MFM

BERGMANN associates

Engineers / Architects / Surveyors

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July 14, 2000

Mr. Peter Murad, RA
Architectural Resources
493 Franklin Street
Buffalo, NY 14202

Re: Soil Gas Investigation Summary Report
Day Habilitation Center-DDSO AVM
Gowanda, NY

Dear Mr. Murad:

This summary report for the Day Habilitation Center located at 4 Industrial Place, in Gowanda, NY is based on Bergmann Associates original scope of services dated April 24, 2000. This summary includes of review of historical documentation that was readily available and the soil gas survey analytical findings and interpretation.

Documentation Review

Specific documentation reviewed was the Environmental Review and Evaluation prepared by Watts Engineers of the adjacent property (Gowanda Electronics) located at 1 Industrial Place in Gowanda, NY. This report detailed the environmental findings through Phase I and Phase II investigations. The Phase II investigation revealed groundwater contamination as volatile organic compounds (VOCs) consisting primarily of trichloroethene and 1,1,1-trichloroethane and their breakdown products.

Gowanda Electronics is a Class 2, Inactive Hazardous Waste site and is located approximately 500 feet east of the Day Habilitation Center. Initially, in 1994, the site source contaminated soil was removed to a depth of 4 to 7 feet. During the excavation VOC concentrations were found to increase with depth; however, further removal was not performed and the area was backfilled with bank run gravel. Further investigations in 1995 identified a significant groundwater plume migrating from the source to the north. The plume was delineated as emanating from the known source and extending northward approximately 1,150 feet with a maximum width of 450 feet east to west along Chestnut Street (north of the Gowanda Electronics and Day Habilitation Center). The plume was estimated to cover 7.5 acres at the time of this investigation in 1995.

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Donald J. Bergmann, P.E./Brian M. Dougherty, P.E./Gary B. Ohm, P.E./John R. Murray, Jr., P.E./William O. Dickey, Jr., P.E./Joseph J. Istvan, AIA/Peter D. Ottavio, P.E.

In addition to VOC contamination, the Gowanda Electronic site was also found to have elevated levels of total petroleum hydrocarbons (TPH). The concentrations were as high as 5,000 mg/kg. The laboratory results indicated that the oil found in the soil was either light weight lubricating oil or cutting oil. This determination suggested contamination from a prior occupant because Gowanda Electronics waste oil (also characterized during the investigation) was a heavier oil than the petroleum hydrocarbons detected in the soil. Historical ownership review has shown that Automatic Voting Machine (AVM) previously operated at Gowanda Electronics location. AVM also operated out of the Day Habilitation Center at 4 Industrial Place.

At the Day Habilitation Center, various indoor air quality (IAQ) studies have been performed in response to staff member complaints since late 1996 or early 1997. The first IAQ study was completed in March of 1997 and determined that CO_2 levels in numerous rooms at the center were above the OSHA-permitted maximum level of 1,000 ppm. The CO_2 levels were as high as 3,250 ppm in some areas. As a result the HVAC system was upgraded during the summer of 1997, and a subsequent IAQ study was completed in December of 1997. This study showed significantly lower levels of CO_2; however complaints persisted and another IAQ study was completed in February of 1999 specifically for Room 85. Room 85 is situated in the central core of the Day Habilitation Center and is adjacent to two corridors leading south to the south driveway/parking lot. These corridors are subjected to fumes from vehicular traffic in the driveway south of the building. The same areas tested in 1997 were remeasured for CO_2 levels and Rooms 39 and 85 were found to be above the 1,000 ppm maximum OSHA level.

Because of the proximity of the listed Gowanda Electronics hazardous waste site to the Day Habilitation Center, investigation for the presence of subsurface vapors as a contributing factor in the IAQ complaints was warranted. This investigation included the review of the reports summarized above to determine if the Day Habilitation Center is situated in a contaminant transport pathway form the listed site. Based on the available hydrogeologic data, the Day Habilitation Center is situated crossgradient from the Gowanda Electronics site and is not expected to be affected by the groundwater plume from Gowanda Electronics. Another possible source of IAQ issues is undiscovered subsurface contamination associated with prior land use of the Day Habilitation Center by AVM. Therefore, this investigation focused on determining the presence or absence of subsurface soil vapors both to address possible IAQ issues as well as to ascertain the presence of such an onsite source.

