra Tech NUS Inc. (Tetra Tech) for the Navy under Contract Task Order (CTO) No. 002 by the Naval Facilities Engineering Command Mid-Atlantic under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract number N62472-03-D-0057. This Data Report presents groundwater analytical data collected in January 2008 from Site 1 – Former Drum Marshalling Area at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage. NWIRP Bethpage is located in the Hamlet of Bethpage, Long Island, Nassau County, New York, (Figures 1 and 2).

Site History

The NWIRP Bethpage was a Government-owned, contractor-operated (GOCO) installation that was established in 1933. Since its inception, the plant's primary mission has been the research prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft. The facilities at NWIRP Bethpage included four plants used for assembly and prototype testing; a group of quality control laboratories, two warehouses complexes (north and south), a salvage storage area, water recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings. In 1998, operations ended at the facilities.

Background

In 1985, an Initial Assessment Study (IAS) conducted at the NWIRP Bethpage, NY, identified materials stored at Site 1 the Former Drum Marshaling Area to include waste halogenated and non-halogenated solvents (Rogers, Golden & Halpern, 1986). Cadmium and cyanide were also stored in Area 2 within Site 1 from the early 1950s through 1974. Reportedly, 200 to 300 drums were stored at each area at any one time within Site 1. Reportedly, there was no direct evidence of hazardous waste spills at Site 1. An abandoned septic drainage system almost completely underlies the entire area of Site 1.

This site is located in the middle third of the NWIRP Bethpage facility and is east of Plant No. 3, see Figure 2. Site 1 occupies approximately four acres, and contains a concrete storage pad and an abandoned cesspool leach field. Historically, this site was also used as a storage area for various types of equipment and heavy materials, including transformers. Site 1 is enclosed by a six-foot high, chain-link fence. The site is relatively flat, with the eastern portion covered with sandy soils, gravel, grass, and one concrete pad. The western portion of the site is predominantly covered with concrete. A vegetated wind row (pine) and wood fence are present

along the eastern edge of the site to reduce community visibility. Hazardous waste management practices for Northrop Grumman facilities included the staging of drummed wastes on the NWIRP-Bethpage property. This storage first took place on a gravel surface over the cesspool field, east of Plant No. 3. In 1978, the collection and marshaling point was moved a few yards south of the original site, to an area on a concrete pad. In 1982, drummed waste storage was relocated to another Drum Marshaling facility located in the Salvage Storage Area.

An air sparging/soil vapor extraction (AS/SVE) system was constructed in 1998 to address volatile organic compounds (VOCs) in site soils. The primary volatile compounds of concern, based on distribution and maximum detected concentrations, included trichloroethene (TCE), tetrachlorethene (PCE), 1,1,1- trichloroethane (1,1,1-TCA), 1,2-dichloroethane (1,2-DCA), 1,2-dichloroethene (1,2- DCE), and 1,1-dichloroethene (1,1-DCE). The preliminary remediation goals (PRGs) were established in the Record of Decision (ROD) prepared in May 1995 (NDNFEC/NYSDEC, 1995). There goals were established to control continuing releases of VOCs to groundwater.

The (AS/SVE) system ran continuously from August 1998 to March 2002, except during winter months. A total of 4,516.06 pounds of VOCs were removed from the groundwater during the duration of the system.

To determine the effectiveness of the AS/SVE treatment system on VOCs in the subsurface and to delineate the current levels of polychlorinated biphenyls (PCBs) and metals in soil, another post operational soil boring program was conducted in 2002. PCBs were detected in several samples including soils at and below the water table. Based on the complexity of the contamination, the Navy and New York Department of Environmental Conservation have not yet reached consensus on how to proceed, and discussions are continuing. One issue is the presence of PCBs below the water table and potential impact on groundwater.

During the post-operational soil-boring program, 41 soil borings were advanced to the top of the water table, which was approximately 65 feet bgs. The soil samples were analyzed for target compound list (TCL) VOCs, PCBs, and target analyte list (TAL) metals. Analysis of the soil samples indicates that VOCs were not detected in the majority of soil boring locations. VOCs greater than the preliminary remediation goal (PRG) were present in six of the soil boring locations. These VOCs were present at depths ranging from 10 to 64 feet. Six soil boring locations showed VOCs above the PRGs at depths that would have been affected by the AS/SVE system. The presence of VOCs at shallow depths indicated the difficulty of vapor extraction wells to efficiently remove more surficial VOCs. Additionally, the clay layers in the subsurface soil

resulted in the potential for inefficiencies at the surface intervals. Four soil boring locations showed VOCs above the PRGs at depths that would not have been affected by the AS/SVE. The existence of VOCs at increasing depths could be due to the groundwater contamination at the site, particularly in light of the depressed water table due to the ongoing drought conditions (Foster Wheeler Environmental, Corp., 2003).

Objective

The objective of this sampling event was asses the current concentrations of PCBs in down gradient groundwater monitoring wells at the site.

