January 22, 2007

Mr. Eric Hausamann, Project Manager
Division of Environmental Remediation
Remedial Bureau E, 12th Floor
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7017

Subject: **Vapor Intrusion Evaluation Work Plan**
Roxy Cleaners Site – Site No. 4-20-024
Immediate Investigation Work Assignment # D004434-02
MACTEC Engineering and Consulting Project No. 3612072071

Dear Mr. Hausamann,

MACTEC Engineering and Consulting, P.C., (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC) is pleased to present this letter work plan for the Immediate Investigation Work Assignment (IIWA) # D004434-02 for soil gas and groundwater sampling at the Roxy Cleaners Site # 4-20-024 (the Roxy Site).

The Roxy Site is located at 197 Main Avenue along the north side of Route 66 in North Greenbush, Rensselaer County, New York (Figure 1). The Roxy Site was a dry cleaning facility that ceased operations in 1989. The dry cleaning solvent tetrachloroethylene (PCE) was spilled and/or disposed at the property resulting in groundwater contamination. Between 1989 and 1994 several interim remedial measures were completed, including the installation of carbon filters on residential and commercial water supply wells and the installation of a soil vapor extraction (SVE) system at the source area. A Remedial Investigation/Feasibility Study (RI/FS) was completed in 1994 and a Record of Decision (ROD) issued in March 1994. The ROD included the construction of a groundwater pump and treat system and the extension of municipal water. Construction of the groundwater treatment system was completed in 1997 and the system is currently operating.

The NYSDEC and the New York State Department of Health (NYSDOH) identified the need for additional investigations to determine the potential for soil vapor intrusion into structures near the Site. This letter work plan describes the additional investigations planned for the Site. Supporting figures and tables are included. Also enclosed are the Quality Assurance Project Plan, the Health and Safety Plan, and supporting cost tables.

Proposed Field Activities

Based on previous investigations and current conditions, the NYSDEC has directed MACTEC to conduct soil vapor and groundwater sampling at three locations to the east (upgradient) of the former Roxy Cleaners property. At each location soil vapor will be sampled from one or two depths within the vadose zone and a groundwater grab sample will be obtained from the water table within the overburden soil. Additionally, NYSDEC has directed MACTEC to conduct an indoor air evaluation at seven properties along Main Avenue. The indoor air evaluation will include: an indoor air survey and product inventory; collection of sub-slab vapor samples; collection of indoor air samples; and collection of ambient (outdoor) air samples. Structures that will be sampled are shown on Figure 2 and are described in more detail below.

The field program will be conducted following the procedures outlined in the Quality Assurance Program Plan (ABB, 1995), and the Program Health and Safety Plan (MACTEC, 2005). In addition, a site specific Quality Assurance Project Plan (QAPjP) and a Site Specific HASP are enclosed. MACTEC estimates an overall duration of six working days for the field activities.

Soil Vapor Sampling.

A soil vapor survey, consisting of up to three temporary locations, will be conducted to determine shallow soil vapor concentrations at the planned locations shown on Figure 2. Sample details are shown on Table 1. Soil gas samples will be collected using direct-push drilling methods and Geoprobe® soil gas implants. It is assumed that this work could be completed in one to two days.

At each location, a small-diameter (1 to 1 ½ inch diameter) borehole will be created using direct-push drilling methods to evacuate a soil profile with a macrocore sampler. Each boring will be advanced to the water table, projected at 10 to 12 feet below ground surface, or to refusal, if shallower. The retrieved soil profiles will be examined to evaluate the depth to water-saturated conditions and the open borehole will be sounded with a water level meter to determine if groundwater is infiltrating. The depth of the soil vapor implants will be determined in the field based on observed soil and groundwater conditions. The objective will be to obtain samples from depths of seven to eight feet bgs and from just above the water table, if 10 feet or deeper. If groundwater is encountered shallower than 10 feet, one soil vapor implant will be installed approximately one foot above the water table.

After evaluation of field conditions, a Geoprobe soil vapor implant will be installed. The implant will have a minimum 6-inch length with a double woven stainless steel wire screen. Glass beads will be used to create a sampling zone around the screen. The beads will extend one foot above the top of the implant screen. Bentonite slurry will be placed above the glass beads for distance of 3 feet to prevent outdoor air infiltration and the remainder of any open borehole will be backfilled with bentonite slurry or clean backfill. Inert tubing (e.g. polyethylene or Teflon) will extend from the implant to the ground surface to permit sampling.

Approximately one liter of soil gas, (slightly greater than three times the volume of the annular space of the screen pack plus the volume of the sample tubing), will be purged at a rate of less than 0.2 liters per minute using a personal air monitoring pump before collecting samples. During the soil gas purge, vapors will be screened with a PID. In addition, helium leak tests will be conducted at all locations to ensure samples are representative of sub-surface conditions and not outdoor ambient air. Helium tests will be conducted by encapsulating the sample point with a bucket sealed to the ground surface with hydrated bentonite. The encapsulated area will be filled with helium, but care will be taken not to pressurize the enclosure. The soil gas sample port will be tested for helium breakthrough with a portable monitoring device (e.g., Radiodetection MGD-2002 Multi Gas Meter) both before and after collection of the soil gas sample. If > 10 percent of the tracer gas are detected in the screening sample, the sample point seal will be enhanced and the procedure repeated. The soil gas samples will be collected with one-liter SUMMA®-type canisters with flow valves (set to approximately 20 minutes per sample). Flow into the canisters will be less than 0.2 liters per minute, as requested by the NYSDOH. Samples will be sent to a NYSDEC approved offsite laboratory for analyses of VOCs by USEPA Method TO-15.

Groundwater Sampling.

Groundwater grab samples will be collected at each of the planned three locations (see Figure 2 and Table 1). The objective of the groundwater sampling is to assess potential concentrations of solvent contamination in shallow groundwater at the soil gas sampling locations to aid in the evaluation of the soil gas results. Based on historical Site records, water saturated soils are found a depths of approximately 10 to 12 feet bgs.

Grab samples will be collected using direct-push drilling methods to advance a boring to a planned

depth of two feet below the water table. Samples will be collected using a discrete sampler such as a Hydropunch or by an approved alternate method. Groundwater samples may be collected using a small diameter stainless steel wire wound screen that will be exposed to the aquifer, after being pushed to the desired depth interval. A check valve or geopump will be used for the collection of discrete groundwater samples. If possible, one tubing volume of water will be purged and one set of parameters including temperature, conductivity, pH, and turbidity will be collected before sampling. VOC samples will be collected at a low purge rate (approximately 100 milliliters per minute) to minimize potential volatilization. The actual number of samples per boring and sample collection depths may vary according to field conditions. After sampling, each open borehole will be filled with bentonite or bentonite-cement grout as directed by MACTEC and the hole will be sealed at the surface using asphalt patch, as appropriate.

Groundwater samples will be shipped to an off-site laboratory for analyses for TCL VOCs using USEPA 8260 methods as described in the NYSDEC ASP of June 2000. Off-site laboratory analysis will include Category B deliverables.

Survey of Exterior Sample Locations

No formal survey is planned for the Site. Exterior sample point locations (i.e. soil gas and groundwater Geoprobe points) will be located in the field using three point ties to local structures (e.g., monitoring wells, building corners, etc). Sample locations will be plotted on an Aerial photograph and submitted with the Site report.

Residential/Business Indoor Air Sampling

Indoor air sampling typically involves:

1) A building indoor air survey,
2) A sub-slab soil vapor or basement/crawl space air sample (if basement/crawl space floor is dirt),
3) A basement air sample (if floor is sealed), and
4) First livable floor air sample (i.e., first floor, or basement if finished).
5) An outdoor ambient air sample.

Additional samples may be collected, based on discussions with the NYSDEC and the NYSDOH. Sampling is described in more detail below.

Indoor Air Survey. Indoor air surveys and product inventories will be conducted at each home sampled using the NYSDOH "Indoor Air Quality Questionnaire and Building Inventory" form, included in Attachment A-2. A parts per billion (ppb) MiniRae photoionization detector (PID) will be used to scan inventoried items that may be off-gassing volatile organic compounds (VOCs). VOCs that are listed on the household container and are also included on the air sample analytical target compound list will be noted on the inventory form, along with any PID readings. If any VOC readings are detected or products inventoried list primary contaminants of concern (i.e. chlorinated solvents) as ingredients, the containers in question will be removed from the home to an alternative location (i.e. garage or shed) and MACTEC will wait approximately 24 hours before commencing sampling activities. If it is determined that no containers need to be moved or no alternative location is available, MACTEC personnel may sample the home upon completion of the survey.

Sub-Slab Soil Vapor, Indoor Air, and Ambient Outdoor Air Samples. Vapor samples will be collected from below the building concrete slab. A one-inch diameter hole will be drilled with a hammer drill two inches into the building floor. The hole will be continued with a 3/8-inch drill bit, until the building slab is penetrated. The hole will be continued approximately 3-inches below the slab. The hole will then be swept to remove drill cuttings/dust from the area. A ¼-inch piece of Teflon tubing will be inserted through a 1" diameter rubber stopper, and placed into the hole, so that the bottom of the tubing is below the slab floor and the stopper rests inside the one-inch hole, forming a seal. The stopper will then be covered with bees wax to provide an impenetrable seal for the migration of indoor air into the sub-slab. One 60 cubic centimeter (cc) volume of air will be purged from the tubing with a polyethylene syringe. The syringe will be capped and the air released outside the building as to not interfere with the indoor air sample collection. A 6-liter SUMMA®-type canister with a 24-hour flow valve will be connected to the tubing as described in Attachment B.

Based on discussions with the NYSDEC, leak tests may also be conducted on the sub-slab soil vapor samples. Leak tests will be performed using laboratory grade helium to fill a bucket located over the sample point. The bucket will be sealed to the floor with foam insulation. The soil gas sample port will be tested for helium breakthrough with a portable monitoring device (e.g., Radiodetection

MGD-2002 Multi Gas Meter) both before and after collection of the soil gas sample.

Indoor air samples will be collected in 6-liter SUMMA®-type canisters from the basement level, in the vicinity of the sub-slab vapor sample collection points. Samples will be collected from approximately three to five feet above the floor level and set up with 24-hour flow valves.

If the basement is not finished as a living space, than a second indoor air sample will be collected from the first floor level (i.e. one sample will be collected from the first floor of occupied living space in the home/business). The second samples will also be collected from approximately three to five feet above the floor level, and set up with 24-hour flow valves.

Ambient air samples will be collected in 6-liter SUMMA®-type canisters from the vicinity of the homes/businesses being sampled for indoor air and sub-slab vapor VOC contamination. Samples will be collected from approximately three to five feet above ground surface. Ambient air samples will be set up with 24-hour flow valves.

Once the sub-slab vapor sample canisters, indoor air sample canisters, and exterior ambient air canister have been set up with 24-hr flow valves for an individual location, the valves from all containers will be opened. The time of sample collection, canister vacuum (in inches Hg), weather conditions, and barometric pressure will be recorded in the field log book.

Approximately 24 hours after sample collection, the flow valves will be shut off. The time, remaining vacuum in the canister, and barometric pressure will be noted in the field log book. The samples will be shipped to an ELAP-approved offsite laboratory for analyses of VOCs via USEPA Method TO-15. Indoor air and ambient air samples will also be run for PCE and TCE via Modified Method TO-15 using selective ion monitoring (SIM) quantitation (low detection limit). The compound list (including method detection limits) is included in Attachment B. Laboratory analysis will include Category B deliverables.

Upon completion of the sampling, the tubing and stopper will be removed from the building floor and the holes will be filled completely with a fast drying hydraulic concrete (i.e. Quickcrete).

Data Report

Upon receipt of the analytical laboratory data, a letter report will be prepared. To determine whether the laboratory data meets the project specific criteria for data quality and data use a Data Usability Summary Report (DUSR) will be prepared. The letter report will include a narrative description of the sampling activities completed at the site and will identify any deviations from scope presented in the Work Plan. The report will include a figure identifying the locations of all samples and data tables presenting validated results for each sample and media type. The report narrative will briefly summarize significant data findings. The DUSR will be prepared in accordance with the "Guidance for the Development of Data Usability Reports" (NYSDEC, 1997) and included as an appendix to the RI Report.