Soil Gas Survey – Analytical Results and Findings

A soil gas survey using a passive method was conducted around the perimeter of the Day Habilitation Center on June 14, 2000. A total of 35 samples were collected, consisting of 34 field samples and 1 trip blank quality assurance/quality control sample. This soil gas sampling method used provided a non-intrusive means for gaining measurements of volatile organic constituent mass in the subsurface vapors, the results of which are effective for identifying areas that may warrant follow up investigations by intrusive measures. The sampling equipment and analysis were provided by Beacon Environmental Services. The samples were analyzed by EPA Method 8260 using gas chromatography/mass spectrometry (GC/MS).

The analytical results revealed the presence of volatile organic constituents in subsurface vapors in several areas surrounding the Day Habilitation Center. In particular, an isolated occurrence of chlorinated hydrocarbons was found in samples collected from along the central portion of the south wall of the building. Sample point number 17 had the highest level of chlorinated hydrocarbons, which included trichloroethene (16,200 ng) and cis-1,2-Dichloroethene (1,160 ng). Chlorinated hydrocarbon levels decreased both east and west of this point, while the west end was nearly non-detectable. Elsewhere along the south and north walls of the Day Habilitation Center building was the presence of non-chlorinated VOCs typically associated with petroleum products. The complete analytical report can be found as Attachment 1 of this summary report. A corresponding site sketch with the sample locations identified can be found as Attachment 2.

In conjunction with the sample results, the existing IAQ surveys were reviewed for possible co-relations between occupant complaints and the presence of VOCs in subsurface soil gas. The reoccurring complaints originated primarily in Room 85; this room is located near the center of the building and is not near the exterior walls (i.e., near the sample locations). At the time of the most-recent CO_2 measurements, levels Room 85 were still above the 1,000 ppm limit (1,050 ppm), as was Room 39 (1165 ppm). Room 39 is located on the southern exterior wall, and is in close proximity to sample point 17 which had the highest levels of subsurface VOCs. Rooms 58B and 62 are also had historically high levels of CO_2 and are situated along the southern exterior wall; however, during the most-recent IAQ study in February 1999 the levels in these rooms was below 1000 ppm.

Discussion and Conclusions

Based on the analytical results there is an area of subsurface concern located on the southern side of the building at the Day Habilitation Center, in Gowanda, NY. The Day Habilitation Center was previously operated by Automatic Voting Machine (AVM), a company that was a potentially responsible party for the subsurface contamination at Gowanda Electronics facility. The subsurface soil gas investigation is unable to provide conclusive evidence as to the extent of the contamination encountered; however it suggests a possible subsurface source area immediately south of Room 39 in the facility. The subsurface constituents identified by the soil gas sampling program are similar to Gowanda Electronics plume fingerprint, but do not match it. Coupled with the groundwater flow data the evidence do not suggest the Gowanda Electronics site is the source.

The investigation was designed to determine the presence or absence of subsurface contamination, and is inconclusive with regards to the relationship of this contamination to the reported indoor air quality issues. Exceedances of the OSHA permissible CO_2 is a common cause of indoor air quality complaints and has been well-documented at this facility. It is also simply remedied by improving fresh air circulation in the affected areas. At Room 39, however, the presence of volatile organic constituents in subsurface vapors may be a concern since the results of the various IAQ studies suggest inadequate ventilation.

The presence of non-chlorinated VOCs in samples collected from the locations in the driveway/parking areas north and south of the building appears to be related to vehicular traffic. The mass levels of petroleum-related constituents were low and did not indicate a specific "hot spot" or source of contamination. In some cases (such as under paved areas) the sampling methodology used

can be sensitive to interference from subsurface materials and minor contamination sources (such as vehicular drips or exhaust).

The soil gas sampling method employed (EMFLUX® technology) provides relative, not absolute data, because it measures a fractional trace of a potential contamination source. The best interpretative results are obtained when the ratio of soil gas concentrations to corresponding subsurface soil and groundwater contaminant concentrations is determined, and is relatively constant over the soil gas survey area. When the soil gas sampling program detects the presence of VOCs in the subsurface vapors, it is important to collect corresponding soil/groundwater samples to relate the detected soil-gas concentrations to actual subsurface conditions.