Field Activities

Four existing monitoring wells were sampled during this field effort, BPSIFW-MW-01, BPSIFW-MW-02, BPSIFW-MW-03, and BPS1-HN-29I (Figure 3). Monitoring wells BPSIFW-MW-01, BPSIFW-MW-02, BPSIFW-MW-03 are water table wells. Monitoring well PBS1-HN-29I is screened at 120 to 130 feet below ground surface (bgs). These monitoring wells are down gradient of the Site. Groundwater at the site is at a depth of 50 to 60 feet bgs with a general direction of flow to the south.

Groundwater samples were collected using United States Environmental Protection Agency (USEPA) Region 3 low-flow (low-stress) purging and sampling methods. A 2-inch submersible Grundfos® Redi-Flo pump was used to purge and sample groundwater from these wells. An in-line flow-through meter was utilized to collect field parameters of turbidity, dissolved oxygen, oxidation reduction potential, pH, specific conductance, and temperature during low-flow purging. Groundwater samples were collected after stabilization of these parameters was achieved. Low flow purge data sheets as well as groundwater sampling log sheets can be found in Appendix A.

Groundwater samples collected during this investigation were analyzed for PCBs. Quality Assurance/Quality Control (QA/QC) samples collected for this project included matrix spike/matrix duplicates (MS/MSD), field duplicate, field blank, and rinsate blank.

Purge water generated from groundwater sampling was containerized in 55-gallon drums and managed as Investigative Derived Waste (IDW).

Analytical Results

This section presents the results of the chemical analyses performed for the groundwater samples collected from January 2008. Samples were shipped to and analyzed by Katahdin Analytical Services, Inc. of Scarborough, Maine. Sample chain-of-custodies (COC) forms with signatures can be found in Appendix B. Form I analytical reports are attached in Appendix C.

Analytical results were screened against New York State Department of Health (NYSDOH) maximum contaminant levels (MCLs) for PCBs. Table 1 presents a summary of positive detections of PCBs in groundwater samples collected from the Site during the January 2008 sampling event. Concentrations that exceeded NYSDOH MCLs in Table 1 are bolded for identification purposes. Figure 1 presents a summary of historical and current detections above NYSDOH MCL.

PCBs were detected in each of the four monitoring wells sampled during the January 2008 sampling event. Concentrations of PCBs ranged from 0.46 micrograms per liter (µg/L) to 1.4 µg/L. Monitoring wells BP-SI-FW-MW03 and BP-SI-FW-HN29I contained concentrations of PCBs above NYSDOH MCL (0.5 µg/L) at 1.4 and 0.85 µg/L, respectively.

References

Foster Wheeler Environmental Corp., 2003. Final Close-Out Report, Construction of a Soil Vapor Extraction/Air Sparging System at The Naval Weapons Industrial Reserve Plant Bethpage, NY. December.

Naval Facilities Engineering Command (NFEC), 1995. Record of Decision. Naval Weapons Industrial Reserve Plant, Bethpage, New York, Sites 1,2, and 3, NYS Registry: 1-30-003B. Engineering Field Activity, Northeast Naval Facilities Engineering Command and New York Department of Environmental Conservation, May.

NYSDOH, 2007. New York State Department of Health (NYSDOH) New York Public Supply Regulations, 10 NYCRR Part 5, Subpart 5-1 Public Water Systems. October. **http://www.health.state.ny.us/environmental/water/drinking/part5/tables.htm#table1**

