QUARTERLY DATA SUMMARY REPORT

INDOOR AIR AND SSD MONITORING

(AUGUST, SEPTEMBER, AND OCTOBER 2009)

NWIRP BETHPAGE

Bethpage, New York

Naval Facilities Engineering Command
Mid-Atlantic

Contract No. N62470-08-D-1001
Contract Task Order WE06

DECEMBER 2009

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NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC

COMPREHENSIVE LONG-TERM
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NOTICE PAGE

The enclosed report is a “public use” version of a Data Summary Report generated for the Navy by Tetra Tech NUS. To protect the personal privacy of homeowners whose residences are the subject of this report, personal information such as names and home addresses have been redacted by the Navy from this version of the report.

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ACRONYMS

1, 1-DCA	1, 1-dichloroethane
1, 1-DCE	1, 1-dichloroethene
APU	air purification unit
AS/SVE	air sparging/soil vapor extraction
bgs	below ground surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	chain of custody
CTO	contract task order
EPA	United States Environmental Protection Agency
°F	degrees Fahrenheit
IND	indoor air sample
INDB	basement indoor air sample
INDL	Living space indoor air sample
Mph	miles per hour
ND	non-detect
NWIRP	Naval Weapons Industrial Reserve Plant
NYSDOH	New York State Department of Health
PCE	tetrachloroethene
PID	photoionization detector
PSSD	Post Sub-Slab Depressurization
PVC	poly-vinyl chloride
SSB	sub-slab vapor sample
SSD	sub-slab depressurization system
TCA	1,1,1-trichloroethane
TCE	trichloroethene
Tetra Tech	Tetra Tech NUS, Inc.
VOC	volatile organic compound
$\mu g/m^3$	micrograms per cubic meter

1.0 INTRODUCTION

This Quarterly Data Summary Report was prepared by Tetra Tech NUS Inc. (Tetra Tech) under Contract Task Order (CTO) WE06 for the Naval Facilities Engineering Command Mid-Atlantic under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract number N62470-08-D-1001. This Report summarizes field activities conducted in August, September, and October 2009, and includes indoor air, outdoor air, and sub-slab depressurization (SSD) system and stack monitoring activities that took place in August 2009 in the residential neighborhood east of Site 1 at Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, Long Island, New York (Figures 1 and 2). Site 1 – Former Drum Marshalling Area was identified as having been impacted by the historic releases of chlorinated solvents and was remediated via an air sparging/soil vapor extraction (AS/SVE) system between 1998 and 2002. The treatment and remedial goals were based on protection of groundwater. Soil gas testing conducted in January 2008 indicated elevated concentrations of VOCs existing along the eastern boundary of Site 1 that may affect the adjacent residential neighborhood (Tetra Tech, 2008a). Additional soil gas testing was conducted in the Town of Oyster Bay right-of-ways from October 2008 through January 2009 to evaluate the potential migration of contaminated soil vapor off-site (Tetra Tech, 2009a). Based on evaluation of this soil gas data, indoor air, outdoor air, and sub-slab soil vapor sampling was recommended to evaluate potential vapor intrusion into residential homes.

From January through April 2009, soil vapor intrusion samples were collected in the residential neighborhood located east and adjacent to Site 1. A total of 18 residential homes were sampled during investigation activities (Draft Data Summary Report, Tetra Tech, 2009b). As an interim measure, air purification units (APUs) were placed into homes to treat vapors that may have entered the homes. Based on the sample results, six homes did not require further sampling/remediation. Due to the sub-slab soil vapor sampling results, SSDs were installed in six residential homes in May 2009. A total of 10 homes were sampled in June 2009 to monitor and evaluate mitigation measures established in these homes. Post SSD system startup indoor air and stack sampling activities were conducted at these six homes in June 2009, and indoor air sampling was also conducted in four homes that relied solely on continual air purification unit (APU) operation.

In August 2009, a second post SSD system startup sampling event was conducted. The sampling focused on the collection of indoor air, outdoor air, and SSD system stack samples at the six homes with SSD systems in operation. The August sampling event also included an outdoor air evaluation in and around the neighborhood. The outdoor air evaluation was conducted to evaluate outdoor air conditions that may affect indoor air conditions.

Air and vapor samples were analyzed for volatile organic compounds (VOCs) via United States Environmental Protection Agency (EPA) TO-15 method. This work was conducted in accordance with the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006).

2.0 FIELD AND SAMPLING ACTIVITIES

Between August, September, and October 2009, monitoring activities were conducted at six residential homes located in the neighborhood adjacent to Site 1. Indoor air and SSD system stack samples were collected from these homes that were equipped with SSD systems and APUs. Outdoor air samples were also collected in and around the neighborhood during this sampling event to evaluate the potential influence of outdoor air on indoor air quality. The general field activities for sampling are summarized as follows:

1. Schedule sampling with homeowners
2. Mobilization to neighborhood
3. Re-establish previous sampling locations
4. Collect indoor air, outdoor air samples, and SSD stack samples
5. Ship and analyzed samples for the modified TO-15 VOCs

Homeowners were contacted to schedule and coordinate field sampling activities. Indoor air, SSD stack and outdoor air samples were collected using SUMMA® canisters (6 liter) with pre-set regulators. Indoor air sample locations were collected from the same locations that were previously sampled (Draft Data Summary Report, August 2009). During the indoor air sampling, outdoor air samples were placed in an upwind direction (at the start of the sampling period) approximately 50 to 200 feet from the associated indoor air sampling locations, at a height of approximately 3 feet above grade. Some of the outdoor air samples were used in evaluating more than one home given the proximity of the homes being sampled at that time.

Weather conditions the week prior to sampling was warm (average 80°F) and dry (approximately 0.01 inches of precipitation). During the week of sampling, August 24 through August 28, 2009, a minor amount of rain was recorded (approximately 0.32 inches) and temperatures ranged from 64°F at night to 90°F during the day. Wind direction and speed was variable, averaging 0-8 miles per hour during the sampling event.

The indoor and outdoor air samples were obtained over a 24-hour time period. SSD system stack samples were obtained over a 30-minute time period. Prior to sampling the SSD system stack, a photoionization detector (PID) reading was collected from the SSD system stack sampling port. PID readings were recorded on the air sampling log sheets (Appendix A). The SSD system stack samples were collected through polyethylene tubing which was secured to a brass nipple fitting threaded into the SSD system exhaust sampling port. Once the sample was collected, the SSD system exhaust sampling port was sealed using a brass plug. The air and vapor samples were shipped to Air Toxics Ltd. in

Folsom, CA via overnight carrier (Federal Express) for the modified TO-15 analysis list that was approved by NYSDOH and NYSDEC. The sampling procedures for indoor air, SSD system exhaust stack samples and outdoor air were in accordance with NYSDOH Guidance for Evaluating Soil Vapor Intrusion (NYSDOH, 2006).

A separate outdoor air evaluation was conducted during the August 2009 air sampling activities. This evaluation included the collection of two rounds of outdoor air samples (total of ten samples) which targeted both lower and higher wind scenarios. During each round, four outdoor air samples were placed along the perimeter of the residential block bounded by Eleventh Street, Sycamore Avenue, Tenth Street, and Maple Avenue and one outdoor air sample was placed in a central location within this residential block. These outdoor air samples were collected at four hour time intervals. Further details on this outdoor air evaluation and discussion of analytical results are presented in Section 3.7.

The field sampling team maintained air sampling log sheets and a field logbook that summarized the following information:

- sample identification
- date and time of sample collection
- sample location description
- identity of samplers
- sampling methods and devices (including canister and regulator ID numbers)
- vacuum before and after samples were collected
- wind speed and direction (for outdoor air sampling)
- ambient temperature (for outdoor air sampling)

Table 2-1 presents a sample summary of the indoor air, outdoor air, and SSD system stack samples collected, corresponding sample nomenclature, date collected, sample type, and event type. Sample date corresponds to the end of the sample collection period (i.e., 24-hour for indoor air; 30-minute for SSD stack samples; and 4-hour for the outdoor air evaluation). Sample containers were labeled with a unique sample identifier as presented on Table 2-1.

Additional information regarding sample identification and sample collection was recorded in the field logbook and/or on the corresponding sample log sheets. Sample log sheets were completed for each sample collected and are provided as Appendix A. Chain of Custody (COC) Forms are provided in Appendix B.

3.0 ANALYTICAL RESULTS

This section summarizes the analytical results from the post SSD system and post APU startup sampling event conducted in August 2009. The SSD systems and APUs were operating during the testing. Based on previous sampling results, it was determined that trichloroethylene (TCE), tetrachloroethene (PCE), and 1,1,1-trichloroethane (TCA) represented the primary chemicals of concern. Therefore, the analytical results for TCE, PCE, and TCA are the focus of the analytical discussions in this section. Sample results for each of the homes are summarized in Tables 3-1 through 3-6. Details for each of the air samples collected from the homes are presented on the air sample log sheets provided in Appendix A. CoC Forms and the laboratory analytical reports can be found in Appendix B and C, respectively. Data validation summaries are presented in Appendix D.

Analytical results from the indoor air sampling conducted in residential homes are compared to the air guideline values presented in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006). The air guideline values used for evaluation of indoor air are summarized in the table below.

Air Guideline Values for Indoor Air

Chemical	Air Guideline Value ($\mu g/m^3$)
Tetrachloroethene	100
Trichloroethane	5
1,1,1-Trichloroethane	100*

* = value derived from NYSDOH guidance (2006), Table 3.3 (Matrix 2)
$\mu g/m^3$ = micrograms per cubic meter of air

During this quarterly monitoring event, the following six homes were sampled in August 2009:

- Home #2
- Home #3
- Home #4
- Home #6
- Home #13
- Home #14

3.1 Home #2

The home was initially sampled on January 21, 2009. After sampling, an APU was installed in the basement of Home #2 as an interim mitigation measure. The sewer utility sump in the basement was

also sealed to reduce a potential pathway for soil vapor to enter the home. Based on first floor living space VOC results, a second APU was installed on the first floor on March 10, 2009. Since the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 19, 2009 as a supplemental mitigation measure.

The post-SSD system sampling event was conducted on August 24 and 25, 2009. The sampling results indicated basement air concentrations of TCE at 41 µg/m^3, PCE at 1.6 µg/m^3 and TCA at 4.2 µg/m^3, first floor living space air concentrations of TCE at 3.4 µg/m^3, PCE at 0.41 J µg/m^3 and TCA at 0.87 µg/m^3, and SSD system stack sample concentrations of TCE at 12,000 µg/m^3, PCE at 500 µg/m^3 and TCA at 5,400 µg/m^3. The indoor air results indicated basement air concentrations of TCE above the NYSDOH air guideline value of 5 µg/m^3. SSD system stack concentrations have not changed significantly since startup.

As of August 2009, TCE concentrations have decreased by approximately 71% in basement air and 97% in the living space air since the initial sampling in January 2009. Sample results from each event are summarized on Table 3-1. The SSD system and the APUs installed in the basement and first floor of Home #2 remain in operation.

3.2 Home #3

The home was initially sampled on January 22, 2009. After sampling, an APU was installed in the basement of Home #3 as an interim mitigation measure. The sewer utility sump and observable cracks in the basement floor and walls were sealed at this time to reduce these potential pathways for soil vapor to enter the home. Based on the indoor air results, a second APU was installed on the first floor on February 26, 2009. Since the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 19, 2009 as a supplemental mitigation measure.

The post-SSD system sampling event was conducted on August 25 and 26, 2009. The sampling results indicated basement air concentrations of TCE at 27 µg/m^3, PCE at 1.3 µg/m^3 and TCA at 4 µg/m^3, first floor living space air concentrations of TCE at 10 µg/m^3, PCE at 0.43 J µg/m^3 and TCA at 5.2 µg/m^3, and SSD stack concentrations of TCE at 10,000 µg/m^3, PCE at 170 µg/m^3 and TCA at 4,200 µg/m^3. As of August 2009, TCE concentrations decreased by approximately 85% in basement air and 91% in the living space since the initial sampling in January 2009. SSD system stack concentrations have not changed significantly since startup. Sample results from each event are summarized on Table 3-2. The SSD system and the APUs installed in the basement and first floor of Home #3 remain in operation.

