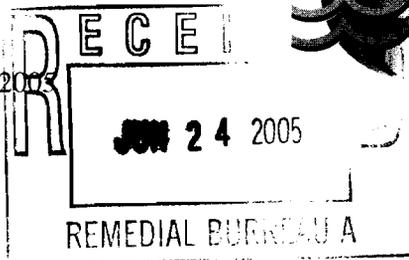


P. W. GROSSER
CONSULTING, INC.

P. W. GROSSER
CONSULTING
ENGINEERS &
HYDROGEOLOGIST, P.C.

Mr. Nathan Putnam
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 11th Floor
Albany, N.Y. 12233-7015

June 14, 2005



**Re: Revised Sub-Slab Vapor and Indoor
Air Sampling Plan
Former Penetrex Processing, Inc.
Glenwood Landing, New York
Site No. 1-30-034**

630

JOHNSON

AVENUE

SUITE 7

BOHEMIA

NEW YORK

11716-2618

PHONE:

631-589-6353

FAX:

631-589-8705

VISIT US AT:

www.pwgrosser.com

Dear Mr. Putnam:

P.W. Grosser Consulting, Inc. (PWGC) has prepared this Sub-Slab Vapor and Indoor Air Sampling Plan for the above referenced site. The purpose of this document is to further investigate soil vapor contamination at the former Penetrex Processing Inc. facility.

In an investigation conducted in December 2004, a series of four soil gas samples were collected and analyzed for volatile organic compounds (VOCs). Concentrations of VOCs were detected in each of the four soil gas samples.

In an attempt to further define the nature and extent of the contamination, four sub-slab vapor samples will be collected from beneath the ground floor of the multi-level brick industrial building on site and one sub-slab vapor sample will be collected from beneath the basement floor of the off-site residence. Corresponding indoor air samples will also be collected, as well as outdoor air samples. This sampling will be conducted pursuant to the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" Public Comment Draft, February, 2005.

Please call if you have any questions.

Very truly yours,

PWGC

James P. Rhodes, C.P.G.
Vice President

cc: G. Bobersky, NYSDEC
W. Parrish, NYSDEC
J. Nealon, NYSDOH
David Yudelson, Esq.
L. Weinberger



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1990

SUB-SLAB VAPOR AND INDOOR AIR SAMPLING PLAN

**FORMER PENETREX PROCESSING FACILITY
GLENWOOD LANDING, NEW YORK
SITE # 1-30-034**

Prepared for:

The New York State Department of Environmental Conservation
Division of Environmental Remediation
Albany, New York

Project No.: PEN0001



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REVISED JUNE 2005

INTRODUCTION AND OBJECTIVES

This Sub-Slab Vapor and Indoor Air Sampling Plan has been prepared by P.W. Grosser Consulting, Inc. (PWGC) to detail a plan to investigate the sub-slab soil vapor properties and the indoor air quality at the former Penetrex Processing Inc. facility (the Site). As discussed in the “Final Groundwater Investigation/Soil Gas Monitoring Report”, prepared by PWGC, soil gas contamination, in the form of tetrachloroethene and its breakdown products, exists in the sub-surface of the site in the areas adjacent to on-site structures. Sub-slab sampling will address the possibility of soil gas contamination directly beneath the structures and indoor air sampling will detect air contamination within the buildings, if present. The site is currently listed on the New York State Department of Environmental Conservation (NYSDEC) Registry as a Class II Inactive Hazardous Waste Disposal Site.

The objective of this plan is to describe the work that will be performed on the site, including the installation and sampling of permanent sub-slab vapor points, installation and sampling of a soil vapor point, indoor air sampling, and outdoor air sampling. This work will follow the procedures described in the New York State Department of Health (NYSDOH) “Guidance for Evaluating Soil Vapor Intrusion in the State of New York” Public Comment Draft, February, 2005. This document will also discuss the reasoning of the plan with respect to the quantity and placement of the sampling points throughout the site.

Site Description

The subject site consists of an approximately one-acre parcel located on the east side of Shore Road (a.k.a. Glen Cove Roslyn Shore Road), in the Hamlet of Glenwood Landing, Town of North Hempstead, Nassau County, New York. The property is identified in Nassau County Tax maps as Section 20 - Block K - Lots 10 through 12. The property is improved with a two-story brick industrial building, asphalt parking, communications tower and other ancillary improvements. There is an occupied residence located directly to the south of the site.