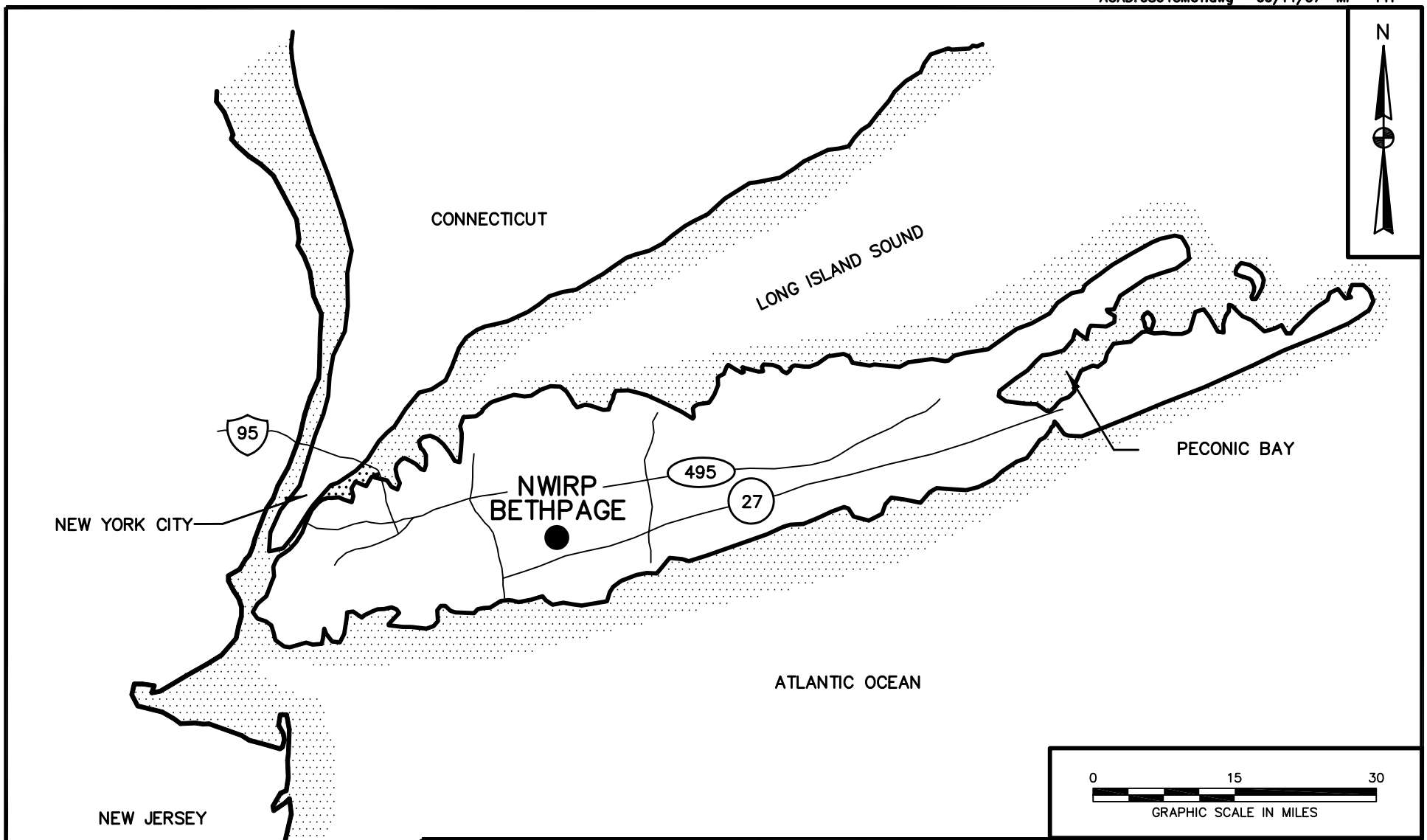
Rogers, Golden & Halpern, 1986. Initial Assessment Study of NWIRP Bethpage, NY and NWIRP Calverton, NY. December.

TABLE 1
GROUNDWATER ANALYTICAL RESULTS
SITE 1 - FORMER DRUM MARSHALLING AREA
NWIRP BETHPAGE, NEW YORK

Chemical	CAS No.	Federal MCLs (1)	NYSDOH MCLs (2)	BP-SI-FW-MW01-012808	BP-SI-FW-MW02-012809	BP-SI-FW-MW03-012810	BP-SI-HN-MW29I-012811	BP-SI-HN-MW29I-012812-DUP
		(µg/l)	(µg/l)					
Polychlorinated Biphynels (PCBs)								
Aroclor-1016	12674-11-2	0.5	0.5					
Aroclor-1221	11104-28-2	0.5	0.5					
Aroclor-1232	11141-16-5	0.5	0.5					
Aroclor-1242	53469-21-9	0.5	0.5	0.46 J	0.27 J	**1.4**	**0.85**	**0.94**
Aroclor-1248	12672-29-6	0.5	0.5					
Aroclor-1254	11097-69-1	0.5	0.5					
Aroclor-1260	11096-82-5	0.5	0.5					

CAS-Chemical Abstracts Service
MCL- Maximum contaminat level
µg/L-Micrograms per liter
Blank cells - Non-Detect NA - Not Available J - Estimated Value
1- (USEPA, 2007) Drinking Water Contaminants National Primary Drinking Water Regulations, from the USEPA website at http://www.epa.gov/safewater/contaminants/index.html#primary
2- (NYSDOH, 2004) New York Public Supply Regulations, 10 NYCRR Part 5, Subpart 5-1 Public Water Systems, Table 3-Organic Chemicals Maximum Contaminant Level Determination and Table 9D - Organic Chemicals - Principal Organic Contaminants, from the NYSDOH w
Bold - Indicates Exceedances from NYSDOH MCLs