3.3 Home #4

The home was initially sampled on January 21, 2009. After sampling, an APU was installed in the southern portion of the basement in Home #4 as an interim mitigation measure. The sewer utility sump, also located in this southern portion of the basement, was sealed to reduce this potential pathway for soil vapor to enter the home. Since the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 20, 2009 as a supplemental mitigation measure.

The post-SSD system sampling event was conducted on August 25 and 26, 2009. The sampling results indicated basement air concentrations of TCE at 1.5 $\mu g/m^3$ and TCA at 0.55 $\mu g/m^3$, PCE was not detected in basement air. The indoor air concentrations are below the NYSDOH air guideline values. SSD system stack results included concentrations of TCE at 360 $\mu g/m^3$, PCE at 31 $\mu g/m^3$ and TCA at 210 $\mu g/m^3$. Comparing the SSD system stack results to the initial sub-slab vapor sample results in January 2009, TCE concentrations have decreased by approximately 75%. Sample results from each event are summarized on Table 3-3. The SSD system and the APU installed in the basement remain in operation.

3.4 Home #6

The home was initially sampled on February 19, 2009. After sampling, as an interim mitigation measure for potential exposure to soil vapor intrusion, an APU was installed in the basement of Home #6. Since the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 20, 2009 as a supplemental mitigation measure.

The post SSD system sampling event was conducted on August 26 and 27, 2009. The sampling results indicated basement air concentrations of TCE at 14 $\mu g/m^3$, PCE at 7.7 $\mu g/m^3$ and TCA at 2.8 $\mu g/m^3$, and SSD system stack concentrations of TCE at 720 $\mu g/m^3$, PCE at 1,600 $\mu g/m^3$ and TCA at 550 $\mu g/m^3$. The indoor air results indicate TCE concentrations above the NYSDOH air guideline value of 5 $\mu g/m^3$. SSD system stack concentrations have not changed significantly since startup. As of August 2009, TCE concentrations decreased by approximately 70% in basement air since the initial sampling in January 2009. Sample results from each event are summarized on Table 3-4. The SSD system and the APU installed in the basement remain in operation.

3.5 Home #13

The home was initially sampled on February 26, 2009. After sampling, as an interim mitigation measure for potential exposure to soil vapor intrusion, an APU was installed in the basement of Home #13. Since

the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 20, 2009 as a supplemental mitigation measure.

The post-SSD system sampling event was conducted on August 25 and 26, 2009. The sampling results indicated basement air concentrations of TCE at 0.67 µg/m^3 and PCE at 0.43 J µg/m^3, TCA was not detected in basement air. The indoor air concentrations are below the respective NYSDOH air guideline values. SSD system stack results included concentrations of TCE at 48 µg/m^3, PCE at 8.6 µg/m^3 and TCA at 58 µg/m^3. Comparing the August 2009 SSD system stack sample results to the initial sub-slab vapor sample results in January 2009, TCE concentrations decreased by approximately 81%. Sample results from each event are summarized on Table 3-5. The SSD system and the APU installed in the basement remain in operation.

3.6 Home #14

The home was initially sampled on March 11, 2009. After sampling, as an interim mitigation measure for potential exposure to soil vapor intrusion, an APU was installed in the basement of Home #14. Since the sub-slab concentrations were above the NYSDOH guidelines, an SSD system was installed on May 20, 2009 as a supplemental mitigation measure.

A post-SSD system sampling event was conducted on August 26, 2009. Because of an access issue, only an SSD system stack sample was collected. The sample results indicated SSD system stack concentrations of TCE at 30 µg/m^3, PCE at 10 µg/m^3 and TCA at 43 µg/m^3. Comparing the SSD system stack sample results to the initial sub-slab vapor sample results in March 2009, TCE concentrations have decreased by approximately 90%. Sample results from each event are summarized on Table 3-6. The SSD system and the APU installed in the basement remains in operation.

3.7 Outdoor Air Sampling Summary

Outdoor air samples were collected to:

- Evaluate ambient VOC concentrations during the indoor air sampling
- Determine whether the operation of the SSD systems was affecting downwind air quality

During each of the post-APU and SSD system sampling events, outdoor air samples were collected to evaluate potential influence of outdoor air on indoor air quality. The outdoor air samples were collected to represent upwind ambient air data at the time of indoor air sampling in individual homes. For some

samples, a single upwind outdoor air sample was used to evaluate multiple homes. Table 3-7 provides an analytical summary of the outdoor air sampling conducted during indoor air sampling in August 2009.

The August 2009 results from outdoor air samples associated with homes #2, #3, #4, #6, and #13 showed concentrations of TCE ranging from non-detect to 0.73 µg/m^3, PCE ranging from 0.31 J to 0.39 J µg/m^3, and TCA ranging from non-detect to 0.39 J µg/m^3. None of the other site related compounds VOCs were detected in outdoor air samples. Outdoor air concentrations observed during this sampling event were below the respective NYSDOH Air Guideline Values.

To evaluate the potential influence from SSD system stack discharges to outdoor air, a separate outdoor air evaluation was conducted on August 25 and 26, 2009. This evaluation included two rounds of outdoor air sampling targeting a lower and higher wind speed scenario in the neighborhood. Each of the two sampling rounds was conducted over a 4-hour time period and consisted of five outdoor air samples during each event. The first round of sampling targeted a low wind speed or calm conditions on the morning of August 25, 2009, where the average wind speed ranged from 0 to 3.5 mph and average temperature was approximately 68°F. The second round of sampling targeted a windier condition on the afternoon of August 26, 2009, where the average wind speed was 7.6 mph (with gusts up to approximately 20 mph) and an average temperature of approximately 76°F. The sample locations for the outdoor air evaluation are presented on Figure 3.

During this evaluation, four of the nine site-specific VOCs were detected. The four compounds included TCA, PCE, TCE, and 1,2-dichloroethane. PCE was most frequently detected compound (nine of the ten samples) with concentrations ranging from 0.3 to 7.7 µg/m^3. TCA, TCE, and 1,2-dichloroethane were detected in only one of ten samples with the maximum concentrations of TCE at 14 µg/m^3, TCA at 2.8 µg/m^3, and 1,2-dichloroethane at 0.97 µg/m^3. The highest detections of PCE, TCE, and TCA were observed in sample BPS1-ODA109 during the higher wind evaluation. This sample was collected from the approximate center of the residential block (see Figure 3). Wind direction was from the southwest and discharge from SSD systems installed at home #2 and #3 would have been directly upgradient of this sample location. With the exception of TCE detected in this sample, outdoor air concentrations observed during the evaluation were below the respective NYSDOH Air Guideline Values.

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United States Environmental Protection Agency (USEPA), 1999. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air Second Edition Compendium Method TO-15 Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially- Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS). January.

TABLES

Table 2-1
Sample Summary
Indoor/Outdoor/SSD System Stack Sampling - August 2009
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type
BPS1-AR002-INDL-02	8/26/2009	Living Space	PSSD
BPS1-AR002-INDB-02	8/26/2009	Basement	PSSD
BPS1-AR002-ST02	8/25/2009	SSD Stack	PSSD
BPS1-AR002-ST02 DUP	8/25/2009	SSD Stack	PSSD
BPS1-AR003-ST02	8/25/2009	SSD Stack	PSSD
BPS1-AR003-INDL-02	8/26/2009	Living Space	PSSD
BPS1-AR003-INDB-02	8/26/2009	Basement	PSSD
BPS1-AR003-SSB2	8/26/2009	Subslab	PSSD
BPS1-AR004-INDB-02	8/26/2009	Basement	PSSD
BPS1-AR004-ST02	8/25/2009	SSD Stack	PSSD
BPS1-AR006-INDB-02	8/27/2009	Basement	PSSD
BPS1-AR006-INDB-02 DUP	8/27/2009	Basement	PSSD
BPS1-AR006-ST02	8/26/2009	SSD Stack	PSSD
BPS1-AR013-INDB-02	8/26/2009	Basement	PSSD
BPS1-AR013-ST02	8/25/2009	SSD Stack	PSSD
BPS1-AR014-ST02	8/26/2009	SSD Stack	PSSD

Notes:
DUP = Duplicate Sample
INDB = Basement Indoor Air
INDL = Living Space Indoor Air
ODA = Outdoor Air
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
SSD = Sub-slab Depressurization System
ST = SSD system stack sample

Table 3-1
Analytical Summary - Home #2
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR002-IND2	2/19/2009	Living Space	IS	**100**	4.9	73
BPS1-AR002-IND4	3/24/2009	Living Space	PUS	3.1	0.91	4.8
BPS1-AR002-INDL	6/23/2009	Living Space	PSSD	**9.2**	0.34 J	25
BPS1-AR002-INDL-02	8/26/2009	Living Space	PSSD	3.4	0.41 J	0.87
BPS1-AR002-IND	1/21/2009	Basement	IS	**140**	7.6	92
BPS1-AR002-IND3	2/24/2009	Basement	PUS	**46**	2.1	42
BPS1-AR002-IND5	3/24/2009	Basement	PUS	4.2	ND	11
BPS1-AR002-INDB	6/23/2009	Basement	PSSD	**61**	0.96	77
BPS1-AR002-INDB-02	8/26/2009	Basement	PSSD	**41**	1.6	4.2
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR002-SSB	1/21/2009	Subslab	IS	**16,000**	310	**15,000**
SSD STACK SAMPLES						
BPS1-AR002-ST01	6/22/2009	SSD Stack	PSSD	**11,000**	280	**5,900**
BPS1-AR002-ST02	8/25/2009	SSD Stack	PSSD	**12,000**	460	**5,300**
BPS1-AR002-ST02 DUP	8/25/2009	SSD Stack	PSSD	**12,000**	500	**5,400**

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
SSB = Sub-slab Sample
ST = SSD system stack sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

Table 3-2
Analytical Summary - Home #3
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR003-IND2	2/18/2009	Living Space	IS	**110**	3.1	74
BPS1-AR003-IND5	3/12/2009	Living Space	PUS	2.8	ND	5.2
BPS1-AR003-IND5 DUP	3/12/2009	Living Space	PUS	3.0	ND	5.5
BPS1-AR003-INDL-01	6/23/2009	Living Space	PSSD	**16**	2.40	30
BPS1-AR003-INDL-02	8/26/2009	Living Space	PSSD	**10**	0.43 J	5.2
BPS1-AR003-IND	1/22/2009	Basement	IS	**180**	4.3	95
BPS1-AR003-IND DUP	1/22/2009	Basement	IS	**180**	4.2	98
BPS1-AR003-IND3	2/26/2009	Basement	PUS	**34**	0.75	27
BPS1-AR003-IND3 DUP	2/26/2009	Basement	PUS	**31**	0.72	27
BPS1-AR003-IND4	3/12/2009	Basement	PUS	**32**	0.49 J	41
BPS1-AR003-INDB	4/30/2009	Basement	PUS	**52**	0.38 J	65
BPS1-AR003-INDB DUP	4/30/2009	Basement	PUS	**50**	0.54	64
BPS1-AR003-INDB-01	6/23/2009	Basement	PSSD	**79**	1.1	19
BPS1-AR003-INDB-02	8/26/2009	Basement	PSSD	**27**	1.3	4
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR003-SSB	1/22/2009	Subslab	IS	**13,000**	130	**10,000**
BPS1-AR003-SSB2 (1)	8/26/2009	Subslab	PSSD	**260**	3.7	38
SSD STACK SAMPLES						
BPS1-AR003-ST01	6/22/2009	SSD Stack	PSSD	**7,700**	92	**3,600**
BPS1-AR003-ST02	8/25/2009	SSD Stack	PSSD	**10,000**	170	**4,200**

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
ST = SSD system stack sample
SSB = Sub-slab Sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)
(1) = Sub-slab sample result is questionable, SSD system was in operation