Three paper copies and one PDF copy of a letter report will be submitted to the NYSDEC presenting analytical results in comparison to the NYSDOH Draft Guidance for Sub-Slab Soil Gas and Indoor Air. Analytical Form I's will be attached to the letter report.

If you have any questions or concerns, please feel free to call myself at 207-828-3644 or Eric Sandin at 207-828-3556.

Sincerely,

MACTEC Engineering and Consulting, P.C.

John W. Peterson
Project Manager

William J. Weber, P.E.
Program Manager

Enclosures (3)

cc: Lisa Lewis (NYSDEC)
File 4.2

REFERENCES

ABB Environmental Services, 1995. *Quality Assurance Program Plan*. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 1995.

MACTEC Engineering and Consulting, Inc. P.C., 2005. *Program Health and Safety Plan*. Prepared for New York State Department of Environmental Conservation, Albany, New York. 2005.

New York State Department of Health (NYSDOH), 2005. "*Guidance for Evaluating Soil Vapor Intrusion in the State of New York"*, Final, October 2006

Table 1: Soil Vapor Evaluation Sampling Locations

Location ID	Soil Vapor ID[1] (Shallow)	Soil Vapor ID[1] (Deep, if collected)	Groundwater ID	Location Description
442024-V-M1	RCGV001xx	RCGV001xx	RCGW001	Edge of gravel drive along west side of 397 Main Ave (residence behind 395 Main Ave. Auto Repair) To further assess soil gas impact upgradient of known contamination.
442024-V-M2	RCGV002xx	RCGV002xx	RCGW002	Edge of gravel drive alongside rear yard of 401 Main (Jack and Jill Daycare) To further assess soil gas impact upgradient of known contamination.
442024-V-M3	RCGV003xx	RCGV003xx	RCGW003	Edge of paved drive alongside 401 Main business (Jack and Jill Daycare) To further assess soil gas impact upgradient of known contamination.

Notes
1 - xx denotes placeholder for bottom depth of soil vapor impant
ID KEYS: RC - Roxy Cleaners Site
GV - Geoprobe Soil Vapor
001 - Location 001
xx - depth feet below ground surface

Table 2: Sub-Slab and Air Sampling Locations

Location ID	Sub Slab Soil Vapor ID	Air ID	Location Description
174 Main	RCSVM0101	RCFAM0101	Labella Pizza (back storeroom)
174 Main	RCSVM0102	RCFAM0102	Hair/Nail Salon (as convenient)
178 Main	none	RCFAM0201	House trailer - indoor air living room
180 Main	RCSVM0301	RCBAM0301	Auto Value Basement
180 Main	none	RCFAM0301	First floor of Auto Value or rear apartment if present
184 Main	RCSVM0401	RCBAM0401	Nextel basement room - rear
184 Main	RCSVM0402	RCBAM0402	Nextel basement room - front
184 Main	none	RCFAM0401	Nextel first floor showroom
184 Main	none	RCFAM0402	Apartment - rear east
184 Main	none	RCFAM0403	Apartment - rear west
185 Main	RCSVM0501	RCBAM0501	Front business basement
187 Main	RCSVM0601	RCBAM0601	Tanning Salon basement
195 Main	none	RCFAM0701	Route 66 Specialty Meats
AA-1 to AA-7	none	RCAA00001	Ambient Air Samples associated with each structure

ID KEYS:
RC - Roxy Cleaners Site
BA - Basement Air
FA - First Floor Air
SV - Sub-Slab Soil Vapor
AA - Ambient Air (outdoor air)
M01 - Structure 1
01 - first sample of a given type in a structure

N

0 75 150 Feet

Rensselaer County digital orthoimagery (2004) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

NYSDEC
Roxy Cleaners
North Greenbush, New York

MACTEC

Site Location

Project 3612-07-2071 Figure 1

Prepared/Date: BRP 01/18/07
Checked/Date: ECS 01/18/07

Legend

Soil Vapor Sample Structure Air Samples

N

0 35 70 Feet

Rensselaer County digital orthoimagery (2004) obtained from New York State GIS Clearinghouse at: http://www.nysgis.state.ny.us

NYSDEC
Roxy Cleaners
North Greenbush, New York

MACTEC

Proposed Sample Locations

Project 3612-07-2071 Figure 2

Prepared/Date: BRP 01/19/07
Checked/Date: ECS 01/19/07

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN
ROXY DRY CLEANERS SITE NO. 4-20-024

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

This Quality Assurance Project Plan (QAPjP) identifies sections of the QAPP (ABB ES, 1995) that apply to the activities described in the site Work Plan, describes variances to those procedures, and specifies the analytical methods used for laboratory analysis of environmental samples.

1.0 GENERAL PROCEDURES AND PRACTICES

The general procedures used to conduct the Preliminary Site Assessment at the Roxy Cleaners Site will be taken from the following sections of the QAPP:

Section 2.0	Program Organization and Responsibilities
Section 9.0	Internal Quality Control
Section 11.0	Preventive Maintenance
Section 12.0	Data Assessment
Section 13.0	Corrective Action
Section 14.0	Reports to Management

2.0 FIELD PROCEDURES AND SAMPLING

The following field investigation techniques and procedures set forth in the QAPP will be used at the site:

QA/QC Procedures	Section 3.0
Decontamination	Subsection 4.3
Sample Handling	Subsections 4.5 and 5.0
Field Instrument Calibration	Section 6.0

The following variances to the above procedures are described in subsections 2.1 to 2.2.

2.1 SAMPLING AND ANALYSIS PROGRAM

Data Quality Objectives (DQOs) for the Site sampling activities are summarized in Table A-1. DQOs are described in accordance with USEPA guidelines (USEPA, 1987) and the NYSDEC Analytical Services Protocols (ASP) (NYSDEC, 2000).

Analytical data requirements were established using the methods described in the ASP. Analytical methods to be used for laboratory analysis are presented in Table A-2. Analytical Level B deliverables as described in the ASP will be provided by the laboratory. Data Usability Summary Report (DUSR) will be issued based on DEC guidelines (NYSDEC, 1997).

2.2 SAMPLING IDENTIFICATION

Sample identification will adhere to Subsection 4.1 of the QAPP with the following exception and clarifications:

Digits 1,2 Sample identification will begin with the site designator RC for Roxy Cleaners.

Digits 3,4 Sample Type will include the following identifications:

SV- Soil Vapor (Geoprobe Soil Vapor Implant sample)

GW Geoprobe water (Geoprobe grab water sample)

BA- Basement Indoor Air

FA- First-floor Indoor Air

AA- Ambient Outdoor Air

REFERENCES

ABB Environmental Services, 1995. Program Quality Assurance Program Plan. Prepared for the New York State Department of Environmental Conservation, Albany, New York. June 1995.

New York State Department of Environmental Conservation (NYSDEC), 2000. "*Analytical Services Protocols*"; 6/00 Edition; June 2000.

U.S. Environmental Protection Agency (USEPA), 1987. "Data Quality Objectives for Remedial Response Activities"; Office of Emergency and Remedial Response and Office of Waste Programs Enforcement; Washington DC; EPA/540/G-87/003; March 1987.

Table A-1:

Analytical DQO Levels

Parameter	Use	Data Quality Level
PID screening	Provides qualitative real-time information on air quality in the breathing zone for health and safety decisions, and to identify potentially contaminated groundwater.	Level I
TCL VOCs	Provides analytical information to: 1) compare to standards and guidance values,	Level III

Notes:

TCL = target compound list

VOCs = volatile organic compounds

Table A-2:

Summary of Analytical Methods

Media	Parameter	Method
Soil Gas, Indoor Air, Outdoor Air	TCL VOCS	USEPA Method TO-15.

Notes:

TCL = target compound list

VOCs = volatile organic compounds

TABLE A-3

SUMMARY OF TO-15 TARGET COMPOUNDS AND REPORTING LIMITS

Compound	CAS	MDL (ppbv)	PQL (ppbv)	MDL (ug/m3)	PQL (ug/m3)
1,1,1-Trichloroethane	71-55-6	0.028	0.1	0.15	0.55
1,1,2,2-Tetrachloroethane	79-34-5	0.047	0.1	0.33	0.69
1,1,2-Trichloroethane	79-00-5	0.043	0.1	0.24	0.55
1,1-Dichloroethane	75-34-3	0.03	0.1	0.12	0.4
1,1-Dichloroethene	75-35-4	0.034	0.1	0.133	0.4
1,2,4-Trichlorobenzene	120-82-1	0.051	0.1	0.38	0.74
1,2-Dichloropropane	78-87-5	0.054	0.1	0.25	0.46
1,3-Dichloropropene	542-75-6	0.047	0.1	0.22	0.45
1,4-Dichlorobenzene (p-)	106-46-7	0.054	0.1	0.32	0.29
Benzene	71-43-2	0.031	0.1	0.1	0.32
Bromomethane	74-83-9	0.022	0.1	0.08	0.39
Carbon tetrachloride	56-23-5	0.061	0.1	0.39	0.63
Chlorobenzene	108-90-7	0.047	0.1	0.22	0.46
Chloroethane	75-00-3	0.024	0.1	0.06	0.26
Chloroform	67-66-3	0.022	0.1	0.11	0.49
Chloromethane	74-87-3	0.031	0.1	0.06	0.21
Ethylbenzene	100-41-4	0.034	0.1	0.33	0.43
Ethylene dibromide (1,2-dibromoethane)	106-93-4	0.041	0.1	0.031	0.77
Hexachlorobutadiene	87-68-3	0.066	0.1	0.071	1.07
Methylene chloride	75-09-2	0.047	0.1	0.16	0.35
m-Xylene	108-38-3	0.084	0.2	0.36	0.87
o-Xylene	95-47-6	0.05	0.1	0.22	0.43
p-Xylene	106-42-3	0.084	0.2	0.36	0.87
Styrene	100-42-5	0.04	0.1	0.17	0.43
Tetrachloroethene	127-18-4	0.038	0.1	0.26	0.68
Toluene	108-88-3	0.054	0.1	0.2	0.38
Trichloroethene	79-01-6	0.043	0.1	0.23	0.54
Vinyl chloride	75-01-4	0.031	0.1	0.08	0.26

1,3-Butadiene	106-99-0	0.07	0.1	0.15	0.22
Hexane	110-54-3	0.024	0.1	0.08	0.29
Methyl ethyl ketone (2-butanone)	78-93-3	0.07	0.1	0.2	0.35
Vinyl acetate	108-05-4	0.025	0.1	0.09	0.35
1,2,4-Trimethylbenzene (Pseudocumene)	95-63-6	0.048	0.1	0.24	0.49
1,2-Dichlorobenzene	95-50-1	0.049	0.1	0.3	0.6
1,2-Dichloroethane	107-06-2	0.065	0.1	0.26	0.4
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	0.054	0.1	0.26	0.49
1,3-Dichlorobenzene	541-73-1	0.065	0.1	0.39	0.6
cis-1,2-Dichloroethene	156-59-2	0.043	0.1	0.17	0.4
Freon 11 (Trichlorofluoromethane)	75-69-4	0.041	0.1	0.23	0.56
Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	76-13-1	0.024	0.1	0.18	0.77
Freon 114 (1,2-Dichloro-1,1,2,2-tetrafluoroethane)	76-14-2	0.028	0.1	0.02	0.7
Freon 12 (Dichlorodifluoromethane)	75-71-8	0.031	0.1	0.15	0.49
trans-1,3-Dichloropropene	542-75-6	0.047	0.1	0.22	0.45
1,4-Dioxane	123-91-1	0.054	0.1	0.19	0.36
2,2,4-Trimethyl pentane	540-84-l	0.026	0.1	0.12	0.47
2-Hexanone	591-78-6	0.04	0.1	0.16	0.36
Acetone	67-64-1	0.126	0.1	0.3	0.24
Bromodichloromethane	75-27-4	0.035	0.1	0.23	0.67
Bromoform	75-25-2	0.035	0.1	0.36	1.03
Carbon disulfide	75-15-0	0.022	0.1	0.07	0.31
Cyclohexane	110-82-7	0.07	0.1	0.23	0.34
Dibromochloromethane	124-48-1	0.041	0.1	0.34	0.85
Methyl isobutyl ketone (4-Methyl-2-pentanone)	108-10-1	0.06	0.1	0.24	0.41
Methyl tert-butyl ether	1634-04-4	0.043	0.1	0.16	0.36
trans-1,2-Dichloroethene	156-60-5	0.038	0.1	0.15	0.4
SIM Analysis					
Trichloroethene (TCE)	79-01-6	0.025	0.025	0.13	0.13
Tetrachloroethene (PCE)	127-18-4	0.022	0.025	0.15	0.17

Appendix B
Indoor air quality questionnaire and building inventory

As discussed in Section 2.11, products in buildings should be inventoried every time indoor air is sampled to provide an accurate assessment of the potential contribution of volatile chemicals. In addition, the type of structure, floor layout and physical conditions of the building being studied should be noted to identify (and minimize) conditions that may interfere with the proposed testing.