The property is bounded to the west by Glen Cove Roslyn Shore Road and to the east by West Street. The site is generally located north of Scudders Lane and is situated near and adjoining several major oil storage facilities, coastal terminals, and a municipal power station near Hempstead Harbor. Glenwood Oil Terminal Corp. is located northwest, diagonally across the property. A Site Location Map is included as **Figure 1**.

Site History

A former dry cleaning business, known as Penetrex Processing, Inc. (Penetrex), is reported to have operated at the site for several years prior to abandoning the facility in 1984. During its operation at the site, Penetrex is reported to have discharged dry cleaning chemicals to an on-site sanitary system and/or drywells at the property. A manufacturer of adhesive nameplates known as the Nameplate Corporation also formerly occupied the site.

In 1984, the Nassau County Department of Health (NCDH) sampled an on-site drywell associated with the former Penetrex facility and determined that constituents of dry-cleaning solvents (e.g., trichloroethene and tetrachloroethene - a.k.a. perchloroethylene (PCE)) were present in soils at the base of the structure. The impacted drywell was subsequently remediated in 1985 under a summary abatement order, completed by K&W Associates (property owner).

Additional testing and site characterization, which included the installation of six (6) soil borings and four (4) monitoring wells, soil and groundwater sampling, and air monitoring, were performed at the property in 1989 and 1990 by Blasland and Bouck Engineers under purview of the New York State Department of Conservation (NYSDEC) as part of a PRP (potentially responsible party) Study.

In 1993, Lawler, Matusky, and Skelly Engineers (LMS) installed two additional monitoring wells at the site (at the direction of the NYSDEC) and performed additional groundwater sampling at the facility in an effort to confirm the direction of groundwater flow underlying the property and the extent of dissolved VOCs in on-site groundwater. LMS had concluded in their 1993 NYSDEC Inactive Hazardous Waste Site (IHWS) report for the Penetrex Processing site

that “an ongoing discharge or continued release from residual waste in the soils . . . from several contaminant source locations on the site . . . appear to remain as a continuing source of groundwater contamination.”

The former Penetrex site is currently listed as a NYSDEC Class II Inactive Hazardous Waste Disposal Site facility identified as I.D. No.130034. Portions of the two-story building at the property are currently occupied by a church/religious organization and by Sunnyside Up Parties, Inc. (a party and event company).

Previous Soil Vapor Sampling

In December 2004, PWGC contracted Associated Environmental to perform borings at the site for the purposes of soil vapor sampling. A total of four samples were collected from the site. Samples SG-1, SG-2, and SG-3 were collected from borings in the parking area located to the South of the brick, multi-level building. Sample SG-4 was collected from the unpaved area, approximately ten feet north of the on-site residence. See **Figure 2** for boring locations. The four samples were submitted to Severn-Trent Laboratories for analysis of Volatile Organic Compounds (VOCs) by EPA Method TO-15. Results of all four samples showed at least one compound with a value in excess of the United States Environmental Protection Agency’s (USEPA’s) guidance value.

Sample SG-1 was taken approximately ten feet south of the eastern portion of the brick, multi-level building. The screen was set at four to five feet below grade. The sample had a value of 4400 ppbv for tetrachloroethene, which exceeds its USEPA guidance value of 12 ppbv. It also had a value of 1100 ppbv for trichloroethene, which exceeds its USEPA guidance value of 41 ppbv. All other parameters for sample SG-1 were within guidance values.

Sample SG-2 was taken approximately ten feet to the east of the western portion of the brick building from a depth of nine to ten feet. The result for tetrachloroethene of 970 ppbv exceeded the USEPA guidance value. All other parameters for sample SG-2 were within guidance values.

Sample SG-3 was taken in the vicinity of the former drywells DW-1 and DW-2 from a depth of 6.5 to 7.5 feet. It had the highest concentration of tetrachloroethene at 8600 ppbv. It also had a concentration of 150 ppbv for trichloroethene. All other parameters for sample SG-3 were within guidance values.

Sample SG-4 was the only sample not taken from below the asphalt parking area. The screen for this sample was set at 9.5 to 10.5 feet. As with the other three samples, SG-4 also exceeded the USEPA guidance value for tetrachloroethene with a concentration of 1200 ppbv.

As indicated by the results of the initial soil vapor sampling, soil vapor contamination is present at the site. After a review of these results by the NYSDEC, it was determined that sub-slab vapor samples and indoor air samples should be taken in order to determine the extent of vapor contamination beneath the on-site structures. Complete results of this sampling event are included in the "Final Groundwater Investigation/Soil Gas Monitoring Report", prepared by PWGC.

