TETRA TECH

NOR-00973

February 2, 2011

Mr. Stephen Scharf
New York Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Remedial Action A
625 Broadway, 11th Floor
Albany, New York 12233-7015

Reference: CLEAN Contract No. N62472-03-0057
Contract Task Order 66

Subject: BPOW 1-3 Outpost Monitoring Wells Repair and Sampling Summary
NWIRP Bethpage, New York

Dear Mr. Scharf:

On behalf of the Navy, please find enclosed a copy of the subject document. This document provides a summary of activities to repair and sample outpost monitoring well BPOW 1-3 at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, New York.

If you have any questions please contact Ms. Lora Fly, NAVFAC Mid-LANT, at (757) 341-2012.

Sincerely,

David D. Brayack, P.E.
Project Manager

Enclosure: (1) BPOW 1-3 Outpost Monitoring Well Repair and Sampling Summary
NWIRP Bethpage, New York

Distribution:
Mid-Lant, Lora Fly
NYSDEC (Albany), Henry Wilkie (email)
NYSDOH (Troy), Steve Karpinski (email)
NAVAIR, Richard Smith
USEPA, Carol Stein (email)
NGC, Kent Smith (email)
South Farmingdale Water District
Tetra Tech NUS, Dave Brayack
ECOR Solutions, Al Taormina
Administrative Record
Project File

Tetra Tech NUS, Inc.
5700 Lake Wright Drive, Suite 309, Norfolk, VA 23502
Tel 757.461.3768 Fax 757.461.4148 www.ttnus.com

BPOW 1-3 OUTPOST MONTORING WELLS
REPAIR AND SAMPLING SUMMARY
NWIRP BETHPAGE, NEW YORK

INTRODUCTION

This document summarizes activities conducted to repair and sample Outpost Monitoring Well BPOW 1-3 at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage (Figure 1).

