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NAS BRUNSWICK
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ADDENDUM TO FINAL RESOURCE CONSERVATION AND RECOVERY ACT PARTIAL
CLOSURE REPORT FOR BUILDINGS 225 AND 252 WITH TRANSMITTAL LETTER NAS
BRUNSWICK ME
7/30/2010
NAS BRUNSWICK

**ENVIRONMENTAL DEPARTMENT
NAVAL AIR STATION
437 HUEY DRIVE
BRUNSWICK, ME 04011**

July 30, 2010

Mr. Edward Vigneault
Maine Department of Environmental Protection
Division of Oil and Hazardous Waste Facilities Registration
17 State House Station
Augusta, ME 04333-0017

Subj: Addendum to the Final RCRA Partial Closure Report for Buildings 225 and 252

Dear Mr. Vigneault:

A copy of the Addendum to the Final RCRA Partial Closure Report for Buildings 225 and 252 at Naval Air Station Brunswick is provided as Enclosure (1).

If you have any questions, please contact Mr. Mike Fagan at 921-1717 or via e-mail at michael.fagan1@navy.mil.

Sincerely,


for LISA M. JOY
Environmental Director

Enclosure: (1) Addendum to the Final RCRA Partial Closure Report for Buildings 225 and 252

Copy to:
NAVFAC Mid-Atlantic (B. Abraham)
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**ADDENDUM
JULY 2010**

**RCRA PARTIAL CLOSURE REPORT
for
BUILDINGS 225 AND 252 – TRANSPORTATION PARCEL
NAVAL AIR STATION BRUNSWICK, MAINE
USEPA IDENTIFICATION NUMBER ME8170022018
FEBRUARY 2010 (FINAL)**

This addendum to the RCRA Partial Closure Report for Buildings 225 and 252 – Transportation Parcel, Naval Air Station Brunswick, Maine presents a summary of the vapor intrusion (VI) screening level assessment completed at the parcel. The attached technical memorandum reporting the findings of the assessment is entitled:

Vapor Intrusion Screening-Level Assessment, Buildings 225 and 252, Naval Air Station Brunswick, Maine” (Tetra Tech NUS, May 6, 2010)

The VI screening level assessment summary is provided below.

In April 2010 a vapor intrusion (VI) screening level assessment was conducted at the Buildings 225 and 252 Transportation Parcel, Naval Air Station (NAS) Brunswick to determine whether the parcel has all three components of a complete VI pathway: 1) evidence of a source or release of volatile and toxic chemicals, 2) a pathway to a receptor, and 3) a receptor. The assessment consisted of groundwater and soil gas samples collection in the vicinity of potential volatile contaminant sources and potential VI migration pathways within the Buildings 225 and 252 parcel.

Groundwater samples were collected from seven locations prior to collection of the soil gas samples, using screen point samplers temporarily installed using direct push methods. Soil gas samples were collected from the same seven locations.

The groundwater results indicate that there are virtually no VOCs in the shallow groundwater and the soil gas results generally confirm the groundwater data. The assessment concluded that there is no evidence of a source or release of volatile and toxic chemicals that would potentially create a vapor intrusion concern at the parcel and VOC migration from groundwater to soil gas is not a concern for the Buildings 225 and 252 parcel.

**VAPOR INTRUSION SCREENING-LEVEL ASSESSMENT
BUILDINGS 225 AND 252
NAVAL AIR STATION BRUNSWICK, MAINE
MAY 6, 2010**

This technical memorandum addresses the vapor intrusion (VI) screening level assessment (TSERAWG 2009) completed at Buildings 225 and 252 at Naval Air Station (NAS) Brunswick. The work was performed by Tetra Tech NUS (TtNUS) under Contract Task Order (CTO) WE49, as part of the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62470-08-D-1001, which is part of the Navy's Installation Restoration Program (IRP).

The objective of this assessment is to determine whether the parcel has all three components of a complete VI pathway: 1) evidence of a source or release of volatile and toxic chemicals, 2) a pathway to a receptor, and 3) a receptor. The results of the investigation will be used to support the Findings of Suitability to Lease (FOSL) for the parcel. The scope of this assessment consists of collection of groundwater and soil gas samples in the vicinity of potential volatile contaminant sources and potential VI migration pathways in the vicinity of Buildings 225 and 252.

BACKGROUND INFORMATION

The Buildings 225 and 252 parcel is located in the north-central portion of NAS Brunswick. These buildings were previously used as the automotive equipment maintenance facility by the NAS Brunswick Public Works Department. The 3.4 acre parcel is bordered to the southwest by Orion Street, to the northeast by Pelican Street, to the southeast by Burbank Avenue, and to the northwest by a parking lot (see Figure 1). The two buildings, located in the northeastern portion of the parcel, are connected by a covered walkway. Much of the area surrounding the two buildings is paved, except for a narrow band (approximately 12 feet wide) along the north side of Building 225, and a small area (approximately 30 ft by 40 feet) between Buildings 225 and 252 west of Pelican Street. Currently, Buildings 225 and 252 are unoccupied. The foreseeable future use of Buildings 225 and 252 is commercial/industrial.

Building 225, constructed in 1953, is a slab-on-grade structure measuring approximately 15,500 square feet. The interior space includes service bays, a garage, a welding/fabrication shop, a tire shop, a battery shop, offices and locker room. The facility has not been active since the early 2000s, except for use of the space for storage.

