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PHASE II WORK PLAN
PENETREX SITE
GLENWOOD LANDING, NEW YORK

JANUARY 1988

PREPARED FOR:

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1.0 INTRODUCTION

ERM-Northeast has been retained by Shea and Gould, on behalf of its client K & W Associates to prepare a revised Phase II Work Plan for submission to the New York State Department of Environmental Conservation (NYSDEC) regarding the Penetrex Site, Glenwood Landing, New York. An initial work plan was previously submitted to NYSDEC for its consideration. The contents of this submission reflect NYSDEC comments that were mutually agreed upon by ERM, Shea and Gould and NYSDEC representatives at a meeting on November 10, 1987.

The organization of this work plan is as follows:

Section 2.0 - Work Plan Objectives

Section 3.0 - Review of Historical Data

Section 4.0 - Field Investigation Plan

Task 1: Soil Quality Investigation

Task 2: Installation and Sampling of Monitoring Wells

Task 3: Evaluation of Data and HRS Scoring

Task 4: Report Preparation

Section 5.0 - Schedule

Appendices - A: Sampling Procedures

B: Health and Safety Plan

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2.0 WORK PLAN OBJECTIVES

The primary objective of this Phase II Work Plan is to collect environmental sampling data so that a final HRS score can be prepared and the Penetrex site can be properly classified. Based on prior site operating practices and the existing analytical data base, the work plan will primarily address the presence, extent and severity of soil and ground water contamination that may exist at the site. Because contaminants were alleged to have been introduced into on-site dry wells, there appears to be no threat of air contamination and the Phase II work plan will not address this possibility (except for health and safety related air monitoring). Additionally, there is no surface water on-site so a surface water investigation will not be included in this work plan.

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3.0 REVIEW OF HISTORICAL DATA

The Penetrex Processing Company leased the eastern portion of a two-story brick building located at One Shore Road in Glenwood Landing, New York from K & W Associates. The western half of the building was reportedly occupied by Nameplate Manufacturing of America Company. Penetrex operated at the site until August, 1984. The site was reportedly used for dry cleaning operations including the use of standard dry cleaning solvents. These solvents include tetrachloroethylene and trichloroethylene.

It was alleged that Penetrex personnel disposed of solvents into a dry well prior to August, 1984.

On July 16, 1985 K & W Associates conducted cleanup operations at the site in accordance with a NYSDEC approved work plan. The cleanup included the removal of 2,300 gallons of liquid from a dry well, the excavation of 13 cubic yards of soil from the bottom of the dry well and the removal of six drums, ^{4 tetrachloroethylene} Samples collected from the soils in the bottom of the dry well with analysis by the Nassau County Department of Health found the following compounds: tetrachloroethylene; 1,1,2 trichloro-^{chloroform} trifluoromethane; trichloroethylene; 1,2 dichloroethylene; 1,1,1 ^{trans-1,1,1} trichloroethane and toluene.