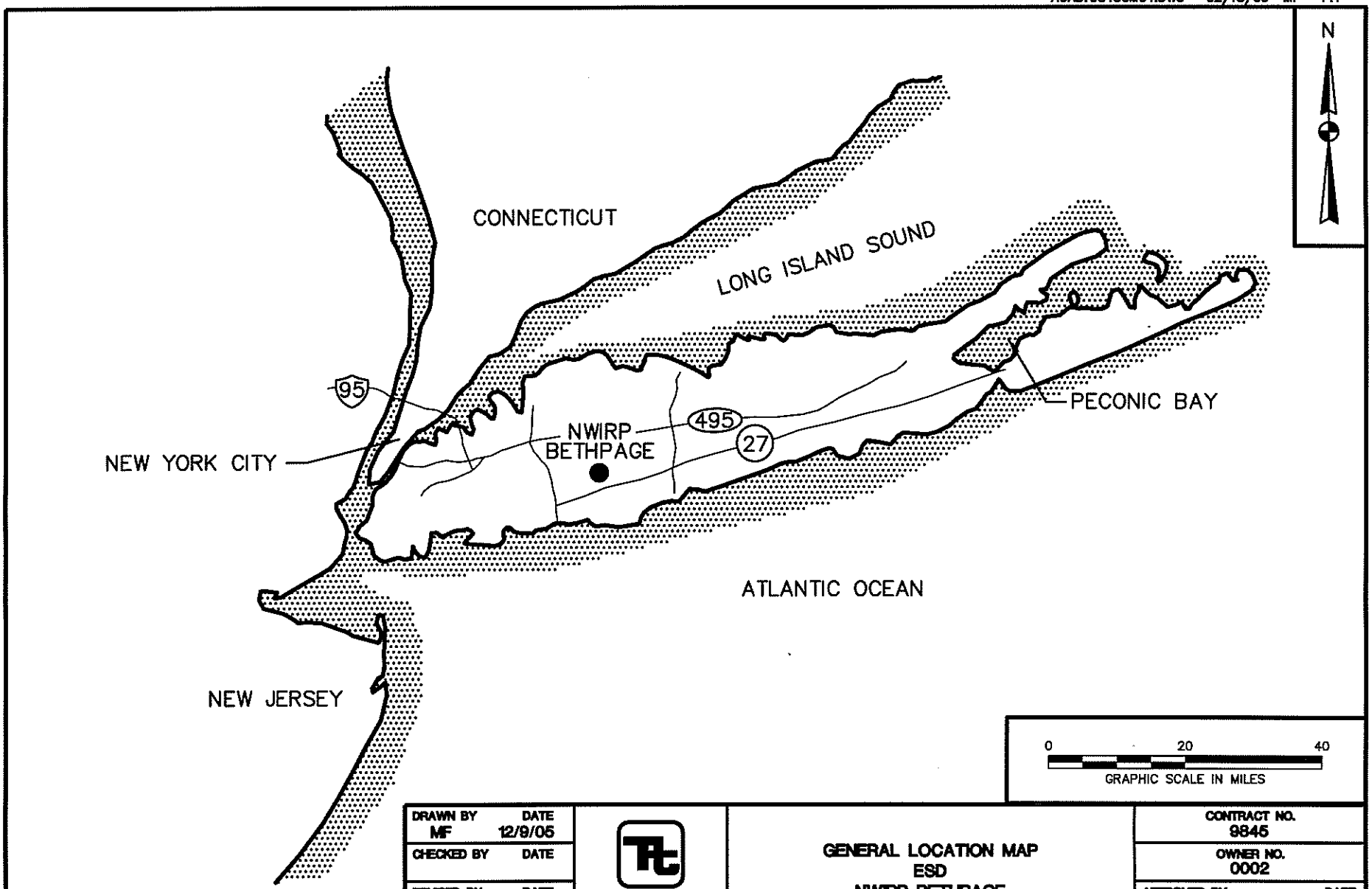
BACKGROUND

Groundwater samples collected during quarterly sampling events from outpost monitoring wells BPOW 1-1 (screened 200 to 235 feet bgs) and 1-3 (screened 375 to 400 feet bgs) consistently contained total VOCs of approximately 3 and 10 µg/L, respectively; however VOCs were not detected in groundwater samples collected from outpost monitoring well BPOW 1-2 (screened 310 to 340 feet bgs) that is screened between the BPOW 1-1 and 1-3 screen intervals. Based on a review of groundwater results and evaluation of the condition of BPOW 1-3, it was determined that the well casing may be cracked and has allowed shallower contaminated groundwater to infiltrate the well and be detected in BPOW 1-3. Therefore, a decision was made to seal the well by installing a 2-inch monitoring well inside the existing 4-inch casing.

OUTPOST MONITORING WELL BPOW 1-3

- BPOW 1-3 was repaired on October 12, 2010. The monitoring well repair construction log is provided in Attachment 1.
- BPOW 1-3 was re-developed on October 18, 2010. The monitoring well development log is provided in Attachment 2.
- A new dedicated 2-inch submersible pump (Grundfos®) was installed on December 7, 2010.
- Groundwater samples were collected from BPOW 2-1 on October 18, 2010 and December 8, 2010. The sample collected on October 18, 2010 was collected at the end of development to provide an initial evaluation of groundwater quality and are considered to be screening level quality. The sample collected on December 7, 2010 is representative of stabilized groundwater conditions and is considered a high level quality sample.
- Samples were analyzed for Target Compound List (TCL) VOCs. Sample logs sheets documenting the collection of these samples are provided in Attachment 3. Sample Chain of Custody forms are provided in Attachment 4.
- Site-related VOCs were not detected in groundwater samples collected from BPOW 1-3 during the October and December 2010 sampling events.
- Data validation reports are provided in Attachment 5.

ACAD: 9845CM04.DWG 02/15/06 MF PIT



DRAWN BY MF DATE 12/9/05	Tetra Tech NUS, Inc.	GENERAL LOCATION MAP ESD NWIRP BETHPAGE BETHPAGE, NEW YORK	CONTRACT NO. 9845
CHECKED BY DATE			OWNER NO. 0002
REVISED BY DATE			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1 REV. 0

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

N

HWD (10208)
HWD (8779)
BWD (8768)
BWD (8767)
BWD (9591)
Dry_Well_20-08
HN-24I
HN-24S
Dry_Well_34-07
FW-03
FW-01
LTNUSMW29IR
HN-29I
HN-29D
HN-42S
HN-42I
VPB-106
VPB-107
VPB-105
VPB-108
VPB-102
GM-13D
GM-16I
GM-16SR
HN-40I
HN-40S
VPB-100
VPB-115
N-10597
MW-1GF
GM-32S
GM-17SR
GM-17I
GM-17D
VPB-109R
VPB-101
VPB-109
MW-4
GP-3 Well 3
GP-1 Well 1
GM-19I
GM-19S
MW-5
MW-6
GM-15S
GM-15I
GM-15D
GM-15D2
MW-2
VPB-110R
MW-3
VPB-113
MW-2GF
GM-18S
GM-18I
GM-18D
GM-39D(A)
GM-39D(B)
GM-73D
GM-73D2
Well 18
GM-74I
Well 19
GM-74D
GM-74D2
VPB-110
VPB-111
GM-33D2
N-10631
MW-3R
Well 17
N-10600
GM-78S
GM-78I
GM-20I
GM-20D
GM-21S
GM-21I
GM-21D
N-10633
GM-79S (N-10628)
GM-79D
N-10628
GM-79I
VPB-103
VPB-49C
VPB-114
GM-37D
GM-37D2
N-9921
GM-75D2
N-10624
N-10627
N-10634
VPB-104
GM-71D2
GM-70D2
VPB-121
GM-35D2
VPB-42
GM-36D2
GM-36D
VPB-112
BWD_4 (6915)
BWD_4 (6916)
N-10821
VPB-116
VPB-51
GM-38D2
GM-38D
VPB-123
GM-34D
GM-34D2
BWD_6 (8491)
BWD_6 (3876)
VPB-48
VPB-38
VPB-47
BWD_5 (8004)
VPB-40
TOH_(LWD) (7076)
VPB-122
VPB-77
VPB-76
VPB-129
TT-101D
TT-101DS
VPB-127
BPOW 1-4
BPOW 1-5
VPB-43
BPOW 1-2
SFWD (7377)
BPOW 1-1
VPB-45
BPOW 1-3
SFWD (5148)
SFWD (4043)
VPB-46
BPOW 4-2
BPOW 4-1
VPB-44
TOH_(LWD) (5303)
VPB-50
VPB-128
BPOW 3-3
BPOW 3-4
BPOW2-2_(D2)
BPOW2-1_(D)
SFWD_3 (6150)
VPB-126
BPOW 3-2
BPOW 3-1
VPB-125
AQUA (9338)
AQUA (8480)
VPB-124
SFWD_6