Building 252, constructed in 1957 as an auto hobby shop, was originally at a different location at NAS Brunswick (off Burbank Street). In 1990 the structure was disassembled and relocated to the current location. The building is a slab-on-grade structure measuring approximately 5,100 square feet. The building dimensions are 102 feet long by 50 feet wide. Most of the interior space was configured for vehicle service bays. A small restroom area is located in the southeast corner of the building.

The Buildings 225 and 252 facility was used by the NASB Public Works Department for general maintenance and repair. According to the NAS Brunswick Environmental Department, Building 225 was used as a repair shop for light trucks and cars, while Building 252 was used for heavy equipment repair. The facility featured a machine shop/carburetor cleaning system and a battery storage and repair area.

The only documented release was a release of hydraulic oil in the Building 225 garage. The release occurred from an in-ground hydraulic lift in April 1995. Hydraulic oil and surrounding soils were removed from beneath the building and disposed of at Commercial Paving and Recycling. This work was completed under the supervision of the MEDEP and no further action was required at the site. A former 3,000 gallon waste oil underground storage tank (UST) was located along the south side of Building 225.

The former Buildings 7 and 10 parcel which is located in the paved parking area north of Building 225, is the former location of two waste oil tanks (two 3,000-gallon waste oil tanks). These tanks and a pump island were located south of Building 7.

The overburden geology in the vicinity of Building 225/252 consists of fill/reworked soil, and fine to medium sand locally termed the "Upper Sand", that is underlain by relatively thin, interbedded sand, and silt (transition unit), and/or Presumpscot Clay. The thickness of the sand unit is unknown; however, the closest monitoring wells located along Burbank Avenue south and east of the parcel indicate the Upper Sand unit is present to a depth ranging from 14 to 20 feet below ground surface (bgs). Nearby wells indicated the depth to groundwater ranged from approximately 5 to 8 feet bgs. Groundwater is expected to flow generally toward the south and east.

FIELD INVESTIGATION ACTIVITIES

Utility Clearance

Utility clearance was performed prior to initiating sampling activities. The groundwater and soil gas sample locations were marked at the Site, then both Dig Safe and the Base were contacted for locating underground utilities. TtNUS subcontracted a utility locate service (DigSmart) to performed additional utility locating services to further assure the boring locations were clear of underground utilities. The boring locations were adjusted slightly (within 20 feet or less) and re-marked (see Figure 1).

Groundwater Sample Collection

Groundwater samples were collected from seven locations (GW1 through GW7) prior to collection of the soil gas samples, using screen point samplers temporarily installed using direct push methods. The groundwater samples were collected after purging a minimum of three well volumes from the sampling system. All samples plus a duplicate and a trip blank were placed on ice and shipped overnight along with a Chain-of-Custody (COC) to Columbia Analytical Services (CAS) for analysis of VOCs (Method 8260B). The groundwater sample log sheets and COCs are provided as Attachment 1.

Soil Gas Sample Collection

Soil gas samples were collected from the same seven locations as the groundwater sample locations, using a Geoprobe Post Run Tubing System. The soil gas samples were collected after purging a minimum of three volumes and passing a helium leak test in accordance with the work plan at each of the seven locations (SG1 through SG7). Soil gas samples were collected in 1-liter SUMMA canisters from all seven locations and shipped with a duplicate and COC overnight to CAS for analysis of VOCs (Method TO-15). The soil gas sample log sheets are provided as Attachment 2.

According to Columbia Analytical Services (CAS), the lab subcontractor, 1 liter Summa canisters contain approximately 400 milliliters (mls) of sample and can be filled in approximately 20 seconds. Per the CAS canister sampling instructions, this method is suitable for and typically employed for situations where static conditions are anticipated. The Work Plan indicated: "Passive, time-integrated samples will be collected using laboratory-certified clean Summa™ canisters with flow regulators set to collect the required sample volume within 2 hours per sample (maximum time allowed); however, approximately 15 minutes is the expected fill time for a 1 liter canister." While this is a deviation of the Work Plan, the volume of the sample void created by driving/retracting the probe rods (approximately 1.5 inch diameter by 1 foot height or 375 mls) is similar to the sample volume (400 mls), therefore, the sample was drawn from the void and is representative of the target soil gas sample interval. All samples passed helium tracer test, therefore, there were no impacts on the sample results.

RESULTS

Groundwater Sampling Results

The groundwater sample analytical results are summarized in Table 1. The only VOC detections were tetrachlorethene (PCE) at a concentration of 0.6 J micrograms per liter (ug/L) at the GW1 location, carbon disulfide at 0.81 ug/L at the GW3 location, and acetone at a concentration of 2.2 J ug/L at the GW7 location. These concentrations are well below the United States Environmental Protection Agency

(USEPA) VI Target Concentrations for Workers. Acetone is a common solvent and may be attributable to the laboratory. The MEDEP does not have target screening levels for groundwater.

Soil Gas Sampling Results

The depths of the soil gas samples are summarized in Table 2. The soil gas analytical data are summarized in Table 3. The analytical results indicated no exceedances of the MEDEP Soil Gas Targets (SGTs) for a commercial scenario (MEDEP, 2010) at any of the soil gas sample locations. USEPA target soil gas concentrations for Industrial Air (IA) criteria were slightly exceeded for two analytes at the SG1 and SG4 locations only. Benzene slightly exceeded its USEPA IA screening criterion (16 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]), at soil gas sample location SG4 ($18 \mu\text{g}/\text{m}^3$) and at SG1 ($36 \mu\text{g}/\text{m}^3$). PCE exceeded its USEPA IA criterion ($21 \mu\text{g}/\text{m}^3$) in the sample collected from the SG1 location ($90 \mu\text{g}/\text{m}^3$). These locations are isolated and do not indicate the presence of a significant, widespread soil gas plume.