Toward this end, a blank copy of the NYSDOH Center for Environmental Health's Indoor Air Quality Questionnaire and Building Inventory is provided in this appendix. Also provided is an example that demonstrates how the form should be completed properly.

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NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

_____

_____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	_____
1st Floor	_____
2nd Floor	_____
3rd Floor	_____
4th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify_____

d. Has the building ever had a fire? Y / N When?_____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? _____

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?_____

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_____

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

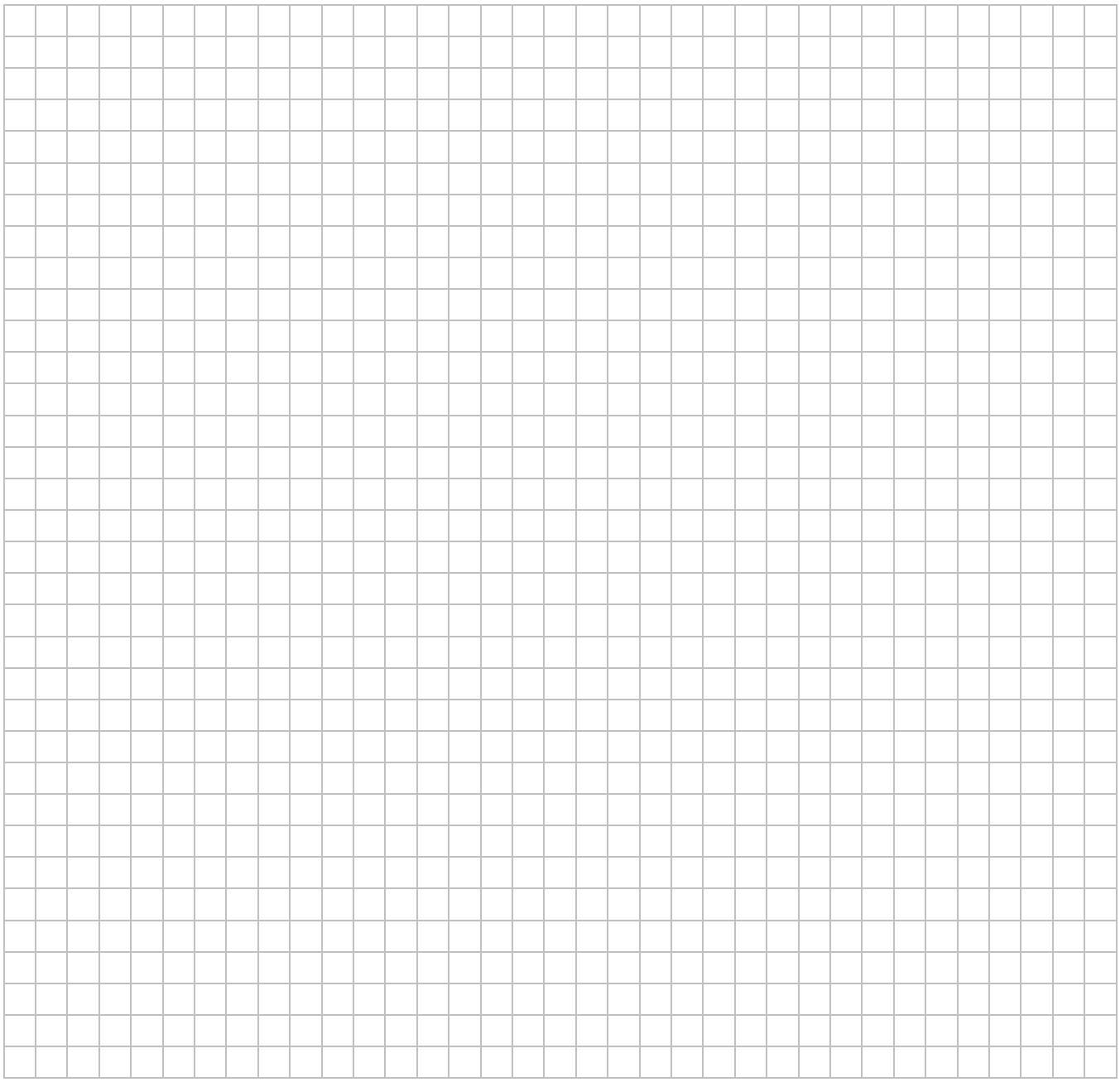
Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

OSR – 3 Example 1 Correct

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Mary Jones Date/Time Prepared 10/22/04 10:00am

Preparer's Affiliation XYZ Consulting Phone No. 518-555-1212

Purpose of Investigation Thomasville Soil Vapor Intrusion Investigation (Site#32141)

1. OCCUPANT:

Interviewed: (Y)/ N

Last Name: Smith First Name: Carol

Address: 25 Main Street Thomasville, New York 25230

County: Albany

Home Phone: 518-556-2222 Office Phone: 518-556-2400

Number of Occupants/persons at this location 2 Age of Occupants 36, 10

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y (N)

Last Name: White First Name: Frank

Address: 64 Mountain Road Bainbridge, New York 26390

County: Dutchess

Home Phone: 845-876-1301 Office Phone: 845-227-2430

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

(Residential)	School	Commercial/Multi-Use
Industrial	Church	Other: _____

Example Correct 2

If the property is residential, type? (Circle appropriate response)

(Ranch)	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? NA

If the property is commercial, type?

Business Type(s) NA

Does it include residences (i.e. multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors 1 Building age 20 years

Is the building insulated? (Y) / N How air tight? (Tight) / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Basement air flows up to 1st floor through plumbing waste line and domestic water line floor penetrations

Airflow near source

Yes, furnace/oil tank area open to rest of basement

Outdoor air infiltration

Outdoor air enters at loose bilco doorway openings, and at sill plate near furnace.

Infiltration into air ducts

Basement air flows into bottom of hot air unit and in loose cold air return joints.

Example Correct

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	(wood frame)	concrete	stone	brick
b. Basement type:	(full)	crawlspace	slab	other _____
c. Basement floor:	(concrete)	dirt	stone	other _____
d. Basement floor:	(uncovered)	covered	covered with _____	
e. Concrete floor:	(unsealed)	sealed	sealed with _____	
f. Foundation walls:	(poured)	block	stone	other _____
g. Foundation walls:	(unsealed)	sealed	sealed with _____	
h. The basement is:	wet	damp	(dry)	moldy
i. The basement is:	finished	(unfinished)	partially finished	
j. Sump present?	Y (N)			
k. Water in sump?	Y / N / (not applicable)			

Basement/Lowest level depth below grade: 6 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

Floor drain in laundry area

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

(Hot air circulation)	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	(Fuel Oil)	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: gas

Boiler/furnace located in:	(Basement)	Outdoors	Main Floor	Other _____
Air Conditioning:	Central Air	(Window units)	Open Windows	None

Example Correct

Are there air distribution ducts present? (Y) N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

Cold air return ductwork on ceiling in basement. Cold air return joints appear loose.

7. OCCUPANCY

Basement / Is lowest level occupied? Full time Occasionally (Seldom) Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	Storage and laundry
1st Floor	living area and bedrooms
2nd Floor	
3rd Floor	
4th Floor	

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage?	(Y) N	
b. Does the garage have a separate heating unit?	Y (N) NA	
c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car etc.)	(Y) N / NA	Please specify lawnmower, car
d. Has the building ever had a fire?	Y (N)	When?
e. Is a kerosene or unvented gas space heater present?	Y (N)	Where?
f. Is there a workshop or hobby/craft area?	Y (N)	Where & Type?
g. Is there smoking in the building?	Y (N)	How frequently?
h. Have cleaning products been used recently?	(Y) N	When & Type? w/in week - windex, tilex
i. Have cosmetic products been used recently?	(Y) N	When & Type? yesterday - hairspray

Example Correct

j. Has painting/staining been done in the last 6 months? Y / (N) Where & When? _____

k. Is there new carpet, drapes or other textiles? (Y) / N Where & When? carpet in dining room

l. Have air fresheners been used recently? Y / (N) When & Type? _____

m. Is there a kitchen exhaust fan? (Y) / N If yes, where vented? outside

n. Is there a bathroom exhaust fan? Y / (N) If yes, where vented? _____

o. Is there a clothes dryer? (Y) / N If yes, is it vented outside? (Y) / N

p. Has there been a pesticide application? Y / (N) When & Type? _____

Are there odors in the building? Y / (N)
If yes, please describe: _____

Do any of the building occupants use solvents at work? (Y) / N
(e.g., chemical manufacturing or laboratory, automechanic or autobody shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist etc.)

If yes, what types of solvents are used? hair salon dyes, alcohols, peroxides, acetone

If yes, are their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) — No
(Yes, use dry-cleaning infrequently (monthly or less)) — Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? (Y) / N Date of Installation: June 2000
Is the system active or passive? (Active) / Passive

9. WATER AND SEWAGE

Water Supply: Public Water (Drilled Well) Driven Well Dug Well Other: _____

Sewage Disposal: Public Sewer (Septic Tank) Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: not applicable

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

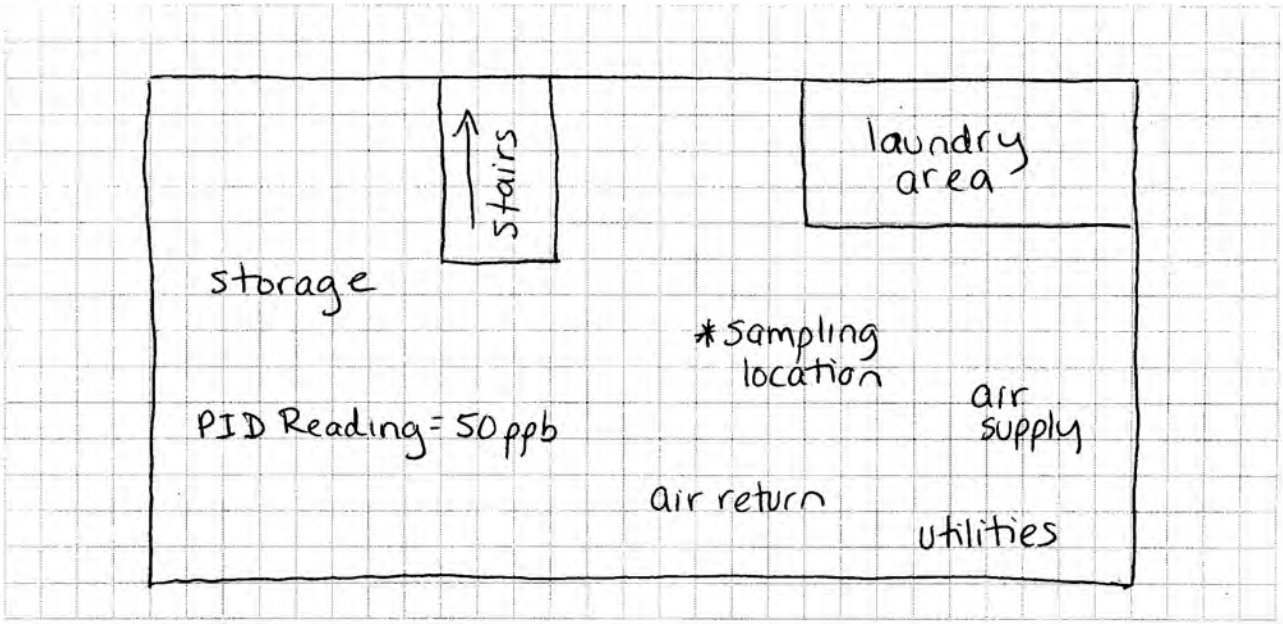
d. Relocation package provided and explained to residents? Y / N