(K & W Associates)
2/10/85

tetrachloroethylene
trichloroethylene
carbon tetrachloride

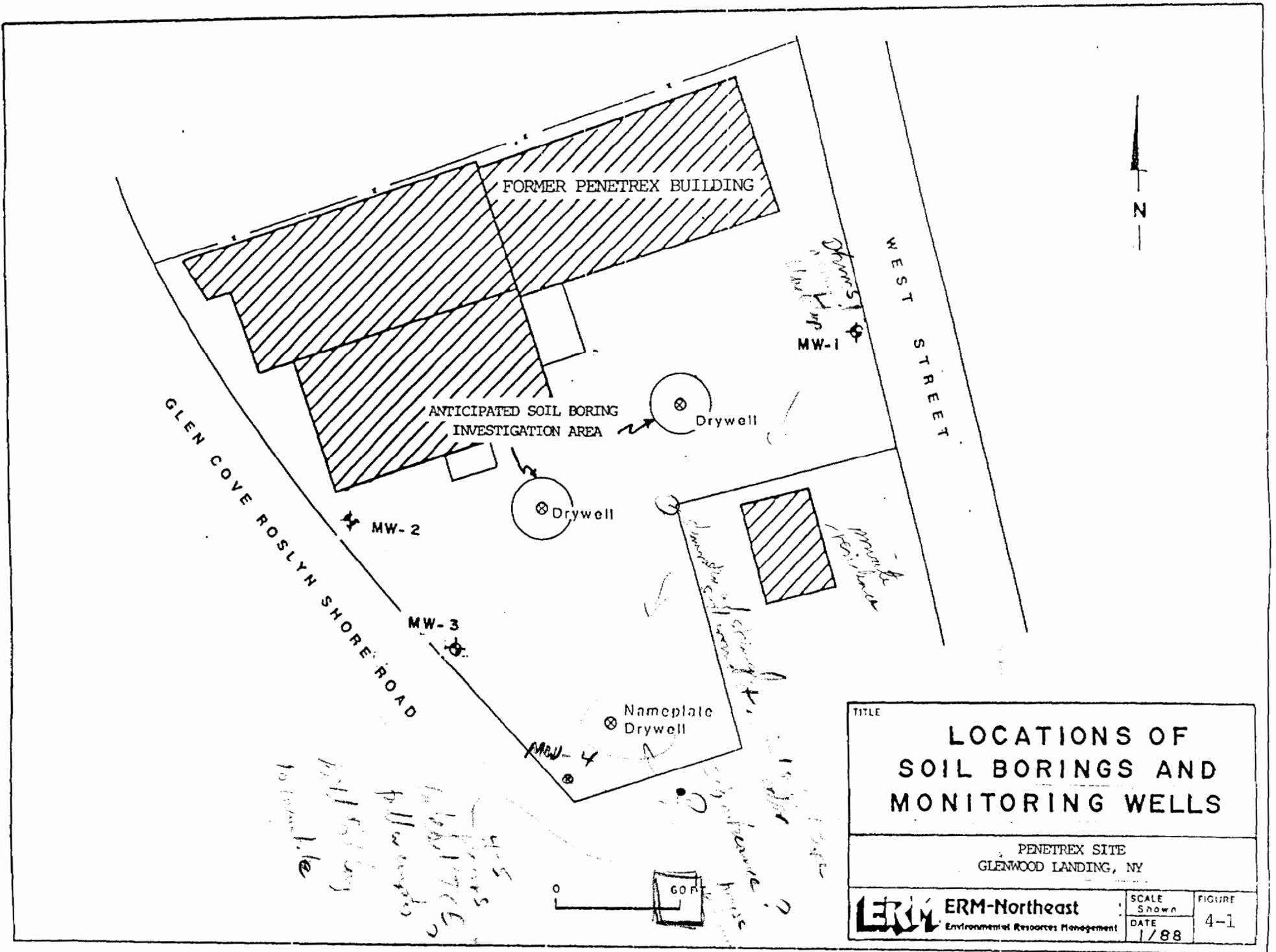
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4.0 FIELD INVESTIGATION PLAN

Task 1: Soil Quality Investigation

The purpose of the soil quality investigation is to determine the severity and extent (both horizontal and vertical) of soil contamination, if any, surrounding each suspected contaminant source. The installation of soil borings with in-field OVA screening and sensory inspection of soil samples will be the general method that will be used to determine the extent of contaminated soil that may be present. The total number of borings that will be required cannot be specified at this time because this will depend on soil quality. The suspected contaminant sources that will be investigated include the two dry wells shown on Figure 4-1. If additional sources are found during the preliminary ERM/NYSDEC inspection of the site, they will be included in the soil investigation.

A truck-mounted hollow stem auger rig will be used to install the borings under the supervision of an ERM hydrogeologist. A split-spoon core barrel sampler will be used to collect continuous sediment samples to 10 feet below land surface or to appropriate depths as determined in the field by the hydrogeologist. The samples will be screened in the field



TITLE

**LOCATIONS OF
SOIL BORINGS AND
MONITORING WELLS**

PENETREX SITE
GLENWOOD LANDING, NY

ERM ERM-Northeast Environmental Resources Management	SCALE Shown	FIGURE
	DATE 1/88	4-1

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*Sumner
SC note?
quality?*

for the presence of volatile organic compounds using a flame ionization detector (Foxboro Model 128). Detailed sediment collection protocols are given in Appendix A. Since the soil borings will be in paved areas, they will be patched with asphalt or other suitable material upon completion. All cuttings from the soil borings program will be drummed and stored on-site pending determination of proper disposal methods based on composite sample results.