CONCLUSIONS AND RECOMMENDATIONS

The groundwater results indicate that there are virtually no VOCs in the shallow groundwater, thus VOC migration from groundwater to soil gas is not a concern for the Buildings 225/252 parcel. Soil gas results generally confirm the groundwater data. Based on the results of this VI investigation, there is no evidence of a source or release of volatile and toxic chemicals that would potentially create a vapor intrusion concern at the parcel. As a result, it is concluded that there are presently no vapor intrusion concerns related to the potential future commercial use of Buildings 225 and 252.

REFERENCES

EPA, 2002. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soil (Subsurface Vapor Intrusion Guidance). United States Environmental Protection Agency. November.

MEDEP, 2010. Vapor Intrusion Evaluation Guidance. Maine Department of Environmental Protections Bureau of Remediation. January.

Tetra Tech NUS, Inc., 2010. Work Plan for Vapor Intrusion Screening Level Assessment Buildings 225 and 252, Naval Air Station Brunswick, Maine, Revision 1. March 29.

Tri-Service Environmental Risk Assessment Workgroup (TSERAWG), 2009. DoD Vapor Intrusion Handbook. January.

TABLES

TABLE 1
GROUNDWATER SCREENING RESULTS
VAPOR INTRUSION SCREENING ASSESSMENT - BUILDINGS 225 AND 252
NAVAL AIR STATION BRUNSWICK
BRUNSWICK MAINE

NSAMPLE	EPA VI Target GW Concentration for Workers	B225-GP- DUP01	B225-GP-GW01	B225-GP-GW02	B225-GP-GW03	B225-GP-GW04	B225-GP-GW05	B225-GP-GW06	B225-GP-GW07	B225-GP-TB01
SAMPLE DATE		04/05/2010	04/05/2010	04/05/2010	04/05/2010	04/05/2010	04/05/2010	04/05/2010	04/05/2010	04/05/2010
Volatile Organics (ug/L)										
1,1,1-TRICHLOROETHANE	15500	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,1,2,2-TETRACHLOROETHANE	15	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,1,2-TRICHLOROETHANE	20.7	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
1,1,2- TRICHLOROTRIFLUOROETHANE	7500	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
1,1-DICHLOROETHANE	11000	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U
1,1-DICHLOROETHENE	950	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U	0.59 U
1,2,4-TRICHLOROBENZENE	17000	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
1,2-DIBROMO-3-CHLOROPROPANE	165	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U
1,2-DIBROMOETHANE	1.8	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
1,2-DICHLOROBENZENE	13000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-DICHLOROETHANE	11.8	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
1,2-DICHLOROPROPANE	175	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,3-DICHLOROBENZENE	4150	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U
1,4-DICHLOROBENZENE	41000	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
1,4-DIOXANE	--	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
2-BUTANONE	2200000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-HEXANONE	--	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U
4-METHYL-2-PENTANONE	70000	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
ACETONE	1100000	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	2.2 J	1.6 U
BENZENE	6.9	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
BROMODICHLOROMETHANE	10.5	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U	0.83 U
BROMOFORM	0.0415	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
BROMOMETHANE	100	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
CARBON DISULFIDE	2800	0.52 U	0.52 U	0.52 U	0.81 J	0.52 U				
CARBON TETRACHLORIDE	0.7	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
CHLOROBENZENE	1950	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U
CHLORODIBROMOMETHANE	16	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
CHLOROETHANE	140000	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U	0.35 U
CHLOROFORM	3.6	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
CHLOROMETHANE	33.5	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
CIS-1,2-DICHLOROETHENE	1050	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
CIS-1,3-DICHLOROPROPENE	4.2	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
CYCLOHEXANE	--	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U
DICHLORODIFLUOROMETHANE	70	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
ETHYLBENZENE	15.3	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U
ISOPROPYLBENZENE	42	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
M+P-XYLENES	110000	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
METHYL ACETATE	3600000	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U
METHYL CYCLOHEXANE	3550	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U
METHYL TERT-BUTYL ETHER	600000	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
METHYLENE CHLORIDE	290	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	165000	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U	0.56 U
STYRENE	44500	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
TETRACHLOROETHENE	2.8	0.43 U	0.6 J	0.43 U						
TOLUENE	7500	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U
TRANS-1,2-DICHLOROETHENE	900	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U
TRANS-1,3-DICHLOROPROPENE	4.2	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
TRICHLOROETHENE	14.6	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
TRICHLOROFLUOROMETHANE	900	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U
VINYL CHLORIDE	0.7	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U

TABLE 2
SOIL GAS SAMPLE INTERVALS
VAPOR INTRUSION SCREENING-LEVEL ASSESSMENT
BUILDINGS 225 AND 252
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

Soil Gas Location	Date	Depth to Groundwater (ft-bgs)	Depth of Soil Gas Interval (ft-bgs)
SG01	4/5/2010	6.5	4.5-5.5
SG02	4/5/2010	5.9	3.9-4.9
SG03	4/5/2010	5.2	3.2-4.2
SG04	4/5/2010	5.9	3.9-4.9
SG05	4/5/2010	4.6	2.6-3.6
SG06	4/9/2010	4	2.0-3.0
SG07	4/5/2010	4.3	2.3-3.3

Abbreviations:

ft-bgs - feet below ground surface.