Recommendations

Based on the results of the investigation, the following recommendations can be made:

1. The Day Habilitation Center was previously occupied by Automatic Voting Machine (AVM), a potentially responsible party for the subsurface contamination at Gowanda Electronics. As such, more extensive research of AVM's historical use and operations at the Day Center building would assist in identifying the potential source of subsurface soil gas constituents detected during this investigation.
2. Subsurface soil and groundwater sampling is recommended along the south wall of the building to determine the nature and extent of subsurface contamination leading to the presence of the detected soil gas constituents. Data from these investigations would also support environmental risk assessments associated with the apparent subsurface contamination.
3. Additional indoor air quality studies appear to be warranted to measure VOCs as well as CO_2 levels in Room 39. Mr. Fred L. Smith's recommendation from his February 1999 IAQ report for 24 hour monitoring could be beneficial in identifying peaks and therefore assessing sources.

We have appreciated this opportunity to provide Architectural Resources with consulting engineering support services and hope to continue this relationship.

Very truly yours,
BERGMANN ASSOCIATES

James E. Baxter, P.G.
Project Manager

cc: D. Schoonbeek, DASNY
BA File

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Attachment 1

BEACON Report No. EM1241

EMFLUX® Passive, Non-Invasive Soil-Gas Survey

DASNY FACILITY
GOWANDA, NY

Prepared for

Bergmann Associates
2351 North Forest Drive
Amherst, NY 14068

by

BEACON Environmental Services, Inc.
19 Newport Drive
Suite 102
Forest Hill, MD 21050

June 29, 2000

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. An EMFLUX® soil-gas survey measures the mass collected from the vapor-phase of 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 EMFLUX® 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 which show relatively high EMFLUX® values to obtain corresponding concentrations of soil and ground-water contaminants. These correspondent values furnish the basis for approximating the required ratio. Once that ratio is established, it can be used in conjunction with EMFLUX® 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 EMFLUX® Surveys are handled in this way, the data provide information which 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.

EMFLUX® Survey Number: EM1241

DASNY Facility
Gowanda, NY

This EMFLUX® Soil-Gas Survey Report has been prepared for Bergmann Associates (BERGMANN) by Beacon Environmental Services, Inc. (BEACON) in accordance with the terms of Purchase Order No. 9266, dated June 19, 2000. BEACON's principal technical contact at BERGMANN for this project has been Ms. Michelle Winters.

1. Objectives

Soil-gas samples were collected to determine the presence, identity, and relative strength of targeted contaminants in soil and/or ground water at the DASNY Facility. Survey results will be used to determine the distribution of contaminants and to guide further site investigation.

2. Target Compounds

This survey targeted the 32 compounds listed in **Table 1**, which supplies the resulting laboratory data in nanograms (ng) of specific compound per cartridge.

3. Survey Description

- No. of Field Sample Points: 34
- No. of Trip Blanks: 1
- Total No. of EMFLUX® Cartridges: 35

4. Field Work

BERGMANN was provided an EMFLUX® Field Kit with the equipment needed to conduct a 34-point EMFLUX® Soil-Gas Survey. Collectors were deployed on June 14, 2000, and retrieved on June 19, 2000, in accordance with the recommentded sampling period provided by BEACON. **Attachment 1** describes the field procedures used. Individual deployment and retrieval times will be found in the Field Deployment Report (**Attachment 2**).

5. Maryland Spectral Services, Inc. (MSS) Analysis and Reporting Dates

- MSS received 35 sample cartridges for analysis on June 20, 2000.
- EMFLUX® sample cartridges were thermally desorbed, then analyzed using gas chromatography/mass spectrometry (GC/MS) equipment, in accordance with EPA Method 8260 (Modified), as described in **Attachment 3**. MSS analyzed each cartridge for the targeted compounds.
- MSS completed the analysis on June 26, 2000.

6. Report Notes and Quality Assurance/Quality Control Factors

- **Table 1** provides survey results in nanograms per cartridge by sample-point number and compound name. The quantitation levels represent values above which quantitative laboratory results can be achieved within specified limits of precision and with a high degree of confidence. The quantitation level of each compound, therefore, provides a reliable basis for comparison of the relative strength of individual detections of that compound.

- **Data Compatibility**. It is important to note that when sample locations are covered with or near the edge of an artificial surface (*e.g.*, asphalt or concrete), sample measurements are often distorted (increased) significantly. Such distortion can be attributed to the fact that gas rising from sources beneath impermeable caps tends to reach equilibrium in relatively short periods of time and that, once equilibrium is reached, the soil-gas concentration measured at any point in a vertical line between source and cap is theoretically the same. Thus, a reading taken immediately below or near an impermeable surface is much higher than it would be in the absence of such a cap.

- The **Chain-of-Custody** form, which was shipped with the samples for this survey, is supplied as **Attachment 4**.