Table 3-3
Analytical Summary - Home #4
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR004-IND2	1/21/2009	Basement-APT	IS	2.9	2.2	2.7
BPS1-AR004-IND3	2/18/2009	Living Space	IS	**6.1**	0.82 J	6.2
BPS1-AR004-IND5	3/24/2009	Living Space	PUS	1.1	ND	1.2
BPS1-AR004-IND	1/21/2009	Basement	IS	**6.8**	ND	6.4
BPS1-AR004-IND4	2/26/2009	Basement	PUS	1.2	ND	1.6
BPS1-AR004-INDB-01	6/26/2009	Basement	PSSD	3	0.43 J	4.3
BPS1-AR004-INDB-01 DUP	6/26/2009	Basement	PSSD	3.3	ND	4.7
BPS1-AR004-INDB-02	8/26/2009	Basement	PSSD	1.5	ND	0.55
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR004-SSB	1/21/2009	Subslab	IS	**1,400**	42	**2,100**
SSD STACK SAMPLES						
BPS1-AR004-ST01	6/25/2009	SSD Stack	PSSD	160	2	190
BPS1-AR004-ST01 DUP	6/25/2009	SSD Stack	PSSD	160	1.7	180
BPS1-AR004-ST02	8/25/2009	SSD Stack	PSSD	**360**	31	210

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
ST = SSD system stack sample
SSB = Sub-slab Sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

Table 3-4
Analytical Summary - Home #6
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR006-IND2	2/19/2009	Living Space	IS	**6.6**	8.8	8.8
BPS1-AR006-IND4	3/24/2009	Living Space	PUS	1.2	1.6	7.0
BPS1-AR006-IND	2/19/2009	Basement	IS	**43**	56	40
BPS1-AR006-IND3	2/26/2009	Basement	PUS	2.1	2.4	2.4
BPS1-AR006-INDB-01	6/25/2009	Basement	PSSD	**13**	2.7	50
BPS1-AR006-INDB-02	8/27/2009	Basement	PSSD	**13**	6.8	2.6
BPS1-AR006-INDB-02 DUP	8/27/2009	Basement	PSSD	**14**	7.7	2.8
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR006-SSB	2/19/2009	Subslab	IS	**740**	650	**1,600**
SSD STACK SAMPLES						
BPS1-AR006-ST01	6/24/2009	SSD Stack	PSSD	**600**	890	490
BPS1-AR006-ST02	8/26/2009	SSD Stack	PSSD	**720**	**1,600**	550

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
ST = SSD system stack sample
SSB = Sub-slab Sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

Table 3-5
Analytical Summary - Home #13
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR013-IND2	2/26/2009	Living Space	IS	ND	0.58 J	0.9 J
BPS1-AR013-IND	2/26/2009	Basement	IS	1.5	0.56	2.3
BPS1-AR013-IND3	3/24/2009	Basement	PUS	0.50	ND	1.2
BPS1-AR013-INDB-01	6/25/2009	Basement	PSSD	1.9	0.28 J	0.32 J
BPS1-AR013-INDB-02	8/26/2009	Basement	PSSD	0.67	0.43 J	ND
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR013-SSB	2/26/2009	Subslab	IS	230	11	420
BPS1-AR013-SSB DUP	2/26/2009	Subslab	IS	250	12	440
SSD STACK SAMPLES						
BPS1-AR013-ST01	6/24/2009	SSD Stack	PSSD	70	68	84
BPS1-AR013-ST02	8/25/2009	SSD Stack	PSSD	48	8.6	58

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
ST = SSD system stack sample
SSB = Sub-slab Sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

Table 3-6
Analytical Summary - Home #14
NWIRP Bethpage, New York

Sample ID	Date Collected	Sample Type	Event Type	TCE (µg/m^3)	PCE (µg/m^3)	TCA (µg/m^3)
INDOOR AIR SAMPLES		**NYSDOH Air Guideline Value**		5	100	100*
BPS1-AR014-IND2	3/11/2009	Living Space	IS	0.73	0.36 J	1.3
BPS1-AR014-IND	3/11/2009	Basement	IS	1.9	0.46 J	2.6
BPS1-AR014-IND3	3/25/2009	Basement	PUS	ND	ND	0.41 J
SUB-SLAB SOIL VAPOR SAMPLES		**NYSDOH Sub-Slab Guideline Value**		250*	1,000*	1,000*
BPS1-AR014-SSB	3/11/2009	Subslab	IS	**290**	15	970
SSD STACK SAMPLES						
BPS1-AR014-ST01	6/24/2009	SSD Stack	PSSD	88	13	110
BPS1-AR014-ST02	8/26/2009	SSD Stack	PSSD	30	10	43

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
TCA = 1,1,1-Trichloroethane
INDB = Basement indoor air sample
INDL = Living Space indoor air sample
IS = Initial Sampling
PUS : Post Air Purification Unit Startup Sampling
PSSD = Post SSD System Startup Sampling
ST = SSD system stack sample
SSB = Sub-slab Sample
µg/m^3 : micrograms per cubic meter
J : Estimated Value
BOLD = Concentration exceeds NYSDOH Guideline value
* Value derived from Table 3.3 (Matrix 1 and 2), NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006)

Table 3-7
Analytical Summary - Outdoor Air Sampling
NWIRP Bethpage, New York

Sample ID Sample Collection Date	**BPS1-AR002-ODA2** 20090826	**BPS1-AR013-ODA2** 20090826	**BPS1-AR003-ODA2** 20090826	**BPS1-AR006-ODA3** 20090827	**Frequency of Detections**	**Range of Detections**
Volatile Organics (ug/m^3)						
1,1,1-TRICHLOROETHANE	0.39 J	0.47 U	0.37 J	0.55 U	2 of 4	ND - 0.39 J
1,1-DICHLOROETHANE	0.74 U	0.69 U	0.77 U	0.81 U	0 of 4	ND
1,1-DICHLOROETHENE	0.72 U	0.68 U	0.76 U	0.8 U	0 of 4	ND
1,2-DICHLOROETHANE	0.74 U	0.69 U	0.77 U	0.81 U	0 of 4	ND
CIS-1,2-DICHLOROETHENE	0.72 U	0.68 U	0.76 U	0.8 U	0 of 4	ND
TETRACHLOROETHENE	0.37 J	0.33 J	0.31 J	0.39 J	4 of 4	0.31 J - 0.39 J
TRANS-1,2-DICHLOROETHENE	0.72 U	0.68 U	0.76 U	0.8 U	0 of 4	ND
TRICHLOROETHENE	0.73	0.46 U	0.4 J	0.31 J	3 of 4	ND - 0.73
VINYL CHLORIDE	0.47 U	0.44 U	0.49 U	0.51 U	0 of 4	ND

NOTES:
Sample collection date indicates the day of collection. Samples were collected over a 24 hour period and represent up-wind outdoor air quality to support indoor air testing.
µg/m^3 = micrograms per cubic meter of air
U : Compound Analyzed for but not detected above the reporting limit.
J : Estimated Value

Table 3-8
Outdoor Air Evaluation
NWIRP Bethpage, New York

Sample ID Sample Collection Date	**BPS1-ODA100** 20090825	**BPS1-ODA101** 20090825	**BPS1-ODA102** 20090825	**BPS1-ODA103** 20090825	**BPS1-ODA104** 20090825	**BPS1-ODA105** 20090826
Volatile Organics (µg/m^3)						
1,1,1-TRICHLOROETHANE	0.49 U	0.5 U	0.49 U	0.48 U	0.48 U	0.5 U
1,1-DICHLOROETHANE	0.72 U	0.74 U	0.72 U	0.71 U	0.71 U	0.74 U
1,1-DICHLOROETHENE	0.71 U	0.72 U	0.71 U	0.69 U	0.69 U	0.72 U
1,2-DICHLOROETHANE	0.72 U	0.74 U	0.72 U	0.71 U	0.71 U	0.74 U
CIS-1,2-DICHLOROETHENE	0.71 U	0.72 U	0.71 U	0.69 U	0.69 U	0.72 U
TETRACHLOROETHENE	0.3 J	0.35 J	6.9	0.37 J	0.36 J	0.62 U
TRANS-1,2-DICHLOROETHENE	0.71 U	0.72 U	0.71 U	0.69 U	0.69 U	0.72 U
TRICHLOROETHENE	0.48 U	0.49 U	0.48 U	0.47 U	0.47 U	0.49 U
VINYL CHLORIDE	0.46 U	0.47 U	0.46 U	0.45 U	0.45 U	0.47 U
Meterological Conditions						
Prominent Wind Direction	**North/Calm**	**North/Calm**	**North/Calm**	**North/Calm**	**North/Calm**	**SW**
Average Wind Speed	**0 - 3.5 mph**	**0 - 3.5 mph**	**0 - 3.5 mph**	**0 - 3.5 mph**	**0 - 3.5 mph**	**7.6 mph**
Average Temperature	**68.6 °F**	**68.6 °F**	**68.6 °F**	**68.6 °F**	**68.6 °F**	**76.1 °F**
Sample Location	*Corner of Sycamore Avenue and 10th Street*	*Corner of Maple Avenue and 10th Street*	*Corner of Maple Avenue and 11th Street*	*Corner of Sycamore Avenue and 11th Street*	*Center of residential neighborhood*	*Corner of Sycamore Avenue and 10th Street*

Notes
Sample collection date indicates the day of collection. Samples were collected over a 4 hour period.
µg/m^3 : micrograms per cubic meter of air
U : Compound Analyzed for but not detected above the reporting limit.
J : Estimated Value
August 25, 2009: Wind direction ranged from north/northwest to northeast and had a speed that ranged from calm to 3.5 mph
August 25, 2009: Temperature ranged from 66 to 71.1°F
August 26, 2009: Wind direction ranged from west/southwest to south/southwest and had a speed that ranged from 6.9 to 9.2 mph
August 26, 2009: Temperature ranged from 71.6 to 80.1°F

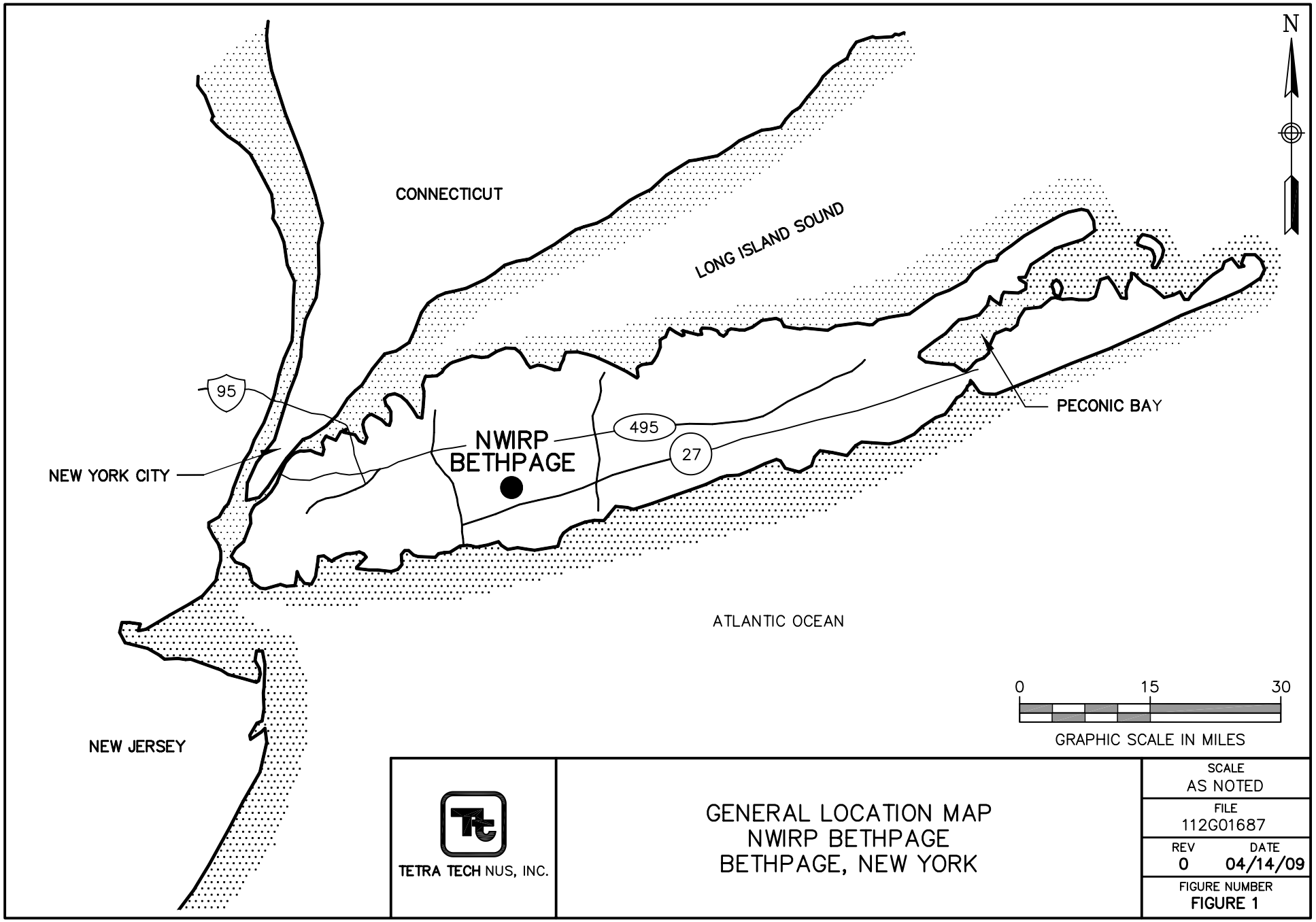
Table 3-8
Outdoor Air Evaluation
NWIRP Bethpage, New York