Example Correct

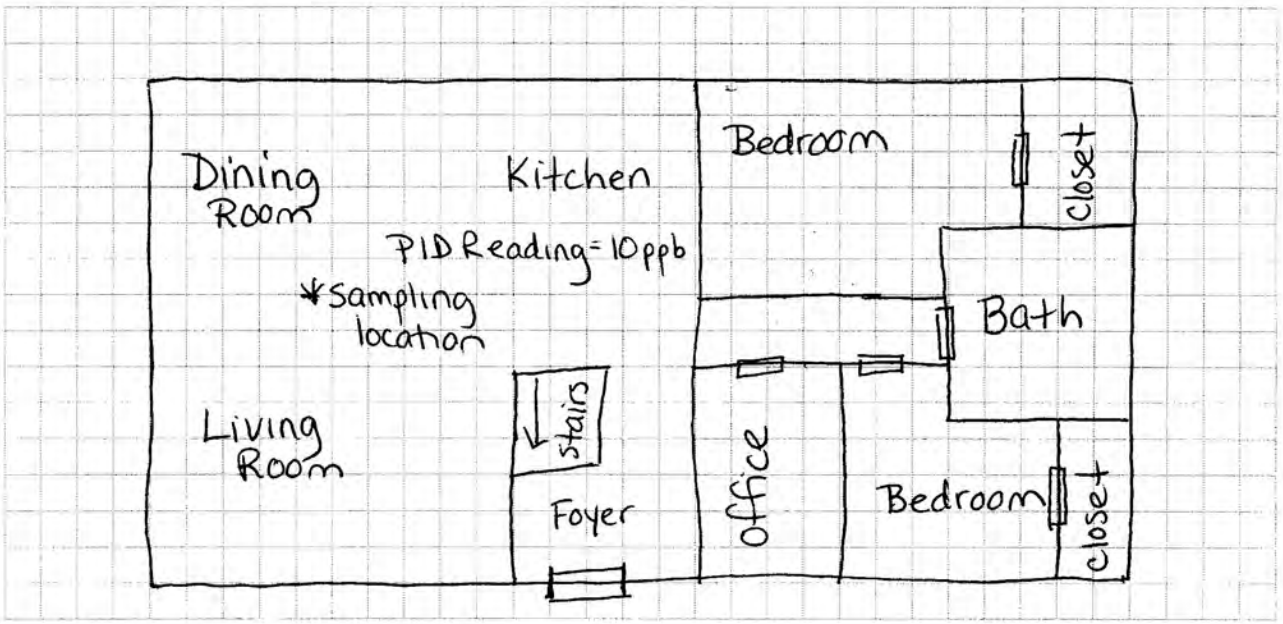
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



First Floor:

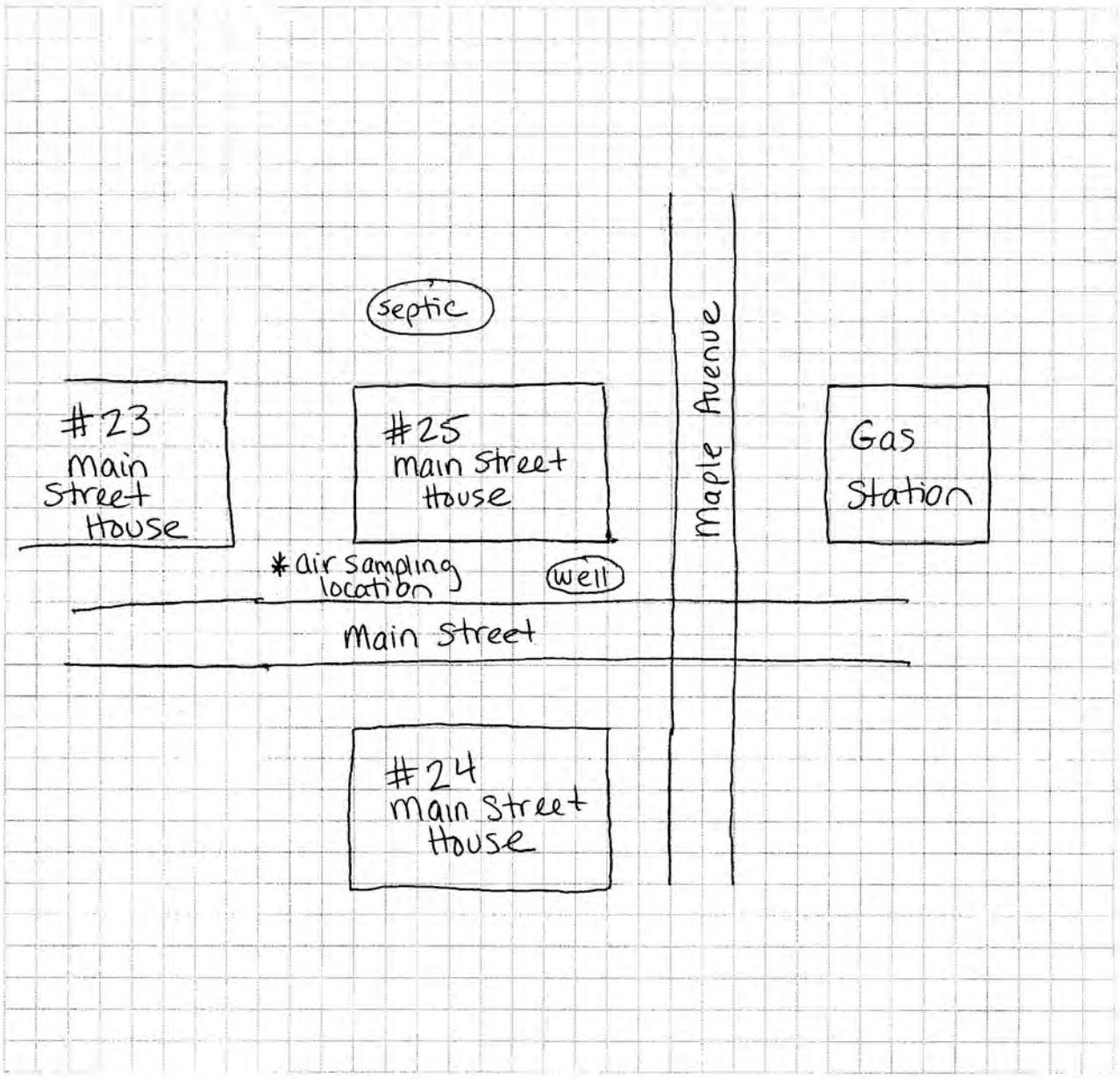


Example Correct 7

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



N

Wind direction = NE

Example Correct

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: RAE photoionization detector

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (oz.)	Condition*	Chemical Ingredients	Field Instrument Reading	Photo** Y / N
Kitchen	WD-40	12oz	UO	See photo	10 ppb	Y
garage	mineral spirits	24oz	U	benzene, toluene	15 ppb	N
garage	American Semi-Gloss latex paint	64oz	U	titanium dioxide, ethylene, glycol, aluminum hydroxide, 2,2,4-trimethyl 1-1,3-pentanediol isobutyrate, Vinyl acetate	2 ppb	N
garage	Krylon semi-gloss oil paint	64oz	D	butane, propane, titanium dioxide, xylene, ethylbenzene, acetone, MEK, butanol, MIK	10 ppb	N
garage	Rustoleum	12oz	U	talc, calcium carbonate, titanium dioxide, xylene, ethylbenzene, acetone, liquified petroleum gases, pentaerythritol	4 ppb	N
garage	Deep 6 Double Strength Insect Repellent	8oz	D	propane, isobutane, N,N-Diethyl-meta-toluamide	0.5 ppb	N
				Di-n-propyl isocinchomeronate		
basement	12 cans latex paint	128oz	U	talc, titanium dioxide, Kaolin clay, 2,24-trimethyl-1,3 pentanediol isobutyrate, vinyl acetate	0	N

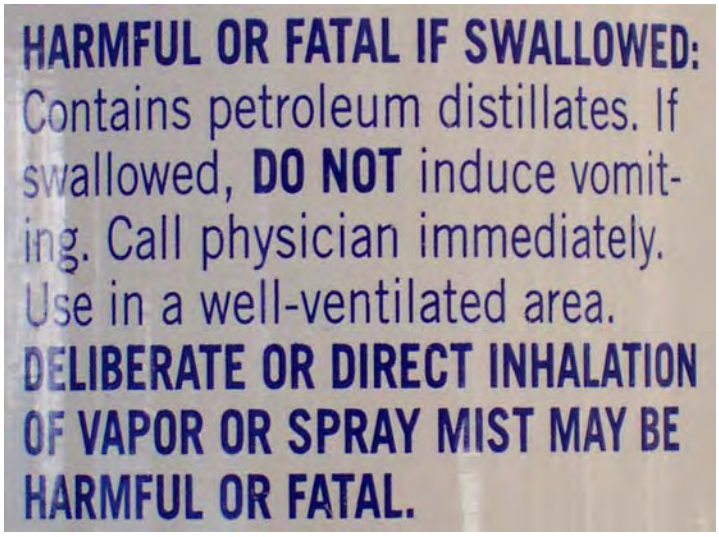
* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

Product Inventory Attachment — 25 Main Street, City

WD-40 FRONT

WD-40 INGREDIENTS



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Indoor Air Sampling
Standard Operating Procedures Using SUMMA®-Type Canisters

This document is a standard operating procedure (SOP) for the setup and collection of indoor air samples from residential, commercial, industrial, institutional, and multiuse buildings. This SOP is intended to be a general directive for the collection of indoor air samples using SUMMA®-type air canisters equipped with metering flow controllers for the purpose of collecting a "time-averaged" indoor air sample. This SOP is intended for 24-hour sample collection.

For the purposes of evaluating the potential vapor migration from soils and groundwater into indoor air, samples will be collected from the lowest usable area of the building. Indoor air samples may be collected from one of the following areas:

1) Unfinished basement or unfinished first floor of slab-on-grade building;
2) Finished basement or finished first floor of slab-on-grade building; or
3) First floor living area above a dirt-floored crawl space.

EQUIPMENT / MATERIAL LIST:

- Documentation of access permission from the owner to complete the sampling
- 6-liter, stainless steel, pre-evacuated SUMMA®-type canister - .laboratory provided
- Pressure gage with integrated 24-hour metering valve- laboratory provided
- Two, 9/16-inch, open-end wrenches
- PID – part per billion range detector for screening indoor air
- Wristwatch
- Digital camera
- Indoor Air Quality Questionnaire and Building Inventory Form (attached)
- Chain-of-Custody (COC) form -laboratory provided

Procedure for Indoor Air Sample Collection:

The following section provides a general guidance on the collection of indoor air samples; the

sequence can be modified as needed based on site specific conditions at the time of sample collection.

Selection and Preparation of Sample Collection Area

A. Conduct interview with occupant/owner. Complete Indoor Air Quality Questionnaire and Building Inventory Form

B. Observe the area for the apparent presence of items or materials that may potentially produce or emit VOCs and interfere with analytical laboratory analysis of the collected sample. Record relevant information on Building Inventory Form and document with digital photographs.

C. Using the PID, screen indoor air in the location intended for sampling and in the vicinity of potential VOC sources (i.e. paints, glues, household cleaners, dry cleaned clothes, etc.) to assess the potential gross presence of VOCs. Record PID readings on the sampling form. Items or materials exhibiting PID readings shall be considered probable sources of VOCs and, given approval of the owner or occupant, will be removed prior to sampling. If practical, sampling will be rescheduled for 24-hours later.