- **Laboratory QA/QC procedures** included standards, surrogates, and blanks appropriate to the EPA Method 8260 (Modified) used. Field work and reporting were done in accordance with BEACON's Quality Assurance Program Plan. MSS performed analyses under the laboratory's own Quality Assurance Plan.

- **QA/QC Contaminant Corrections.** Following EPA guidelines, EMFLUX® laboratory data is not corrected for method blank or trip blank contamination values; any contamination detected on QA/QC samples is reported in **Table 1**. Subsequent handling of QA/QC sample contamination depends upon the circumstances and origin of the sample; any corrective conventions noted below have proved highly useful in deriving

accurate and reproducible interpretations of survey data in prior EMFLUX® Surveys. *No other methods thus far tested have produced comparable levels of quality.*

- **Laboratory method blanks** are run each day with project samples to identify contamination present in the laboratory. If contamination is detected on a method blank, detections of identical compounds on samples analyzed the same day are considered to be suspect and are flagged in the laboratory report. The laboratory method blanks analyzed in connection with the present samples revealed no contamination.

- The **trip blank** is an EMFLUX® cartridge prepared, transported, and analyzed with other samples but intentionally not exposed. The trip blank (labeled Trip-1 in **Table 1**) recorded none of the targeted compounds, indicating that the survey site itself is the source of detected contamination.

- **Survey findings** are relative exclusively to this project and should not routinely be compared with results of other EMFLUX® Surveys. *To establish a relationship between reported soil-gas measurements and actual subsurface contaminant concentrations, which will indicate those detections representing significant subsurface contamination, BEACON recommends the guidelines on the inside front cover of this report.*

- The following **Attachments** are included:

  -1- EMFLUX® Field Procedures
  -2- Field Deployment Report
  -3- Laboratory Procedures
  -4- Chain-of-Custody Form

TABLE 1

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	TRIP-1	2	3	4	5	6
	EM1241	EM1241	EM1241	EM1241	EM1241	EM1241
LAB SAMPLE ID:	000620101	000620102	000620103	000620104	000620105	000620106
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00
ANALYSIS DATE:	06/22/00	06/25/00	06/25/00	06/25/00	06/25/00	06/25/00
FILE NAME:	0620101	0620102	0620103	0620104	0620105	0620106
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	25 U	25 U	25 U	25 U	32	25 U
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Chloromethane	50 U	50 U	50 U	50 U	102	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	7	8	9	10	11	12
	EM1241	EM1241	EM1241	EM1241	EM1241	EM1241
LAB SAMPLE ID:	000620107	000620108	000620109	000620110	000620111	000620112
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00
ANALYSIS DATE:	06/25/00	06/25/00	06/25/00	06/25/00	06/26/00	06/26/00
FILE NAME:	0620107	0620108	0620109	0620110	0620111	0620112
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	27	32	25 U	25 U	78	25 U
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	50 U	50 U	79	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	31	25 U	25 U	34	25 U	25 U
Chloromethane	50 U	50 U	50 U	50 U	50 U	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	64	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	93	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	585	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	27	25 U
Xylenes (Total)	25 U	25 U	25 U	25 U	58	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	13	14	15	16	17	18
	EM1241	EM1241	EM1241	EM1241	EM1241	EM1241
LAB SAMPLE ID:	000620113	000620114	000620115	000620116	000620117	000620118
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00
ANALYSIS DATE:	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00
FILE NAME:	0620113	0620114	0620115	0620116	0620117	0620118
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	62	39	50	35	33	38
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Chloromethane	50 U	50 U	50 U	50 U	50 U	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	33	25 U	25 U	25 U	1160	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	29	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	38	25 U	25 U	25 U	28	25 U
2-Hexanone	50 U	50 U	50 U	50 U	76	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	192	61	62	32	153	139
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	600	25 U	101	580	16200	443
1,2,4-Trimethylbenzene	187	25 U	46	25 U	52	42
1,3,5-Trimethylbenzene	67	25 U	76	25 U	25 U	25 U
Xylenes (Total)	297	45	117	27	175	131

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	19	20	21	22	23	24
	EM1241	EM1241	EM1241	EM1241	EM1241	EM1241
LAB SAMPLE ID:	000620119	000620120	000620121	000620122	000620123	000620124
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00
ANALYSIS DATE:	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00
FILE NAME:	0620119	0620120	0620121	0620122	0620123	0620124
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	75	44	25 U	25 U	36	27
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Chloromethane	50 U	50 U	50 U	50 U	50 U	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	34	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	206	103	26	32	33	37
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	37	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	464	48	52	34	30	25 U
1,3,5-Trimethylbenzene	114	25 U	25 U	25 U	25 U	25 U
Xylenes (Total)	165	109	39	40	34	26

