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**BEACON Report No. 1923**

# PASSIVE SOIL-GAS SURVEY BURROW INVESTIGATION HANFORD SITE, WA

MAY 2007
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**Prepared for**

**Environmental Assessment Services**
**350 Hills Street**
**Suite 151**
**Richland, WA 99354**

**by**

**Beacon Environmental Services, Inc.**
**323 Williams Street**
**Suite D**
**Bel Air, MD 21014**

**September 21, 2006**

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**Applying Results from Soil-Gas Surveys**

The utility of soil-gas surveys is directly proportional to their accuracy in reflecting and representing changes in the subsurface concentrations of source compounds. Passive soil-gas survey results are the mass collected from the vapor-phase emanating from the source. The vapor-phase is merely a fractional trace of the source, so, as a matter of convenience, the units used in reporting detection values from passive soil-gas surveys are smaller than those employed for source-compound concentrations.

The critical fact is that, whatever the relative concentrations of source and associated soil gas, best results are realized when the ratio of soil-gas measurements to actual subsurface concentrations remains as close to constant as the real world permits. It is the reliability and consistency of this ratio, not the particular units of mass (*e.g.*, nanograms) that determine usefulness. Thus, BEACON emphasizes the necessity of conducting — at minimum — follow-on intrusive sampling at one or two points that show relatively high soil-gas measurements to obtain corresponding concentrations of soil and groundwater contaminants. These correspondent values furnish the basis for approximating the required ratio. Once that ratio is established, it can be used in conjunction with the soil-gas measurements (regardless of the units adopted) to estimate subsurface contaminant concentrations across the survey field. It is important to keep in mind, however, that specific conditions at individual sample points, including soil porosity and permeability, depth to contamination, and perched ground water, can have significant impact on soil-gas measurements at those locations.

When passive soil-gas surveys are handled in this way, the data provide information that can yield substantial savings in drilling costs and in time. They furnish, among other things, a checklist of compounds expected at each survey location and help to determine how and where drilling budgets can most effectively be spent.

**Table 1**

**Beacon Environmental Services, Inc.**
**323 Williams Street, Ste. D**
**Bel Air, MD 21014**

**Analysis by EPA Method 8260B (Modified)**

| Client Sample ID: | Meth_Blk | B1KKX5 | B1KKY9 | B1KL00 | B1KL01 | B1KL02 |
|---|---|---|---|---|---|---|
| Project Number: | 1923 | 1923 | 1923 | 1923 | 1923 | 1923 |
| Lab File ID: | 06092003 | 06092006 | 06092007 | 06092008 | 06092009 | 06092010 |
| Received Date: | | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 |
| Analysis Date: | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 |
| Analysis Time: | 12:47 | 14:18 | 14:49 | 15:19 | 15:50 | 16:20 |
| Units: | ng | ng | ng | ng | ng | ng |
| COMPOUNDS | | | | | | |
| Vinyl Chloride | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichlorotrifluoroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| trans-1,2-Dichlorocthene | <25 | <25 | <25 | <25 | <25 | <25 |
| Methyl-t-butyl Ether | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| cis-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Chloroform | <25 | <25 | <25 | <25 | <25 | <25 |
| 2,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichlorocthane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloropropene | <25 | <25 | <25 | <25 | <25 | <25 |
| Carbon Tetrachloride | <25 | <25 | <25 | <25 | **16 J** | <25 |
| Benzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloropropanc | <25 | <25 | <25 | <25 | <25 | <25 |
| Trichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichloroethanc | <25 | <25 | <25 | <25 | <25 | <25 |
| Toluene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dibromoethane (EDB) | <25 | <25 | <25 | <25 | <25 | <25 |
| Tetrachloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Chlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Ethylbenzenc | <25 | <25 | <25 | <25 | <25 | <25 |
| p & m-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| Bromoform | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| o-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Isopropylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3,5-Trimcthylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trimethylbenzenc | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,4-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichlorobenzenc | <25 | <25 | <25 | <25 | <25 | <25 |
| n-Butylbenzenc | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Naphthalene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