Preparation of SUMMA®-Type Canister and Collection of Sample

A. Place SUMMA®-type canister at breathing zone height (approximately 3 to 5 feet above floor). Canister can be placed on a stable surface, such as a table or bookshelf, or affixing to a wall or ceiling support with nylon rope. Avoid placing canisters near windows or other potential sources of drafts and air supply vents.

B. Record SUMMA®-type canister serial number on sampling summary form and COC.

C. Record sample identification on canister ID tag, and record on sampling summary form and COC.

D. Remove brass plug from canister fitting.

E. Install pressure gage / metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.

F. Open and close canister valve.

G. Record gage pressure on sample summary form and COC. Gage pressure must read >25 inches Hg. Replace SUMMA®-type canister if gage pressure reads <25 inches Hg.

H. Remove brass plug from gage fitting and store for later use.

I. Open canister valve to initiate sample collection.

J. Record date and local time (24-hour basis) of valve opening on sampling summary form and COC.

K. Take digital photograph of SUMMA®-type canister and surrounding area.

Termination of Sample Collection

A. Revisit SUMMA®-type canister approximately at end of sample collection period (e.g., 24 hours after initiation of sample collection) and record gage pressure on sampling form and COC.

B. Record date and local time (24-hour basis) of valve closing on sampling form and COC.

C. Close canister valve.

D. Remove pressure gage / flow valve from canister.

E. Reinstall brass plug on canister fitting and tighten.

F. Remove SUMMA®-type canister from sample collection area.

Preparation and Shipment of Sample to Analytical Laboratory

A. Pack SUMMA®-type canister in shipping container, note presence of brass plug installed in tank fitting.

B. Complete COC and place requisite copies in shipping container.

C. Close shipping container and affix custody seal to container closure.

Quality Assurance/Quality Control (QA/QC) Samples:

The collection of QA/QC samples will include the submittal of blind sample duplicates to the analytical laboratory for analyses of target compounds. Duplicate samples will be collected "side-by-side" over the same time interval.

Substructure Soil Gas Sampling
Standard Operating Procedures Using SUMMA® Type Canisters

This document is a standard operating procedure (SOP) for the setup and collection of substructure soil gas samples from beneath residential, commercial, industrial, institutional, and multiuse buildings. This SOP is intended to be a general directive for the collection substructure soil gas using SUMMA®-type air canisters equipped with metering flow controllers for the purpose of collecting a "time-averaged" indoor air sample. This SOP is intended for 24-hour sample collection. Substructure soil gas samples may be collected from one of the following areas:

Area 1) Subslab soil gas sample obtained via a temporary installed sampling port through apparent vapor barrier (such as floor slab or plastic liner); or

Area 2) Air sample obtained from crawl space or basement without an apparent vapor barrier.

EQUIPMENT / MATERIAL LIST:

- Documentation of access permission from the owner to complete the sampling
- 6-liter, stainless steel, pre-evacuated SUMMA®-type canister -laboratory provided
- Pressure gage with integrated 24-hour metering valve -laboratory prol1ided
- Two, 9/16-inch, open-end wrenches
- Photo Ionization Detector (PID) -for screening crawl space
- Utility Knife
- Electric hammer drill with 1-inch and 3/8-inch diameter drill bits
- Two 50-foot long electrical extension cords
- ¼-inch outer diameter (O.D.) Teflon® tubing
- ¼-inch stainless steel valve and stainless steel "tee" type fitting
- 60 cc polyethylene syringe for purging tubing
- 1-inch diameter rubber stopper with ¼-inch port
- Quick-drying expansive Portland cement

- Wristwatch
- Digital camera
- Flashlight
- Indoor Air Quality Questionnaire and Building Inventory Form (attached)
- Chain-of-Custody (COC) form -laboratory provided

Procedure for Substructure Soil Gas Sample Collection:

The procedures for substructure soil gas sample collections will be dependant on location category. During the occupant/owner interview and building survey the lowest accessible portion of the building (e.g., crawl space, basement, or first floor of slab-on-grade construction) will be observed to assess which substructure sampling area category is applicable. The steps provided below should be considered a general guidance on the collection of substructure soil gas samples for each location category; the sequence can be modified as needed based on site- or project-specific conditions at the time of sample collection.

Area 1: Subslab Soil Gas Sample Obtained Via Temporary Installed Sampling Port Through Apparent Vapor Barrier (i.e. floor slab or plastic liner).

Selection and preparation of sample collection point:

A. Observe the condition of the building floor slab for apparent penetrations such as concrete floor cracks, floor drains, or sump holes. Note the floor conditions on the sampling form and select a potential location or locations for a temporary subsurface probe. The location or locations should be central to the building away from foundation walls and apparent penetrations. Review the proposed location or locations with the occupant/owner describing how the sampling port or ports will be installed. After receiving' permission from the occupant/owner, mark the proposed location(s) and describe the location(s) on the sampling form.

B. Using the PID, screen indoor air in the area of floor penetrations such as concrete floor cracks, floor drains, or sump holes. Record the indoor air PID readings on the sampling form.

Installation of Temporary Subsurface Sample Point

A. Drill a 1-inch diameter hole about to 2 inches into the concrete slab using an electric hammer drill.

B. Extend the hole through the remaining thickness of the slab using a 3/8-inch drill bit. Extend the hold about three inches into the subslab material using either the drill bit or a steel probe rod. Vacuum hole to remove excess dust.

C. Insert a section of ¼-inch O.D. Teflon® tubing to the bottom of the floor slab. Seal the annular space between the 1-inch hole and 1/4-inch tubing by seating a tapered laboratory-grade rubber plug perforated with a 1/4.-inch hole into the probe hole and if necessary capping the stopper with a beeswax seal. The beeswax will be melted with an electric heat gun.

D. Connect the ¼ -inch Teflon® tubing to a stainless steel valve using compression fittings. Open the in-line valve and purge the probe tubing using a polyethylene 60 cc syringe. Close the valve, remove and cap the syringe, and connect the ¼-inch Teflon® tubing and in-line valve to a SUMMA®-type canister. The air/soil gas syringe will be discharge out of doors. For duplicate sample locations connect a second canister before purging by installing a 1/4-inch stainless steel "tee" fitting between the probe discharge tubing and the stainless steel valve.

Preparation of SUMMA®-Type Canister and Collection of Sample

A. Place SUMMA®-type canister adjacent to the temporary sampling port.

B. Record SUMMA®-type canister serial number on sampling summary form and COC.

C. Record sample identification on canister ID tag, and record on sampling summary form and COC.

D. Remove brass plug from canister fitting.

E. Install pressure gage / metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.

F. Open and close canister valve.

G. Record gage pressure on sample summary form and COC. Gage pressure must read >25 inches Hg. Replace SUMMA®-type canister if gage pressure reads <25 inches Hg.

H. Remove brass plug from gage fitting and store for later use.

I. Connect subsurface probe to end of in-line particular filter via ¼-inch O.D. Teflon® tubing

and "swagelok®-type" fittings.

J. Open canister valve and in-line stainless steel valve to initiate sample collection.

K. Record date and local time (24-hour basis) of valve opening on sampling summary form and COC.

L. Take digital photograph of SUMMA®-type canister and surrounding area.

Termination of Sample Collection

A. Revisit SUMMA®-type canister approximately at end of sample collection period (e.g., 24 hours after initiation of sample collection) and record gage pressure on sampling form and COC.

B. Record date and local time (24-hour basis) of valve closing on sampling form and COC.

C. Close canister valve.

D. Disconnect Teflon® tubing and remove pressure gage / flow valve from canister.

E. Reinstall brass plug on canister fitting and tighten.

F. Remove SUMMA®-type canister from sample collection area.

G. Remove temporary probe and rubber stopper and fill the hole with a quick drying hydraulic cement. Finish flush with floor surface.

Area 2: Air Sample Obtained from Crawl Space or Basement Without an Apparent Vapor Barrier.

Selection and Preparation of Sample Collection Area

A. Conduct interview with occupant/owner. Complete Indoor Air Quality Questionnaire and Building Inventory Form

B. Observe the area for the apparent presence of items or materials that may potentially produce or emit VOCs and interfere with analytical laboratory analysis of the collected sample. Record relevant information on Building Inventory Form and document with digital photographs.

C. Using the PID, screen indoor air in the location intended for sampling and in the vicinity of

potential VOC sources (i.e. paints, glues, household cleaners, dry cleaned clothes, etc.) to assess the potential gross presence of VOCs. Record PID readings on the sampling form. Items or materials exhibiting PID readings shall be considered probable sources of VOCs and, given approval of the owner or occupant, will be removed prior to sampling. If practical, sampling will be rescheduled for 24-hours later.

Preparation of SUMMA®-Type Canister and Collection of Sample

A. Place SUMMA®-type canister at breathing zone height (approximately 3 to 5 feet above basement floor or about 1 foot above floor of crawl space). Canister can be placed on a stable surface, such as a table or bookshelf, or affixing to a wall or ceiling support with nylon rope. Avoid placing canisters near windows or other potential sources of drafts and air supply vents.

B. Record SUMMA®-type canister serial number on sampling summary form and COC.

C. Record sample identification on canister ID tag, and record on sampling summary form and COC.

D. Remove brass plug from canister fitting.

E. Install pressure gage / metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.

F. Open and close canister valve.

G. Record gage pressure on sample summary form and COC. Gage pressure must read >25 inches Hg. Replace SUMMA®-type canister if gage pressure reads <25 inches Hg.

H. Remove brass plug from gage fitting and store for later use.

I. Open canister valve to initiate sample collection.

J. Record date and local time (24-hour basis) of valve opening on sampling summary form and COC.

K. Take digital photograph of SUMMA®-type canister and surrounding area.

Termination of Sample Collection

A. Revisit SUMMA®-type canister approximately at end of sample collection period (e.g., 24 hours after initiation of sample collection) and record gage pressure on sampling form and COC.

B. Record date and local time (24-hour basis) of valve closing on sampling form and COC.

C. Close canister valve.

D. Remove pressure gage / flow valve from canister.

E. Reinstall brass plug on canister fitting and tighten.

F. Remove SUMMA®-type canister from sample collection area.

Preparation and Shipment of Sample to Analytical Laboratory

A. Pack SUMMA®-type canister in shipping container, note presence of brass plug installed in tank fitting.
B. Complete COC and place requisite copies in shipping container.
C. Close shipping container and affix custody seal to container closure.

Quality Assurance/Quality Control (QA/QC) Samples:

The collection of QA/QC samples will include the submittal of blind sample duplicates to the analytical laboratory for analyses of target compounds. Area 2- type duplicate samples will be collected "side-by-side" over the same time interval. Area 1- type duplicate samples will be obtained using a stainless steel "tee" type fitting and 1/4-inch O.D. Teflon- tubing connected to the same subsurface probe.

Ambient (Outdoor) Air Sampling
Standard Operating Procedures Using SUMMA®-Type Canisters

This document is a standard operating procedure (SOP) for the setup and collection of ambient (outdoor) air samples from residential, commercial, industrial, institutional, and multiuse buildings. This SOP is intended to be a general directive for the collection of ambient air samples using SUMMA®-type air canisters equipped with metering flow controllers for the purpose of collecting a "time-averaged" indoor air sample. This SOP is intended for 24-hour sample collection.

EQUIPMENT / MATERIAL LIST:

- Documentation of access permission from the owner to complete the sampling
- 6-liter, stainless steel, pre-evacuated SUMMA®-type canister - .laboratory provided
- Pressure gage with integrated 24-hour metering valve- laboratory provided
- Two, 9/16-inch, open-end wrenches
- PID – part per billion range detector for screening indoor air
- Wristwatch
- Digital camera
- Indoor Air Quality Questionnaire and Building Inventory Form (attached)
- Chain-of-Custody (COC) form -laboratory provided

Procedure for Ambient (outdoor) Air Sample Collection:

The following section provides a general guidance on the collection of ambient air samples; the sequence can be modified as needed based on site specific conditions at the time of sample collection.