SITE SAMPLING

The history of the site and the results of the initial soil vapor sampling indicate that further investigation of the site's soil vapor characteristics is needed. This sampling will consist of sub-slab vapor, indoor air, and outdoor air sampling. These three different methods, performed concurrently, will be used to obtain data from underneath, within, and outside the on-site structure and the off-site residence that can be used to determine if there is a health risk, and how to monitor or mitigate the risk, if it exists.

Pre-Sampling Building Inspection

Prior to the sampling event, a NYSDOH Center for Environmental Health's Indoor Air Quality Questionnaire and Building Inventory will be completed. A copy of this questionnaire is included as **Appendix A**. This will facilitate an accurate assessment of the potential contribution of volatile chemicals.

Sub-Slab Vapor Sampling

In order to determine the vapor quality in the soil beneath the on-site structures, sub-slab vapor samples will be collected. These samples will be taken from permanent boring points, installed with a concrete coring device, through the floors. Four of these points will be through the floor of the brick, multi-level building in each of four different sections of the building (see **Figure 2**). The first sub-slab sample (SS-1) will be located in office area of the warehouse. Sample SS-2 will be located in the storage area of the warehouse. Sample SS-3 will be located in the section of the building occupied by Sunnyside Up Parties, Inc. (a party and event company). The fifth sub-slab vapor point (SS-5) will be installed through the concrete basement floor of the off-site residence. The basement measures approximately forty feet square and follows the footprint of the house. These sampling points will be centrally located in their respective rooms, away from foundation footings.

For at least 24 hours prior to and during sampling, the heating systems will be operating to maintain normal indoor air temperatures (i.e., 65 to 75 degrees F). Prior to installation of the

sub-slab vapor probes, the building floors will be inspected and any penetrations (cracks, floor drains, utility perforations, sumps, etc.) will be noted and recorded. Probes will be installed where the potential for ambient air infiltration via floor penetrations is minimal.

All of the sub-slab vapor probes will be constructed in the same manner at all locations to minimize possible discrepancies. Probes will be constructed with brass or stainless steel tubing and fittings and will not extend further than two inches into the sub-slab material. Coarse sand or glass beads will be added to cover about one inch of the probe tips and the implant will be sealed to the surface with cement.

After installation of the probes, one to three volumes (i.e., the volume of the sample probe and tube) will be purged prior to collecting the samples to ensure samples collected are representative. Flow rates for both purging and collecting will not exceed 0.2 liters per minute to minimize outdoor air infiltration during sampling. Samples will be collected in Summa® canisters which have been certified clean by the laboratory and analyzed by using USEPA Method TO-15. All samples will be collected over the same period of time and submitted to Severn Trent Laboratories, Inc. (STL), an Environmental Laboratory Approval Program (ELAP) certified laboratory.

To aid in the interpretation of the sampling results, uses of volatile chemicals in commercial or industrial processes and/or during building maintenance, will be identified. The use of heating or air conditioning systems during sampling will be noted, as well as weather conditions and ventilation conditions. Any pertinent observations, such as spills, floor drains, odors, and readings from field instrumentation will be recorded.

A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of soil vapor extracted, vacuum of canisters before and after samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor intrusion evaluation, a tracer gas serves as a quality assurance/quality control (QA/QC) device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a box will serve to keep it in contact with the probe during the testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, a second tracer sample will be collected to confirm the integrity of the probe seals.

After the collection of the analytical sample, a field reading will be recorded at each of the sub-slab sampling points utilizing a photoionization detector capable of detecting organic compounds in the parts per billion range.

Indoor Air Sampling

Indoor air samples will be collected to characterize exposures to air within the on-site building and the off-site residence. For each sub-slab sample collected, one indoor air sample will be collected in its immediate vicinity (i.e., the same room). A total of five indoor air samples will be collected concurrently with the five sub-slab samples. This includes four samples within the multi-level brick building and one sample in the basement of the residence. Samples will be taken from a height of approximately three feet above the floor to represent a height at which occupants normally are seated.

For at least 24 hours prior to and during sampling, the heating systems will be operating to maintain normal indoor air temperatures (i.e., 65 to 75 degrees F).

Sampling personnel will avoid lingering in the immediate area of the sampling device while samples are being collected.

Flow rates will not exceed 0.2 liters per minute as to remain consistent with sub-slab sample collection. Samples will be collected in Summa® canisters which have been certified clean by

the laboratory and analyzed by using USEPA Method TO-15. All samples will be collected over the same period of time.

