

ERM-Northeast



Approved Work Plan

PHASE II WORK PLAN
PENETREX SITE
GLENWOOD LANDING, NEW YORK

REVISED OCTOBER 1988

PREPARED FOR:

SHEA & GOULD
1251 6TH AVENUE
NEW YORK, NY 10020-1193

PREPARED BY:

ERM-NORTHEAST, INC.
88 SUNNYSIDE BOULEVARD
PLAINVIEW, NEW YORK 11803

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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. Further clarification of the agreed scope of work was made during a site reconnaissance by ERM and NYSDEC representatives on March 30, 1988. Final revisions respond to NYSDEC comments in their letter of September 30, 1988.

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: Background Air Monitoring

Task 2: Soil Quality Investigation

Task 3: Installation and Sampling of Monitoring Wells

Task 4: Surface Water Investigation

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Task 5: Evaluation of Data and HRS Scoring

Task 6: 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 and severity of soil and ground water contamination that may exist at the site.

Data quality objectives are selected primarily to facilitate HRS scoring, and to provide rigorous data for NYSDEC and Health Department review. Therefore, analytical methodologies and data reporting will conform to CLP practices and deliverables.

The new analytical results will be evaluated by comparison to appropriate established guidelines. The NYSDEC Ambient Water Quality Standards and Guidance Values (updated 4/1/87) will be utilized for ground water data, and New Jersey ECRA Guidelines for soil. These guidelines shall represent conservative, contaminant-specific "levels of concern" and will be used as comparison benchmarks to indicate the possible need for further study. They are not intended to be utilized as action or cleanup levels.

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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. 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; trichloro-fluoromethane; trichloroethylene; 1,2 dichloroethylene; 1,1,1 trichloroethane and toluene.

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4.0 FIELD INVESTIGATION PLAN

Task 1: Background Air Monitoring

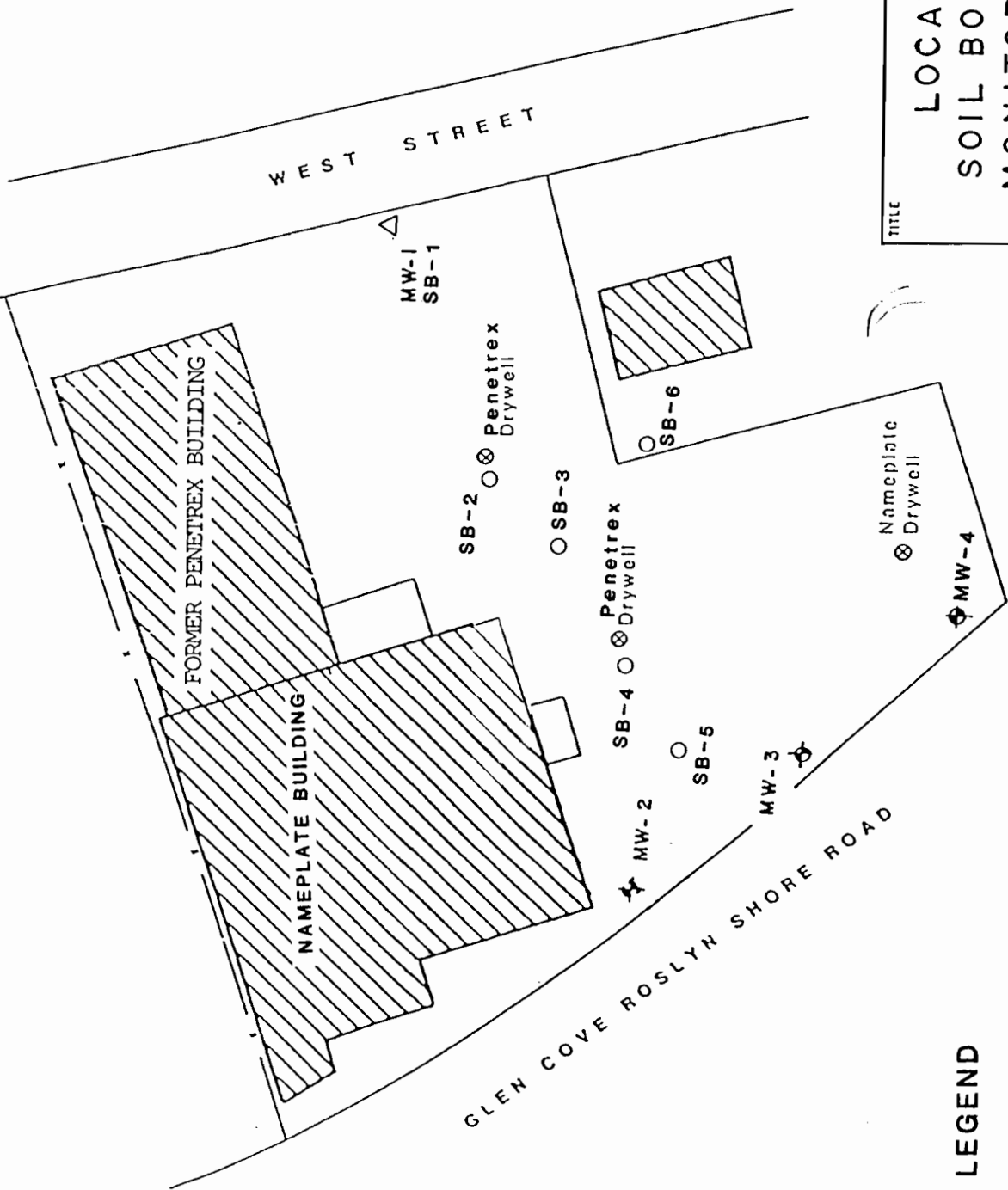
In order to properly compile the HRS score, a background air monitoring program will be required. Because the principal suspected contamination sources at this site are subsurface discharges, air is not an environmental media of concern. However, in order to verify this, a site walk-through will be performed using an organic vapor analyzer (OVA - Foxboro Model 128) to monitor air quality on the property.