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	25	26	27	28	29	30
	EM1241	EM1241	EM1241	EM1241	EM1241	EM1241
LAB SAMPLE ID:	000620125	000620126	000620127	000620128	000620129	000620130
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00
ANALYSIS DATE:	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00	06/26/00
FILE NAME:	0620125	0620126	0620127	0620128	0620129	0620130
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	25	25 U	46	25 U	31	25 U
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	166	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Chloromethane	50 U	50 U	214	50 U	50 U	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	25 U	30	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	29	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Xylenes (Total)	25 U	29	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	31	32	33	34	35	VBLK0622DI
	EM1241	EM1241	EM1241	EM1241	EM1241	
LAB SAMPLE ID:	000620131	000620132	000620133	000620134	000620135	METH. BL.
RECEIVED DATE:	06/20/00	06/20/00	06/20/00	06/20/00	06/20/00	
ANALYSIS DATE:	06/27/00	06/27/00	06/27/00	06/27/00	06/27/00	06/22/00
FILE NAME:	0620131	0620132	0620133	0620134	0620135	0622VBLKDI
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Benzene	29	25 U	25 U	25 U	25 U	25 U
Bromodichloromethane	25 U	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
Bromomethane	50 U	50 U	50 U	50 U	50 U	50 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroethane	50 U	50 U	50 U	50 U	50 U	50 U
Chloroform	25 U	25 U	57	25 U	25 U	25 U
Chloromethane	50 U	50 U	50 U	50 U	50 U	50 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Styrene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	112	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	29	25 U	25 U	25 U
Xylenes (Total)	25 U	25 U	125	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

TABLE 1

(continued)

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED 8260

CLIENT SAMPLE ID:	VBLK0625D1	VBLK0626D1
LAB SAMPLE ID:	METH. BL.	METH. BL.
RECEIVED DATE:		
ANALYSIS DATE:	06/25/00	06/26/00
FILE NAME:	0625VBLKD1	626VBLKD1
INSTRUMENT ID:	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS		
Benzene	25 U	25 U
Bromodichloromethane	25 U	25 U
Bromoform	25 U	25 U
Bromomethane	50 U	50 U
2-Butanone	50 U	50 U
Carbon Tetrachloride	25 U	25 U
Chlorobenzene	25 U	25 U
Chloroethane	50 U	50 U
Chloroform	25 U	25 U
Chloromethane	50 U	50 U
Dibromochloromethane	25 U	25 U
1,1-Dichloroethane	25 U	25 U
1,2-Dichloroethane	25 U	25 U
1,1-Dichloroethene	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U
1,2-Dichloropropane	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U
Ethylbenzene	25 U	25 U
2-Hexanone	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U
Styrene	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U
Tetrachloroethene	25 U	25 U
Toluene	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U
Trichloroethene	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U
Xylenes (Total)	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

Attachment 2

Field Deployment Report

BEACON ENVIRONMENTAL SERVICES, INC.
FIELD DEPLOYMENT REPORT

PROJECT #:	CLIENT:	SITE:
1241	Bergmann Associates	GOWANDA - DASNY

INDIVIDUAL SAMPLE INFORMATION

EMPLACEMENT DATE: June 14, 1999	RETRIEVAL DATE:

SAMPLE NUMBER	TIME		FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, cartridge/vial condition)
	Emplaced	Retrieved	
1	———	———	TRIP BLANK
2	09:57	08:19	(in soil) Front of Bldg. in landscaped bed @ corner of Bldg. (right side, facing bldg)
3	09:59	08:24	Front of Bldg. in landscaped bed @ 2/3 way btwn corner & entrance (in soil)
4	10:00	08:28	" " " " " " @ 1/3 way btwn corner & entrance (in soil)
5	10:02	08:32	" " " " " " @ corner of sidewalk by entrance (in soil)
6	10:04	8:35	" " " " " " @ left of front entrance (facing building) (in soil)
7	10:05	8:37	" " " " " " @ about mid pt. of front of bldg. (in soil)
8	10:06	8:40	" " " " " " @ right of second entrance (facing front) (in soil)
9	10:08	8:44	" " " " " " @ corner of sidewalk to the right of 2nd entrance (in soil)
10	10:11	8:47	" " " " " " @ corner of Bldg (left side) (in soil)
11	10:52	8:51	in asphalt, left side of building, near utility pipes
12	13:50	9:00	in asphalt,
13	14:15	9:04	in asphalt
14	14:00	9:10	in asphalt
15	14:07	9:15	in asphalt
16	14:25	9:18	" "