0 1,800 3,600
SCALE IN FEET

LEGEND

- GROUNDWATER SAMPLING LOCATION
- VERTICAL PROFILE BORING
- WATER SUPPLY WELL
- PROPOSED VERTICAL PROFILE BORING AND OUTPOST MONITORING WELL LOCATION (2010/2011 INVESTIGATION)
- BUILDING
- HIGHWAY
- MAJOR LOCAL ROAD
- MINOR LOCAL ROAD
- 1997 NORTHROP-GRUMMAN BETHPAGE BOUNDARY
- 1997 NWIRP BETHPAGE BOUNDARY

TETRA TECH NUS, INC.

OPERABLE UNIT 2 (SITE 1)
OUTPOST MONITORING WELLS BPOW 1-3
LOCATION MAP
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

FILE	SCALE
112G01041GM04-2	AS NOTED
FIGURE NUMBER: FIGURE 2	REV: 0 / DATE: 01/27/11

ATTACHMENT 1

MONITORING WELL REPAIR

CONSTRUCTION LOG

WELL NO.: BPOW 1-3

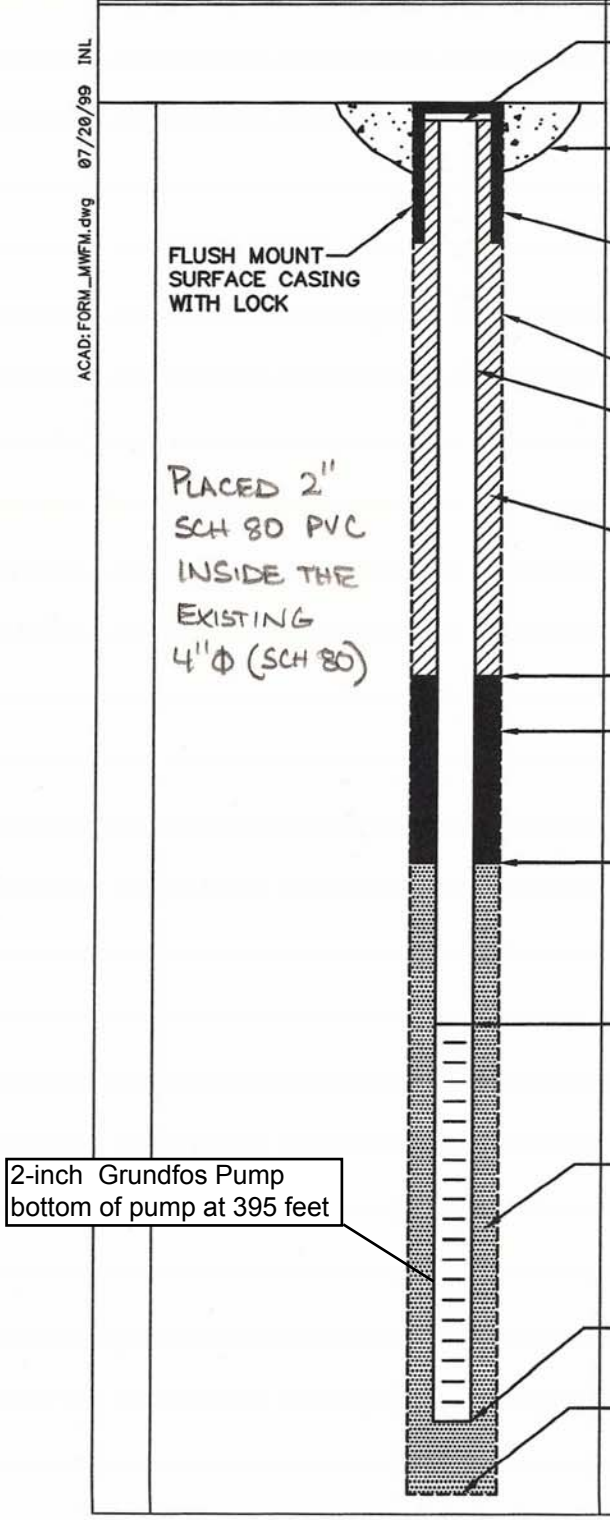
Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET FLUSH - MOUNT

REPAIR OF EXIST. 1-3

PROJECT OU-2 GW	LOCATION BETHPAGE	DRILLER EVERY	
PROJECT NO. 112G00622	BORING BPOW 1-3	DRILLING METHOD NA	
DATE BEGUN 10-12-10	DATE COMPLETED		
FIELD GEOLOGIST CONTI		DEVELOPMENT METHOD AIR/PUMP	
GROUND ELEVATION	DATUM		