TABLE 3
SOIL GAS SAMPLING RESULTS
VAPOR INTRUSION SCREENING LEVEL ASSESSMENT
BUILDINGS 225 AND 252
NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

CAS #	SAMPLE ID	Adjusted EPA Industrial Air (Attenuation Factor = 0.1)	Maine Soil Gas Target (SGT), Chronic Commercial	B225-SG-SG01	B225-SG-SG02	B225-SG-SG03	B225-SG-SG04	B225-SG-SG05	B225-SG-SG06	B225-SG-DUP01-040910	B225-SG-SG07
	SAMPLE DATE			04/06/10	04/06/10	04/06/10	04/07/10	04/06/10	04/09/10	04/09/10	04/06/10
Volatile Organics (ug/m3)											
75-71-8	Dichlorodifluoromethane (CFC 12)	8800	9000	2.8 J	2.7 J	2.6 J	2.1 J	2.1 J	2.9	2.7	2.4 J
74-87-3	Chloromethane	3900	3950	2.1 U	1.1 U	1.1 J	0.72 U	0.56 U	0.49 U	0.48 U	0.61 U
75-01-4	Vinyl Chloride	28	140	1.2 U	0.65 U	0.39 U	0.43 U	0.33 U	0.29 U	0.28 U	0.36 U
74-83-9	Bromomethane	220	220	1.4 U	0.73 U	0.43 U	0.48 U	0.37 U	0.32 U	0.32 U	0.41 U
75-00-3	Chloroethane	440000	440000	1.5 U	0.8 U	0.48 U	0.53 U	0.4 U	0.35 U	0.35 U	0.45 U
67-64-1	Acetone	1400000	--	130 M1	160 M1	20 J	130 M1	180	140 M1	130 M1	39
75-69-4	Trichlorofluoromethane	31000	--	2.6 J	3.3 J	1.5 J	0.97 J	1.9 J	1.4 J	1.3 J	1.9 J
75-35-4	1,1-Dichloroethene	8800	9000	1.4 U	0.75 U	0.45 U	0.49 U	0.38 U	0.33 U	0.33 U	0.42 U
75-09-2	Methylene Chloride	260	1300	1.5 U	0.77 U	0.46 U	0.51 U	0.61 J	0.34 U	0.33 U	0.43 U
76-13-1	Trichlorotrifluoroethane	1300000	--	1.7 U	1.3 J	0.54 J	0.59 U	0.53 J	0.56 J	0.58 J	0.6 J
75-15-0	Carbon Disulfide	31000	30500	5.1 J	4.3 J	0.95 U	23 J	5.8 J	12 J	11 J	1.6 J
156-60-5	trans-1,2-Dichloroethene	2600	2650	1.1 U	0.59 U	0.35 U	0.39 U	0.3 U	0.26 U	0.26 U	0.33 U
75-34-3	1,1-Dichloroethane	77	385	1.2 U	0.62 U	0.37 U	0.41 U	0.31 U	0.27 U	0.27 U	0.35 U
1634-04-4	Methyl tert-Butyl Ether	470	2350	1.3 U	0.7 U	0.42 U	0.46 U	0.35 U	0.31 U	0.3 U	0.39 U
78-93-3	2-Butanone (MEK)	220000	220000	24 J	37 J	5.5 J	25 J	20 J	36	34	10 J
156-59-2	cis-1,2-Dichloroethene	2600	2650	1.1 U	0.57 U	0.34 U	0.37 U	0.29 U	0.25 U	0.25 U	0.32 U
67-66-3	Chloroform	5.3	26.5	1.1 U	0.59 U	0.35 U	0.39 U	0.3 U	0.26 U	0.27 J	0.69 J
107-06-2	1,2-Dichloroethane	4.7	23.5	1.2 U	0.62 U	0.37 U	0.41 U	0.31 U	0.27 U	0.27 U	0.35 U
71-55-6	1,1,1-Trichloroethane	220000	220000	1.4 U	0.74 U	0.44 U	0.49 U	0.37 U	0.33 U	0.32 U	0.41 U
71-43-2	Benzene	16	80	36	9.1	0.58 J	17	4	6.8	6.8	1.9 J
56-23-5	Carbon Tetrachloride	8.2	41	1.4 U	0.75 U	0.45 U	0.49 U	0.38 U	0.33 U	0.33 U	0.42 U
110-82-7	Cyclohexane	260000	--	2.7 U	1.4 U	0.83 U	1.2 J	1.2 J	1.3 J	1.3 J	0.8 J
78-87-5	1,2-Dichloropropane	12	60	1.4 U	0.99 J	0.43 U	0.92 J	0.37 U	0.32 U	0.32 U	0.41 U
75-27-4	Bromodichloromethane	3.3	--	1.4 U	0.72 U	0.43 U	0.47 U	0.36 U	0.32 U	0.31 U	0.4 U
79-01-6	Trichloroethene	61	305	1.2 U	3.6 J	0.42 J	0.41 U	0.56 J	0.27 U	0.27 U	0.35 U
123-91-1	1,4-Dioxane	16	80	1.3 U	0.69 U	0.41 U	0.45 U	0.35 U	0.31 U	0.3 U	0.38 U
10061-01-5	cis-1,3-Dichloropropene	31	--	1.2 U	0.65 U	0.39 U	0.43 U	0.33 U	0.29 U	0.28 U	0.36 U
108-10-1	4-Methyl-2-pentanone	130000	130000	1.2 U	0.63 U	0.37 U	1 J	0.49 J	0.72 J	0.55 J	0.37 J
10061-02-6	trans-1,3-Dichloropropene	31	--	3.1 U	1.6 U	0.95 U	1.1 U	0.81 U	0.71 U	0.7 U	0.89 U
79-00-5	1,1,2-Trichloroethane	7.7	38.5	1.1 U	0.55 U	0.33 U	0.36 U	0.28 U	0.24 U	0.24 U	0.31 U
108-88-3	Toluene	220000	220000	1700	690	1.9 J	470	24	95	96	6.4
591-78-6	2-Hexanone	1300	--	1 U	2.9 J	1.6 J	3.5	1.1 J	1.8 J	1 J	0.95 J
124-48-1	Dibromochloromethane	4.5	--	1.3 U	0.68 U	0.4 U	0.45 U	0.34 U	0.3 U	0.3 U	0.38 U
106-93-4	1,2-Dibromoethane	0.2	1	1.1 U	0.56 U	0.33 U	0.37 U	0.28 U	0.25 U	0.24 U	0.31 U
127-18-4	Tetrachloroethene	21	105	90	9	0.35 U	3.8	0.44 J	21	21	0.78 J
108-90-7	Chlorobenzene	2200	44000	0.96 U	0.5 U	0.3 U	0.33 U	0.25 U	0.22 U	0.22 U	0.28 U
100-41-4	Ethylbenzene	49	245	6.8 J	2.4 J	0.3 U	2.1 J	0.62 J	0.89 J	0.82 J	0.84 J
179601-23-1	m,p-Xylenes	4400	4400	12 J	4.7 J	0.71 U	4.4 J	1 J	1.5 J	1.4 J	2.3 J
75-25-2	Bromoform	110	550	2.9 U	1.5 U	0.89 U	0.99 U	0.76 U	0.66 U	0.65 U	0.84 U
100-42-5	Styrene	44000	13000	2 J	0.88 J	0.33 U	0.44 J	0.28 U	0.78 J	0.68 J	0.31 U
95-47-6	o-Xylene	4400	4400	6.2 J	2.1 J	0.4 U	1.8 J	0.57 J	0.72 J	0.69 J	1.1 J
79-34-5	1,1,2,2-Tetrachloroethane	2.1	10.5	1.1 U	0.57 U	0.34 U	0.37 U	0.29 U	0.25 U	0.25 U	0.32 U
98-82-8	Cumene	18000	--	1 U	0.54 U	0.32 U	0.36 U	0.27 U	0.24 U	0.23 U	0.3 U
541-73-1	1,3-Dichlorobenzene	--	--	1.2 U	0.62 U	0.37 U	0.41 U	0.31 U	0.27 U	0.27 U	0.35 U
106-46-7	1,4-Dichlorobenzene	11	55	1.2 U	0.62 U	0.37 U	0.41 U	0.31 U	0.27 U	0.27 U	0.35 U
95-50-1	1,2-Dichlorobenzene	8800	--	1.1 U	0.55 U	0.33 U	0.36 U	0.28 U	0.24 U	0.24 U	0.31 U
96-12-8	1,2-Dibromo-3-chloropropane	0.02	0.1	3.1 U	1.6 U	0.95 U	1.1 U	0.81 U	0.71 U	0.7 U	0.89 U
120-82-1	1,2,4-Trichlorobenzene	88	175	1.4 U	0.75 U	0.45 U	0.49 U	0.38 U	0.33 U	0.33 U	0.42 U
91-20-3	Naphthalene	3.6	18	1.8 U	1.1 J	0.56 U	0.83 J	0.47 U	0.52 J	0.41 U	0.6 J