Sample ID Sample Collection Date	**BPS1-ODA106** 20090826	**BPS1-ODA107** 20090826	**BPS1-ODA108** 20090826	**BPS1-ODA109** 20090826	**Frequency of Detections**	**Range of Detections**
Volatile Organics (µg/m^3)						
1,1,1-TRICHLOROETHANE	0.5 U	0.51 U	0.51 U	2.8	1 of 10	ND - 2.8
1,1-DICHLOROETHANE	0.74 U	0.76 U	0.76 U	0.83 U	0 of 10	ND
1,1-DICHLOROETHENE	0.72 U	0.74 U	0.74 U	0.82 U	0 of 10	ND
1,2-DICHLOROETHANE	0.74 U	0.97	0.76 U	0.83 U	1 of 10	ND - 0.97
CIS-1,2-DICHLOROETHENE	0.72 U	0.74 U	0.74 U	0.82 U	0 of 10	ND
TETRACHLOROETHENE	0.3 J	1.0	0.45 J	7.7	9 of 10	ND - 7.7
TRANS-1,2-DICHLOROETHENE	0.72 U	0.74 U	0.74 U	0.82 U	0 of 10	ND
TRICHLOROETHENE	0.49 U	0.5 U	0.5 U	14	1 of 10	ND - 14
VINYL CHLORIDE	0.47 U	0.48 U	0.48 U	0.53 U	0 of 10	ND
Meterological Conditions						
Prominent Wind Direction	**SW**	**SW**	**SW**	**SW**		
Average Wind Speed	**7.6 mph**	**7.6 mph**	**7.6 mph**	**7.6 mph**		
Average Temperature	**76.1 °F**	**76.1 °F**	**76.1 °F**	**76.1 °F**		
Sample Location	*Corner of Maple Avenue and 10th Street*	*Corner of Maple Avenue and 11th Street*	*Corner of Sycamore Avenue and 11th Street*	*Center of residential neighborhood*		

Notes
Sample collection date indicates the
µg/m^3 : micrograms per cubic meter
U : Compound Analyzed for but not
J : Estimated Value
August 25, 2009: Wind direction ran
August 25, 2009: Temperature rang
August 26, 2009: Wind direction ran
August 26, 2009: Temperature rang

FIGURES

112G01687/0510/112G01687CM01.DWG 04/14/09 MKB

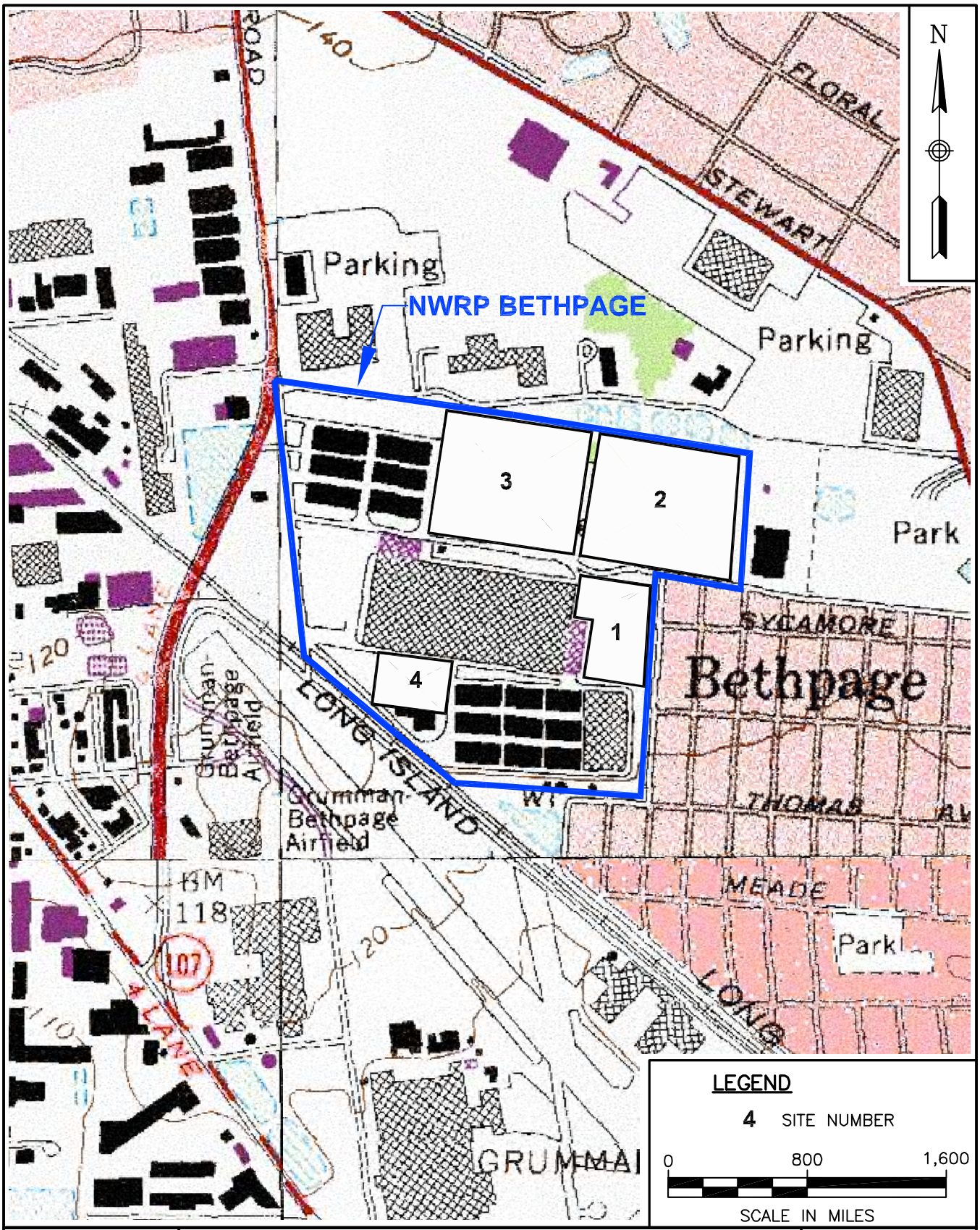


TETRA TECH NUS, INC.

GENERAL LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

SCALE	AS NOTED
FILE	112G01687
REV	0
DATE	04/14/09
FIGURE NUMBER	FIGURE 1

112G01687/0510/112G01687CM02.DWG 04/14/09 MKB



TETRA TECHNUS, INC.

SITE LOCATION MAP
SITE 1
NWIRP
BETHPAGE, NEW YORK

SCALE	AS NOTED
FILE	112G01687CM02
REV	0
DATE	04/14/09
FIGURE NUMBER	FIGURE 2

112G02019/0410/112G02019GM02.DWG 11/30/09 MKB

TETRA TECH NUS, INC.

OUTDOOR AIR EVALUATION SAMPLE LOCATION MAP SITE 1 NWIRP BETHPAGE BETHPAGE, NEW YORK

FILE	SCALE
112G02019GM02	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3	0 / 11/30/09

APPENDIX A

AIR SAMPLING LOG SHEETS

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS1-AR002-IN08-02
Sample Location: Home #2 Basement
Sampled By: Russ

SAMPLING DATA:

Date: 8/25/09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure ~~(°C)~~	Relative Humidity (%)	Other
Time: 0935						
Method: Summa	0-5 mph	South	75°F	30	69	

Summa Canister #	35638
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	0940	8/25/09	-33	in Hg
End Time Vacuum	0935	8/26/09	-9.0	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →			→
PID Readings	**ppm**	**Volume**	
NA →			→

Notes:

* First sample collected after APU was moved into more central location in basement

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BP51-AR002-INOL-02
Sample Location: In Hom #2 Living Space Rm 5
Sampled By:

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8/25/09						
Time: 0938	(Visual)	(S.U.)	(°C)	~~(°C)~~	(%)	
Method: Summa	0-5 mph	South	75°F	30	69	

Summa Canister #	5633
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	0938	8/25/09	-30	in Hg
End Time Vacuum	0936	8/25/09	-9	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →			
PID Readings	**ppm**	**Volume**	
NA →			
		→	

0938 Replaced HEPA on APU (LS) Light orange

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BP51-AR002-ST02
Sample Location: Home #2
Sampled By: RMS/VAS

SAMPLING DATA:

Date: 8/25/09	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 0942	(Visual)	(S.U.)	(°C)	~~(°C)~~	(%)	
Method: Summa	0-5 mph	South	75°F	30	69	

Summa Canister #	#1586
Filter Type/Rate	30min

Duplicate #5609

	Time	Date		
Start Time Vacuum	0942	8/25/09	-31	in Hg
End Time Vacuum	1027	8/25/09	-11	in Hg

Duplicate ☆ BP51-DUP-~~1017~~ time: 2400
-34
-6

He check	Start	Stop	Reading
NA →		→	
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
Stack	2.3		

69 KW Hs on SSD system monitor
209 KWHs on basement APU

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS1-AR003-IND-02
Sample Location: Home #2
Sampled By: RMS/JAS

SAMPLING DATA:

Date: 8/26/09	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Time: 1728	(Visual)	(S.U.)	(°C)	~~[illegible]~~	(%)	
Method: Summa	5-10 mph	West	85° F	30	40	

Summa Canister #	36045
Filter Type/Rate	24 hr

	Time	Date		
Start Time Vacuum	1830	8/25/09	-31	in Hg
End Time Vacuum	1728	8/26/09	-8	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →			
		→	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPSJ-AR003-INDL-02
Sample Location: Home #3
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (~~°C~~)	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1732						
Method: Summa	5-10 mph	West	85°F	30	40	

Summa Canister #	33531
Filter Type/Rate	24 hr

	Time	Date		
Start Time Vacuum	1820	8/25/09	-33	in Hg
End Time Vacuum	1732	8/26/09	-9	in Hg

He check	Start	Stop	Reading
NA →			→

Purge Data	Start	Stop
NA →		→

PID Readings	ppm	Volume
NA →		
		→

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BP51-AR003-SSB-02
Sample Location: Home #2, same as 1st SSB
Sampled By: RMS/VAS

SAMPLING DATA:						
Date: 8/26/09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (°C)	Relative Humidity (%)	Other
Time: 1730						
Method: Summa	—	—	—	—	—	

Summa Canister #	17958
Filter Type/Rate	24 hr

	Time	Date		
Start Time Vacuum	1839	8/25/09	-29.5	in Hg
End Time Vacuum	1730	8/26/09	-8.5	in Hg

He check	Start	Stop	Reading
NA →		→	
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
60ml purge	0.9	1	
120ml purge	0.4	2	
180ml purge	0.8	3	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS1 - AR003 - ST02
Sample Location: Home # 3
Sampled By: VAS

SAMPLING DATA:

Date: 8-25-09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (~~°C~~)	Relative Humidity (%)	Other
Time: 1745						
Method: Summa	0-5mph	SSW	82°F	30	45	

Summa Canister #	34029
Filter Type/Rate	30 minute

	Time	Date		
Start Time Vacuum	1748	8-25-09	-34.0	in Hg
End Time Vacuum	1820	8-25-09	-8.5	in Hg

He check	Start	Stop	Reading
NA →		→	
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
stack	2.0		

124 Kw (sub slab system)

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPST-AR004-INDB-02
Sample Location: Basement Home #4
Sampled By: RMS/VAS

SAMPLING DATA:

Date: 8/26/09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Time: 1523						
Method: Summa Canister	5-15 mph	West	88°F	30	30	