ACAD: FORM_MWFM.dwg 07/20/99 INL



ELEVATION TOP OF RISER: _____

TYPE OF SURFACE SEAL: FLUSH MT EXISTING

TYPE OF PROTECTIVE CASING: STEEL

I.D. OF PROTECTIVE CASING: NA

DIAMETER OF HOLE: 8"Φ INITIAL

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 2"Φ SCH 80

TYPE OF BACKFILL/SEAL: CEMENT/BENTONITE GROUT

ELEVATION/DEPTH TOP OF SEAL: /336

TYPE OF SEAL: 1/4" TIME RELEASE BENTONITE PELLETS FILPRO WG 0 (10') /342'

ELEVATION/DEPTH TOP OF SAND: /352

1

ELEVATION/DEPTH TOP OF SCREEN: /372

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 SL X 40

TYPE OF SAND PACK: FILPRO WG #1 QUARTZ SAND (20')

DIAMETER OF HOLE IN BEDROCK: _____

ELEVATION / DEPTH BOTTOM OF SCREEN: /412

ELEVATION / DEPTH BOTTOM OF SAND: /412

ELEVATION/DEPTH BOTTOM OF HOLE: /412

BACKFILL MATERIAL BELOW SAND: NA

Pump installed on 12/8/2010.

ATTACHMENT 2

MONITORING WELL

DEVELOPMENT LOG

Tetra Tech NUS, Inc.

MONITORING WELL DEVELOPMENT RECORD

Well: BPOW 1-3 | Depth to Bottom (ft.): ~412' BGS | Responsible Personnel: Conti
Site: BETHPAGE OU2 GW | Static Water Level Before (ft.): 30.05 | Drilling Co.: Delta
Date Installed: | Static Water Level After (ft.): | Project Name: Bethpage OU-2 Offsite GW
Date Developed: 10/18/10 | Screen Length (ft.): 40 | Project Number 112G00622
Dev. Method: PUMP | Specific Capacity:
Pump Type: 2" GRUNDFOS | Casing ID (in.):

(2"ϕ INSIDE OF EXIST. 4" SCH 80.)
~67 GPM (REPAIRED WELL.)

Time	Estimated Sediment Thickness (Ft.)	Cumulative Water Volume (Gal.)	Water Level Readings (Ft. below TOC)	Temperature (Degrees C)	pH	Specific Conductance (Units ____)	Turbidity (NTU)	Remarks (odor, color, etc.)
1050	—		—	—	—	—	—	
1100	—	70	31.60	14.81	4.21	.236	42.8	SL. CLOUDY
1110	—	140	31.60	13.97	4.22	.123	2.9	CLEAR. pH PAPER: 5
1120	—	210	31.60	13.50	4.15	.118	0.6	"
1130	—	280	31.60	13.25	4.13	.118	1.2	"
1140	—	350	31.60	13.09	4.11	.116	0.4	"
1150	—	420	31.60	13.10	4.11	.115	1.1	"
1210	—	560	31.60	13.17	4.11	.116	1.0	"
1220	—	630	31.60	13.05	4.14	.121	0.8	" 5→6
1240	—	770	31.60	13.23	4.13	.118	1.1	"
1250	—	840	31.60	13.05	4.11	.119	1.5	"
1300	—	910	31.60	—	—	—	—	"
1310	—	980	31.60	13.21	4.13	.120	1.4	"

ATTACHMENT 3

GROUNDWATER SAMPLE LOG

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: BETHPAGE OU-2 OFFSITE GW
Project No.: 112G00622
PRE-DESIGN FIELD INVES

Sample ID No.: BP-OW-1-3
Sample Location: BPOW 1-3
Sampled By: SJC

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

C.O.C. No.: 028425
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	ORP	Other
Date: 10/18/10	Visual	Standard	mS/cm	Degrees C	NTU	mg/l	mV	NA
Time: 1315								
Method: PUMP	CLEAR	4.13	.120	13.21	1.4	NA	NA	—

PURGE DATA:

Date: 10/18/10								
Method: PUMP								
Monitor Reading (ppm): 0								
Well Casing Diameter & Material			SEE WELL DEV SHEET					
Type: 2" Φ PVC SCH 80			FOR PURGE DATA.					
Total Well Depth (TD): ~412								
Static Water Level (WL): 30.05								
One Casing Volume(gal/L):								
Start Purge (hrs): 1050								
End Purge (hrs): 1310								
Total Purge Time (min): 140								
Total Vol. Purged (gal/L): 980								

SAMPLE COLLECTION INFORMATION: Strike thru analysis not required

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL/4 DEG C	(2)-40ml Glass Vials	✓

OBSERVATIONS / NOTES:

2" MW = 0.163 gal/ft

Sample taken at discreet intervals using a hydropunch sampler unless otherwise noted.