To aid in the interpretation of the sampling results, uses of volatile chemicals in commercial or industrial processes and/or during building maintenance, will be identified. A product inventory survey will be completed. The use of heating or air conditioning systems during sampling will be noted, as well as weather conditions and ventilation conditions. Any pertinent observations, such as spills, floor drains, odors, and readings from field instrumentation will be recorded.

A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling height, identity of samplers, sampling methods and devices, volume of air sampled, vacuum of canisters before and after samples are collected, and chain of custody protocols.

Outdoor Air Sampling

Outdoor air samples will be collected to characterize site-specific background outdoor air conditions. They will be collected concurrently with the sub-slab vapor samples and the indoor air samples. Outdoor air sampling results are primarily used when evaluating the extent to which outdoor sources may be influencing indoor air quality. They may also be used in the evaluation of sub-slab vapor results (i.e., to identify potential outdoor air interferences associated with the infiltration of outdoor air into the sampling apparatus while the sub-slab vapor sample is collected).

Two outdoor air samples will be collected at the site. One sample will be collected for the on-site structure and one for the off-site residence. The samples will be collected from a representative upwind location, away from wind obstructions, and at a height of three to five feet. A representative sample is one that is not biased toward obvious sources of volatile chemicals.

Outdoor air samples will be collected in the same manner as indoor samples. Weather conditions and ventilation conditions will be recorded, as well as any pertinent observations, such as odors, readings from field instrumentation, and significant activities in the vicinity.

Quality Assurance / Quality Control (QA/QC)

Extreme care will be taken during all aspects of sample collection to ensure that sampling error is minimized and high quality data are obtained. The sampling team members will avoid actions (e.g., using permanent marker pens and wearing freshly dry-cleaned clothes or personal fragrances) which can cause sample interference in the field. QA/QC protocols will be followed for sample collection and laboratory analysis, such as use of certified clean sample devices, meeting sample holding times and temperatures, sample accession, and chain of custody.

A tracer gas, used for the sub-slab vapor sampling, serves as a QA/QC device to verify the integrity of the soil vapor probe seals.

Samples will be delivered to the analytical laboratory as soon as possible after collection. The laboratory analyzes QC samples with each analytical batch, including a Method Blank (MB), Laboratory Control Sample (LCS), and a Laboratory Control Sample Duplicate (LCSD). Internal standards are added to all calibration standards, samples, and blanks to verify that the analytical system is in control.

A Data Usability Summary Report (DUSR) will be included in the report of the sampling results to determine whether or not the data, as presented, meets the site specific criteria for data quality and data use.

Analytical Methods

Analytical procedures that were used and corresponding reporting limits will be identified when reporting the sampling results. Samples will be analyzed by USEPA Method TO-15 for the full

analyte list of volatile organic compounds. All samples will be analyzed by Severn Trent Laboratories, Inc. (STL), an ELAP certified laboratory.