Summa Canister #	24479
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	1538	8/25/09	-32	in Hg
End Time Vacuum	1523	8/26/09	-7.5	in Hg

He check	Start	Stop	Reading
NA			
Purge Data	**Start**	**Stop**	
NA			
PID Readings	**ppm**	**Volume**	
NA			

Notes:

SAME LOCATION AS OTHER INDOOR AIR SAMPLES (Basement)

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name:	NWIRP Bethpage	**Sample ID No.:**	BPS1-AR004-ST02
Project No.:	112G02019	**Sample Location:**	Home #4
C.O.C. No.:		**Sampled By:**	VAS/RMS

SAMPLING DATA:

Date: 8-25-09 Time: 1548 Method: Summa	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (°C)	Relative Humidity (%)	Other
	5-10 mph	South	84°F	30	42	

Summa Canister #	35975
Filter Type/Rate	30 min

	Time	Date		
Start Time Vacuum	1548	8-25-09	-33.0	in Hg
End Time Vacuum	1638	8-25-09	-9.0	in Hg

He check	Start	Stop	Reading
NA →		→	
Purge Data	**Start**	**Stop**	
NA →	→		
PID Readings	**ppm**	**Volume**	
Stack	0.0		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS2-AR006-INDB-02
Sample Location: Home #6 basement
Sampled By: RMS/NAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (°C)	Relative Humidity (%)	Other
Date: 8/27/09						
Time: 0930						
Method: Summa	—	—	—	—	—	

Summa Canister #	12343
Filter Type/Rate	24hr

Duplicate #33920

	Time	Date		
Start Time Vacuum	1303	8/26/09	-32	in Hg
End Time Vacuum	0930	8/27/09	-12.5	in Hg

Duplicate BPS1-DUP-102
1303 -31
0980 -12

* Homeowner requests can remove @ 8AM

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop
NA		

PID Readings	ppm	Volume
NA		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BP57-AR006-ST02
Sample Location: Home #6
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1335						
Method: Summa	5-15 mph	SW	87°F	30	35%	

Summa Canister #	33869
Filter Type/Rate	30min

	Time	Date		
Start Time Vacuum	1300	8/26/09	-34	in Hg
End Time Vacuum	1335	8/26/09	-9	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
Stack	0.7		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPS1-AR013-INDB-02
Sample Location: Basement of Home #13
Sampled By: RMS / VAS

SAMPLING DATA:						
Date: 8/26/09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Time: 1454						
Method: Summa	5-15 mph	West	89° F	30	30	

Summa Canister #	948
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	1454	3/25/09	-30	in Hg
End Time Vacuum	1455	3/26/09	-7	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →			
		→	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name:	NWIRP Bethpage	**Sample ID No.:**	BPS1-AR013-ST02
Project No.:	112G02019	**Sample Location:**	Home #13
C.O.C. No.:		**Sampled By:**	RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/25/09						
Time: 1620						
Method: Summa Canister	5-10 mph	South	84°F	30	41	

Summa Canister #	~~94571~~ X Bad Summa # New Summa # 12003
Filter Type/Rate	30 min

	Time	Date		
Start Time Vacuum	~~1445~~	~~8/25/09~~	~~-34~~ → BAD Summa Re	**in Hg**
End Time Vacuum	1652	8/25/09	-8.0	**in Hg**

Time 1620 Pressure -32 Date 8/25/09

He check	**Start**	**Stop**	**Reading**
NA →			→

Purge Data	**Start**	**Stop**
NA →		→

PID Readings	**ppm**	**Volume**
Stack	0.0	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name:	NWIRP Bethpage	**Sample ID No.:**	BP57-AR014-ST02
Project No.:	112G02019	**Sample Location:**	Home #14
C.O.C. No.:		**Sampled By:**	KMS/UHS

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8/26/09						
Time: 1421	(Visual)	(S.U.)	(°C)	~~(°C)~~	(%)	
Method: Summa	5-10 mph	SW	81°F	30	53	

Summa Canister #	5671
Filter Type/Rate	4 hr

	Time	Date		
Start Time Vacuum	1010	8/26/09	-32	**in Hg**
End Time Vacuum	1421	8/26/09	-8	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA →		→	
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
Stack	0.0		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BP51-AR002-ODA2
Sample Location: Home #2, North central backyard
Sampled By: RMS/VAS

SAMPLING DATA:						
Date: 8/25/09	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure ~~(°C)~~	Relative Humidity (%)	Other
Time: 0923						
Method: Summa Canister	0-5 mph	NW	76°F	30	70%	

Summa Canister #	33879
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	0923	8/25/09	-34	in Hg
End Time Vacuum	0934	8/26/09	-8.5	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →			
		→	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPS1-AR003-0DA2
Sample Location: Home #3
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8/26/09						
Time: 1719	(Visual)	(S.U.)	(°C)	(°C)	(%)	
Method: Summa	0-5 mph	South	81°F	30	45%	

Summa Canister #	94305
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	1810	8/25/09	-32	**in Hg**
End Time Vacuum	1719	8/26/09	-9	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA →			→

Purge Data	**Start**	**Stop**
NA →		→

PID Readings	**ppm**	**Volume**
NA →		
		→

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BP51-AR006-0003
Sample Location: Home#6
Sampled By: RMS/~~VAS~~

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure ~~(°C)~~	Relative Humidity (%)	Other
Date: 8/27/09						
Time: 0945						
Method: Summa	5-10 mph	SW	87°F	30	35%	

Summa Canister #	20998
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	1312	8/26/09	-31	in Hg
End Time Vacuum	0945	8/27/09	-10,5	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop
NA		

PID Readings	ppm	Volume
NA		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BP51-AR013-0042
Sample Location: SW corner of side yard
Sampled By: RMS/NAS

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8-26-09						
Time: 1454	(Visual)	(S.U.)	(°C)	~~(°C)~~	(%)	
Method: Summa	SW 0-5mph	SW	84°F	30	40%	

Summa Canister #	915
Filter Type/Rate	24hr

	Time	Date		
Start Time Vacuum	1514	8/25/09	-31	**in Hg**
End Time Vacuum	1454	8/26/09	-6	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →			
	→		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name:	NWIRP Bethpage	**Sample ID No.:**	BP57-ODA100
Project No.:	112G02019	**Sample Location:**	NE corner of block
C.O.C. No.:		**Sampled By:**	RMS/VAS

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8/25/09						
Time: 1305	(Visual)	(S.U.)	(°C)	(~~"Hg~~)	(%)	
Method: Summa Canister	0-5mph	NNW	72°F	30	80%	

Summa Canister #	5583
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	0859	8/25/09	-29	**in Hg**
End Time Vacuum	1305	8/25/09	-6	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA			
Purge Data	**Start**	**Stop**	
NA			
PID Readings	**ppm**	**Volume**	
NA			

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS2-ODA101
Sample Location: SE corner of block
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/25/09						
Time: 1368						
Method: Summa	0-5 mph	NNW	72°F	30	80%	

Summa Canister #	10779
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	0905	8/25/09	-33	in Hg
End Time Vacuum	1308	8/25/09	-8.5	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop
NA		

PID Readings	ppm	Volume
NA		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS1-00A102
Sample Location: SW Corner of block
Sampled By: RMS/UAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/25/09						
Time: 1310						
Method: Summa canister	0-5 mph	NNW	72°F	30	80%	

Summa Canister #	12709
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	0909	8/25/09	-32	**in Hg**
End Time Vacuum	1310	8/25/09	-7	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA →		→	
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →		→	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS1-OOA103
Sample Location: NW corner of block
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed	Wind Direction	Ambient temperature	Barometric Pressure	Relative Humidity	Other
Date: 8/25/09						
Time: 1312	(Visual)	(S.U.)	(°C)	~~(°C)~~	~~(%)~~	
Method: Summa	0-5 mph	NNW	72°F	30	80%	

Summa Canister #	14872
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	0914	8/25/09	-34	in Hg
End Time Vacuum	1312	8/25/09	-8.5	in Hg

He check	Start	Stop	Reading
NA →			→
Purge Data	**Start**	**Stop**	
NA →		→	
PID Readings	**ppm**	**Volume**	
NA →			
		→	

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPS1-00A104
Sample Location: NE backyard of Home #2
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/25/09						
Time: 0925						
Method: Summa	0-5mph	NNW	72°F	30	80%	

Summa Canister #	24482
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	0925	8/25/09	-34	in Hg
End Time Vacuum	1313	8/25/09	-8	in Hg

He check	Start	Stop	Reading
NA →			→

Purge Data	Start	Stop
NA →		→

PID Readings	ppm	Volume
NA →		
		→

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name:	NWIRP Bethpage	**Sample ID No.:**	BPS1-ODA105
Project No.:	112G02019	**Sample Location:**	NE corner of block
C.O.C. No.:		**Sampled By:**	RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1634						
Method: Summa	5-10mph	W	86°F	30	40%	

Summa Canister #	25265
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	1243	8/26/09	-34	**in Hg**
End Time Vacuum	1634	8/26/09	-9.5	**in Hg**

He check	**Start**	**Stop**	**Reading**
NA →			→

Purge Data	**Start**	**Stop**
NA →		→

PID Readings	**ppm**	**Volume**
NA		

Notes:

SE Corner of 10th and Sycamore Ave

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BPS1-OA106
Sample Location: SE corner of block
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure (Hg)	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1636						
Method: Summa	5-10 mph	W	86°F	30	40%	

Summa Canister #	9948
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	1246	8/26/09	-32	in Hg
End Time Vacuum	1636	8/26/09	-8	in Hg

He check	Start	Stop	Reading
NA →			→

Purge Data	Start	Stop
NA →		→

PID Readings	ppm	Volume
NA →		
		→

Notes:

NW corner of 10th and Maple Ave

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BP57-00A107
Sample Location: SW corner of block
Sampled By: RMS/JAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1639						
Method: Summa	5-10 mph	W	86°F	30	40%	

Summa Canister #	9414
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	1249	8/26/09	-32	in Hg
End Time Vacuum	1639	8/26/09	-9	in Hg

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop
NA		

PID Readings	ppm	Volume
NA		

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:

Sample ID No.: BP57-DDA108
Sample Location: NW corner of block
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1641						
Method: Summa	5-10 mph	W	86°F	30	40%	

Summa Canister #	34364
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	1251	8/26/09	-34	in Hg
End Time Vacuum	1641	8/26/09	-6	in Hg

He check	Start	Stop	Reading
NA →			→

Purge Data	Start	Stop
NA →		→

PID Readings	ppm	Volume
NA →		
		→

Notes:

Tetra Tech NUS, Inc. **INDOOR AIR SAMPLING LOG SHEET**

Project Site Name: NWIRP Bethpage
Project No.: 112G02019
C.O.C. No.:
Sample ID No.: BPS7 - ODA109
Sample Location: Home #6, SE corner of backyard
Sampled By: RMS/VAS

SAMPLING DATA:

	Wind speed (Visual)	Wind Direction (S.U.)	Ambient temperature (°C)	Barometric Pressure	Relative Humidity (%)	Other
Date: 8/26/09						
Time: 1707						
Method: Summa	5-10 mph	W	86°F	30	40%	

Summa Canister #	33653
Filter Type/Rate	4hr

	Time	Date		
Start Time Vacuum	1310	8/26/09	-32	in Hg
End Time Vacuum	1644	8/26/09	-14.5	in Hg
	1787	8/26/09	-13	

He check	Start	Stop	Reading
NA			

Purge Data	Start	Stop
NA		

PID Readings	ppm	Volume
NA		

Notes:

APPENDIX B

CHAIN OF CUSTODY RECORDS

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Dave Brayack
Collected by: (Print and Sign) Robert Sok
Company Tetra Tech NUS Inc Email rob.sok@tetratech.com
Address 5700 Lake Wright Dr City Norfolk State VA Zip 23502
Phone (757) 466-4904 Fax