Task 2: Soil Quality Investigation

The purpose of the soil quality investigation is to determine the severity of soil contamination (if any) at the site. The installation of test borings with in-field OVA screening and sensory inspection of soil samples, coupled with laboratory analysis of selected samples will be the method used to determine the extent of any contaminated soil. A total of six soil borings (SB-1 through SB-6) will be installed as shown in Figure 4-1. The principal suspected contaminant sources that will be investigated include the two dry wells also shown on Figure 4-1.



WEST STREET



TITLE

**LOCATIONS OF
SOIL BORINGS AND
MONITORING WELLS**

PENETREX SITE
GLENWOOD LANDING, NY

SCALE	FIGURE
Shown	4-1
DATE	
1/88	

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Environmental Remediation Management

LEGEND

- = SOIL BORING
- ◆ = MONITORING WELL
- △ = BORING and WELL



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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 the bottom of the dry wells, or to appropriate depths as determined in the field by the hydrogeologist. The only exception to this shall be boring SB-6 which will consist of a 2-3 foot deep hand augered hole. All samples will be screened in the field for the presence of volatile organic compounds using a flame ionization detector (Foxboro Model 128). Screening methods are described in Appendix A. A minimum of five samples will be selected for laboratory analysis. The selection process will be based on the OVA readings and by visual examination of the samples. Those selected for laboratory analysis will be agreed upon in the field by the NYSDEC and ERM representatives. Laboratory analytical parameters will include: Volatile Organic Compounds (+15), eight RCRA metals and Total Petroleum Hydrocarbons. Samples obtained for volatile organics analysis will be taken at a minimum depth of 24". A summary of analytical methodologies is presented as Table 4-1. The method detection limits associated with these methodologies are listed along with the contaminant-specific "levels of concern" in Table 4-2.

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TABLE 4-1

METHODS OF SAMPLE ANALYSIS
PENETREX PHASE II INVESTIGATION
GLENWOOD LANDING, NY

<u>Analyte</u>	<u>Method Reference</u>	<u>Holding Time</u>
VOCs	EPA SW846, Method 8240	7 days
Total Pet. Hydrocarbons	NYSDEC Method 310	Extract: 7 days Analyze: 70 days
Arsenic	EPA SW846, Method 7061	6 mos.
Barium	EPA SW846, Method 6017	6 mos.
Cadmium	EPA SW846, Method 7130	6 mos.
Chromium	EPA SW846, Method 6010 or 7190	6 mos.
Lead	EPA SW846, Method 7421	6 mos.
Mercury (water)	EPA SW846, Method 7470	28 days
Mercury (soil)	EPA SW846, Method 7471	28 days
Selenium	EPA SW846, Method 7741	6 mos.
Silver	EPA SW846, Method 6010 or 7760	6 mos.