The first boring at each source area will be done near the dry well (i.e., within 6 to 8 ft.). Borings will then be installed radially away from the source until the extent of impacted soil, if any, is delineated. It is anticipated that each sequential boring will be 10 to 15 feet away from the previous boring.

*and to the...?
-> take well "blow" out field readings*

The determination of whether soil has been impacted or not will be based on the in-field OVA results. To document the limits of any such impacts, a total of four soil samples will be selected for priority pollutant volatile organic analysis (USEPA Method 624). Envirotest Labs of Newburgh, NY, an NYSDEC certified lab, will be used to perform the soil analyses and ground water analyses during this project. Based on all of the accumulated lab data and the operational history of Penetrex,

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volatile organics are the only suspected contaminants of concern. Soil sampling, equipment decontamination, sample handling and documentation procedures are discussed in Appendix A. Additionally, the collection of quality assurance samples is described in Appendix A.

During the implementation of the soil boring program and all other field work at the Penetrex site, ERM personnel and their subcontractors will follow the Health and Safety Plan outlined in Appendix B.

Task 2: Installation and Sampling of Monitoring Wells

Three monitoring wells will be installed at the site to determine the quality of ground water both upgradient and downgradient of the suspected source areas. The locations of the proposed wells are shown on Figure 4-1. The locations are based on an estimated direction of flow to the west.

The monitoring wells will be installed and constructed in accordance with NYSDEC specifications using the hollow stem auger drilling technique. Split spoon samples will be taken at five foot intervals. Upon completion of the borehole, a 4-inch diameter, SCH 40, PVC, screw coupled screen and riser pipe will

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*Tropic S. More & Inc.
Sand No. 2*

be installed. The wells will consist of ten-foot lengths of well screen that are set in the upper ten feet of saturated deposits. The screen section will be 0.020 inch slot size. The annular space from the base of the well screen to two feet above the top of the well screen will be gravel ^Kaced with a No. 2 ¹⁶More~~X~~ sand. A two foot bentonite seal will be installed on top of the gravel pack followed by a cement/bentonite grout mixture which will extend to within 2 foot of grade. The well will be finished at grade inside a locking flush mounted steel protective casing cemented in place so that drainage is away from the well. All drill cuttings produced will be drummed for appropriate disposal based on composite soil sample results.

*show
the
well
pack
follows*

*drum?
locking
flush mounted
casing?*

The wells will be developed by pumping and surging with a submersible pump. The waters will be pumped into a clean 55 gallon drum(s), allowed to settle, and then be pumped back into the well as surge water. Any excess water produced from well development will be drummed and stored on site. Based on the results of the water quality analysis, the drummed waters will be disposed of accordingly. Water will be pumped from the well until the pump discharge runs clear and good hydraulic communication is established with the aquifer.

150 N 11 S
115mg 1.74 water

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Following installation and development, the wells will be surveyed by a licensed surveyor with vertical elevation established to within 0.01 foot relative to mean sea level and 0.1 foot horizontal control. Water level measurements will be used to establish the ground water gradient and verify the direction of flow across the site. Falling head permeability tests will be conducted. The empirically determined permeability values will be used to estimate the rate of flow across the site.

The three monitoring wells will be sampled a minimum of one week after development is complete. The samples will be analyzed for priority pollutant volatile organics (USEPA Method 624). A detailed description of the ground water sampling procedures, sample handling procedures, quality assurance samples and QA/QC plan are described in Appendix A.

Task 3: Evaluation of Collected Data and HRS Scoring

All collected field data will be reviewed and evaluated to determine the extent and severity of soil and ground water contamination, if present. Specific outputs from this task are expected to include:

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- o three dimensional delineation of soil quality conditions;
- o estimated volume of contaminated soil, if any;
- o preliminary estimate of ground water flow direction and rate;
- o determination of ground water quality flowing off of the site;
- o identification of contaminant sources, if present.