SAMPLE NUMBER	TIME		FIELD NOTES (e.g., asphalt/concrete covering, description of sample location, cartridge/vial condition)
	Emplaced	Retrieved	
17	1431	0932	asphalt
18	1435	0941	asphalt
19	1438	0945	"
20	1445	0928	"
21	1518	0954	" (east side)
22	1524	0958	" (east side)
23	1530	1003	" " "
24	1534	1008	"
25	1540	1011	"
26	1546	1015	"
27	1551	1019	"
28	1557	1024	"
29	1606	1032	" corner
30	1614	1037	(in soil) back of bldg on hill
31	1618	1043	" " " by garden & loading dock
32	1621	1048	" " " by steps & fence (outside)
33	1623	1052	" " " right inside fence
34	1625	1055	" " " ~~to~~ the near the bird feeder
35	1629	1100	" " " on the corner

Attachment 3

LABORATORY PROCEDURES FOR EMFLUX® ADSORBENT CARTRIDGES

Following are laboratory procedures used with the EMFLUX® Soil-Gas System, a screening technology for expedited site investigation. After exposure, EMFLUX® cartridges are analyzed using U.S. EPA Method 8260 as described in the Solid Waste Manual (SW-846), a purge-and-trap capillary gas chromatographic/mass spectrometric method, modified to accommodate high-temperature thermal desorption of the adsorbent cartridges. This procedure is summarized as follows:

A. The adsorbent cartridges are thermally desorbed at 300°C for 11 minutes in a 40 mL/min helium flow, through 5 mL of reagent water spiked with 250 ng of internal standards and surrogates held in the sparging vessel. Any analytes in the helium stream are adsorbed onto a standard three-component trap (Tenax, silica gel, coconut charcoal).

B. Following cryofocusing, the three-component trap is thermally desorbed at 220°C onto a Supelco VOCOL 105 m, 0.5 mm ID, 3.00 micron filament thickness capillary column, per the U.S. EPA CLP Statement of Work (SOW) for the method.

C. Following the SOW, the GC/MS is scanned between 35 and 260 Atomic Mass Units (AMU) at one second per scan.

D. BFB tuning criteria and initial calibration are per the EPA CLP 2/88 guidelines, with an 18-hour tune window. A laboratory blank is analyzed after the daily standard to determine that the system is contaminant-free.

E. The instrumentation used for these analyses includes:

- Finnigan Model OWA 1050 Gas Chromatograph/Mass Spectrometer;
- Tekmar Model 6016 Aero Trap Autosampler;
- Tekmar Model LSC 2000 Liquid Sample Concentrator; and
- Tekmar Model ALS 2016 Autosampler.

Attachment 4

Chain-of-Custody Form

BEACON ENVIRONMENTAL SERVICES, INC.
CHAIN-OF-CUSTODY FORM

PROJECT NUMBER: 1241 | PROJECT NAME: DASNY

LOCATION: GOWANDA, N.Y. | CLIENT: Bergmann Associates

TARGET COMPOUNDS: EMFLUX 8260 List

SAMPLE NUMBER	LAB ID No. (for lab use only)	REMARKS			
		Condition of sample or vial	Date	Time	Init.
TRIP 1	000620-101	good condition	6/19/00	1:34 pm	JM
2	102	good condition	6/19/00	1:34 pm	JM
3	103	good condition	6/19/00	1:35 pm	JM
4	104	good condition,	6/19/00	1:35 pm	JM
5	105	good condition, some moisture	6/19/00	1:35 pm	JM
6	106	good condition	6/19/00	1:36 pm	JM
7	107	good condition,	6/19/00	1:36 pm	JM
8	108	good condition	6/19/00	1:36 pm	JM
9	109	good condition, some moisture	6/19/00	1:37 pm	JM
10	110	good condition, some moisture	6/19/00	1:37 pm	JM
11	111	good condition, some moisture	6/19/00	1:41 pm	JM
12	112	good condition, some liquid	6/19/00	1:41 pm	JM
13	113	good condition,	6/19/00	1:43 pm	JM
14	114	good condition, slight moisture	6/19/00	1:43 pm	JM
15	115	good condition, slight moisture	6/19/00	1:44 pm	JM
16	116	good condition, some liquid	6/19/00	1:44 pm	JM
17	117	good condition	6/19/00	1:45 pm	JM
18	118	good condition, slight moisture	6/19/00	1:45 pm	JM
19	119	good condition	6/19/00	1:46 pm	JM
20	120	good condition	6/19/00	1:46 pm	JM
21	121	good condition, slight moisture	6/19/00	1:48 pm	JM
22	122	good condition, slight moisture	6/19/00	1:48 pm	JM
23	123	good condition	6/19/00	1:49 pm	JM
24	124	good condition	6/19/00	1:49 pm	JM
25	125	good condition, some liquid	6/19/00	1:50 pm	JM
26	126	good condition, some moisture	6/19/00	1:51 pm	JM
27	127	good condition, some moisture	6/19/00	1:52 pm	JM
28	128	good condition, some moisture	6/19/00	1:52 pm	JM
29	129	good condition	6/19/00	1:53 pm	JM
30	130	good condition, slight moisture	6/19/00	1:53 pm	JM
31	131	good condition, slight moisture	6/19/00	1:54 pm	JM
32	132	good condition	6/19/00	1:54 pm	JM