ACAD: 0804CM01.dwg 06/14/07 MF PIT

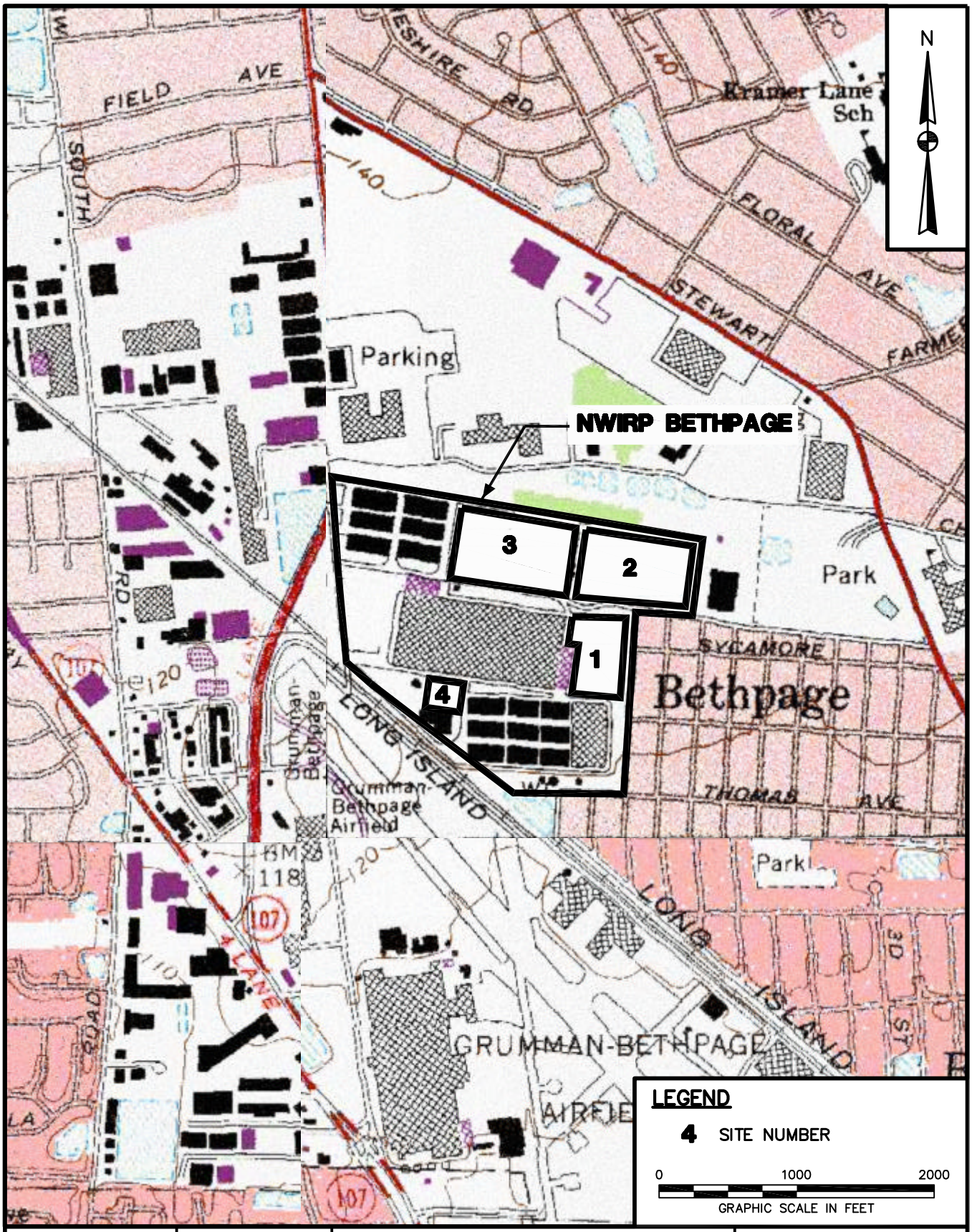


DRAWN BY MF	DATE 6/13/07	Tetra Tech NUS, Inc.	GENERAL LOCATION MAP NWIRP BETHPAGE BETHPAGE, NEW YORK
CHECKED BY	DATE		
REVISED BY	DATE		
SCALE AS NOTED			

CONTRACT NO. 0804	
OWNER NO.	
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0