**Table 1**

**Beacon Environmental Services, Inc.**
**323 Williams Street, Ste. D**
**Bel Air, MD 21014**

**Analysis by EPA Method 8260B (Modified)**

| Client Sample ID: | B1KL03 | B1KL04 | B1KL05 | B1KL06 | B1KL07 | B1KL08 |
|---|---|---|---|---|---|---|
| Project Number: | 1923 | 1923 | 1923 | 1923 | 1923 | 1923 |
| Lab File ID: | 06092011 | 06092012 | 06092013 | 06092014 | 06092015 | 06092016 |
| Received Date: | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 |
| Analysis Date: | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 |
| Analysis Time: | 16:50 | 17:21 | 17:51 | 18:22 | 18:52 | 19:22 |
| Units: | ng | ng | ng | ng | ng | ng |
| COMPOUNDS | | | | | | |
| Vinyl Chloride | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichlorotrifluoroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| trans-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Methyl-t-butyl Ether | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| cis-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Chloroform | <25 | <25 | <25 | <25 | <25 | <25 |
| 2,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloropropene | <25 | <25 | <25 | <25 | <25 | <25 |
| Carbon Tetrachloride | **18 J** | **19 J** | <25 | **30** | **13 J** | **30** |
| Benzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Trichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Toluene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dibromoethane (EDB) | <25 | <25 | <25 | <25 | <25 | <25 |
| Tetrachloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Chlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Ethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| p & m-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| Bromoform | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| o-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Isopropylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3,5-Trimethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trimethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,4-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| n-Butylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Naphthalene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

**Table 1**

**Beacon Environmental Services, Inc.**
**323 Williams Street, Ste. D**
**Bel Air, MD 21014**

**Analysis by EPA Method 8260B (Modified)**

| Client Sample ID: | B1KL09 | B1KL10 | B1KL11 | B1KKX6 | B1KKX7 | B1KKX8 |
|---|---|---|---|---|---|---|
| Project Number: | 1923 | 1923 | 1923 | 1923 | 1923 | 1923 |
| Lab File ID: | 06092017 | 06092018 | 06092019 | 06092020 | 06092021 | 06092022 |
| Received Date: | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 |
| Analysis Date: | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/20/2006 |
| Analysis Time: | 19:53 | 20:23 | 20:54 | 21:24 | 21:54 | 22:25 |
| Units: | ng | ng | ng | ng | ng | ng |
| COMPOUNDS | | | | | | |
| Vinyl Chloride | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichlorotrifluoroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| trans-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Methyl-t-butyl Ether | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| cis-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Chloroform | <25 | <25 | <25 | <25 | <25 | <25 |
| 2,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloropropene | <25 | <25 | <25 | <25 | <25 | <25 |
| Carbon Tetrachloride | <25 | <25 | <25 | <25 | <25 | <25 |
| Benzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Trichlorocthene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Toluene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dibromoethane (EDB) | <25 | <25 | <25 | <25 | <25 | <25 |
| Tetrachloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Chlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Etbylbcnzene | <25 | <25 | <25 | <25 | <25 | <25 |
| p & m-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| Bromoform | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| o-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Isopropylbcnzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3,5-Trimethylbcnzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trimethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,4-Dichlorobcnzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| n-Butylbcnzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trichlorobenzenc | <25 | <25 | <25 | <25 | <25 | <25 |
| Naphthalene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Triehlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

**Table 1**

**Beacon Environmental Services, Inc.**
**323 Williams Street, Ste. D**
**Bel Air, MD 21014**

**Analysis by EPA Method 8260B (Modified)**

| Client Sample ID: | B1KKX9 | B1KKY0 | B1KKY1 | B1KKY2 | B1KKY3 | B1KKY4 |
|---|---|---|---|---|---|---|
| Project Number: | 1923 | 1923 | 1923 | 1923 | 1923 | 1923 |
| Lab File ID: | 06092023 | 06092024 | 06092025 | 06092026 | 06092027 | 06092028 |
| Received Date: | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 |
| Analysis Date: | 9/20/2006 | 9/20/2006 | 9/20/2006 | 9/21/2006 | 9/21/2006 | 9/21/2006 |
| Analysis Time: | 22:55 | 23:26 | 23:56 | 12:27 | 12:57 | 1:27 |
| Units: | ng | ng | ng | ng | ng | ng |
| COMPOUNDS | | | | | | |
| Vinyl Chloride | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichlorotrifluoroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| trans-1,2-Dichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| Methyl-t-butyl Ether | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| cis-1,2-Dichlorocthene | <25 | <25 | <25 | <25 | <25 | <25 |
| Chloroform | <25 | <25 | <25 | <25 | <25 | <25 |
| 2,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1-Dichloropropene | <25 | <25 | <25 | <25 | <25 | <25 |
| Carbon Tetrachloride | 9 J | <25 | 9 J | 9 J | <25 | <25 |
| Benzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Trichloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2-Trichloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Toluene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dibromoethane (EDB) | <25 | <25 | <25 | <25 | <25 | <25 |
| Tetrachloroethene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,1,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| Chlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Ethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| p & m-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| Bromoform | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,1,2,2-Tetrachloroethane | <25 | <25 | <25 | <25 | <25 | <25 |
| o-Xylene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichloropropane | <25 | <25 | <25 | <25 | <25 | <25 |
| Isopropylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3,5-Trimethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trimethylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,3-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,4-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2-Dichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| n-Butylbenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,4-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |
| Naphthalene | <25 | <25 | <25 | <25 | <25 | <25 |
| 1,2,3-Trichlorobenzene | <25 | <25 | <25 | <25 | <25 | <25 |