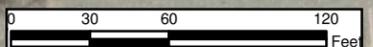
Note: Grab soil gas samples collected in 1 liter Summa Canisters (0.4 liter samples size). Fill time approximately 20 seconds.

U = The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

M1 = Matrix interference due to coelution with a non-target compound; results may be biased high.

FIGURES



Legend	
⊕	Temporary Groundwater Sampling Points
⊕	Temporary Soil Gas Points
●	Storm Drain Inlet
●	Potential Issues
- - -	Parcel Boundaries
—	Electrical Ground Wires
—	Fiber Optic Lines
—	Sewer Lines
—	Steam Lines
—	Storm Lines
—	Water Line
—	Natural Gas

Tetra Tech NUS, Inc.

SOIL GAS AND GROUNDWATER SAMPLE LOCATIONS
BUILDINGS 225 AND 252 - TRANSPORTATION PARCEL
NAVAL AIR STATION BRUNSWICK, MAINE

FILE \\...NASB_BLDG_225&252_SAMP_LOCS.MXD	SCALE AS NOTED
FIGURE NUMBER FIGURE NO. 1	REV 0 DATE 04/15/10

ATTACHMENTS

ATTACHMENT 1
GROUNDWATER SAMPLE LOG SHEETS



GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Building 225 and 252
 Project No.: 112G02330

Sample ID No.: BZZS-6P-GW02

Sample Location: GW02

Sampled By: J. Traut

C.O.C. No.: _____

- Domestic Well Data
- Monitoring Well Data
- Other Well Type: Groundwater Profiling Location
- QA Sample Type: _____

- Type of Sample:
- Low Concentration
 - High Concentration

SAMPLING DATA:

Date: <u>4/5/10</u>	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: <u>1100</u>	NA							
Method: <u>Low Flow / Grab</u>								>

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method:	Not recorded - Grab sample only							
Monitor Reading (ppm):								
Well Casing Diameter & Material Type:								
Total Well Depth (TD):								
Static Water Level (WL):								
One Casing Volume (gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40-mL vial	Y