FORM CADD NO. TTNUS-AH.DWG - REV 1 -9/10/98

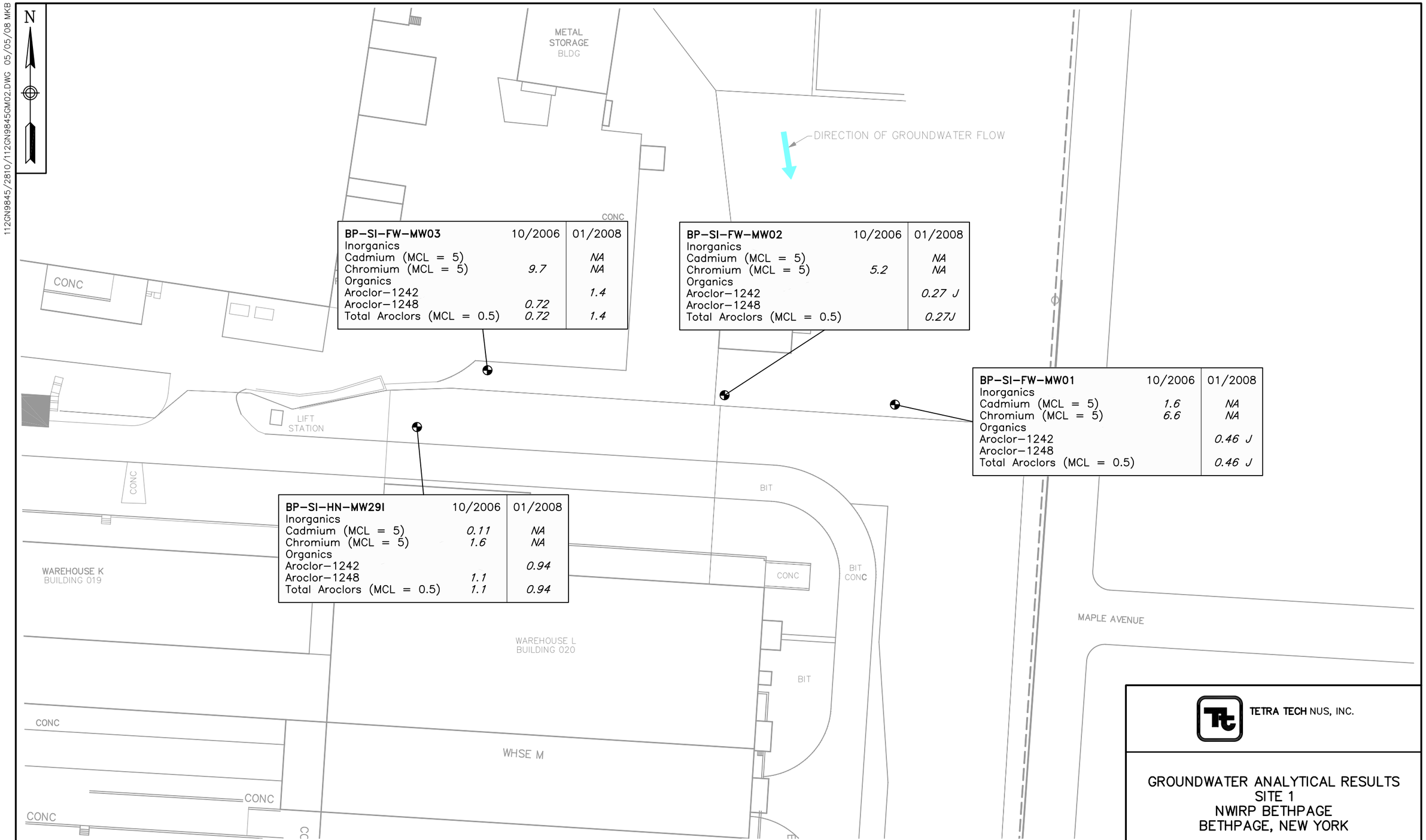
ACAD: 0804CM02.dwg 06/13/07 MF PIT



DRAWN BY MF	DATE 6/13/07	Tetra Tech NUS, Inc.	CONTRACT NO. 0804
CHECKED BY	DATE	SITE LOCATION MAP SITE 1 NWIRP BETHPAGE BETHPAGE, NEW YORK	OWNER NO.
REVISED BY	DATE		APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 2 / REV. 0

FORM CADD NO. TTNUS-AV.DWG - REV 1 -9/10/98

112GN9845/2810/112GN9845GM02.DWG 05/05/08 MKB



BP-SI-FW-MW03	10/2006	01/2008
Inorganics		
Cadmium (MCL = 5)		*NA*
Chromium (MCL = 5)	*9.7*	*NA*
Organics		
Aroclor-1242		*1.4*
Aroclor-1248	*0.72*	
Total Aroclors (MCL = 0.5)	*0.72*	*1.4*

BP-SI-FW-MW02	10/2006	01/2008
Inorganics		
Cadmium (MCL = 5)		*NA*
Chromium (MCL = 5)	*5.2*	*NA*
Organics		
Aroclor-1242		*0.27 J*
Aroclor-1248		
Total Aroclors (MCL = 0.5)		*0.27J*

BP-SI-FW-MW01	10/2006	01/2008
Inorganics		
Cadmium (MCL = 5)	*1.6*	*NA*
Chromium (MCL = 5)	*6.6*	*NA*
Organics		
Aroclor-1242		*0.46 J*
Aroclor-1248		
Total Aroclors (MCL = 0.5)		*0.46 J*

BP-SI-HN-MW29I	10/2006	01/2008
Inorganics		
Cadmium (MCL = 5)	*0.11*	*NA*
Chromium (MCL = 5)	*1.6*	*NA*
Organics		
Aroclor-1242		*0.94*
Aroclor-1248	*1.1*	
Total Aroclors (MCL = 0.5)	*1.1*	*0.94*

LEGEND

MONITORING WELL LOCATION

1.6 GROUNDWATER RESULT IN ug/L

ND NON-DETECT

NA NOT ANALYZED

TETRA TECH NUS, INC.