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

**Table 1**

**Beacon Environmental Services, Inc.**
**323 Williams Street, Ste. D**
**Bel Air, MD 21014**

**Analysis by EPA Method 8260B (Modified)**

| Client Sample ID: | B1KKY5 | B1KKY6 | B1KKY7 | B1KKY8 |
|---|---|---|---|---|
| Project Number: | 1923 | 1923 | 1923 | 1923 |
| Lab File ID: | 06092029 | 06092030 | 06092031 | 06092032 |
| Received Date: | 9/19/2006 | 9/19/2006 | 9/19/2006 | 9/19/2006 |
| Analysis Date: | 9/21/2006 | 9/21/2006 | 9/21/2006 | 9/21/2006 |
| Analysis Time: | 1:58 | 2:28 | 2:59 | 3:29 |
| Units: | ng | ng | ng | ng |
| COMPOUNDS | | | | |
| Vinyl Chloride | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethene | <25 | <25 | <25 | <25 |
| 1,1,2-Trichlorotrifluoroethane | <25 | <25 | <25 | <25 |
| trans-1,2-Dichloroethene | <25 | <25 | <25 | <25 |
| Methyl-t-butyl Ether | <25 | <25 | <25 | <25 |
| 1,1-Dichloroethane | <25 | <25 | <25 | <25 |
| cis-1,2-Dichloroethene | <25 | <25 | <25 | <25 |
| Chloroform | <25 | <25 | <25 | <25 |
| 2,2-Dichloropropane | <25 | <25 | <25 | <25 |
| 1,2-Dichloroethane | <25 | <25 | <25 | <25 |
| 1,1,1-Trichloroethane | <25 | <25 | <25 | <25 |
| 1,1-Dichloropropene | <25 | <25 | <25 | <25 |
| Carbon Tetrachloride | <25 | <25 | <25 | <25 |
| Benzene | <25 | <25 | <25 | <25 |
| 1,2-Dichloropropane | <25 | <25 | <25 | <25 |
| Trichloroethene | <25 | <25 | <25 | <25 |
| 1,1,2-Trichloroethane | <25 | <25 | <25 | <25 |
| Toluene | <25 | <25 | <25 | <25 |
| 1,3-Dichloropropane | <25 | <25 | <25 | <25 |
| 1,2-Dibromoethane (EDB) | <25 | <25 | <25 | <25 |
| Tetrachloroethene | <25 | <25 | <25 | <25 |
| 1,1,1,2-Tetrachloroethane | <25 | <25 | <25 | <25 |
| Chlorobenzene | <25 | <25 | <25 | <25 |
| Ethylbenzene | <25 | <25 | <25 | <25 |
| p & m-Xylene | <25 | <25 | <25 | <25 |
| Bromoform | <25 | <25 | <25 | <25 |
| 1,1,2,2-Tetrachloroethane | <25 | <25 | <25 | <25 |
| o-Xylene | <25 | <25 | <25 | <25 |
| 1,2,3-Trichloropropane | <25 | <25 | <25 | <25 |
| Isopropylbenzene | <25 | <25 | <25 | <25 |
| 1,3,5-Trimethylbenzene | <25 | <25 | <25 | <25 |
| 1,2,4-Trimethylbenzene | <25 | <25 | <25 | <25 |
| 1,3-Dichlorobenzene | <25 | <25 | <25 | <25 |
| 1,4-Dichlorobenzene | <25 | <25 | <25 | <25 |
| 1,2-Dichlorobenzene | <25 | <25 | <25 | <25 |
| n-Butylbenzene | <25 | <25 | <25 | <25 |
| 1,2,4-Trichlorobenzene | <25 | <25 | <25 | <25 |
| Naphthalene | <25 | <25 | <25 | <25 |
| 1,2,3-Trichlorobenzene | <25 | <25 | <25 | <25 |

Results in nanograms (ng). J = Estimated value below reported quantitation level. B = Detected in method blank.