Project Info:
P.O. #
Project # CTO-WE06
Project Name Bethpage Site 2 SVI

Turn Around Time:
☐ Normal
☒ Rush 7-day (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psig)
01A	BPS1-AR002-ST02	1586	8/25/09	1027	*TO-15 → site	-31	-11		
02A	BPS1-ODA100	5583	8/25/09	1305	Shortlist of	-29	-6		
03A	BPS1-ODA101	10779	8/25/09	1308	Nine compounds	-33	-8.5		
04A	BPS1-DUP-101	5609	8/25/09	2400		-34	-6		
05A	BPS1-ODA102	12709	8/25/09	1310		-32	-7		
06A	BPS1-ODA103	14872	8/25/09	1312		-34	-8.5		
07A	BPS1-ODA104	24482	8/25/09	1313		-34	-8		
08A	BPS1-AR004-ST02	35975	8/25/09	1638		-33	-9		
09A	BPS1-AR013-ST02	12003	8/25/09	1652		-32	-8		
10A	BPS1-AR003-ST02	34029	8/25/09	1820		-34	-8.5		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
	8/27/09 1100	Monica Gregen AIL	8/28/09 915
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	(Yes) No None	0908662

Form 1238 rev.11

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
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180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Dave Brayack
Collected by: (Print and Sign) Robert Sak
Company Tetra Tech NUS Inc. Email
Address City Norfolk State VA Zip
Phone 757-466-4904 Fax

Project Info:
P.O. #
Project # CTO-WE06
Project Name Bethpage Site 1 SVE

Turn Around Time:
☐ Normal
☒ Rush 7-day
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psig)
11A	BPS1-AR002-00A2	33879	8/26/09	0934	*TO-15 Site	-34	-8.5		
12A	BPS1-AR002-IN0B-02	35638	8/26/09	0935	Shortlist of	-33	-9		
13A	BPS1-AR002-IN0L-02	5633	8/26/09	0936	nine compounds	-30	-9		
14A	BPS1-AR006-ST02	33864	8/26/09	1335		-34	-9		
15A	BPS1-AR014-ST02	5671	8/26/09	1421		-32	-8		
16A	BPS1-AR013-00A2	915	8/26/09	1454		-31	-6		
17A	BPS2-AR013-IN0B-02	948	8/26/09	1455		-30	-7		
18A	BPS2-AR004-IN0B-02	24479	8/26/09	1523		-32	-7.5		
19A	BPS1-00A105	25265	8/26/09	1634		-34	-9.5		
20A	BPS1-00A106	9948	8/26/09	1636		-32	-8		

Relinquished by: (signature) Date/Time 8/27/09 1100
Received by: (signature) Monica Green AIR 8/31/09 915
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time
Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex	N/A	Cool	Good	(Yes) No None	0908662

Form 1252 rev. 11

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Dave Brayack

Collected by: (Print and Sign) Robert Sak

Company Tetra Tech NUS Inc Email

Address City Norfolk State VA Zip

Phone 757-466-4904 Fax

Project Info:
P.O. #
Project # CTO-WE06
Project Name Bethpage 5.71 SVE

Turn Around Time:
☐ Normal
☒ Rush 7-day (specify)

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
21A	BPS7-ODA107	9414	8/26/09	1639	*TO-15 Site	-32	-9		
22A	BPS1-ODA108	34364	8/26/09	1641	shortlist of	-34	-6		
23A	BPS7-ODA109	33653	8/26/09	1705	nine compounds	-32	-13		
24A	BPS1-DUP102	33920	8/26/09	2400		-31	-12		
25A	BPS1-AR003-ODA2	94305	8/26/09	1719		-32	-9		
26A	BPS1-AR003-INDB-02	36045	8/26/09	1728		-31	-8		
27A	BPS1-AR003-SSB2	17958	8/26/09	1730		-29.5	-8.5		
28A	BPS1-AR003-INDL-02	33531	8/26/09	1732		-33	-9		
29A	BPS1-AR006-INDB-02	12343	8/27/09	0930		-32	-12.5		
30A	BPS1-AR006-ODA3	20998	8/27/09	0945		-31	-10.5		

Relinquished by: (signature) Date/Time 8/27/09 1100
Received by: (signature) Monica Gregson AIR 8/28/09 915

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		NA	Good	(Yes) No None	0908662

Form 1293 rev.11

APPENDIX C

DATA ANALYTICAL REPORTS

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR002-INDB-02

Lab ID#: 0908662A-12A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	s090709	Date of Collection: 8/26/09 9:35:00 AM	
Dil. Factor:	1.83	Date of Analysis: 9/7/09 02:12 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	0.77	0.50	4.2
Trichloroethene	0.092	7.6	0.49	41
Tetrachloroethene	0.092	0.23	0.62	1.6
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.74	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	108	70-130
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	97	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR002-INDL-02

Lab ID#: 0908662A-13A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090710**	**Date of Collection: 8/26/09 9:36:00 AM**	
Dil. Factor:	**1.91**	**Date of Analysis: 9/7/09 02:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.096	0.16	0.52	0.87
Trichloroethene	0.096	0.63	0.51	3.4
Tetrachloroethene	0.096	0.061 J	0.65	0.41 J
Vinyl Chloride	0.19	Not Detected	0.49	Not Detected
1,1-Dichloroethene	0.19	Not Detected	0.76	Not Detected
1,1-Dichloroethane	0.19	Not Detected	0.77	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
1,2-Dichloroethane	0.19	Not Detected	0.77	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	106	70-130
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	78	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR002-ST02

Lab ID#: 0908662A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**d090720**	**Date of Collection: 8/25/09 10:27:00 AM**	
Dil. Factor:	**22.3**	**Date of Analysis: 9/7/09 08:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	11	Not Detected	28	Not Detected
1,1-Dichloroethene	11	14	44	54
1,1-Dichloroethane	11	14	45	56
cis-1,2-Dichloroethene	11	Not Detected	44	Not Detected
1,1,1-Trichloroethane	11	970	61	5300
Trichloroethene	11	2300	60	12000
trans-1,2-Dichloroethene	11	Not Detected	44	Not Detected
1,2-Dichloroethane	11	Not Detected	45	Not Detected
Tetrachloroethene	11	68	76	460

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-DUP-101

Lab ID#: 0908662A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**d090721**	**Date of Collection: 8/25/09 12:00:00 PM**	
Dil. Factor:	**16.1**	**Date of Analysis: 9/7/09 08:40 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	8.0	Not Detected	20	Not Detected
1,1-Dichloroethene	8.0	14	32	56
1,1-Dichloroethane	8.0	13	32	54
cis-1,2-Dichloroethene	8.0	Not Detected	32	Not Detected
1,1,1-Trichloroethane	8.0	980	44	5400
Trichloroethene	8.0	2300	43	12000
trans-1,2-Dichloroethene	8.0	Not Detected	32	Not Detected
1,2-Dichloroethane	8.0	Not Detected	32	Not Detected
Tetrachloroethene	8.0	73	55	500

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR003-SSB2

Lab ID#: 0908662B-27A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090411**	**Date of Collection: 8/26/09 5:30:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/4/09 08:31 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	7.0	0.50	38
Trichloroethene	0.092	49	0.49	260
Tetrachloroethene	0.092	0.55	0.62	3.7
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	0.13 J	0.74	0.51 J
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	1.0	0.74	4.2
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	110	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR003-INDB-02

Lab ID#: 0908662B-26A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090324**	**Date of Collection: 8/26/09 5:28:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 9/4/09 09:11 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.090	0.72	0.49	4.0
Trichloroethene	0.090	5.1	0.48	27
Tetrachloroethene	0.090	0.19	0.61	1.3
Vinyl Chloride	0.18	Not Detected	0.46	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.72	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,2-Dichloroethane	0.18	2.1	0.72	8.5
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	97	70-130
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR003-INDL-02

Lab ID#: 0908662B-28A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090413**	**Date of Collection: 8/26/09 5:32:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 9/4/09 09:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.090	0.95	0.49	5.2
Trichloroethene	0.090	1.8	0.48	9.9
Tetrachloroethene	0.090	0.063 J	0.61	0.43 J
Vinyl Chloride	0.18	Not Detected	0.46	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.72	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,2-Dichloroethane	0.18	0.19	0.72	0.79
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	95	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR003-ST02

Lab ID#: 0908662A-10A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**d090722**	**Date of Collection: 8/25/09 6:20:00 PM**	
Dil. Factor:	**11.4**	**Date of Analysis: 9/7/09 09:13 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	5.7	Not Detected	14	Not Detected
1,1-Dichloroethene	5.7	11	23	44
1,1-Dichloroethane	5.7	11	23	44
cis-1,2-Dichloroethene	5.7	Not Detected	22	Not Detected
1,1,1-Trichloroethane	5.7	760	31	4200
Trichloroethene	5.7	1900	31	10000
trans-1,2-Dichloroethene	5.7	Not Detected	22	Not Detected
1,2-Dichloroethane	5.7	Not Detected	23	Not Detected
Tetrachloroethene	5.7	26	39	170

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR004-INDB-02

Lab ID#: 0908662A-18A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	s090714	Date of Collection: 8/26/09 3:23:00 PM	
Dil. Factor:	1.71	Date of Analysis: 9/7/09 05:45 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.086	0.10	0.47	0.55
Trichloroethene	0.086	0.27	0.46	1.5
Tetrachloroethene	0.086	Not Detected	0.58	Not Detected
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,2-Dichloroethane	0.17	0.29	0.69	1.2
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	103	70-130
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR004-ST02

Lab ID#: 0908662A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090808**	**Date of Collection: 8/25/09 4:38:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/8/09 10:52 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	38	0.50	210
Trichloroethene	0.092	67	0.49	360
Tetrachloroethene	0.092	4.6	0.62	31
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	0.41	0.72	1.6
1,1-Dichloroethane	0.18	0.34	0.74	1.4
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	5.8	0.74	24
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	109	70-130
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	79	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR006-ST02

Lab ID#: 0908662A-14A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090809**	**Date of Collection: 8/26/09 1:35:00 PM**	
Dil. Factor:	**8.75**	**Date of Analysis: 9/8/09 11:23 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.44	100	2.4	550
Trichloroethene	0.44	130	2.4	720
Tetrachloroethene	0.44	230	3.0	1600
Vinyl Chloride	0.88	Not Detected	2.2	Not Detected
1,1-Dichloroethene	0.88	1.7	3.5	6.8
1,1-Dichloroethane	0.88	1.3	3.5	5.3
cis-1,2-Dichloroethene	0.88	2.9	3.5	12
1,2-Dichloroethane	0.88	Not Detected	3.5	Not Detected
trans-1,2-Dichloroethene	0.88	0.62 J	3.5	2.5 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	107	70-130
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	95	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR013-INDB-02

Lab ID#: 0908662A-17A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090713**	**Date of Collection: 8/26/09 2:55:00 PM**	
Dil. Factor:	**1.75**	**Date of Analysis: 9/7/09 05:06 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.088	Not Detected	0.48	Not Detected
Trichloroethene	0.088	0.12	0.47	0.67
Tetrachloroethene	0.088	0.063 J	0.59	0.43 J
Vinyl Chloride	0.18	Not Detected	0.45	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.71	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,2-Dichloroethane	0.18	0.27	0.71	1.1
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	103	70-130
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	103	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR013-ST02

Lab ID#: 0908662A-09A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090706**	**Date of Collection: 8/25/09 4:52:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/7/09 12:08 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	11	0.50	58
Trichloroethene	0.092	9.0	0.49	48
Tetrachloroethene	0.092	1.3	0.62	8.6
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	0.18	0.72	0.72
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	0.068 J	0.74	0.27 J
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	106	70-130
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR014-ST02

Lab ID#: 0908662A-15A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090711**	**Date of Collection: 8/26/09 2:21:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 9/7/09 03:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.086	7.9	0.47	43
Trichloroethene	0.086	5.6	0.46	30
Tetrachloroethene	0.086	1.5	0.58	10
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,1-Dichloroethene	0.17	0.094 J	0.68	0.37 J
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,2-Dichloroethane	0.17	0.076 J	0.69	0.31 J
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	99	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR006-INDB-02

Lab ID#: 0908662B-29A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090414**	**Date of Collection: 8/27/09 9:30:00 AM**	
Dil. Factor:	**2.01**	**Date of Analysis: 9/4/09 10:36 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.10	0.48	0.55	2.6
Trichloroethene	0.10	2.4	0.54	13
Tetrachloroethene	0.10	1.0	0.68	6.8
Vinyl Chloride	0.20	Not Detected	0.51	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,1-Dichloroethane	0.20	Not Detected	0.81	Not Detected
cis-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,2-Dichloroethane	0.20	Not Detected	0.81	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	99	70-130
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	97	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-DUP102