GROUNDWATER ANALYTICAL RESULTS
SITE 1
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	SCALE
112GN9845GM02	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3	0 / 05/05/08

APPENDIX A

LOW FLOW PURGE and

GROUNDWATER SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP ~~GALVERTON~~ BETHPAGE
Project No.: 112G00902, SITE 2

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

Sample ID No.: BP-S1-FW-MW03-012808
Sample Location: BP-S1-FW-MW03
Sampled By: SJC
C.O.C. No.: BP-012908-1
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1/28/08	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1250	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: REDI FLO	CLEAR	6.24	.512	15.15	10.0	9.00	76.9	—

PURGE DATA:

Date: 1/28/08	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	Other
Method: REDI FLO								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2" ϕ PVC (STICK UP)			See Low Flow Purge Data Sheets					
Total Well Depth (TD): 67.50±								
Static Water Level (WL): 53.43								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1140								
End Purge (hrs): 1250								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 21								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	4°C/HCl	(3) 40ml Vails	
Methane, ethene & ethane)	4°C/HCl	(3) 40ml Vails	
PCBs	4°C	2-1L AMBER	✓

OBSERVATIONS / NOTES:

USE 10' SCREEN 2" WELL
~ 6.2 L/VOL
3 SCR VOL = 18.6 L

BP

MMDDYY

BP-S1-FW-MW03-012808 WEST
54-64 " " " MW02
54-64 " " " MW01 EAST
116-126 BP-S1-HN-MW29I

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): SJ Conti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NWIRP ~~CALVERTON~~ BETHPAGE
PROJECT NUMBER: ~~112G00902, SITE 2~~

WELL ID.:
DATE: 1/28/08

Time (Hrs.)	Water Level (Ft. below TOC)	Flow * (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Volume & Color)
1140	53.43	400	—	—	—	—	—	—	—	
1150	53.43	11/4	5.93	.560	206	9.33	14.98	—	86.7	LT BRN TURBID
1200	53.43	200/6	6.23	.561	197	9.22	15.09		66.0	
1210	53.43	400/10	6.25	.591	135	9.63	17.89		47.4	
1220	53.43	300/13	6.29	.563	52.3	9.27	16.55		66.1	
1230	53.43	300/16	6.27	.544	20.5	8.95	16.82		72.8	
1240	53.43	300/19	6.25	.522	15.1	8.90	16.60		73.5	
1250	53.43	200/21	6.24	.512	10.0	9.00	15.15		76.9	
	DONE @ 1250									
	SAMPLE AT 1250	HRS.								

SIGNATURE(S): D Conti

* DIFFICULT TO ADJUST FLOW RATE ON REDI-FLO PUMP AT LOW RPMS.

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP CALVERTON
Project No.: 112G00902, SITE 2

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

Sample ID No.: BP-S1-FW-MW02-012808
Sample Location: BP-S1-FW-MW02
Sampled By: SJC
C.O.C. No.: BP-012908-01
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1/28/08	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1500	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: REDI-FLO	CLEAR	6.76	.286	15.56	9.8	9.62	771	—

PURGE DATA:

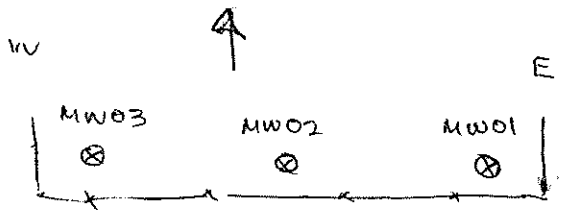
Date: 1/28/08	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	Other
Method: REDI-FLO								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2"Φ PVC STICK UP			See Low Flow Purge Data Sheets					
Total Well Depth (TD):								
Static Water Level (WL): 54.92								
One Casing Volume(gal/L) 6.2								
Start Purge (hrs): 1400								
End Purge (hrs): 1500								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): 23								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	4°C/HCl	(3) 40ml Vails	
Methane, ethene & ethane)	4°C/HCl	(3) 40ml Vails	
PCBs	4°C	(2) 1L Amber	✓

OBSERVATIONS / NOTES:

10' SCREEN 6.2L
x3
18.6 L 3 VOLUMES



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NWIRP ~~CALVERTON~~ BETHPAGE
PROJECT NUMBER: ~~112G00902, SITE 2~~

WELL ID.: BP-S1-FW-MW02
DATE: 1/28/08

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Volume & Color)
1400	54.92	300	—	—	—	—	—	—	—	
1410	54.93	400/3L	6.22	.292	58.6	10.43	15.24	—	101.8	CLEAR
1420	54.93	400/7L	6.75	.296	53.0	9.94	15.37	—	65.5	"
1430	54.93	400/11L	6.76	.294	19.0	9.75	15.41	—	73.6	"
1440	54.93	400/15L	6.76	.291	17.2	9.70	15.37	—	76.1	"
1450	54.93	400/19L	6.76	.287	14.8	9.65	15.47	—	76.8	"
1500	54.93	400/23L	6.76	.286	9.8	9.62	15.56	—	77.1	"
	DONE @	1500								
	SAMPLE	@ 1500	HRS.							