Selection and Preparation of Sample Collection Area

A. Conduct interview with occupant/owner. Complete Indoor Air Quality Questionnaire and Building Inventory Form.

B. Choose an area for sample collection that is upwind of the property (properties) being assessed, if possible. Collect sample away from wind breaks, if possible.

C. Observe the area for the apparent presence of items or materials that may potentially produce or emit VOCs and interfere with analytical laboratory analysis of the collected sample (i.e. fuel tanks, gasoline, paint storage, etc.). Record relevant information on Building Inventory Form and document with digital photographs.

D. Using the PID, screen ambient air in the location intended for sampling to assess the potential gross presence of VOCs. Record PID readings on the sampling form.

Preparation of SUMMA® Canister and Collection of Sample

A. Place SUMMA®-type canister approximately 5 feet above ground (or equivalent to the mid-point of the ground story of the building(s). Canister can be placed on a stable surface, or suspended from structure with nylon rope.

B. Record SUMMA®-type canister serial number on sampling summary form and COC.

C. Record sample identification on canister ID tag, and record on sampling summary form and COC.

D. Remove brass plug from canister fitting.

E. Install pressure gage / metering valve on canister valve fitting and tighten. If pressure gage has additional (2nd) fitting, install brass plug from canister fitting into gage fitting and tighten.

F. Open and close canister valve.

G. Record gage pressure on sample summary form and COC. Gage pressure must read >25 inches Hg. Replace SUMMA®-type canister if gage pressure reads <25 inches Hg.

H. Remove brass plug from gage fitting and store for later use.

I. Open canister valve to initiate sample collection.

J. Record date and local time (24-hour basis) of valve opening on sampling summary form and COC.

K. Take digital photograph of SUMMA®-type canister and surrounding area.

Termination of Sample Collection

A. Revisit SUMMA®-type canister approximately at end of sample collection period (e.g., 24 hours after initiation of sample collection) and record gage pressure on sampling form and COC.

B. Record date and local time (24-hour basis) of valve closing on sampling form and COC.

C. Close canister valve.

D. Remove pressure gage / flow valve from canister.

E. Reinstall brass plug on canister fitting and tighten.

F. Remove SUMMA®-type canister from sample collection area.

Preparation and Shipment of Sample to Analytical Laboratory

A. Pack SUMMA®-type canister in shipping container, note presence of brass plug installed in tank fitting.

B. Complete COC and place requisite copies in shipping container.

C. Close shipping container and affix custody seal to container closure.

Quality Assurance/Quality Control (QA/QC) Samples

The collection of QA/QC samples will include the submittal of blind sample duplicates to the analytical laboratory for analyses of target compounds. Duplicate samples will be collected "side-by-side" over the same time interval.

HEALTH AND SAFETY PLAN

MACTEC Engineering and Consulting, PC.

HEALTH AND SAFETY PLAN

MACTEC Engineering and Consulting, PC. (MACTEC), under contract to the New York State Department of Environmental Conservation (NYSDEC), is implementing an Immediate Investigation Work Assignment (IIWA) of the Roxy Cleaners Site in Rensellaer County, New York. The Site is listed as a hazardous waste site, Site No. 4-20-024, in the Registry of Hazardous Waste Sites in New York State. This Health and Safety Plan (HASP) has been prepared in accordance with the requirements of the NYSDEC as identified in Work Assignment (WA) No. D00442024-02, under the July 1997 Superfund Standby Contract between MACTEC and the NYSDEC.

The purpose of this HASP is to protect the health and safety of on-site personnel and the surrounding community during investigation activities at the Site. This HASP is based on the MACTEC Program HASP (MACTEC, 2005) and consists of a site-specific HASP Addendum to document site-specific aspects of the Roxy Cleaners IIWA.

Prior to initiation of investigation activities, MACTEC will notify the local fire, police, and potential emergency responders, as deemed necessary, to advise them of the activities that will take place and the schedule of these activities. The private home owners/tenants will also be notified prior to the investigation. If necessary adjacent property owners will be notified, however, the Site is a low hazard site and notification of adjacent property owners is not anticipated as a necessary procedure unless specific access is required to adjacent properties.

In the event of an emergency or corresponding evacuation procedure, evacuation procedures documented in the HASP Addendum will be followed and the emergency contacts notified.

MACTEC, Inc.

MACTEC Short Form HASP

Site: Roxy Dry Cleaners Job Number: 3612072072 – 02

Street Address: 187 Main Ave (Route 66) North Greenbush, NY

Proposed Date(s) of Investigation: 2-05-2007 through 3-10-2007

Prepared by: Eric Sandin Date: 1-23-2007

*Approved by: Date:

Site Description: Three drilling locations on driveways off of Main Avenue and sub-slab and indoor air sampling at various businesses in vicinity of 187 Main

Proposed Activity(s): Geoprobe drilling with groundwater and soil vapor samples and hand collected indoor air and sub-slab soil vapor samples (See Work Plan for full details)

*Approval also serves as certification of a Hazard Assessment as required by 29 CFR 1910.132

Known or Suspected Contaminants (include PELs/TLVs):

Contaminants of Concern	PEL/TLV
Groundwater: TCE (<10 ppb GW)	50 ppm
PCE (<300 ppb in GW)	100 ppm
1,2 DCE (<100 ppb GW)	200 ppm

JHAs: Check and attach all that apply:

Activity Specific JHAs:

☒	Mobilization/Demobilization and Site Preparation
☒	Field Work - General
☒	Groundwater Sampling
☐	Drilling Operation (MACTEC Driller)
☒	Soil Sampling
☐	Geoprobe (MACTEC Geoprobe Operator
☐	Excavations and Backfilling
☒	Decontamination
☐	Stream/Wetlands Work
☐	Clearing Brush and Trees
☐	Chain Saw
☐	

Hazard Specific JHAs:

☐	Insect Stings and Bites
☐	Gasoline
☒	Working with Preservatives (Acids)
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	

Chemicals Brought to the Site:

List all chemicals brought to the site (e.g., preservatives, decontamination solutions, gasoline, etc.). Attach MSDS

Chemicals	MSDS Attached?
HELIUM GAS (RENTAL CYLINDER)	☐
HCL (PRESERVATIVE IN GLASS VIALS)	☐
	☐

Chemicals will be kept in their original containers. If transferred to another container, aside from days use by one individual, the new container will be labeled with the name of the chemical and the hazard warnings.

HAZARD IDENTIFICATION SUMMARY

Complete the checklist for summarizing the hazards identified in the JHAs

Standard Hazards			
☐ Falling Objects	☒ Slips and trips	☐ Pinch points	☒ Rotating equipment
☒ Falls	☒ Power equipment/tools	☐ Elevated work surfaces	☒ Cold Stress
Eye Hazards			
☐Particulates	☐ Liquid splashes	☐ Welding Arc	☐ _____
Hearing Hazards			
☐ None	☒ Impact noise	☐ High frequency noise	☒ High ambient noise
Respiratory Hazards			
☐ None	☐Dust / aerosols / particulates	☒ Organic Vapors	☐ Acid Gases
☐ Oxygen deficient	☐Metals	☐ Asbestos	☐ _____
Chemical Hazards			
☐ None	☐ Organic solvents	☐ Reactive metals	☐ PCBs
☒ Acids / bases	☐ Oxidizers	Volatiles/Semi-volatiles	_____
Environmental Hazards			
☐ None	☒ Temperature extremes ☒ Cold ☐ Heat	☐ Wet location	☐ Bio hazards (snakes, insects, spiders, poisonous plants, etc.)
☐ Explosive vapors	☐ Confined space	☐ Engulfment Hazard	☐ _____
Electrical Hazards			
☐None	☐ Energized equipment or circuits	☒Overhead utilities ☐ Underground utilities	☐ Wet location
Fire Hazards			
☒ None	☐ Cutting, welding, or grinding generated sparks or heat sources	☐ Flammable materials present	☐ Oxygen enriched location
Ergonomic Hazards			
☒ Lifting	☒ Bending	☐ Twisting	☒ Pulling/tugging
Computer Use in the: ☐ Office ☐ Field	☐ Repetitive motion	☒ Carrying	☐ _____
Radiological Hazards			
☒ None	☐ Alpha	☐ Beta	☐ Gamma/X-rays
☐ Neutron	☐ Radon	☐ Non-Ionizing	☐
Other Hazards			
☐			
☐			

PPE and Monitoring Instruments

Initial Level of PPE				
☒ Level D	☐ Modified Level D	☐ Level C	☐ Level B*	☐ Level A*
* Cannot use short form HASP for Level B or A work				
Standard PPE				
☒ Hard Hat (working w/ rigs)	☒ Safety boots	☒ Safety glasses	☐ Chemical Resistant Boots	
☒ High visibility vest	☐ Other:_____			
Eye and Face Protection				
☐ Face shield	☐ Vented goggles	☐ Unvented goggles	☐ Indirect vented goggles	
Hearing Protection				
☒ Ear plugs	☐ Ear Muffs	☐ Ear plugs and muffs	☐ Other _____	
Respiratory Protection				
☐ None	☐ Dust mask	☒ Full Face APR (upgrade) ☐ Half Face APR	Cartridge Type: Ultra Twin Change Cartridges: 3.5 hrs	
Protective Clothing				
☐ White uncoated Tyvek®	☐ Poly-coated Tyvek®	☐ Saranex®	☒ Work uniform (long sleeves, long pants)	
☐ Boot covers	☐ Reflective vest	☐ Chaps or Snake Legs	☒ Other insulated coveralls (optional)	
Hand Protection				
☐ None	☐ Cotton gloves	☐ Leather gloves	☐ Glove liners	
☒ Outer Gloves List Type vinyl	☒ Inner Gloves List Type nitrile	☐ Cut-resistant gloves	☒ Other optional cotton liners for warmth	
Monitoring Instruments Required				
☐ LEL/O2 Meter	☒ PID ☐ 10.0-10.6 eV Lamp ☒ 11.7 eV Lamp	☐ FID	☐ Hydrogen Sulfide/Carbon Monoxide	
☐ Dräger Pump (or equivalent) List Tubes_____ _____		☐ Dust Meter (lead) ☐ Respirable dust ☐ Total dust	☐ Other _____	

Air Monitoring Action Levels:

PID READING [1]	DETECTOR TUBE [1]	ACTION	REQUIRED PPE
Sustain above background	NA	Back off and re-assess with H&S representative(s). (Based upon 1,1DCE)	Level D (upgrade to level C if directed)

[1] Sustained readings measured in the breathing zone

PPE Selection Guidelines:

When selecting the appropriate PPE for the job, consider the following:

- **Safety glasses** – general eye protection – source of hazard, typically coming from straight on , required at most sites
- **Tinted Safety Glasses** – same as above, but when working in direct sunlight. May need two both tinted and untinted if working in both sunlight and shade/overcast skies.
- **Safety goggles** – needed for splash hazard, more severe eye exposures coming from all directions. Non-vented or indirect venting for chemical splash, non-vented for hazardous gases or very fine dust, vented for larger particulates coming from all directions.
- **Face shield** – needed to protect face from cuts, burns, chemicals (corrosives or chemicals with skin notation), etc.
- **Safety boots** – needed if danger of items being dropped on foot that could injure foot
- **Hard hat** – danger from items falling on head – any overhead work, tools, equipment, etc that is above the head and could fall on head of item fails, or falls off work platform. Typically required at most sites as a general PPE
- **Thin, chemical protective inner gloves** (e.g., thin Nitrile, PVC – do not use latex – many people are allergic to latex) –needed to protect hands from incidental contact with low risk contamination at very low concentrations (ppb or low ppm concentrations in groundwater or soil) or used in combination with outer gloves as a last defense against contamination. Need to specify type
- **Outer gloves** – thicker gloves (e.g., Nitrile, Butyl, Viton, etc.) – used when potential for high concentrations of contaminants (e.g., floating product, percent ranges of contaminant, opening drums, handling pure undiluted chemicals, etc.). Need to specify type.
- **Leather gloves, leather palm, cotton** – good in protecting hands against cuts – no protection from chemicals. May be used in combination with chemical protective gloves.
- **Boot Covers –** when there is contamination in surface soils or waking surface in general. When safety boots need protection from contact with contaminants.
- **White (uncoated) Tyveks** – protect clothing from getting dirty, good for protection against solid, non-volatile chemicals (e.g., asbestos, metals) – no chemical protection.
- **Polycoated Tyveks** – least protective of chemical protective clothing. Used when some risk of contamination getting on skin or clothing. Usually, lower ppm ranges of contaminants.
- **Saranex** – Greater protection against contamination than Polycoated Tyveks. Used to protect against PCBs or higher concentrations of contaminants in the soil or groundwater.
- **Other Chemical protective clothing** – if significant risk of dermal exposure, contact H&S to determine best kind.
- **Long sleeved shirts, long pants** – if working in areas with poison ivy/oak/sumac, poisonous insects, etc. and no chemicals exposure. May want to use uncoated Tyveks for work in areas where poisonous plants are know to be to protect clothing.
- **Cartridge Respirator (Level C PPE)** – Need to calculate change schedule (contact Division EH&S Manager for this) to determine length of use. To be able to use cartridge respirators, need to know contaminants, estimate levels to be encountered in the breathing zone, need to ensure that cartridge will be effective against COCs, and need to be able to monitor for COCs using PID, FID, Dräger tubes, etc.. If can't do any of these, then Level B PPE is probably going to be needed.
- **High Visibility Vest** – needed for any road work (with in 15 feet of a road) or when working on a site with vehicular traffic or working around heavy equipment. Needed if work tasks would take employee concentration away from movement of vehicles and workers would have to rely on the other driver's ability to see the employee in order not to hit them. This includes heavy equipment as well as cars and trucks, on public roads or the jobsite. Not needed if wearing Polycoated Tyveks – as they are already high visibility.
- **Reflective Vest** – see above, but for use at night.
- **Hearing Protection** – needed if working at noise levels above 85 dBA on a time weighted average. If noise measurements are not available, use around noisy equipment, or in general, if you have to raise your voice to be heard when talking to someone standing two feet away.
- **Protective Chaps –** required when using a machete or chain saw or any other cut hazard with legs.
- **Modified Level D PPE –** Level C protection without the respirator. (i.e. boots, safety glasses, gloves, tyvek, option hearing protection and hard hat.)

Work Zones:

The work zones will be defined relative to the location of the work activity. The Exclusion Zone is considered the area within a 10-foot diameter of the sampling location. The Contamination Reduction Zone is considered to be the area with in a 20-foot diameter of the sampling location. The decontamination zone being located upwind of the work area. Work zones will be maintained through the use of:

XX Warning Tape Around drill rig and working zone when near road
XX Visual Observations

Site Communication:

XX Verbal
____ Two-way radio
XX Cellular telephone
____ Hand signals

- Hand gripping throat ---------- Out of air, can't breathe
- Grip partner's wrist or both hands around waist ---------- Leave area immediately
- Hands on top of head ---------- Need assistance
- Thumbs up ---------- OK, I am all right, I understand
- Thumbs down ---------- No, negative

XX Horn
____ Siren
____ Other:

EMERGENCY CONTACTS

NAME	TELEPHONE NUMBERS		DATE OF PRE-EMERGENCY NOTIFICATION (if applicable)
Fire Department:	911		
Hospital: Samaritan Hospital	518-271-3214		
Police Department:	911		
Site Health And Safety Officer: Brandon Shaw	Office: 207-775-5401	Home:	
Client Contact: NYSDEC Eric Hausamann	Office: 518 -402-9814	Pager:	
Project Manager: John Peterson	Office: 207-775-5401	Home:	
Division EH&S Manager: Cindy Sundquist	Office: 207-828-3309	Cell: 207-650-7593	
EPA/DEP (if applicable):			
OTHER: Ambulance	911		
Health Resources	800-350-4511		
Poison Control	800-492-2414		

Emergency Equipment:

The following emergency response equipment is required for this project and shall be readily available:

XX	Field First Aid Kit
XX	Fire Extinguisher (ABC type) **May be driller's**
	Eyewash (Note: 15 minutes of free-flowing fresh water)
	Other:

EMERGENCY PROCEDURES

- The HSO (or alternate) should be immediately notified via the on-site communication system. The HSO assumes control of the emergency response.
- The HSO notifies the Project Manager and client contact of the emergency. The HSO shall then contact the Division ES&H Manager who will then contact the Corporate EH&S Manager.
- If applicable, the HSO shall notify off-site emergency responders (e.g. fire department, hospital, police department, etc.) and shall inform the response team as to the nature and location of the emergency on-site.
- If applicable, the HSO evacuates the site. Site workers should move to the predetermined evacuation point (See Site Map).
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE, including SCBAs (if available), should be donned. If appropriate PPE is unavailable, site workers should evacuate and call in emergency personnel.
- If chemicals are accidentally spilled or splashed into eyes or on skin, use eyewash and wash affected area. Site worker should shower as soon as possible after incident.
- If a worker is injured, first aid shall be administered by certified first aid provider.
- If the emergency involves toxic gases, workers will back off and reassess. Prior to re-entering the work zone, the area must be determined to be safe. Entry will be using Level B PPE and utilize appropriate monitoring equipment to verify that the site is safe.
- An injured worker shall be decontaminated appropriately.
- After the response, the SHSO shall follow-up with the required company reporting procedures, including the completing the MACTEC Incident Analysis Report.

Site Specific Emergency Procedures are as follows:

Investigative Derived Waste Soil will be spread at location of the borings.

Routes to Emergency Medical Facilities

PRIMARY HOSPITAL:

Facility Name:__Samaritan Hospital_____
Address:_____Troy NY (4.3 miles)_____
Telephone Number___518 271-3214_____

DIRECTIONS TO PRIMARY HOSPITAL (attach map):

Go west on Maine Ave (Route 66) for 2.4 miles;
LEFT on Walker Ave for 0.2 miles;
Right on Spring St for 0.9 miles, continue on Hill St for 0.2 miles;
LEFT on Jefferson for 0.3 miles then RIGHT on Center Street for 0.4 miles to hospital.

ALTERNATE HOSPITAL:

Facility Name:_____
Address:_____
Telephone Number_____

DIRECTIONS TO ALTERNATE HOSPITAL (attach map):

COST TABLES

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(a)
Summary of Work Assignment Price

1	DIRECT SALARY COSTS (Schedules 2.10(a) and 2.11 (b))	**$ 9,411**
2	INDIRECT COSTS (Schedule 2.10(g))	**$ 15,679**
3	DIRECT NON-SALARY COSTS (Schedules 2.10(d)(e)(f) and 2.11 (c) and (d))	**$ 4,438**

SUBCONTRACT COSTS
COST-PLUS-FIXED-FEE SUBCONTRACTS
(Schedule 2.11(e))

Name of Subcontractor	Services to be Performed	Subcontract Price
		$ -
		$ -
		$ -

4	TOTAL COST-PLUS-FIXED-FEE SUBCONTRACTS	**$ -**

UNIT PRICE SUBCONTRACTS
(Schedule 2.11(f))

Name of Subcontractor	Services to be Performed	Subcontract Price
ADT	geoprobe gw/soil gas	$ 4,210
Air Toxics	Analytical Laboratory	$ 11,092
		$ -
		$ -
		$ -

5	TOTAL UNIT PRICE SUBCONTRACTS	**$ 15,302**
6	SUBCONTRACT MANAGEMENT FEE	**$ 444**
7	TOTAL SUBCONTRACT COSTS (Lines 4 + 5 + 6)	**$ 15,746**
8	FIXED FEE (Schedule 2.10(h))	**$ 1,255**
9	**TOTAL WORK ASSIGNMENT PRICE (Lines 1 + 2 + 3 + 7 + 8)**	**$ 46,529**

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners **Schedule 2.11(b)**
Work Assignment Number: **Direct Labor Hours Budgeted**

GRADE LEVEL	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL
2006 Rates	**$60.73**	**$52.35**	**$45.56**	**$42.71**	**$38.03**	**$32.82**	**$26.98**	**$23.16**	**$20.02**	
2007 Rates	**$62.55**	**$53.92**	**$46.93**	**$43.99**	**$39.17**	**$33.80**	**$27.79**	**$23.85**	**$20.62**	
2008 Rates	**$64.43**	**$55.54**	**$48.33**	**$45.31**	**$40.35**	**$34.82**	**$28.62**	**$24.57**	**$21.24**	
2009 Rates	**$66.36**	**$57.20**	**$49.78**	**$46.67**	**$41.56**	**$35.86**	**$29.48**	**$25.31**	**$21.88**	
2010 Rates	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	
Task 1 - Work Plan Development										
2006 Hours	0	0	0	0	0	0	0	0	0	0
2007 Hours	0	0	0	0	30	3	0	1	10	44
Total Hours	**0**	**0**	**0**	**0**	**30**	**3**	**0**	**1**	**10**	**44**
2007 Labor Cost	$ -	$ -	$ -	$ -	$ 1,175.10	$ 101.40	$ -	$ 23.85	$ 195.89	$ 1,496.24
Total Labor Cost	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1,175.10**	**$ 101.40**	**$ -**	**$ 23.85**	**$ 195.89**	**$ 1,496.24**
Task 2 - Vapor Intrusion Evaluation										
2007 Hours	2	0	0	0	54	0	76	6	62	200
Total Hours	**2**	**0**	**0**	**0**	**54**	**0**	**76**	**6**	**62**	**200**
2007 Labor Cost	$ 125.10	$ -	$ -	$ -	$ 2,115.18	$ -	$ 2,112.04	$ 143.10	$ 1,278.44	$ 5,773.86
Total Labor Cost	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ 2,115.18**	**$ -**	**$ 2,112.04**	**$ 143.10**	**$ 1,278.44**	**$ 5,773.86**
Task 3 - Reporting										
2007 Hours	1	0	0	0	30	4	20	2	8	65
Total Hours	**1**	**0**	**0**	**0**	**30**	**4**	**20**	**2**	**8**	**65**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ 1,175.10	$ 135.20	$ 555.80	$ 47.70	$ 164.96	$ 2,141.31
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ 1,175.10**	**$ 135.20**	**$ 555.80**	**$ 47.70**	**$ 164.96**	**$ 2,141.31**
2007 Total Labor Hours	**3**	**0**	**0**	**0**	**114**	**7**	**96**	**9**	**80**	**309**
2007 Total Direct Labor Cost ($)	**$ 187.65**	**$ -**	**$ -**	**$ -**	**$ 4,465.38**	**$ 236.60**	**$ 2,667.84**	**$ 214.65**	**$ 1,639.29**	**$ 9,411.41**
TOTAL LABOR HOURS	**3**	**0**	**0**	**0**	**114**	**7**	**96**	**9**	**80**	**309**
TOTAL DIRECT LABOR COST	**$ 187.65**	**$ -**	**$ -**	**$ -**	**$ 4,465.38**	**$ 236.60**	**$ 2,667.84**	**$ 214.65**	**$ 1,639.29**	**$ 9,411.41**

but not necessarily be limited to the following activities:

1) Work Plan Development
   - Conflict of Interest
   - Develop budget schedules & supporting documentation
2) Review work assignment (WA) progress
   - Conduct progress reviews
   - Prepare monthly project report
   - Update WA progress schedule
   - Prepare monthly M/WBE Utilization Report
3) Review WA costs
   - Prepare monthly cost control report
   - Cost control reviews

Contract/Project administration hours would not include activities such as:

1) QA/QC reviews
2) Technical oversight by management
3) Develop subcontracts
4) CAP Preparation
   - Oversee and prepare monthly CAP
   - Respond to payment issues/disallowances
   - NSPE list updates
   - Equipment Inventory
5) Manage subcontracts
6) Implement and manage program management and staffing plans
7) Conduct Health and Safety Reviews
8) Word processing and graphic artists
9) Report editing
10) Review of deliverables

Engineer: Mactec Engineering and Consulting **Date Prepared: 01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(b-1)
Direct Adminstrative Labor Hours Budgeted