Not enough volume for water quality parameters
Check box if not enough volume. NA

Used pH paper instead of water quality meter
Check box if used pH paper. NA

PURGING WAS PART OF DEV. SLOWED PUMP DOWN @ 1300 AND SAMPLED FROM A VALVED SAMPLE PORT

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

SJ Conti

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Bethpage
Project No.: 112600622

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

Sample ID No.: BPOW1-3-20101208
Sample Location: BPOW1-3
Sampled By: VAS
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-8-10	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 1425	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Method: Submersible pump	clear	4.11	0.096	10.81	0.0	4.52	0.0	305

PURGE DATA: (Gallons)

Date: 12-8-10	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other	Time
Method: Submersible pump	1.0	4.14	0.083	11.11	1.6	5.61	0.0	303	1305
Monitor Reading (ppm): 0.0	45	4.11	0.095	10.89	0.0	4.77	0.0	316	1325
Well Casing Diameter & Material	90	4.11	0.096	10.85	0.0	4.55	0.0	309	1345
Type: 2 inch PVC	135	4.12	0.096	10.83	0.0	4.48	0.0	304	1405
Total Well Depth (TD): 412'	180	4.11	0.096	10.81	0.0	4.52	0.0	305	1425
Static Water Level (WL): 29.99'									
One Casing Volume (gal/L): 62.3									
Start Purge (hrs): 1305									
End Purge (hrs): 1425									
Total Purge Time (min): 80									
Total Vol. Purged (gal/L): 185									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 x 40 ml vials	6

OBSERVATIONS / NOTES:

- pump set in well at ~ 395' BGS
- pump flow rate ~ 2.25 gpm
- Sample split with ARCADIS
- No stains, odors, or elevated PID readings observed

water level
1310 → 30.20'
1330 → 30.22'
1350 → 30.23'
1410 → 30.23'
1424 → 30.23'

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	BPOW-DUP01-20101208

Signature(s):

ATTACHMENT 4

SAMPLE CHAIN OF CUSTODY FORMS

1010052

49

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER No 928425 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00622	BETHPAGE OU2 GW	BRAYACK	757 461 3824	COMPUCHEM / DOVER
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
SJConti		CONTI	412 551 2629	
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FED EX 8735 5966 0818		CARY, NC

↙ CHECK W/ D. BRAYACK

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

DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	TYPE OF ANALYSIS: VOCs 40ml	PRESERVATIVE USED: 4°C HCL						COMMENTS
									G								
10/18	1030	BP-OWTB-101810	TB	—	—	QC	G	2	2					1010101-01			TRIP BLANK
10/18	1315	BP-OW-1-3	BPOW 1-3	—	—	GW	G	2	2					↓	02		FROM BPOW 1-3

1. RELINQUISHED BY	SJConti	DATE 10/19/10	TIME 1100	1. RECEIVED BY FED EX		DATE	TIME
2. RELINQUISHED BY		DATE	TIME	2. RECEIVED BY Brian Boyd		DATE 10/20/10	TIME 0907
3. RELINQUISHED BY		DATE	TIME	3. RECEIVED BY		DATE	TIME

COMMENTS Rec'd on Ice and with custody seals. DB 10/20/10 rec'd @ 2.8°C SN0010

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

4/02R
FORM NO. TtNUS-001

B4488

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 27287 | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00622	NWIRP Bethpage	Dave Brayack	(757) 461-3824	Chemtech
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Vince Shickora		Vince Shickora	(610) 491-9688	284 Sheffield Street
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FED EX # 8706 9629 3699		Mountainside, NJ 07092

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

	DATE YEAR 2010	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	6							COMMENTS
										PRESERVATIVE USED	HCl							
										TYPE OF ANALYSIS	VOCs							
1	12/8	0700	BP-TB01-20101208				QC	G	3	3								Trip Blank
2,3,4	12/8	1000	BPOW2-1-20101208				GW	G	9	9								Do MS/MSD
5	12/8	1230	BPOW2-2-20101208				GW	G	3	3								
6	12/8	1425	BPOW1-3-20101208				GW	G	3	3								
7	12/8	1800	BPOW-DUP01-20101208				GW	G	3	3								

1. RELINQUISHED BY	DATE 12-9-10	TIME 1600	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY Fed Ex	DATE 12/10/10	TIME 9:30	3. RECEIVED BY	DATE 12/10/10	TIME 9:30

COMMENTS Temp. 4°C

16

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

4/02R
FORM NO. TINUS-001

ATTACHMENT 5

DATA VALIDATION

PACKAGES

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. BRAYACK** **DATE:** **NOVEMBER 30, 2010**

FROM: **L. GANSER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NWIRP BETHPAGE CTO 066
SAMPLE DELIVERY GROUP (SDG) 1010101

SAMPLES: 3/Aqueous/VOC

BP-OW-1-3 BP-OWTB-101810

Overview

The sample set for NWIRP Bethpage, CTO 066, SDG 1010101 consists of one (1) environmental aqueous sample and one (1) trip blank. The samples were analyzed for volatile organic compounds (VOCs). No field duplicates were included within this SDG.