SIGNATURE(S): D Conti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP CALVERTON
Project No.: 112G~~00002, SITE 2~~ N9845

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

Sample ID No.: BP-SI-FW-MW01-012808
Sample Location: BP-SI-FW-MW01
Sampled By: SJC
C.O.C. No.: BP-012908-1
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 1/28/08	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Time: 1630	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Method: REDI-FLO	CLEAR	7.28	.578	13.45	42.5	8.12	128.6	—

PURGE DATA: TO SL CLOY

Date: 1/28/08	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	Other
Method: REDI-FLO								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2"Φ PVC STICK UP			See Low Flow Purge Data Sheets					
Total Well Depth (TD):								
Static Water Level (WL): 54.22								
One Casing Volume(gal/L): 6.2								
Start Purge (hrs): 1520								
End Purge (hrs): 1630								
Total Purge Time (min): 70								
Total Vol. Purged (gal/L): 25								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	4°C/HCl	(3) 40ml Vails	
Methane, ethene & ethane)	4°C/HCl	(3) 40ml Vails	
PCBS	4°C	(2) 1-L Amber	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): SJ Conti

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NWIRP CALVERTON
PROJECT NUMBER: 112G00902, SITE 2

WELL ID.: BP-S1-FW-MW01
DATE: 1/28/08

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Volume & Color)
1520	54.22	400/	—	—	—	—	—	—	—	
1530	54.27	400/4L	6.75	.920	271	8.90	14.71	—	108.5	LT BRN - TURBID
1540	54.27	400/8L	7.27	.894	96.1	8.16	14.85	—	121.7	" SL "
1550	54.27	400/12L	7.27	.886	72.7	8.11	14.95	—	125.6	CLEAR
1600	54.27	400/16L	7.27	.874	50.7	8.12	15.09	—	130.1	"
1610	54.26	400/20L	7.28	.879	42.4	8.03	15.28	—	132.4	"
1620	54.26	300/23L	7.28	.835	50.4	8.11	14.20	—	127.5	"
1630	54.26	200/25L	7.28	.878	42.5	8.12	13.45	—	128.6	"
	DONE @ 1630									
	SAMPLE @	1630								

SIGNATURE(S): SJ Conte

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: BETHPAGE NWIRP ~~CALVERTON~~
Project No.: 112G~~00002~~, ~~SITE 2~~

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

Sample ID No.: BP-SI-HN-MW29I-012908
Sample Location: BP-SI-HN-MW29I
Sampled By: SJC/TR
C.O.C. No.: BP-012908-1
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date: 1/29/08	Visual	Standard	mS/cm	°C	NTU	mg/l	mV	NA
Time: 1200								
Method: REDI-FLO	CLEAR	11.98	.359	15.43	0.36	7.01	-110.7	—

PURGE DATA:

Date: 1/29/08	Volume	pH	S.C.	Temp. (C)	Turbidity	DO	Salinity	Other
Method: REDI FLO								
Monitor Reading (ppm): ~~—~~								
Well Casing Diameter & Material								
Type: 4"Φ PVC			See Low Flow Purge Data Sheets					
Total Well Depth (TD): 127.2								
Static Water Level (WL): 44.07								
One Casing Volume(gal/L): 25								
Start Purge (hrs): 1040								
End Purge (hrs): 1155								
Total Purge Time (min): 75								
Total Vol. Purged (gal/L): 75								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	4°C/HCl	(3) 40ml Vails	
Methane, ethene & ethane)	4°C/HCl	(3) 40ml Vails	
PCBS	4°C	(2) 1L Amber.	✓
		INCL	
		4-1L (QA/QC)	

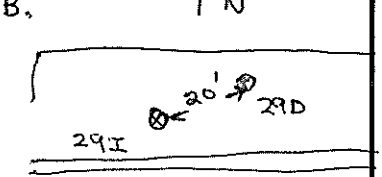
OBSERVATIONS / NOTES:

127.2 TPVC
128'± T GSUR.

SCREEN 116-126 PER D.B.

25 L / 1 SCREEN VOL
= 75 TOTAL

↑N



~~Circle if Applicable:~~

MS/MSD

Duplicate ID No.: BP-FD-012908-1

Signature(s): SJ Conci

Tetra Tech NUS, Inc.

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: NWIRP CALVERTON
PROJECT NUMBER: 112G00902, SITE 2

WELL ID.: BP-S1-HN-MW29I
DATE: 1/29/08

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	Salinity (%)	ORP (mV)	Comments (Volume & Color)
1040	44.07	1000	—	—	—	—	—	—	—	CLEAR
1050	47.75	" / 10L	12.43	.608	7.07	6.61	15.21	—	-134.0	"
1100	47.68	" / 20L	12.44	.600	7.26	6.50	15.11	—	-135.2	"
1100	47.71	" / 30L	12.44	.600	6.00	6.50	15.11	—	-135.2	"
1120	47.72	" / 40L	12.24	.453	4.35	6.41	15.50	—	-126.7	"
1130	47.71	/ 50L	12.15	.414	3.79	6.16	15.55	—	-120.8	"
1140	47.72	/ 60L	12.03	.395	4.40	6.87	15.59	—	-111.5	"
1150	47.72	/ 70L	12.07	.382	3.50	6.76	15.49	—	-112.1	"
1155	47.71	/ 75L	11.98	.359	0.36	7.01	15.43	—	-110.7	"
	Sampled 1200 HRS									
										pH WAS CHECKED W/ pH PAPER = 11-12
										HAD TO SWITCH GENERATORS AT 1135 HRS