RELINQUISHED BY		DATE	TIME	RECEIVED BY	
Signature	Printed Name			Signature	Printed Name
	Steve Thornley	6-12-00	2000	fedex	
		6-13-00	1100	M. Winters	M. WINTERS
	FED EX	6-20-00	1150 pm		CHANNON

BEACON ENVIRONMENTAL SERVICES, INC.
CHAIN-OF-CUSTODY FORM

PROJECT NUMBER: 1241	PROJECT NAME: DASNY
LOCATION: GOWANDA, NY	CLIENT: BERGMANN ASSOCIATES
TARGET COMPOUNDS:	

SAMPLE NUMBER	LAB ID No. (for lab use only)	REMARKS			
		Condition of sample or vial	Date	Time	Init.
33	000620133	good condition, slight moisture	6/19/00	1:55pm	gm
34	134	good condition, some liquid	6/19/00	1:55pm	gm
35	135	good condition, slight moisture	6/19/00	1:56pm	gm

RELINQUISHED BY		DATE	TIME	RECEIVED BY	
Signature	Printed Name			Signature	Printed Name
	Fed Ex	6-20-00	1150 hrs		S Hamwi

Attachment 1

FIELD PROCEDURES FOR EMFLUX® SOIL-GAS SURVEYS

The following field procedures are routinely used during EMFLUX® Soil-Gas Surveys. Modifications can be and are incorporated from time to time in response to individual project requirements. In all instances, BEACON adheres to EPA-approved Quality Assurance and Quality Control practices.

A. Field personnel carry EMFLUX® system components and support equipment to the site and deploy the EMFLUX® Collectors in a prearranged survey pattern. Although EMFLUX® Collectors require only one person for emplacement and retrieval, the specific number of field personnel required depends upon the scope and schedule of the project. Each Collector emplacement generally takes less than two minutes.

B. For those sample locations covered with soils or vegetation, a field technician clears vegetation and debris exposing the ground surface. Using a hammer and a ¾"-diameter pointed metal stake, the technician creates a hole approximately three inches deep. For those locations covered with an asphalt or concrete cap, the field technician drills a 1½"-diameter hole through the cap to the soils beneath. (If necessary, the Collector can be sleeved with a ¾" i.d. copper pipe for either capped or uncapped locations).

C. The technician then removes the solid plastic cap from an EMFLUX® Collector (a glass vial containing an adsorbent cartridge with a length of wire attached to the vial for retrieval) and replaces it with a Sampling Cap (a plastic cap with a hole covered by screen meshing). The technician inserts the Collector, with the Sampling Cap end facing down, into the hole (**see attached figure**). The Collector is then covered with either local soils for uncapped locations or, for capped locations, aluminum foil and a concrete patch. The Collector's location, time and date of emplacement, and other relevant information are recorded on the Field Deployment Form.

D. One or more trip blanks are included as part of the quality-control procedures.

E. Once all EMFLUX® Collectors have been deployed, field personnel schedule Collector recovery (approximately 72 hours after emplacement) and depart, taking all no-longer-needed equipment and materials with them).