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TABLE 4-2

LISTING OF METHOD DETECTION LIMITS AND LEVELS OF CONCERN
PENETREX PHASE II INVESTIGATION
GLENWOOD LANDING, NY

<u>Analyte</u>	<u>Method Detection Limit¹</u>		<u>Level of Concern¹</u>	
	<u>Soil</u>	<u>Water</u>	<u>Soil</u>	<u>Water</u>
Chloromethane	5	5	*	--
Bromomethane	5	5	*	--
Vinyl Chloride	5	5	*	5
Chloroethane	5	5	*	--
Methylene Chloride	5	5	*	50
Acetone	5	5	*	--
Carbon Disulfide	5	5	*	--
1,1-Dichloroethene	5	5	*	--
1,1-Dichloroethane	5	5	*	50
T-1,2-Dichloroethene	5	5	*	50
Chloroform	5	5	*	100
1,2-Dichloroethane	5	5	*	0.8
2-Butanone	5	5	*	--
1,1,1-Trichloroethane	5	5	*	50
Carbon Tetrachloride	5	5	*	5
Vinyl Acetate	5	5	*	--
Bromodichloromethane	5	5	*	50
1,2-Dichloropropane	5	5	*	50
T-1,2-Dichloropropene	5	5	*	--
Trichloroethene	5	5	*	10
Dibromochloromethane	5	5	*	50
1,1,2-Trichloromethane	5	5	*	--
Benzene	5	5	*	ND
C-1,3-Dichloropropene	5	5	*	--
2-Chloroethyl- vinylether	5	5	*	--
Bromoform	5	5	*	50
4-Methyl-2-Pentanone	5	5	*	--
2-Hexanone	5	5	*	50
Tetrachloroethene	5	5	*	0.7
1,1,2,2- Tetrachloroethane	5	5	*	0.2
Toluene	5	5	*	50
Chlorobenzene	5	5	*	20
Ethylbenzene	5	5	*	50
Styrene	5	5	*	931
Total Xylenes	5	5	*	50

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TABLE 4-2 (CONTINUED)

LISTING OF METHOD DETECTION LIMITS AND LEVELS OF CONCERN
PENETREX PHASE II INVESTIGATION
GLENWOOD LANDING, NY

	Method Detection Limit ¹		Level of Concern ¹	
	<u>Soil</u>	<u>Water</u>	<u>Soil</u>	<u>Water</u>
Arsenic	1000	10	20000	25
Barium	5000	50	400000	1000
Cadmium	500	5	3000	10
Chromium	1000	10	100000	50
Lead	500	5	250000	25
Mercury	80	0.4	1000	2
Selenium	500	2	4000	20
Silver	1000	10	5000	50
Total Petroleum Hydrocarbons	20000	100	100000	1000 ²

- NOTES:
- (1) units are ug/l for water, ug/kg for soil
 - (2) TPH aqueous guideline from New Jersey ECRA guidelines
 - ND = Non detectable
 - = No listing in New York State Ambient Water Quality Guidelines
 - * = Level of Concern is 1000 ug/kg for sum of these analytes

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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 determination of whether soil has been impacted or not will be based on the in-field OVA results plus the laboratory analyses. EnviroTest Labs of Newburgh, NY, an NYSDEC certified lab, will be used to perform the soil analyses and ground water analyses during this project. 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.

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Task 3: Installation and Sampling of Monitoring Wells

Four 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.