Lab ID#: 0908662B-24A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090322**	**Date of Collection: 8/27/09 12:00:00 PM**	
Dil. Factor:	**2.06**	**Date of Analysis: 9/4/09 08:00 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.10	0.51	0.56	2.8
Trichloroethene	0.10	2.6	0.55	14
Tetrachloroethene	0.10	1.1	0.70	7.7
Vinyl Chloride	0.21	Not Detected	0.53	Not Detected
1,1-Dichloroethene	0.21	Not Detected	0.82	Not Detected
1,1-Dichloroethane	0.21	Not Detected	0.83	Not Detected
cis-1,2-Dichloroethene	0.21	Not Detected	0.82	Not Detected
1,2-Dichloroethane	0.21	Not Detected	0.83	Not Detected
trans-1,2-Dichloroethene	0.21	Not Detected	0.82	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	102	70-130
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA100

Lab ID#: 0908662A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090506**	**Date of Collection: 8/25/09 1:05:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 9/5/09 12:00 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.090	Not Detected	0.49	Not Detected
Trichloroethene	0.090	Not Detected	0.48	Not Detected
Tetrachloroethene	0.090	0.044 J	0.61	0.30 J
Vinyl Chloride	0.18	Not Detected	0.46	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.72	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.72	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	106	70-130
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	98	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA101

Lab ID#: 0908662A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090507**	**Date of Collection: 8/25/09 1:08:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/5/09 12:51 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	Not Detected	0.50	Not Detected
Trichloroethene	0.092	Not Detected	0.49	Not Detected
Tetrachloroethene	0.092	0.051 J	0.62	0.35 J
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.74	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	107	70-130
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	104	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-ODA102

Lab ID#: 0908662A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090508**	**Date of Collection: 8/25/09 1:10:00 PM**	
Dil. Factor:	**1.79**	**Date of Analysis: 9/5/09 01:32 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.090	Not Detected	0.49	Not Detected
Trichloroethene	0.090	Not Detected	0.48	Not Detected
Tetrachloroethene	0.090	1.0	0.61	6.9
Vinyl Chloride	0.18	Not Detected	0.46	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.72	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.72	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.71	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	93	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA103

Lab ID#: 0908662A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090509**	**Date of Collection: 8/25/09 1:12:00 PM**	
Dil. Factor:	**1.75**	**Date of Analysis: 9/5/09 02:38 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.088	Not Detected	0.48	Not Detected
Trichloroethene	0.088	Not Detected	0.47	Not Detected
Tetrachloroethene	0.088	0.054 J	0.59	0.37 J
Vinyl Chloride	0.18	Not Detected	0.45	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.71	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.71	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	110	70-130
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	97	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA104

Lab ID#: 0908662A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090510**	**Date of Collection: 8/25/09 1:13:00 PM**	
Dil. Factor:	**1.75**	**Date of Analysis: 9/5/09 03:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.088	Not Detected	0.48	Not Detected
Trichloroethene	0.088	Not Detected	0.47	Not Detected
Tetrachloroethene	0.088	0.054 J	0.59	0.36 J
Vinyl Chloride	0.18	Not Detected	0.45	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.71	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.71	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.69	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	110	70-130
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA105

Lab ID#: 0908662A-19A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090715**	**Date of Collection: 8/26/09 4:34:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/7/09 06:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	Not Detected	0.50	Not Detected
Trichloroethene	0.092	Not Detected	0.49	Not Detected
Tetrachloroethene	0.092	Not Detected	0.62	Not Detected
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.74	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA106

Lab ID#: 0908662A-20A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090716**	**Date of Collection: 8/26/09 4:36:00 PM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/7/09 07:02 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	Not Detected	0.50	Not Detected
Trichloroethene	0.092	Not Detected	0.49	Not Detected
Tetrachloroethene	0.092	0.044 J	0.62	0.30 J
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.74	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	105	70-130
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA107

Lab ID#: 0908662B-21A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	z090319	Date of Collection:	8/26/09 4:39:00 PM
Dil. Factor:	1.87	Date of Analysis:	9/4/09 05:52 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.094	Not Detected	0.51	Not Detected
Trichloroethene	0.094	Not Detected	0.50	Not Detected
Tetrachloroethene	0.094	0.15	0.63	1.0
Vinyl Chloride	0.19	Not Detected	0.48	Not Detected
1,1-Dichloroethene	0.19	Not Detected	0.74	Not Detected
1,1-Dichloroethane	0.19	Not Detected	0.76	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
1,2-Dichloroethane	0.19	0.24	0.76	0.97
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA108

Lab ID#: 0908662B-22A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090320**	**Date of Collection: 8/26/09 4:41:00 PM**	
Dil. Factor:	**1.87**	**Date of Analysis: 9/4/09 06:27 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.094	Not Detected	0.51	Not Detected
Trichloroethene	0.094	Not Detected	0.50	Not Detected
Tetrachloroethene	0.094	0.066 J	0.63	0.45 J
Vinyl Chloride	0.19	Not Detected	0.48	Not Detected
1,1-Dichloroethene	0.19	Not Detected	0.74	Not Detected
1,1-Dichloroethane	0.19	Not Detected	0.76	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
1,2-Dichloroethane	0.19	Not Detected	0.76	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	89	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-0DA109

Lab ID#: 0908662B-23A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090321**	**Date of Collection: 8/26/09 5:07:00 PM**	
Dil. Factor:	**2.23**	**Date of Analysis: 9/4/09 07:24 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.11	Not Detected	0.61	Not Detected
Trichloroethene	0.11	0.058 J	0.60	0.31 J
Tetrachloroethene	0.11	Not Detected	0.76	Not Detected
Vinyl Chloride	0.22	Not Detected	0.57	Not Detected
1,1-Dichloroethene	0.22	Not Detected	0.88	Not Detected
1,1-Dichloroethane	0.22	Not Detected	0.90	Not Detected
cis-1,2-Dichloroethene	0.22	Not Detected	0.88	Not Detected
1,2-Dichloroethane	0.22	Not Detected	0.90	Not Detected
trans-1,2-Dichloroethene	0.22	Not Detected	0.88	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	103	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR002-0DA2

Lab ID#: 0908662A-11A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090705**	**Date of Collection: 8/26/09 9:34:00 AM**	
Dil. Factor:	**1.83**	**Date of Analysis: 9/7/09 11:31 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.092	0.072 J	0.50	0.39 J
Trichloroethene	0.092	0.14	0.49	0.73
Tetrachloroethene	0.092	0.054 J	0.62	0.37 J
Vinyl Chloride	0.18	Not Detected	0.47	Not Detected
1,1-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,1-Dichloroethane	0.18	Not Detected	0.74	Not Detected
cis-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected
1,2-Dichloroethane	0.18	Not Detected	0.74	Not Detected
trans-1,2-Dichloroethene	0.18	Not Detected	0.72	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	106	70-130
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR003-0DA2

Lab ID#: 0908662B-25A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090323**	**Date of Collection: 8/26/09 5:19:00 PM**	
Dil. Factor:	**1.91**	**Date of Analysis: 9/4/09 08:37 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.096	0.067 J	0.52	0.37 J
Trichloroethene	0.096	0.075 J	0.51	0.40 J
Tetrachloroethene	0.096	0.045 J	0.65	0.31 J
Vinyl Chloride	0.19	Not Detected	0.49	Not Detected
1,1-Dichloroethene	0.19	Not Detected	0.76	Not Detected
1,1-Dichloroethane	0.19	Not Detected	0.77	Not Detected
cis-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected
1,2-Dichloroethane	0.19	Not Detected	0.77	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.76	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR006-0DA3

Lab ID#: 0908662B-30A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**z090415**	**Date of Collection: 8/27/09 9:45:00 AM**	
Dil. Factor:	**2.01**	**Date of Analysis: 9/4/09 11:10 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.10	Not Detected	0.55	Not Detected
Trichloroethene	0.10	0.058 J	0.54	0.31 J
Tetrachloroethene	0.10	0.057 J	0.68	0.39 J
Vinyl Chloride	0.20	Not Detected	0.51	Not Detected
1,1-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,1-Dichloroethane	0.20	Not Detected	0.81	Not Detected
cis-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected
1,2-Dichloroethane	0.20	Not Detected	0.81	Not Detected
trans-1,2-Dichloroethene	0.20	Not Detected	0.80	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	100	70-130
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	90	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: BPS1-AR013-0DA2

Lab ID#: 0908662A-16A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**s090712**	**Date of Collection: 8/26/09 2:54:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 9/7/09 03:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1,1-Trichloroethane	0.086	Not Detected	0.47	Not Detected
Trichloroethene	0.086	Not Detected	0.46	Not Detected
Tetrachloroethene	0.086	0.048 J	0.58	0.33 J
Vinyl Chloride	0.17	Not Detected	0.44	Not Detected
1,1-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,1-Dichloroethane	0.17	Not Detected	0.69	Not Detected
cis-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected
1,2-Dichloroethane	0.17	Not Detected	0.69	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.68	Not Detected

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
4-Bromofluorobenzene	104	70-130
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	97	70-130

APPENDIX D

DATA VALIDATION SUMMARIES

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. BRAYACK** **DATE:** **OCTOBER 5, 2009**

FROM: **JOSEPH KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NWIRP BETHPAGE CTO WE06
SDG 0908662A

SAMPLES: 20 / Air / VOC

BPS1-AR002-INDB-02	BPS1-AR002-INDL-02	BPS1-AR002-ODA2
BPS1-AR002-ST02	BPS1-AR003-ST02	BPS1-AR004-INDB-02
BPS1-AR004-ST02	BPS1-AR006-ST02	BPS1-AR013-INDB-02
BPS1-AR013-ODA2	BPS1-AR013-ST02	BPS1-AR014-ST02
BPS1-DUP-101	BPS1-ODA100	BPS1-ODA101
BPS1-ODA102	BPS1-ODA103	BPS1-ODA104
BPS1-ODA105	BPS1-ODA106	

Overview

The sample set for NWIRP Bethpage SDG 0908662A consists of twenty (20) air environmental samples. The air samples were analyzed for volatile organic compounds (VOC). There was one field duplicate pair associated with this sample delivery group (SDG); BPS1-DUP-101 / BPS1-AR002-ST02.

The samples were collected by Tetra Tech on August 25 and 26, 2009 and analyzed by Air Toxics LTD. The analysis was conducted in accordance with EPA Method TO-15 analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

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

The following compound was detected in the associated method blank #0908662A-21C at the maximum concentration as indicated below affecting samples BPS1-AR002-ST02, BPS1-AR003-ST02, and BPS1-DUP-101:

Compound	Maximum Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)
Tetrachloroethene	1.1	5.5

An action level of 5X the maximum contaminant concentration for volatile compounds was established to evaluate laboratory contamination for the aforementioned compounds. Dilution factors and sample aliquots were taken into consideration during the application of all action levels. The affected samples were not qualified due to method blank contamination.

Additional Comments

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The laboratory reported the VOC air result concentrations in units of both ppbv and µg/m3 on the sample forms. The results in the database and the qualified analytical result concentrations are reported as µg/m3 only.

Per the laboratory, the chain of custody (COC) information for samples BPS1-AR002-INDB-02 and BPS1-AR004-INDB-02 did not match the information on the canister with regard to canister identification. The information on the canister was used to process and report the samples.

Per the laboratory, the COC information for sample BPS1-AR002-INDB-02 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

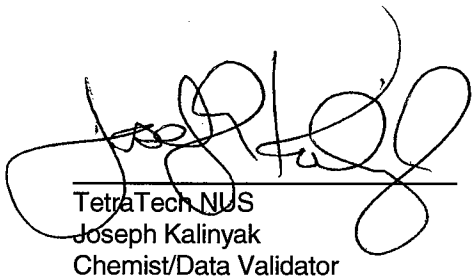
Per the laboratory, the COC information for samples BPS1-AR004-ST02, BPS1-AR002-ODA2, and BPS1-AR002-INDL-02 did not match the entries on the sample tags with regard to the dates of collection. Therefore the dates on the COC were used to calculate the sample holding time.