The samples were collected on October 18, 2010 and analyzed by CompuChem, a division of Liberty Analytical Corporation. VOC analyses were conducted in accordance with EPA Method SW-846 8260B. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • GC/MS Tune
• Initial/continuing calibrations
• Laboratory Method Blank Results
* • Surrogate Recoveries
• Laboratory Control Sample/Laboratory Control Sample Duplicate Recoveries
* • Internal Standard Recoveries
* • Compound Quantitation
* • Compound Identification
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatile Organic Compounds

Initial and continuing calibration relative response factor (RRF) was <0.05 for acetone. Positive results for acetone were qualified as estimated, "J".

Initial calibration percent relative standard deviation was >15% quality control limit (<90%) for bromomethane. Nondetected results for bromomethane were qualified as estimated, "UJ".

Contaminants were detected in laboratory method blank VBLKBO at the following maximum concentrations.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
1,2,4-Trichlorobenzene	1.6	8.0
Naphthalene	4.1	20.5
Toluene	0.92	4.6

An action level of 5X the maximum contaminant concentration was established to evaluate the samples for laboratory method blank contamination. Sample aliquot and dilution factors were taken into consideration during application of the blank action level. Positive results less than the action level were qualified as nondetected, "U", due to blank contamination. The trip blank was not qualified for laboratory blank contamination.

Additional Comments

Nondetected results are reported at the limit of detection (LOD).

Positive results below the limit of quantitation (LOQ) and above the detection limit were qualified as estimated, "J", due to uncertainty near the detection limit.

No matrix spike/matrix spike duplicate samples were requested.

The trip blank was reanalyzed by the laboratory to verify results. The results of the original analysis are presented in the EDD.

EXECUTIVE SUMMARY

Laboratory Performance Issues: 1,2,4-Trichlorobenzene, naphthalene, and toluene were detected in a laboratory method blank. Initial and continuing calibration RRF was <0.05 for acetone. Initial calibration percent relative standard deviation was greater than the quality control limit for bromomethane.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA National Functional Guidelines for Organic Data Validation (10/99), USEPA Region II Standard Operating Procedures for Validating Volatile Organic Compounds by SW-846 Method 8260B HW-24 Revision 2 (August 2008) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

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

Tetra Tech NUS
Leanne Ganser
Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS-GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00622	NSAMPLE	BP-OW-1-3			BP-OWTB-101810		
SDG: 1010101	LAB_ID	1010101-02			1010101-01		
FRACTION: OV	SAMP_DATE	10/18/2010			10/18/2010		
MEDIA: WATER	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		2	U		2	U	
1,1,2-TRICHLOROETHANE		2	U		2	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		2	U		2	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U	
1,1-DICHLOROETHENE		2	U		2	U	
1,1-DICHLOROPROPENE		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		1.4	J	P
1,2-DIBROMO-3-CHLOROPROPANE		2	U		2	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		2	U		2	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U	
2-BUTANONE		5	U		5	U	
2-HEXANONE		1.3	U		1.3	U	
4-METHYL-2-PENTANONE		1.3	U		1.3	U	
ACETONE		6.1	J	CP	34	J	C
BENZENE		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U	
BROMOFORM		2	U		2	U	
BROMOMETHANE		2	UJ	C	2	UJ	C
CARBON DISULFIDE		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U	
CHLOROETHANE		2	U		9.3		
CHLOROFORM		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		2	U		2	U	
CIS-1,3-DICHLOROPROPENE		2	U		2	U	
CYCLOHEXANE		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U	

PROJ_NO: 00622	NSAMPLE	BP-OW-1-3			BP-OWTB-101810		
SDG: 1010101	LAB_ID	1010101-02			1010101-01		
FRACTION: OV	SAMP_DATE	10/18/2010			10/18/2010		
MEDIA: WATER	QC_TYPE	NM			TB		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
M+P-XYLENES		1	U		1	U	
METHYL ACETATE		2	U		2	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U	
NAPHTHALENE		2	U		3.1	J	P
O-XYLENE		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U	
TOLUENE		0.86	U	A	1	J	P
TOTAL 1,2-DICHLOROETHENE		0.5	U		0.5	U	
TOTAL XYLENES		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. BRAYACK** **DATE:** **JANUARY 14, 2011**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC, SVOC, PEST, and PCB**
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), BETHPAGE
CTO 066
SAMPLE DELIVERY GROUP (SDG) B4488

SAMPLES: 5/Aqueous/VOC

BP-TB01-20101208 BPOW-DUP01-20101208 BPOW1-3-20101208
BPOW2-1-20101208 BPOW2-2-20101208

1/IDW/VOC/SVOC/PEST/PCB

BP-FRACIDW-20101209

Overview

The sample sets for NWIRP Bethpage, SDG B4488 consisted of four (4) aqueous environmental samples, one (1) aqueous waste sample, and one (1) aqueous trip blank. All six (6) aqueous samples were analyzed for volatile organic compounds (VOC). The one (1) aqueous waste sample was analyzed for semi-volatile organic compounds (SVOC), pesticides (PEST), and polychlorinated biphenyls (PCB). One field duplicate sample pair was associated with this sample data group (SDG); BPOW-DUP01-20101208/BPOW1-3-20101208.