# PASSIVE SOIL-GAS SURVEY
# FIELD DEPLOYMENT REPORT

| Project Information | |
|---|---|
| Beacon Project No.: | 1923 |
| Site Name: | Burrow Investigation |
| Site Location: | Hanford Site, WA |

BEACON ENVIRONMENTAL SERVICES, INC.

323 Williams Street, Suite D, Bel Air, MD 21014, 800-878-5510

| Client Information | |
|---|---|
| Company Name: | Environmental Assessment Srvcs. |
| Office Location: | Richland, WA |
| Samples Collected By: | B Tiller |

| FIELD SAMPLE ID | Date Emplaced / Time Emplaced | Date Retrieved / Time Retrieved | FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, sampling hole depth, cartridge/vial condition) |
|---|---|---|---|
| Z1A-01 | 09-11-06 1139 | 0808 | hole depth 1 in (top of sampler) below surface |
| -02 | 09-11-06 1141 | 0814 | " " |
| -03 | 09-11-06 1143 | 0818 | " " |
| -04 | 09-11-06 1140 | 0823 | " " |
| -05 | 09-11-06 1149 | 0829 | |
| -06 | 09-11-06 1150 | 0836 | |
| -07 | 09-11-06 1152 | 0839 | - gravel soils mixed and hand packed |
| -08 | 09-11-06 1153 | 0844 | |
| -09 | 09-11-06 1155 | 0849 | |
| -10 | 09-11-06 1156 | 0853 | |
| -11 | 09-11-06 1157 | 0856 | |
| -12 | 09-11-06 1159 | 0900 | → (mesh screen on Lid popped open and some dirt was found in the container upon retrieval. |
| -13 | 09-11-06 1200 | 0901 | |
| TRIP 1923 | B Tiller | 0800 | |

ALL OF THESE LOCATED NEAR Z1A CRIB



0000006

# PASSIVE SOIL-GAS SURVEY
# FIELD DEPLOYMENT REPORT

| FIELD SAMPLE ID | Date Emplaced | Date Retrieved | FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, cartridge/vial condition) |
|---|---|---|---|
| | 09-11-06 | 09-18-06 | |
| | Time Emplaced | Time Retrieved | |
| W4C-01 | 1315 | 0931 | |
| W4C-02 | 1318 | 0935 | |
| -03 | 1321 | 0940 | - small mammal had burrowed into area - photo taken |
| -04 | 1322 | 0943 | |
| -05 | 1324 | 0948 | |
| -06 | 1325 | 0952 | |
| -07 | 1327 | 0955 | |
| -08 | 1330 | 1000 | |
| -09 | 1334 | 1007 | |
| -10 | 1337 | 1009 | |
| -11 | 1341 | 1014 | |
| -12 | 1345 | 1019 | |
| X -13 | 1346 | 1025 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

BEACON ENVIRONMENTAL SERVICES, INC.



2000007

# CHAIN-OF-CUSTODY
# PASSIVE SOIL-GAS SAMPLES

| Project Information | |
|---|---|
| Beacon Project No.: | 1923 |
| Site Name: | Burrow Investigation |
| Site Location: | Hanford Site, WA |
| Analytical Method: | EPA Method 8260B |
| Target Compounds: | Beacon Project Number 1923 Target Compound List |