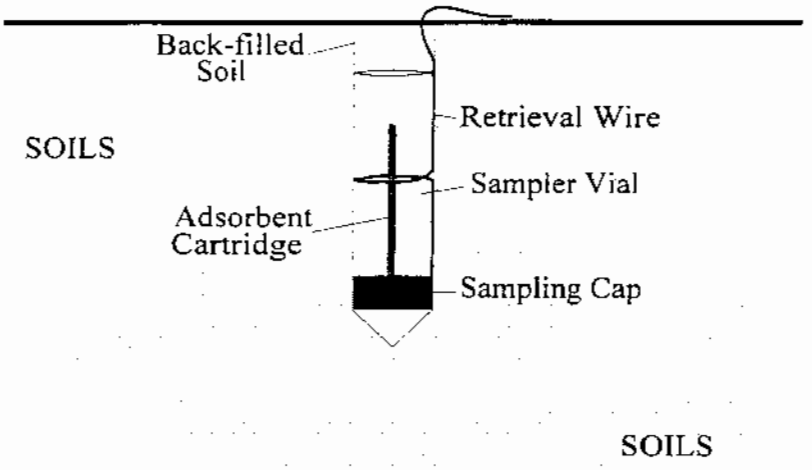
F. Field personnel retrieve the Collectors at the end of the 72-hour exposure period. At each location, a field technician withdraws the Collector from its hole and wipes the outside of the vial clean using gauze cloth; following removal of the Sampling Cap, the threads of the vial are also cleaned. A solid plastic cap is screwed onto the vial and the sample location number is written on the label. The technician then records sample-point location, date, time, etc. on the Field Deployment Form.

G. Sampling holes are refilled with soil, sand, or other suitable material. If Collectors have been installed through asphalt or concrete, the hole if filled to grade with a plug of cold patch or cement.

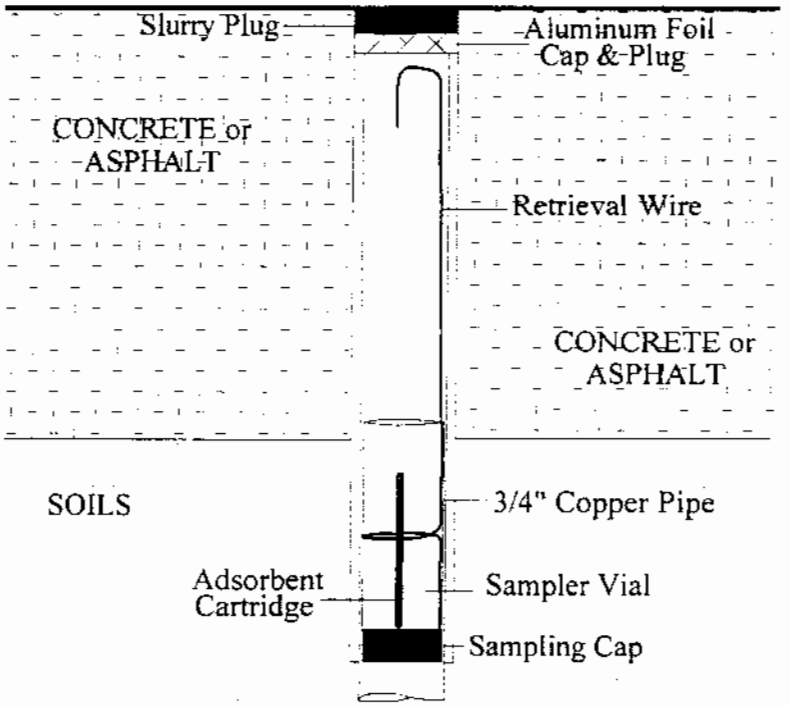
H. Following retrieval, field personnel ship or carry the EMFLUX® Collectors to a specified analytical laboratory. The remaining equipment is returned to BEACON's preparation facility.

EMFLUX® COLLECTOR

DEPLOYMENT THROUGH SOILS



DEPLOYMENT THROUGH AN ASPHALT/CONCRETE CAP



Attachment 2

BY MW DATE 6/14/00 **BERGMANN ASSOCIATES** PROJ. NO. _____ SHT 1 OF 2

CKD _____ DATE _____ PROJ. NAME DASNY - Gowanda OMR

ON-SITE - 8AM, JESSICA MOELLER & MICHELLE WINTERS

MET WITH - LARRY, DON OTEL, LARRY; FACILITIES MANAGER
JIM ANDERSON - MAINTENANCE

WEATHER - HOT & HUMID, TEMPERATURE MID-DAY REACHED 96°

PLAN - INSTALLATION OF 35 SOIL GAS COLLECTORS. MOST OF BUILDING IS SURROUNDED WITH ASHALT. USE OF ROTARY HAMMER DRILL REQUIRED.