The samples were collected by Tetra Tech on December 8 and 9, 2010 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Methods SW-846 8260B, 8270C, 8081, 8082 and EPA Method 624 analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

* • Data completeness
* • Hold times
* • GC/MS System Tuning and Performance
• Initial/continuing calibrations
* • Laboratory Method Blank Results
• Surrogate Spike Recoveries
• Internal Standard Recoveries
• Laboratory Control Sample/Laboratory Control Sample Duplicate Recoveries
• Matrix Spike/Matrix Spike Duplicate Results
* • Field Duplicate Precision Results
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatile (VOC)

The Percent Differences (%Ds) for 2-hexanone and bromoform exceeded the 20% quality control limit for the continuing calibration performed on instrument MSVOAD on 12/15/10 @ 11:33. Sample BPOW-DUP01-20101208 was affected. Only non-detected results were reported for these compounds in the affected sample and these non-detects were qualified as estimated, (UJ).

The continuing calibration %Ds for acetone and methyl acetate were greater than 20% quality control criteria on instrument MSVOAG on 12/13/10 @ 10:41 affecting samples TB01-20101208, BPOW1-3-20101208, BPOW2-1-20101208, and BPOW2-2-20101208. The non-detected results reported for these compounds were qualified as estimated, (UJ).

The Relative Percent Difference (RPD) for acetone, methyl acetate, 2-butanone, 1,1,2,2-tetrachloroethene, and 1,2-dibromo-3-chloropropane exceeded the 20% quality control limit in the Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses of sample BPOW2-1-20101208. No action was taken for the non-detected results reported for these compounds in the environmental sample since the Percent Recoveries (%Rs) were acceptable in the MS and MSD samples.

The Laboratory Control Sample (LCS), BSG1213W1, had %Rs for acetone and methyl acetate above the upper quality control limits. No action was taken in the affected samples since no positive results were reported for these compounds.

The LCS/Laboratory Control Sample Duplicate (LCSD) analyses, samples BSG1209W3/BSG1209W4, had RPDs for dichlorofluoromethane, chloromethane, vinyl chloride, bromomethane, chloroethane, trichlorofluoromethane, 1,1-dichloroethene, acetone, carbon disulfide, methyl acetate, and 2-butanone that exceeded 20%. In addition, the %R for acetone was greater that the upper quality control limit. No action was taken in the affected waste water sample since only non-detects were reported for the noncompliant compounds.

The positive result for 1,1-dichloroethane in sample BPOW2-2-20101208 reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) was qualified as estimated, (J). Non-detected results are reported to the Limit of Detection (LOD).

Semi-Volatile Organic Compounds (SVOC)

The internal standard, perylene-d12, was below the lower quality control limit in sample BP-FRACIDW-20101209. The sample was reanalyzed yielding similar results. The initial analysis of this sample was used in the data validation. The non-detected results reported the compounds associated with this internal standard were qualified as estimated, (UJ).

Pesticides (PEST)

No problems were noted.

Polychlorinated Biphenyls (PCB)

The surrogate spike compound, decachlorobiphenyl, had %Rs below the lower quality control limit in sample BP-FRACIDW-20101209 and its reanalysis. The initial analysis was used in the validation of the data. The non-detected results reported for the PCBs in this fraction were qualified as estimated, (UJ).

Additional Comments

The VOC analysis of the waste sample, BP-FRACIDW-20101209, was analyzed via EPA Method 624 and evaluated accordingly.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Some compounds were estimated due to continuing calibration %Ds greater than their respective quality control limit. The VOC LCS/LSD had %Rs and RPDs outside the quality control limits. Noncompliant surrogate %Rs resulted in the qualification the waste sample in the PCB fraction. One internal standard was below the lower quality control limit in the SVOC analysis of the waste sample. Affected compounds were estimated.

Other Factors Affecting Data Quality: The MS/MSD sample had noncompliant %Rs and RPDs. Non-detected results were not qualified. A positive result reported below the LOQ but above the MDL was qualified as estimated, (J). Non-detected results are reported to the LOD.

The data for these analyses were reviewed with reference to the following: SOP #HW-24 Revision #2, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SOP #HW-22 Revision #4, August 2008, USEPA Region II Hazardous Waste Support Branch Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SOP #HW-44 Revision #1, October 2006, USEPA Region II Hazardous Waste Support Branch Validating Pesticides by Gas Chromatography, SOP #HW-45 Revision #1, October 2006, USEPA Region II Hazardous Waste Support Branch Validating Polychlorinated Biphenyls by Gas Chromatography by SW-846 Methods 8260B, 8270C, 8081, and 8082, EPA Method 624, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