GRADE LEVEL	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL
2006 Rates	**$60.73**	**$52.35**	**$45.56**	**$42.71**	**$38.03**	**$32.82**	**$26.98**	**$23.16**	**$20.02**	
2007 Rates	**$62.55**	**$53.92**	**$46.93**	**$43.99**	**$39.17**	**$33.80**	**$27.79**	**$23.85**	**$20.62**	
2008 Rates	**$64.43**	**$55.54**	**$48.33**	**$45.31**	**$40.35**	**$34.82**	**$28.62**	**$24.57**	**$21.24**	
2009 Rates	**$66.36**	**$57.20**	**$49.78**	**$46.67**	**$41.56**	**$35.86**	**$29.48**	**$25.31**	**$21.88**	
2010 Rates	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	**$1.00**	
Task 1 - Work Plan Development										
2007 Hours	0	0	0	0	0	0	0	1	0	1
Total Hours	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
2007 Labor Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 23.85	$ -	24
Total Labor Cost	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 23.85**	**$ -**	**$ 23.85**
Task 2 - Vapor Intrusion Evaluation										
2007 Hours	1	0	0	0	0	0	0	6	0	7
Total Hours	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**7**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ -	$ -	$ -	$ 143.10	$ -	206
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 143.10**	**$ -**	$ 205.65
Task 3 - Reporting										
2007 Hours	1	0	0	0	0	0	0	2	0	3
Total Hours	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**
2007 Labor Cost	$ 62.55	$ -	$ -	$ -	$ -	$ -	$ -	$ 47.70	$ -	110
Total Labor Cost	**$ 62.55**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 47.70**	**$ -**	**$ 110.25**
2007 Total Labor Hours	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**11**
2007 Total Direct Labor Cost ($)	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 214.65**	**$ -**	**$ 339.75**
TOTAL LABOR HOURS	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**11**
TOTAL DIRECT LABOR COST	**$ 125.10**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 214.65**	**$ -**	**$ 339.75**

Contract/Project administrative hours would include (subject to contract allowability)
but not necessarily be limited to the following activities:

1) Work Plan Development
   - Conflict of Interest
   - Develop budget schedules & supporting documentation
2) Review work assignment (WA) progress
   - Conduct progress reviews
   - Prepare monthly project report
   - Update WA progress schedule
   - Prepare monthly M/WBE Utilization Repo
3) Review WA costs
   - Prepare monthly cost control report
   - Cost control reviews

Contract/Project administration hours would not include activities such as:

1) QA/QC reviews
2) Technical oversight by management
3) Develop subcontracts
4) CAP Preparation
   - Oversee and prepare monthly CAP
   - Respond to payment issues/disallowances
   - NSPE list updates
   - Equipment Inventory
5) Manage subcontracts
6) Implement and manage program management and staffing plans
7) Conduct Health and Safety Reviews
8) Word processing and graphic artists
9) Report editing
10) Review of deliverables

Engineer: Mactec Engineering and Consulting Date Prepared: 01/23/07
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(c)
Direct Non-Salary Costs

Item	Maximum Reimbursement Rate	Unit	Estimated No. of Units	Total Estimated Cost
A) Sample Analysis Rates (In-House Cost Only)				
1) Groundwater	$0.00	each	0	$0.00
2) Soil Vapor	$0.00	each	0	$0.00
3) Sub-slab samples	$0.00	each	0	$0.00
	TOTAL			**$0.00**
B) Miscellaneous				
1) TRAVEL				
Lodging	$ 92.13	night+taxes	15	$1,381.95
Meals and Incidentals[1]	$ 39.00	day	15	$516.75
Car Rental	$ 52.99	day	10	$ 529.90
Cargo Van Rental	$ -	day	0	$ -
Mileage	$ 0.445	mile	0	$0.00
LVE	$ 10	person/day	15	$ 150
Parking and Tolls	$ 100.00	LS	1	$100.00
Gas	Actual Costs	N/A	N/A	$214.29
Air Fare	$ -	avg. RT price	0	$ -
	TOTAL			**$2,892.89**
2) CONSULTANT OTHER DIRECT COSTS				
Printing/Photocopy	$0.05	page	1600	$80.00
CAD Computer	$7.50	hour	0	$0.00
Telephone & Fax	Actual Costs	N/A	N/A	$0.00
Shipping	Actual Costs	N/A	N/A	$350.00
Consumables	Actual Costs	N/A	N/A	$ 337
Other	$0.00	N/A	N/A	$0.00
	TOTAL			**$767.26**
Total ODCs				**$3,660.15**

Notes:
1. Total estimated cost for Meals and Incidentals adjusted to account for travel days.

Engineer: Mactec Engineering and Consulting **Date Prepared:** **01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(d) 3
Maximum Reimbursement Rates for Vendor Rented Equipment

(1) Item	(2) Task No.	(3) Max. Reimbursement Rate ($)*	(4) Est. Usage (Unit of Time) +	(5) Est. Rental Cost ($) (Col. 3 x 4)
MINIRAE PID	2	$ 225.00	1.5	$ 338
HAMMER DRILL	2	$ 140.00	1	$ 140
Radiodetection Helium Detector	2	$ 150.00	1	$ 150
Personal Air Pump	2	$ 50.00	1	$ 50
Helium tank	2	$ 100.00	1	$ 100
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
Total Vendor Rented Equipment				**$ 778**

Notes:
* Reimbursement will be made at the Maximum Reimbursement rate or the actual rental rate, whichever is less.
+ Usage time includes shipping to and from site.

Engineer: Mactec Engineering and Consulting **Date Prepared:** **01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(f)
Unit Price Subcontracts

Vapor Intrusion Evaluation

Name of Subcontractor	Service	Price	Management Fee
neither minority or woman owned business	geoprobe		
ADT	gw/soil gas	$ 4,210	$ -

Item	Units	UOM	Unit Cost	Total Cost
1c Mobilization	1	LS	$ 100.00	$ 100.00
4 Direct Push	2	DAY	$ 1,400.00	$ 2,800.00
6 Temporary Decon Pad	1	LS	$300.00	$ 300.00
11 Groundwater Sample w/ Hydropunch	3	EA	$20	$ 60.00
12 Soil Vapor Implants	6	EA	$75	$ 450.00
Dig Safe Markings / Private Utility Locator	2	hrs	$250.00	$ 500.00
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -

Subtotal Cost:	$	4,210
Management Fee:	$	-
Total:	**$**	**4,210**

Engineer: Mactec Engineering and Consulting **Date Prepared:** **01/23/07**
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Schedule 2.11(f)
Unit Price Subcontracts

Vapor Intrusion Evaluation

Name of Subcontractor	Service	Price	Management Fee
woman owned buisness			
Air Toxics	Analytical Laboratory	$ 11,092	$ 444

Item	Units	UOM	Unit Cost	Total Cost
				$ -
TCL VOC by 8260 (groundwater)	4	ea	$83	$ 332.00
EPA TO-15 (soil gas - geoprobe)	6	ea	$295	$ 1,770.00
EPA TO-15 sub-slab	8	ea	$310	$ 2,480.00
EPA TO-15 + SIM TCE (indoor air)	14	ea	$310	$ 4,340.00
EPA TO-15 + SIM TCE (outdoor air)	7	ea	$310.00	$ 2,170.00
				$ -
numbers include QA/QC dups at 5%				$ -
unit cost includes Summa Cannisters ($60) and flow controllers ($20)				$ -
				$ -
				$ -
				$ -
				$ -
				$ -
				$ -

Subtotal Cost:	$	11,092
Management Fee:	$	444
Total:	**$**	**11,536**

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:
Task #/Name: All Tasks
Complete: 0.0%

Page: 1 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,411	$ -
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,679	$ -
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 25,091	$ -
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,893	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,545	$ -
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,438	$ -
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,746	$ -
8. Total Site Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 45,274	$ -
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,255	$ -
10. Total Site Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 46,529	$ -

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:
Task #/Name: Task 1 - Work Plan Development
Complete: 0.0%

Page: 2 OF 4
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,496	$ 1,496
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,493	$ 2,493
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,989	$ 3,989
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,079	$ 4,079
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 199	$ 199
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,278	$ 4,278

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:
Task #/Name: Task 2 - Vapor Intrusion Evaluation
Complete: 0.0%

Page: 3 OF 4+K56
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,774	$ 5,774
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,619	$ 9,619
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,393	$ 15,393
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,893	$ 2,893
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,365	$ 1,365
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,258	$ 4,258
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,746	$ 15,746
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,396	$ 35,396
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 770	$ 770
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,166	$ 36,166

Program Manager (Engineer) _____ Date: _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:
Task #/Name: Task 3 - Reporting
Complete: 0.0%

Page: 4 OF 4+K99
Date Prepared: 01/23/07
Billing Period:
Invoice No.

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+C)	E Estimated Costs To Completion	F Estimated Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/Over (G-F)
1. Direct Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,141	$ 2,141
2. Indirect Costs 166.6%	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,567	$ 3,567
3. Subtotal Direct Salary Costs and Indirect Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,709	$ 5,709
4. Travel	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
5. Other Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
6. Subtotal Direct Non-Salary Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ 90	$ 90
7. Subcontractors	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
8. Total Task Cost	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,799	$ 5,799
9. Fixed Fee 5%	$ -	$ -	$ -	$ -	$ -	$ -	$ 285	$ 285
10. Total Task Price	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,084	$ 6,084

Program Manager (Engineer) _____ Date: _____

Work Plan Development ule 2.11(g) - Supplemental

COST CONTROL REPORT FOR SUBCONTRACTS

Engineer: Mactec Engineering and Consulting **Page 1 of 1**
Contract Number: D004434 or 4444 **Date Prepared: 01/23/07**
Project Name: Roxy Cry Cleaners **Billing Period:**
Work Assignment Number: **Invoice No.**

Vapor Intrusion Evaluation

Subcontract Name	A Subcontract Costs Claimed This Application Incl. Resubmittals	B Subcontract Costs Approved For Payment on Previous Applications	C Total Subcontract Costs To Date (A plus B)	D Subcontract Approved Budget	E Management Fee Budget	F Management Fee Paid	G Total Costs To Date (C plus F)
ADT			$ -	$ 4,210.00	$ -		$ -
Air Toxics			$ -	$ 11,092.00	$ 443.68		$ -
TOTALS	$ -	$ -	$ -	$ 15,302.00	$ 443.68	$ -	$ -

Project Manager: _____ Date: _____

NOTES:
(1) Costs listed in Columns A, B, C & D do not include any management fee costs.
(2) Management fee is applicable to only properly procured, satisfactorily completed, unit price subcontracts over $10,000.
(3) Line 11, Column G should equal Line 7 (Subcontractors), Column D of Summary Cost Control Report.

SCHEDULE 2.11(h)
MONTHLY COST CONTROL REPORT
SUMMARY OF LABOR HOURS
Number of Direct Labor Hours Expended to Date/Estimated Number of Direct Labor Hours to Completion

Engineer: Mactec Engineering and Consulting
Contract Number: D004434 or 4444
Project Name: Roxy Cry Cleaners
Work Assignment Number:

Date Prepared: 01/23/07
Billing Period:
Invoice #:

NSPE Labor Classification	IX Exp/Est*		VIII Exp/Est		VII Exp/Est		VI Exp/Est		V Exp/Est		IV Exp/Est		III Exp/Est		II Exp/Est		I Exp/Est		Total No. of Direct Labor Hours Exp/Est	
Task 1 - Work Plan Development	0.0	0	0.0	0	0.0	0	0.0	0	0.0	30	0.0	3	0.0	0	0.0	1	0.0	10	0.0	44
Task 2 - Vapor Intrusion Evaluation	0.0	2	0.0	0	0.0	0	0.0	0	0.0	54	0.0	0	0.0	76	0.0	6	0.0	62	0.0	200
Task 3 - Reporting	0.0	1	0.0	0	0.0	0	0.0	0	0.0	30	0.0	4	0.0	20	0.0	2	0.0	8	0.0	65
Task 4 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 5 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 6 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 7 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Task 8 -	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Hours	0.0	3	0.0	0	0.0	0	0.0	0	0.0	114	0.0	7	0.0	96	0.0	9	0.0	80	0.0	309

* Expended/Estimated