BEACON ENVIRONMENTAL SERVICES, INC.
323 Williams Street, Suite D, Bel Air, MD 21014, 800-878-5510

| Client Information | |
|---|---|
| Company Name: | Environmental Assessment Svcs. |
| Office Location: | Richland, WA |
| Samples Submitted By: | B. Tiller |
| Contact Phone No.: | 509 375 1481 |

| Field Sample ID | Lab Sample ID (for lab use only) | Comments (only necessary if problem or discrepancy) | | | |
|---|---|---|---|---|---|
| | | Condition of sample or vial | Date | Time | Initial |
| ~~BLKKX5~~ BLKKX5 | | | | | |
| Trip-1 (~~1923~~) | 1923 BLKKX5 | | | | |
| Z1A-01 X6 | 1923 BLKKX6 | | | | |
| Z1A-02 X7 | 1923 BLKKX7 | | | | |
| -03 X8 | 1923 BLKKX8 | | | | |
| -04 X9 | 1923 BLKKX9 | | | | |
| -05 Y0 | 1923 BLKKY0 | | | | |
| -06 Y1 | 1923 BLKKY1 | | | | |
| -07 Y2 | 1923 BLKKY2 | | | | |
| -08 Y3 | 1923 BLKKY3 | | | | |
| -09 Y4 | 1923 BLKKY4 | | | | |
| -10 Y5 | 1923 BLKKY5 | | | | |
| -11 Y6 | 1923 BLKKY6 | | | | |
| -12 Y7 | 1923 BLKKY7 | | | | |
| -13 Y8 | 1923 BLKKY8 | | | | |
| TR | | | | | |

**Shipment of Field Kit to Site — Custody Seal #** 0220858 **Intact?** (Y) N

| Relinquished by: | Date/Time | Courier | Received by: | Date/Time |
|---|---|---|---|---|
| Ryan Schick | 9-7-2006 / 1700 Hours | FedEx | B. Tiller BT 09/11/06 | 09-08-06 / 1800 hrs |

**Shipment of Field Kit to Laboratory — Custody Seal #** 0220859 **Intact?** (Y) N

| Relinquished by: | Date/Time | Courier | Received by: | Date/Time |
|---|---|---|---|---|
| Brett Tiller BT/Schick | 09-18-06 / 1130 | UPS | ~~B. Tiller BT 09/19/06~~ Ryan Schick | ~~09/08/06 1800 hrs~~ 9-19-2006 / 1015 hrs |

BT 09/11/06



8000000

# CHAIN-OF-CUSTODY
# PASSIVE SOIL-GAS SAMPLES

| Project Information | |
|---|---|
| Beacon Project No.: | 1923 |
| Site Name: | Burrow Investigation |
| Site Location: | Hanford Site, WA |
| Analytical Method: | EPA Method 8260B |
| Target Compounds: | Beacon Project Number 1923 Target Compound List |

BEACON ENVIRONMENTAL SERVICES, INC.
323 Williams Street, Suite D, Bel Air, MD 21014, 800-878-5518

| Client Information | |
|---|---|
| Company Name: | Environmental Assessment Svcs. |
| Office Location: | Richland, WA |
| Samples Submitted By: | B. Tiller |
| Contact Phone No.: | 509 375 1481 |

| Field Sample ID | Lab Sample ID (for lab use only) | | Comments (only necessary if problem or discrepancy) | | | |
|---|---|---|---|---|---|---|
| | | | Condition of sample or vial | Date | Time | Initial |
| W4C-01 | 1923 | Blkk49 | | | | |
| W4C-02 | 1923 | Blk~~#~~L00 | | | | |
| -03 | 1923 | BlkL01 | | | | |
| -04 | 1923 | BlkL02 | | | | |
| -05 | 1923 | BlkL03 | | | | |
| -06 | 1923 | BlkL04 | | | | |
| -07 | 1923 | BlkL05 | | | | |
| -08 | 1923 | BlkL06 | | | | |
| -09 | 1923 | BlkL07 | | | | |
| -10 | 1923 | BlkL08 | | | | |
| -11 | 1923 | BlkL09 | | | | |
| -12 | 1923 | BlkL10 | | | | |
| X -13 | 1923 | BlkL11 | | | | |

Shipment of Field Kit to Site — Custody Seal # 0220858 Intact? (Y) N

| Relinquished by: | Date/Time | Courier | Received by: | Date/Time |
|---|---|---|---|---|
| Ryan Sheil | 9-7-2006 / 1700 Hours | FedEx | B. Tiller | 09-08-06 / 1800 hrs |

Shipment of Field Kit to Laboratory — Custody Seal # 0220859 Intact? (Y) N

| Relinquished by: | Date/Time | Courier | Received by: | Date/Time |
|---|---|---|---|---|
| B. Tiller | 09-18-06 / 1130 | UPS | Ryan Sheil | 9-19-2006 / 1015 hrs |



6000000