TetraTech NUS
Michelle L. Allen
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's r < 0.995 / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient r < 0.995
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 00622	NSAMPLE	BP0W1-3-20101208			BP0W2-1-20101208			BP0W2-2-20101208			BP0W-DUP01-20101208		
SDG: B4488	LAB_ID	B4488-06			B4488-02			B4488-05			B4488-07		
FRACTION: OV	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										BP0W1-3-20101208		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,1,2,2-TETRACHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,1,2-TRICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,1-DICHLOROETHANE	0.5	U		0.5	U		0.74	J	P	0.5	U		
1,1-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2,4-TRICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2-DIBROMOETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2-DICHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,2-DICHLOROPROPANE	0.5	U		0.5	U		0.5	U		0.5	U		
1,3-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
1,4-DICHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
2-BUTANONE	2.5	U		2.5	U		2.5	U		2.5	U		
2-HEXANONE	2.5	U		2.5	U		2.5	U		2.5	UJ	C	
4-METHYL-2-PENTANONE	2.5	U		2.5	U		2.5	U		2.5	U		
ACETONE	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	U		
BENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
BROMODICHLOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
BROMOFORM	0.5	U		0.5	U		0.5	U		0.5	UJ	C	
BROMOMETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
CARBON DISULFIDE	0.5	U		0.5	U		0.5	U		0.5	U		
CARBON TETRACHLORIDE	0.5	U		0.5	U		0.5	U		0.5	U		
CHLOROBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
CHLORODIBROMOMETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
CHLOROETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
CHLOROFORM	0.5	U		0.5	U		0.5	U		0.5	U		
CHLOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
CIS-1,2-DICHLOROETHENE	0.5	U		0.5	U		0.5	U		0.5	U		
CIS-1,3-DICHLOROPROPENE	0.5	U		0.5	U		0.5	U		0.5	U		
CYCLOHEXANE	0.5	U		0.5	U		0.5	U		0.5	U		
DICHLORODIFLUOROMETHANE	0.5	U		0.5	U		0.5	U		0.5	U		
ETHYLBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
ISOPROPYLBENZENE	0.5	U		0.5	U		0.5	U		0.5	U		
M+P-XYLENES	1	U		1	U		1	U		1	U		

PROJ_NO: 00622	NSAMPLE	BP-TB01-20101208
SDG: B4488	LAB_ID	B4488-01
FRACTION: OV	SAMP_DATE	12/8/2010
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	0.5	U	
1,1,2,2-TETRACHLOROETHANE	0.5	U	
1,1,2-TRICHLOROETHANE	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.5	U	
1,1-DICHLOROETHANE	0.5	U	
1,1-DICHLOROETHENE	0.5	U	
1,2,4-TRICHLOROBENZENE	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.5	U	
1,2-DIBROMOETHANE	0.5	U	
1,2-DICHLOROBENZENE	0.5	U	
1,2-DICHLOROETHANE	0.5	U	
1,2-DICHLOROPROPANE	0.5	U	
1,3-DICHLOROBENZENE	0.5	U	
1,4-DICHLOROBENZENE	0.5	U	
2-BUTANONE	2.5	U	
2-HEXANONE	2.5	U	
4-METHYL-2-PENTANONE	2.5	U	
ACETONE	2.5	UJ	C
BENZENE	0.5	U	
BROMODICHLOROMETHANE	0.5	U	
BROMOFORM	0.5	U	
BROMOMETHANE	0.5	U	
CARBON DISULFIDE	0.5	U	
CARBON TETRACHLORIDE	0.5	U	
CHLOROBENZENE	0.5	U	
CHLORODIBROMOMETHANE	0.5	U	
CHLOROETHANE	0.5	U	
CHLOROFORM	0.5	U	
CHLOROMETHANE	0.5	U	
CIS-1,2-DICHLOROETHENE	0.5	U	
CIS-1,3-DICHLOROPROPENE	0.5	U	
CYCLOHEXANE	0.5	U	
DICHLORODIFLUOROMETHANE	0.5	U	
ETHYLBENZENE	0.5	U	
ISOPROPYLBENZENE	0.5	U	
M+P-XYLENES	1	U	

PROJ_NO: 00622	NSAMPLE	BP0W1-3-20101208			BP0W2-1-20101208			BP0W2-2-20101208			BP0W-DUP01-20101208		
SDG: B4488	LAB_ID	B4488-06			B4488-02			B4488-05			B4488-07		
FRACTION: OV	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF										BP0W1-3-20101208		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
METHYL ACETATE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 00622	NSAMPLE	BP-TB01-20101208
SDG: B4488	LAB_ID	B4488-01
FRACTION: OV	SAMP_DATE	12/8/2010
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
METHYL ACETATE	0.5	UJ	C
METHYL CYCLOHEXANE	0.5	U	
METHYL TERT-BUTYL ETHER	0.5	U	
METHYLENE CHLORIDE	0.5	U	
O-XYLENE	0.5	U	
STYRENE	0.5	U	
TETRACHLOROETHENE	0.5	U	
TOLUENE	0.5	U	
TRANS-1,2-DICHLOROETHENE	0.5	U	
TRANS-1,3-DICHLOROPROPENE	0.5	U	
TRICHLOROETHENE	0.5	U	
TRICHLOROFLUOROMETHANE	0.5	U	
VINYL CHLORIDE	0.5	U	