OBSERVATIONS / NOTES:

Grab sample - no readings were taken before sampling
 Purged tubing volume and then collected sample

3x tubing
 Screened interval = 5.5-9' bgs
 WL: 5.9' bgs before & after sampling

Intake 9' bgs
 1016 Beginning 1100 collect sample
 Purged 1800 ml

Circle if Applicable:

MS/MSD: —
 Duplicate ID No.: BZZS-6P-DUP01-246510 @ 0000

Signature(s): J. Traut



GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Building 225 and 252
Project No.: 112G02330

Sample ID No.: B225-GP-GW06

Sample Location: GW06

Sampled By: J. Traut

C.O.C. No.: _____

- Domestic Well Data
- Monitoring Well Data
- Other Well Type: Groundwater Profiling Location
- QA Sample Type: _____

Type of Sample: _____

Low Concentration

High Concentration

SAMPLING DATA:

Date:	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
<u>4/5/10</u>	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	
Time: <u>1305</u>	NA							→
Method: <u>Low Flow / Grab</u>								

PURGE DATA:

Date:	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method:	Not recorded - Grab sample only							
Monitor Reading (ppm):								
Well Casing Diameter & Material Type:								
Total Well Depth (TD):								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOC	HCl	3 x 40-mL vial	<u>Y</u>

OBSERVATIONS / NOTES:

Grab sample - no readings were taken before sampling
Purged tubing volume and then collected sample

Purge Volume: 1300 mL

Screened Interval 6.6-10' bgs

Initial WL: 4.25' bgs

Circle if Applicable:

MS/MSD

Duplicate ID No.:

—

—

Signature(s):

ATTACHMENT 2
SOIL GAS SAMPLE LOG SHEETS



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-S601
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: SG-01

DESCRIPTION OF SAMPLE LOCATION

Indoor

Location: NA
 Basement: yes / no
 Room size (ftxft): _____
 Floor material: concrete / wood / dirt / other
 Slab Thickness (ft): _____
 Visible Cracks: yes / no
 Subslab Material: dirt / gravel

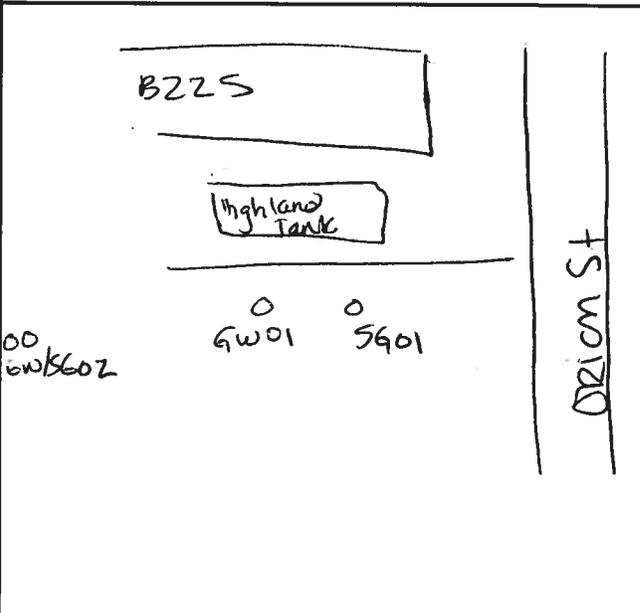
Outdoor

Location: NA
 Depth to Water (ft): 6.5
 Soil type: _____
 Odor: _____
 Color: _____
 Wind Speed/Direction: _____

PROBE INSTALLATION

Date: 4/6/10
 Method: PRT / DPT
 Diameter: 1.5
 Depth: 4.5-5.5 bgs
 Packing Material: Natural Material
 Initial PID Reading: -
 Post PID Reading: 1.7 ppm

LOCATION SKETCH



PURGE

Date: 4/6/10
 Time: 1015-1035
 Rate: ~100 mL/min or less
 Volume: ~1.3 L

SAMPLE COLLECTION

Start Time: 1015 1040 End Time: 1040
 Starting Pressure: -29 in Hg End Pressure: -4.5 in Hg
 Rate: Grab
 Volume: _____
 Canister Description: 1 L Summa

OBSERVATIONS / NOTES:

Co-located with groundwater profiling location GP-01 - see groundwater sample log sheet for more information

DTW: 6.5 bgs

Canister # 15C00448

Helium at 100% in 4" PVC - 97% helium feed at 1050 ppm < 1%

Signature(s):

Project Site Name: Building 225 and 252 Sample ID Number: B225-56-5602
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: 56-02

DESCRIPTION OF SAMPLE LOCATION	
Indoor Location: <u>NA</u> Basement: <u>yes / no</u> Room size (ftxft): _____ Floor material: <u>concrete / wood / dirt / other</u> Slab Thickness (ft): _____ Visible Cracks: <u>yes / no</u> Subslab Material: <u>dirt / gravel</u>	Outdoor Location: <u>NA</u> Depth to Water (ft): _____ Soil type: _____ Odor: _____ Color: _____ Wind Speed/Direction: _____

PROBE INSTALLATION	LOCATION SKETCH
Date: <u>3/6/10</u> Method: <u>DPT / PRT SYSTEM</u> Diameter: <u>1.5 in.</u> Depth: <u>3.9 - 4.9</u> Packing Material: <u>NA</u> Initial PID Reading: _____ Post PID Reading: <u>0.0</u>	