EXECUTIVE SUMMARY

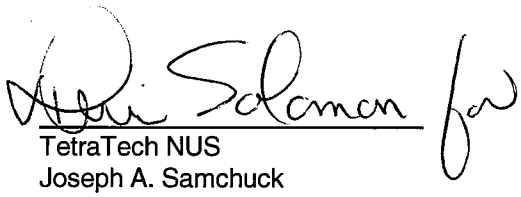
Laboratory Performance Issues: There were no major or minor issues which resulted in data qualification.

Other Factors Affecting Data Quality: Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the "Volatile Organic Analysis of Ambient Air In Canister By Method TO-15" EPA Region II SOP #HW-31 Revision #4 October 2006 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).



TetraTech NUS
Joseph Kalinyak
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

Value Qualifier Key (Val Qual)

J – Positive result is considered estimated, "J", as a result of technical non-compliances.

UJ – Non-detected result is considered estimated, "UJ", as a result of technical non-compliances.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

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: 02019 SDG: 0908662A FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-AR002-INDB-02			BPS1-AR002-INDL-02			BPS1-AR002-ODA2			BPS1-AR002-ST02		
	LAB_ID	0908662A-12A			0908662A-13A			0908662A-11A			0908662A-01A		
	SAMP_DATE	8/26/2009			8/26/2009			8/26/2009			8/25/2009		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		4.2			0.87			0.39	J	P	5300		
1,1-DICHLOROETHANE		0.74	U		0.77	U		0.74	U		56		
1,1-DICHLOROETHENE		0.72	U		0.76	U		0.72	U		54		
1,2-DICHLOROETHANE		0.74	U		0.77	U		0.74	U		45	U	
CIS-1,2-DICHLOROETHENE		0.72	U		0.76	U		0.72	U		44	U	
TETRACHLOROETHENE		1.6			0.41	J	P	0.37	J	P	460		
TRANS-1,2-DICHLOROETHENE		0.72	U		0.76	U		0.72	U		44	U	
TRICHLOROETHENE		41			3.4			0.73			12000		
VINYL CHLORIDE		0.47	U		0.49	U		0.47	U		28	U	

PROJ_NO: 02019 SDG: 0908662A FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-AR003-ST02			BPS1-AR004-INDB-02			BPS1-AR004-ST02			BPS1-AR006-ST02		
	LAB_ID	0908662A-10A			0908662A-18A			0908662A-08A			0908662A-14A		
	SAMP_DATE	8/25/2009			8/26/2009			8/25/2009			8/26/2009		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		4200			0.55			210			550		
1,1-DICHLOROETHANE		44			0.69	U		1.4			5.3		
1,1-DICHLOROETHENE		44			0.68	U		1.6			6.8		
1,2-DICHLOROETHANE		23	U		1.2			24			3.5	U	
CIS-1,2-DICHLOROETHENE		22	U		0.68	U		0.72	U		12		
TETRACHLOROETHENE		170			0.58	U		31			1600		
TRANS-1,2-DICHLOROETHENE		22	U		0.68	U		0.72	U		2.5	J	P
TRICHLOROETHENE		10000			1.5			360			720		
VINYL CHLORIDE		14	U		0.44	U		0.47	U		2.2	U	

PROJ_NO: 02019	NSAMPLE	BPS1-AR013-INDB-02			BPS1-AR013-ODA2			BPS1-AR013-ST02			BPS1-AR014-ST02		
SDG: 0908662A	LAB_ID	0908662A-17A			0908662A-16A			0908662A-09A			0908662A-15A		
FRACTION: OV	SAMP_DATE	8/26/2009			8/26/2009			8/25/2009			8/26/2009		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.48	U		0.47	U		58			43		
1,1-DICHLOROETHANE		0.71	U		0.69	U		0.74	U		0.69	U	
1,1-DICHLOROETHENE		0.69	U		0.68	U		0.72			0.37	J	P
1,2-DICHLOROETHANE		1.1			0.69	U		0.27	J	P	0.31	J	P
CIS-1,2-DICHLOROETHENE		0.69	U		0.68	U		0.72	U		0.68	U	
TETRACHLOROETHENE		0.43	J	P	0.33	J	P	8.6			10		
TRANS-1,2-DICHLOROETHENE		0.69	U		0.68	U		0.72	U		0.68	U	
TRICHLOROETHENE		0.67			0.46	U		48			30		
VINYL CHLORIDE		0.45	U		0.44	U		0.47	U		0.44	U	

PROJ_NO: 02019	NSAMPLE	BPS1-DUP-101			BPS1-ODA100			BPS1-ODA101			BPS1-ODA102		
SDG: 0908662A	LAB_ID	0908662A-04A			0908662A-02A			0908662A-03A			0908662A-05A		
FRACTION: OV	SAMP_DATE	8/25/2009			8/25/2009			8/25/2009			8/25/2009		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF	BPS1-AR002-ST02											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		5400			0.49	U		0.5	U		0.49	U	
1,1-DICHLOROETHANE		54			0.72	U		0.74	U		0.72	U	
1,1-DICHLOROETHENE		56			0.71	U		0.72	U		0.71	U	
1,2-DICHLOROETHANE		32	U		0.72	U		0.74	U		0.72	U	
CIS-1,2-DICHLOROETHENE		32	U		0.71	U		0.72	U		0.71	U	
TETRACHLOROETHENE		500			0.3	J	P	0.35	J	P	6.9		
TRANS-1,2-DICHLOROETHENE		32	U		0.71	U		0.72	U		0.71	U	
TRICHLOROETHENE		12000			0.48	U		0.49	U		0.48	U	
VINYL CHLORIDE		20	U		0.46	U		0.47	U		0.46	U	

PROJ_NO: 02019	NSAMPLE	BPS1-ODA103			BPS1-ODA104			BPS1-ODA105			BPS1-ODA106		
SDG: 0908662A	LAB_ID	0908662A-06A			0908662A-07A			0908662A-19A			0908662A-20A		
FRACTION: OV	SAMP_DATE	8/25/2009			8/25/2009			8/26/2009			8/26/2009		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.48	U		0.48	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.71	U		0.71	U		0.74	U		0.74	U	
1,1-DICHLOROETHENE		0.69	U		0.69	U		0.72	U		0.72	U	
1,2-DICHLOROETHANE		0.71	U		0.71	U		0.74	U		0.74	U	
CIS-1,2-DICHLOROETHENE		0.69	U		0.69	U		0.72	U		0.72	U	
TETRACHLOROETHENE		0.37	J	P	0.36	J	P	0.62	U		0.3	J	P
TRANS-1,2-DICHLOROETHENE		0.69	U		0.69	U		0.72	U		0.72	U	
TRICHLOROETHENE		0.47	U		0.47	U		0.49	U		0.49	U	
VINYL CHLORIDE		0.45	U		0.45	U		0.47	U		0.47	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: **D. BRAYACK** **DATE:** **OCTOBER 5, 2009**

FROM: **JOSEPH KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NWIRP BETHPAGE CTO WE06
SDG 0908662B

SAMPLES: 10 / Air / VOC

BPS1-AR003-INDB-02	BPS1-AR003-INDL-02	BPS1-AR003-ODA2
BPS1-AR003-SSB2	BPS1-AR006-INDB-02	BPS1-AR006-ODA3
BPS1-DUP102	BPS1-ODA107	BPS1-ODA108
BPS1-ODA109		

Overview

The sample set for NWIRP Bethpage SDG 0908662B consists of ten (10) air environmental samples. The air samples were analyzed for volatile organic compounds (VOC). There was one field duplicate pair associated with this sample delivery group (SDG); BPS1-DUP102 / BPS1-AR006-INDB-02.

The samples were collected by Tetra Tech on August 26 and 27, 2009 and analyzed by Air Toxics LTD. The analysis was conducted in accordance with EPA Method TO-15 analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

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

No issues were identified.

Additional Comments

Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The laboratory reported the VOC air result concentrations in units of both ppbv and µg/m3 on the sample forms. The results in the database and the qualified analytical result concentrations are reported as µg/m3 only.

Per the laboratory, the chain of custody (COC) information for samples BPS1-AR003-INDB-02, BPS1-AR003-SSB2, and BPS1-AR006-ODA3 did not match the entries on the sample tags with regard to sample identification. The information on the COC was used to process and report the samples.

Per the laboratory, the COC information for sample BPS1-AR003-SSB2 did not match the information on the canister with regard to canister identification. The information on the canister was used to process and report the sample.

EXECUTIVE SUMMARY

Laboratory Performance Issues: There were no major issues or minor issues that resulted in data qualification.

Other Factors Affecting Data Quality: Positive results below the Reporting Limit (RL) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the "Volatile Organic Analysis of Ambient Air In Canister By Method TO-15" EPA Region II SOP #HW-31 Revision #4 October 2006 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006).

TetraTech NUS
Joseph Kalinyak
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

Value Qualifier Key (Val Qual)

J – Positive result is considered estimated, "J", as a result of technical non-compliances.

UJ – Non-detected result is considered estimated, "UJ", as a result of technical non-compliances.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

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 Señal 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: 02019	NSAMPLE	BPS1-AR003-INDB-02			BPS1-AR003-INDL-02			BPS1-AR003-ODA2			BPS1-AR003-SSB2		
SDG: 0908662B	LAB_ID	0908662B-26A			0908662B-28A			0908662B-25A			0908662B-27A		
FRACTION: OV	SAMP_DATE	8/26/2009			8/26/2009			8/26/2009			8/26/2009		
MEDIA: AIR	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		4			5.2			0.37	J	P	38		
1,1-DICHLOROETHANE		0.72	U		0.72	U		0.77	U		0.51	J	P
1,1-DICHLOROETHENE		0.71	U		0.71	U		0.76	U		0.72	U	
1,2-DICHLOROETHANE		8.5			0.79			0.77	U		4.2		
CIS-1,2-DICHLOROETHENE		0.71	U		0.71	U		0.76	U		0.72	U	
TETRACHLOROETHENE		1.3			0.43	J	P	0.31	J	P	3.7		
TRANS-1,2-DICHLOROETHENE		0.71	U		0.71	U		0.76	U		0.72	U	
TRICHLOROETHENE		27			9.9			0.4	J	P	260		
VINYL CHLORIDE		0.46	U		0.46	U		0.49	U		0.47	U	

PROJ_NO: 02019 SDG: 0908662B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-AR006-INDB-02			BPS1-AR006-ODA3			BPS1-DUP102			BPS1-ODA107		
	LAB_ID	0908662B-29A			0908662B-30A			0908662B-24A			0908662B-21A		
	SAMP_DATE	8/27/2009			8/27/2009			8/27/2009			8/26/2009		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/M3			UG/M3			UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0			199.0			199.0		
	DUP_OF							BPS1-AR006-INDB-02					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.6			0.55	U		2.8			0.51	U	
1,1-DICHLOROETHANE		0.81	U		0.81	U		0.83	U		0.76	U	
1,1-DICHLOROETHENE		0.8	U		0.8	U		0.82	U		0.74	U	
1,2-DICHLOROETHANE		0.81	U		0.81	U		0.83	U		0.97		
CIS-1,2-DICHLOROETHENE		0.8	U		0.8	U		0.82	U		0.74	U	
TETRACHLOROETHENE		6.8			0.39	J	P	7.7			1		
TRANS-1,2-DICHLOROETHENE		0.8	U		0.8	U		0.82	U		0.74	U	
TRICHLOROETHENE		13			0.31	J	P	14			0.5	U	
VINYL CHLORIDE		0.51	U		0.51	U		0.53	U		0.48	U	

PROJ_NO: 02019 SDG: 0908662B FRACTION: OV MEDIA: AIR	NSAMPLE	BPS1-ODA108			BPS1-ODA109		
	LAB_ID	0908662B-22A			0908662B-23A		
	SAMP_DATE	8/26/2009			8/26/2009		
	QC_TYPE	NM			NM		
	UNITS	UG/M3			UG/M3		
	PCT_SOLIDS	199.0			199.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.51	U		0.61	U	
1,1-DICHLOROETHANE		0.76	U		0.9	U	
1,1-DICHLOROETHENE		0.74	U		0.88	U	
1,2-DICHLOROETHANE		0.76	U		0.9	U	
CIS-1,2-DICHLOROETHENE		0.74	U		0.88	U	
TETRACHLOROETHENE		0.45	J	P	0.76	U	
TRANS-1,2-DICHLOROETHENE		0.74	U		0.88	U	
TRICHLOROETHENE		0.5	U		0.31	J	P
VINYL CHLORIDE		0.48	U		0.57	U	