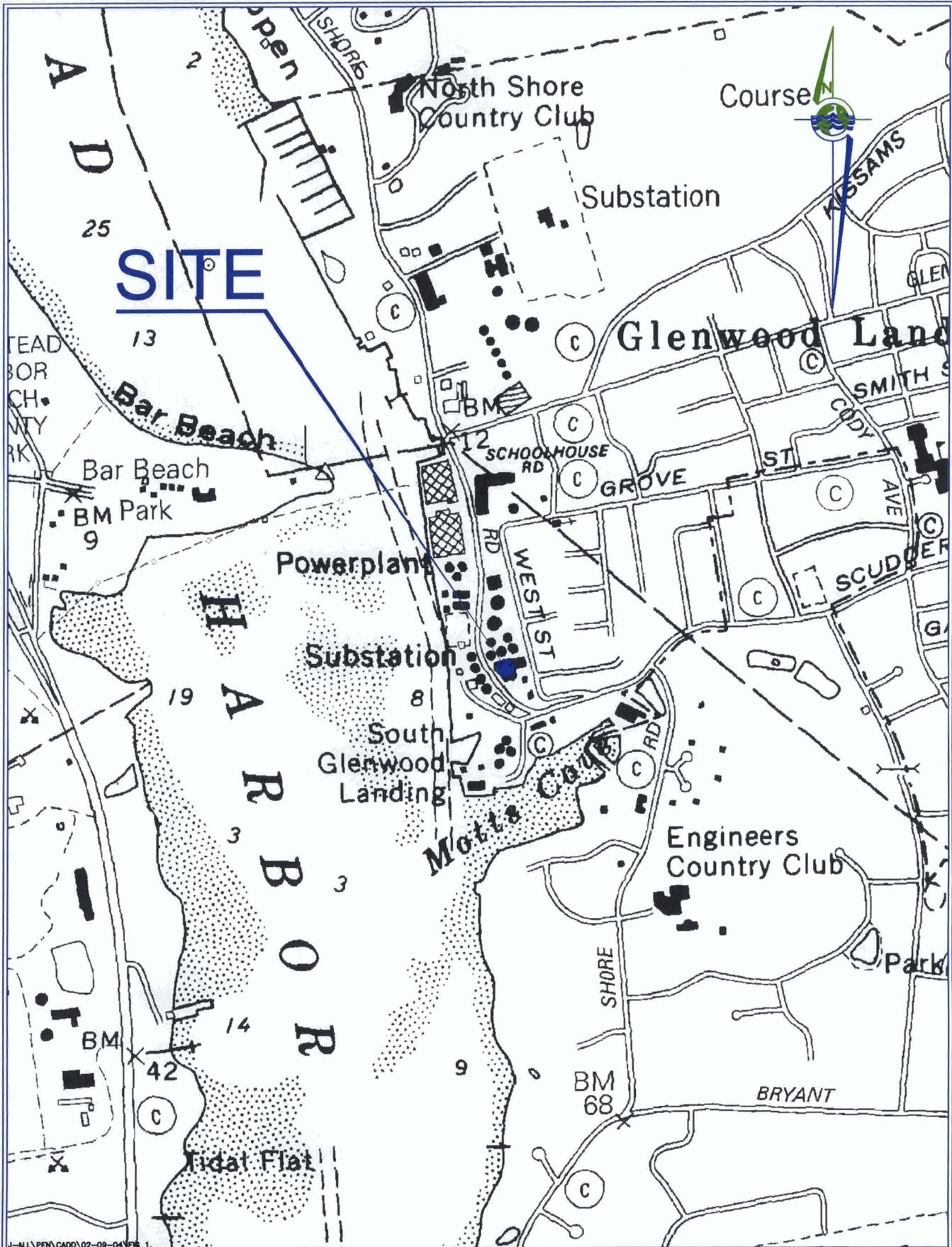
Sampling Results and Recommended Actions

The detection of volatile chemicals in sub-slab vapor samples does not necessarily indicate soil vapor intrusion is occurring or actions are needed to address exposures. This determination is made taking into account all samples, including sub-slab vapor, indoor air, and outdoor air. New York State Department of Health (NYSDOH) guidelines for volatile chemicals in air will be taken into account, as well as human health risks and attenuation factors (i.e., the ratio of indoor air to sub-slab vapor concentrations).

Based on the evaluation, no further action, additional sampling, or mitigation may be recommended. The NYSDOH has included examples of “decision matrices” in the Guidance for Evaluating Soil Vapor Intrusion document. For each of our compounds of concern (i.e., PCE and TCE), a soil vapor/indoor air decision matrix can be developed to help decide on a recommended action.

A schedule of this sampling investigation is included in this report as **Appendix B**. Results of the sampling investigation will be presented and discussed in a comprehensive sampling report.

FIGURES



J:\ALL\PER\CADD\02-09-04\F01

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Site Location Map

| | | | |
|-------------|---------|-----------|----------|
| Project | PEN0001 | Sheet No. | 1 |
| Designed by | JPR | | |
| Checked by | JPR | | |
| Drawn by | KF | Date | 02/09/04 |



PX MM-6

GLEN

ROSLYN COVE

SEPTIC TANK

PX MM-2

PX MM-3

SHORE

ROAD

DW-3

PX MM-4

DW-4

DW-6

PX MM-5

ACTIVE SANITARY SYSTEM FROM HOUSE

HOUSE
IA-5
SS-5

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

SG-4

DW-5

SG-3

DW-1

PX MM-1

BRICK MULTILEVEL BUILDING

SS-4

IA-4

CONCRETE PLATFORM

SG-2

PX MM-7

STEPS

STONE WALL

DISTRIBUTION BOX

OA-1

VENT

SS-1

IA-1

WAREHOUSE / STORAGE (NO OCCUPANT)

SS-2

IA-2

FORMER NAMEPLATE

IA-3

SS-3

FORMER PENTREX

STEPS

SIDEWALK

APPENDIX A

**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
Industrial

School
Church

Commercial/Multi-use
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 _____

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

5

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

6

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.

APPENDIX B