PURGE
Date: <u>4/6/10</u> Time: <u>0912</u> Rate: <u>~100 mL/min</u> Volume: <u>1.3 L</u>

SAMPLE COLLECTION
Start Time: <u>0930</u> End Time: <u>0936</u> Starting Pressure: <u>-24 inHg</u> End Pressure: <u>-5 inHg</u> Rate: <u>6mlb</u> Volume: <u>1 L</u> Canister Description: <u>1 L Summa</u>

OBSERVATIONS / NOTES:
<p>Co-located with groundwater profiling location GP-02 - see groundwater sample log sheet for more information</p> <p>DNV: 5.9' bgs</p> <p>Canister #15C 06770</p> <p>initial pressure: -24 (per gauge - per CAS)</p> <p>final pressure: _____</p> <p>helium in setup 99.7% - 0% helium in tedlar bag</p> <p>Signature(s): <u>J. Traut</u></p>



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-SG03
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: SG-03

DESCRIPTION OF SAMPLE LOCATION

Indoor
 Location: NA
 Basement: yes / no
 Room size (ftxft): _____
 Floor material: concrete / wood / dirt / other
 Slab Thickness (ft): _____
 Visible Cracks: yes / no
 Subslab Material: dirt / gravel

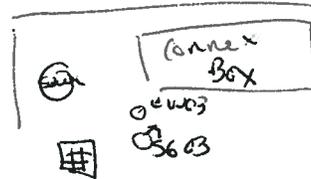
Outdoor
 Location: NA
 Depth to Water (ft): 5.2
 Soil type: silty
 Odor: NO
 Color: -
 Wind Speed/Direction: -

PROBE INSTALLATION

Date: 4/6/10
 Method: DPT / PRT system
 Diameter: 1.5
 Depth: ± 3.2-4.2
 Packing Material: Natural material
 Initial PID Reading: _____
 Post PID Reading: 0.0

LOCATION SKETCH

Building 225



PURGE

Date: 4/6/10
 Time: 0755 - 0808
 Rate: ~100 mL/min
 Volume: 1300 mL

SAMPLE COLLECTION

Start Time: 0824 End Time: 0854
 Starting Pressure: -27.5 End Pressure: -5
 Rate: Grab
 Volume: 1 Liter
 Canister Description: 1 L Summa

OBSERVATIONS / NOTES:

Co-located with groundwater profiling location GP- - see groundwater sample log sheet for more information

Screened 3.6-4.2 3.2-4.2
 initial pressure -29. in Hg

{ 3/16" dia tubing = 5.4 mL / Ft
1.5" dia x 1.0 height cavity = 375 mL - ca

3/16" silica canister # 1500759
helium in 4" -> 90% helium in teller
0%

Signature(s):



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-SG04 & B225-SG-DUP01-040710
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: SG04

DESCRIPTION OF SAMPLE LOCATION

Indoor
 Location: _____
 Basement: yes / no
 Room size (ftxft): _____
 Floor material: concrete / wood / dirt / other
 Slab Thickness (ft): _____
 Visible Cracks: yes / no
 Subslab Material: dirt / gravel

Outdoor
 Location: _____
 Depth to Water (ft): 5.93
 Soil type: _____
 Odor: _____
 Color: _____
 Wind Speed/Direction: _____

PROBE INSTALLATION

Date: 4/7/10
 Method: PPT / PPT
 Diameter: _____
 Depth: 1.539-4.9
 Packing Material: Natural
 Initial PID Reading: _____
 Post PID Reading: 2.1 PPM

LOCATION SKETCH



PURGE

Date: 4/7/10
 Time: 1122
 Rate: ~100 mL/min
 Volume: 1.3 L

SAMPLE COLLECTION

Start Time: 1300 End Time: 1300
 Starting Pressure: 29-28 End Pressure: -5 inHg
 Rate: Grab
 Volume: 1 L
 Canister Description: 1 L Summa

OBSERVATIONS / NOTES:

Co-located with groundwater profiling location GP-04 - see groundwater sample log sheet for more information

Canister # ISC 06771 → B225-SG-SG04
 Canister # _____ → B225-SG-DUP01-040710

Duplicate sample collected → due to rush order on extra canister - duplicate

Signature(s):

J. Traut

Canister not leak test & may not be 100% certified clean → see notes from lab

Helium in 4" PVC: 99.2% Helium in Tedlar bag: 75ppm



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-SG05
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: SG 05

DESCRIPTION OF SAMPLE LOCATION	
Indoor Location: _____ Basement: <u>yes / no</u> Room size (ftxft): _____ Floor material: <u>concrete / wood / dirt / other</u> Slab Thickness (ft): _____ Visible Cracks: <u>yes / no</u> Subslab Material: <u>dirt / gravel</u>	Outdoor Location: _____ Depth to Water (ft): <u>4.6</u> Soil type: _____ Odor: _____ Color: _____ Wind Speed/Direction: _____

PROBE INSTALLATION	LOCATION SKETCH
Date: <u>4/6/10</u> Method: <u>PRT / OPT</u> Diameter: <u>1.5</u> Depth: <u>2.6 - 3.6' @ bag</u> Packing Material: <u>Natural</u> Initial PID Reading: _____ Post PID Reading: <u>0.8 ppm</u>	<p>A hand-drawn sketch of a site layout. It shows two rectangular buildings labeled 'Bldg 225' and 'Bld 252'. A small square labeled 'SG-05' with a circle below it is located between the buildings. To the right of the buildings is a vertical line labeled 'Pelican Rd'. Below the 'SG-05' label, there is another label '6W05' with a circle below it.</p>
PURGE Date: <u>4/6/10</u> Time: <u>1237</u> Rate: <u>~100 mL/min</u> Volume: <u>13L</u>	
SAMPLE COLLECTION Start Time: <u>1255</u> End Time: <u>1255</u> Starting Pressure: <u>-30"</u> End Pressure: <u>-5 inHg</u> Rate: <u>Grab</u> Volume: _____ Canister Description: <u>1 L Summa</u>	