Environmental sampling results will also be used to complete the HRS scoring sheets for the Penetrex site. The final HRS score for the site will be calculated to permit proper site classification.

Task 4: Report Preparation

ERM will prepare a technical report documenting all field procedures and analytical results. ERM will present its conclusions relative to the extent of any existing contamination, HRS scoring, and the need for additional investigation.

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5.0 SCHEDULE

ERM can initiate field work approximately 10 to 15 days after the receipt of NYSDEC approval for the Phase II investigation. NYSDEC representatives will be notified a minimum of two weeks prior to initiation of field work. ERM anticipates that soil borings and wells can be installed within one week. Assuming a three week laboratory turnaround, a final report will be ready for submittal to NYSDEC approximately 120 days following Department approval.

APPENDIX A

SAMPLING METHODOLOGY

The soil and ground water/surface water sampling techniques are discussed below. All efforts will be made to eliminate sample cross-contamination and maximize the reliability of the analytical results. These efforts include proper cleaning and use of sampling equipment and sample containers to eliminate sample contamination, use of a quality assurance program to maximize accuracy and precision of the analytical results, proper installation of ground water monitoring wells, and development of a methodology to track the samples from source to analysis and minimize the opportunity for tampering.

A.1 Soil Sampling Procedures and Equipment

Samples will be collected, contained and stored as specified in the USEPA "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (40 CFR Part 136). The sample containers will be provided by the contracted NYSDEC-Certified Laboratory. The containers, as provided, will have been cleaned using standard, in-house procedures prior to shipment.

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Soil samples will be collected using either a stainless steel hand auger or trowel. All soil sampling equipment will be cleaned using the following decontamination procedure:

1. Non-phosphate detergent and tap water wash.
2. Tap water rinse.
3. Distilled/Deionized water rinse.
4. 10% acidic solution rinse.*
* Only if sample is to be analyzed for metals.
5. Distilled/Deionized water rinse.
6. Acetone (pesticide grade) rinse.
7. Total air dry or nitrogen blow out.
8. Distilled/Deionized water rinse.

Regardless of the method used to obtain soil samples, minimum depths will be used for samples obtained in the test pits. Samples obtained for volatile organics analysis will be taken at a minimum depth of 24".

A.2 Ground Water Sampling

Ground water will be sampled by bailing after the monitoring wells have been installed, developed by pumping, and allowed to equilibrate to in situ aquifer conditions which requires a

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minimum of 7 days between development and sampling. Five well volumes of water will be removed by bailing, pumping or an equivalent method prior to sampling. If bailing is used for purging, one bailer will be dedicated to each well for purging and sampling.

All purging/sampling equipment will be cleaned in the prior to use and between samples. Equipment cleaning will be conducted as described in A.1. After drying, bailers will be wrapped in aluminum foil for transportation to the field.

A.3 Quality Assurance Samples

A quality assurance program has been developed to ensure precision and accuracy of the analytical results. The NYSDEC Certified Laboratory maintains its own quality assurance program based on replicate analysis, spiked samples, blank analysis and daily instrument calibration. The laboratory quality assurance program is available for inspection.

Duplicate and blank samples will be analyzed by the laboratory to serve as a check on the laboratory and on field sampling techniques. These samples will be coded similarly to the other samples to minimize the chance the laboratory will

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identify them. The additional samples will consist of a duplicate sample of ~~both~~ soil, ground water for each analysis, travel blanks and field blanks.

duplicate ↗ ↘ ?!

A duplicate sample for each media and for each parameter submitted for analysis daily will be included for quality assurance. If greater than 20 samples are submitted for analyses in any one day, an additional travel blank and duplicate will be included for every additional group of 20 samples. A travel blank will be included in the shipments and analyzed for volatile organic compounds. The travel blanks will be prepared by the laboratory by filling the sample container with distilled water. Field blanks for soil will be collected daily. The blanks will be made by collecting deionized water poured over decontaminated soil sampling equipment. The field blanks will be analyzed for all of the parameters to be run that day.