SIGNATURE(S): S. Conte

APPENDIX B

CHAIN OF CUSTODY FORMS

TETRA TECH NUS, INC. SB0518 CHAIN OF CUSTODY | NUMBER BP-012908-1 | PAGE 1 OF 1

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
112GN9845	BETHPAGE	DAVE BEAYACK 757 461 3824	KATAHDIN / A COLBY
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER	ADDRESS
SJ Conti		SJ CONTI 412 921 7090	600 TECHNOLOGY WAY
		CARRIER/WAYBILL NUMBER	CITY, STATE
		FED EX # 8631 2526 2809	SCARBOROUGH ME 04074

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 4°C

DATE YEAR 2008	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: PCBS	1-L Amber							COMMENTS
1/28	1250	BP-SI-FW-MW03-012808	GW	G	2	2								
1/28	1500	BP-SI-FW-MW02-012808	GW	G	2	2								
1/28	1630	BP-SI-FW-MW02-012808	GW	G	2	2								
1/29	1200	BP-SI-HN-MW29I-012908	GW	G	4	4								MS/MSD
1/29	0000	BP-FD-012908-1	QC	G	2	2								DUP
1/29	1430	BP-RB-012908-1	QC	G	2	2								DI-OVER PUMP
1/29	1440	BP-WB-012908-1	QC	G	2	2								DI WATER

1. RELINQUISHED BY SJ Conti	DATE 1/29/08	TIME 1600 HRS	1. RECEIVED BY FED EX	DATE 1/29/08	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE 1-30-08	TIME 1000
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS (4) DO MS/MSD

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

3/99
FORM NO. TtNUS-001

8000008

APPENDIX C

ANALYTICAL DATA FORM Is

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/28/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 06:46
Report Date: 02/14/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-1
Client ID: BP-SI-FW-MW03
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242		1.4	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		94%				
2051-24-3	Decachlorobiphenyl		88%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/28/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 07:16
Report Date: 02/18/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-2
Client ID: BP-SI-FW-MW02
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242	J	0.27	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		101%				
2051-24-3	Decachlorobiphenyl		90%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/28/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 07:45
Report Date: 02/18/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-3
Client ID: BP-SI-FW-MW01
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242	J	0.46	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		98%				
2051-24-3	Decachlorobiphenyl		78%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/29/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 11:10
Report Date: 02/14/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-4
Client ID: BP-SI-HN-MW29I
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242		0.85	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		105%				
2051-24-3	Decachlorobiphenyl		* 94%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/29/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 11:39
Report Date: 02/14/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-5
Client ID: BP-FD-012908-1
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242		0.94	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		105%				
2051-24-3	Decachlorobiphenyl		91%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/29/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 12:09
Report Date: 02/14/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-6
Client ID: BP-RB-012908-1
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242	U	0.50	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		108%				
2051-24-3	Decachlorobiphenyl		82%				

KATAHDIN ANALYTICAL SERVICES
Report of Analytical Results

Client: Tetra Tech NUS, Inc
Project: Bethpage
PO No:
Sample Date: 01/29/08
Received Date: 01/30/08
Extraction Date: 02/01/08
Analysis Date: 12-FEB-2008 12:38
Report Date: 02/14/2008
Matrix: WATER
% Solids: NA

Lab ID: SB0518-7
Client ID: BP-WB-012908-1
SDG: SB0518
Extracted by: KF
Extraction Method: SW846 3510
Analyst: SJC
Analysis Method: SW846 8082
Lab Prep Batch: WG47989
Units: ug/L

CAS#	Compound	Flags	Results	DF	PQL	Adj.PQL	Adj.MDL
12674-11-2	Aroclor-1016	U	0.50	1.0	0.50	0.50	0.38
11104-28-2	Aroclor-1221	U	0.50	1.0	0.50	0.50	0.16
11141-16-5	Aroclor-1232	U	0.50	1.0	0.50	0.50	0.27
53469-21-9	Aroclor-1242	U	0.50	1.0	0.50	0.50	0.20
12672-29-6	Aroclor-1248	U	0.50	1.0	0.50	0.50	0.18
11097-69-1	Aroclor-1254	U	0.50	1.0	0.50	0.50	0.24
11096-82-5	Aroclor-1260	U	0.50	1.0	0.50	0.50	0.26
877-09-8	Tetrachloro-m-xylene		104%				
2051-24-3	Decachlorobiphenyl		82%				