OBSERVATIONS / NOTES:

Co-located with groundwater profiling location GP-65 - see groundwater sample log sheet for more information

Canister # 1 SC00732

Helium in 4" casing - 99.1% Helium in tied back bag:

Signature(s): J. Traut

525 ppm
 <1% OK per spec



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-5606
 Project Number: 112G02330 Sampled By: J. Frost T. ROJAHN
 Sample Location: 5606

DESCRIPTION OF SAMPLE LOCATION

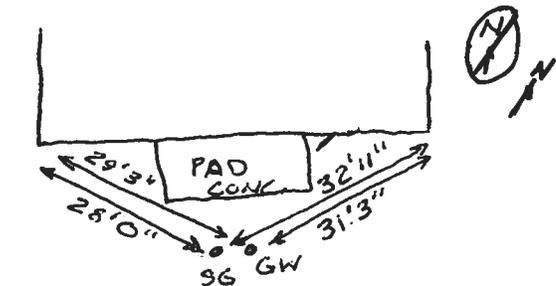
Indoor
 Location: NA
 Basement: yes / no
 Room size (ftxft): _____
 Floor material: concrete / wood / dirt / other
 Slab Thickness (ft): _____
 Visible Cracks: yes / no
 Subslab Material: dirt / gravel

Outdoor
 Location: _____
 Depth to Water (ft): 4.02' BGS
 Soil type: _____
 Odor: _____
 Color: _____
 Wind Speed/Direction: _____

PROBE INSTALLATION

Date: 4/9/10
 Method: PRT/DPT
 Diameter: 1.5"
 Depth: 2.0'-3.0'
 Packing Material: NATURAL CLAY
 Initial PID Reading: -
 Post PID Reading: - PID MALFUNCTIONING

LOCATION SKETCH



~18" OFF FIRST ATTEMPT
to SSE

PURGE

Date: 4/9/10
 Time: 0948 HRS - 1001 HRS
 Rate: 0.1 L/min
 Volume: 1.3 L

SAMPLE COLLECTION

Start Time: 1010 End Time: 1010 (+40SEC)
 Starting Pressure: 7-30 End Pressure: -5.5
 Rate: GRAB
 Volume: 1L
 Canister Description: 1 L Summa
 DUP PRESSURE 7-30 @ START - 4.0 @ END

OBSERVATIONS / NOTES:

Co-located with groundwater profiling location GP- - see groundwater sample log sheet for more information

HELIUM IN 4" PVC LEAK TEST CHAMBER = 98%
 LEAK TEST RESULT = 50ppm IN TEDLAR BAG

* Collect DUP = B225-SG-DUP01-040910
 NO GAUGE AVAILABLE FROM LAB AT THIS
 TIME - TIMED OFF OF ROUTINE SAMPLE

Signature(s):

Tony Rojahn

SAMPLE IDS	CONTAINER IDS	CLEAN DATE OF CYLINDER	DATE CONTAINER WAS TEST FOR CLEANING/RESULT
B225-SG-5606	15C00122	4/2/10	4/6/10 (PASS)
B225-SG-DUP01-040910	15C00078	4/2/10	4/6/10 (PASS)

GAUGE ID = AV600102 CONNECTED TO ROUTINE SAMPLE B225-SG-5606



Project Site Name: Building 225 and 252 Sample ID Number: B225-SG-S607
 Project Number: 112G02330 Sampled By: J. Traut
 Sample Location: S6-07

DESCRIPTION OF SAMPLE LOCATION	
Indoor Location: <u>NA</u> Basement: <u>yes / no</u> Room size (ftxft): _____ Floor material: <u>concrete / wood / dirt / other</u> Slab Thickness (ft): _____ Visible Cracks: <u>yes / no</u> Subslab Material: <u>dirt / gravel</u>	Outdoor Location: <u>NA</u> Depth to Water (ft): <u>4.3</u> Soil type: _____ Odor: _____ Color: _____ Wind Speed/Direction: _____

PROBE INSTALLATION	LOCATION SKETCH
Date: <u>4/6/10</u> Method: <u>PRT / OPT</u> Diameter: <u>1.5</u> Depth: <u>2.3-3.3' bgs</u> Packing Material: <u>Natural Material</u> Initial PID Reading: _____ Post PID Reading: <u>0.1 ppm</u>	
PURGE Date: <u>4/6/10</u> Time: <u>1146 - 1201</u> Rate: <u>100 mL/min</u> Volume: <u>1.3 L</u>	
SAMPLE COLLECTION Start Time: <u>1205</u> End Time: <u>1205</u> Starting Pressure: <u>-30</u> End Pressure: <u>-5 inHg</u> Rate: <u>Grab</u> Volume: _____ Canister Description: <u>1 L Summa</u>	

OBSERVATIONS / NOTES:
 Co-located with groundwater profiling location GP-07 - see groundwater sample log sheet for more information
 canister # 1SC00787

Helium in 4" → 97% Helium in bag = 2500 ppm
 < 1% per SVP oil

Signature(s):