The quality assurance samples will be handled in the same manner as the site evaluation samples. Because each monitoring well will be sampled using a dedicated bailer, a field blank will not be necessary.

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All samples will be analyzed by:

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, New York 12550
(914) 562-0890

A.4 Documentation Procedures

is in the "control"

All samples--soil, water and quality assurance--will be sent to the analytical laboratory from the site under rigid controls to minimize the opportunity for tampering and to maximize their tractability. Information about each sample will be recorded in a field notebook and on the sample container.

The information to be recorded for each sample is as follows:

- o Sample Source
- o Sample Location (*)
- o Sampler's Identity
- o Time and Date of Sampling
- o Depth of Sample (soil samples) (*)
- o Preservative
- o Analysis to be Performed

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- * May be coded with information recorded in field notebook to minimize bias in analysis.

The laboratory will assign a sample number upon receipt and will report the analytical results using both their number and the sample code provided on the sample.

The same information will be recorded on a chain-of-custody form. The form will be used to record the names of all personnel handling the sample and their affiliation. A chain-of-custody form will accompany each container of samples sent to the laboratory. All personnel responsible for sampling, receiving and analyzing the samples will sign the form. Where practical, the samples will be kept within a secure area such as a locked vehicle, room or refrigerator. When transportation of the samples is by overnight carrier, the samples will be shipped in an ice chest sealed with "evidence" tape. The tape will be such that it cannot be removed in one piece.

A.5 Site Specific QA/QC Plan

A site specific quality assurance/quality control program is described below. As mentioned above, duplicate and blank samples will be submitted to the laboratory for analysis. In addition,

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specific actions in the field will be undertaken to maximize the quality of the data from this sampling plan.

hydrogeologist
or
engineer
representing the owner

The drilling contractor shall conduct all work under the guidance of a certified driller. All subsurface work performed by the contractor shall be observed by an on-site hydrogeologist or engineer representing the owner. Work will start after adequate notification to the NYSDEC (maximum of one week) to allow for an on-site representative to oversee the sampling and monitoring well installation.

The subsurface work will be performed in a manner so as to give the on-site overseer(s) every opportunity to obtain adequate samples, accurate depth measurements, and develop a stratigraphy record.

adequate

The owner's on-site observer shall be a degreed hydrogeologist, geologist or equivalent, or an engineer registered in the State of New York. The observer's duties are outlined below:

- o Ensure soil samples are representative of the actual conditions in the field. All split-spoon samples will be inspected in the field to evaluate subsurface

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stratigraphy. A discrete sample from the sampler will be collected by removing a 6-inch long sample at the top and one at the bottom of the sampler.

- o The location of each sample will be noted in the field log book. The location will be in reference to some fixed location, grid system or other control mechanism. A photograph may be taken of a sampling site if required to clarify the sample location or soil type.

To ensure that representative ground water samples are obtained, the following procedures will be implemented:

- o Monitoring wells will not be sampled for a minimum of one week following installation.
- o Each monitoring well will be purged prior to sampling by removing a minimum of five well volumes. Any device put down the well to extract water will either be dedicated to that well or will be thoroughly cleaned between wells to avoid cross contamination.
- o Sample collection will be performed with one PVC bailer dedicated to each well.

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In addition, the chain-of-custody form, described above, will accompany all samples to the laboratory. Also, the depth to ground water will be measured prior to sampling. A measuring point on all monitoring wells will be surveyed by a New York registered land surveyor to the nearest 0.01 foot to an on-site datum point. Using this measuring point and the depth to water, the ground water elevation will be monitored in the monitoring wells and surface water locations prior to sampling.

APPENDIX B

Health and Safety

Prior to the implementation of the field work, an analyses of the ambient air quantity at all sites will be checked with an Organics Vapor Analyzer (OVA). This will be done in order to delineate any "hot spots" that might exist. During the drilling and sampling phases of this project, an OVA will also be used. Based on a review of existing soil and water quality data, it is assumed that Level D protection will be required. A SOP manual is available upon request.

how?

- need it.
- missing: protection levels
- 2) map showing route to hospital
 - 3) emergency P.S
 - 4) PPE other
 - 5) description of characteristics of known & suspected contaminants