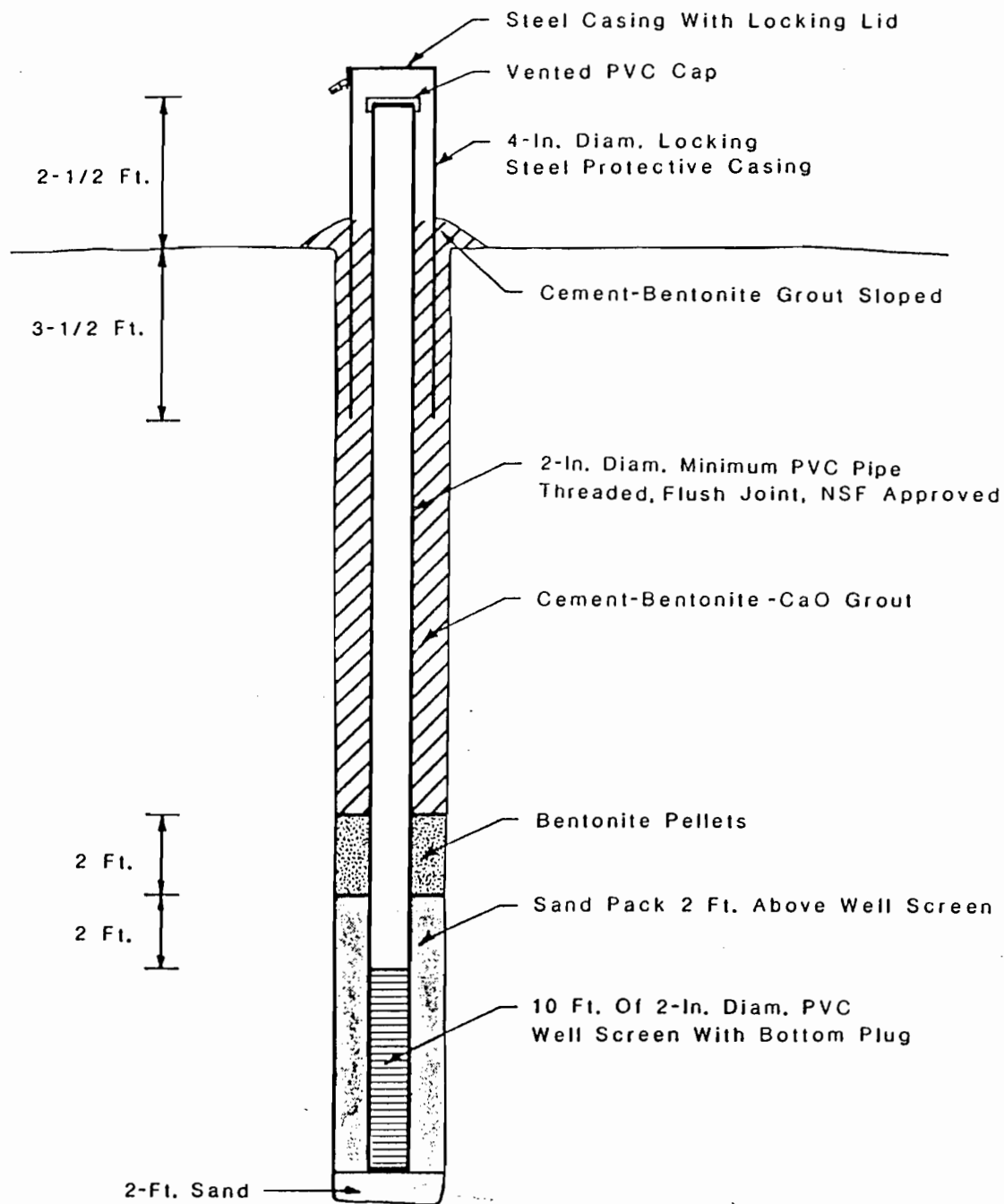
The monitoring wells will be installed and constructed in accordance with NYSDEC specifications using the hollow stem auger drilling technique. Split spoon samples will be taken at five foot intervals (except on well/boring MW-1/SB-1, in which at least the uppermost ten feet will be sampled continuously). Upon completion of the borehole, a 4-inch diameter, SCH 40, PVC, screw coupled screen and riser pipe will 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 slot size will be selected in the field based upon the character of the uppermost saturated materials underlying the site. The annular space from the base of the well screen to two feet above the top of the well screen will be gravel packed with a No. 2 Morie 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

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grade inside a locking flush mounted steel protective casing cemented in place so that drainage is away from the well. A schematic of these design specifications is given as Figure 4-2. All drill cuttings produced will be drummed for appropriate disposal based on composite soil sample results.

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. Development will proceed until the pumped water reaches a turbidity of 50 ntu's or less. This will be determined in the field by the use of a portable nephelometer. 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.

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.



TITLE		
NEW YORK STATE MONITORING WELL SPECIFICATIONS		
PREPARED FOR		
Shea and Gould		
Penetrex Phase II Study	SCALE	FIGURE
	None	4-2
	DATE	
	10/86	

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The four monitoring wells will be sampled a minimum of one week after development is complete. The samples will be analyzed for Volatile Organic Compounds (+15), Total RCRA Metals (unfiltered) and Total Petroleum Hydrocarbons. Analytical methodologies are summarized in Table 4-1. An outline of the entire sampling plan (soil + ground water) is given as Table 4-3. 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 4: Surface Water Investigation

No surface water exists at the site. However, due to the proximity of the property to Hempstead Harbor, the site's drainage system will be inventoried. This will involve obtaining plans of the drainage system from the Town of North Hempstead (or other appropriate sources) and determining where the site's drainage is discharging.

Task 5: 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

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TABLE 4-3

SUMMARY OF SAMPLING PROGRAM
PENETREX PHASE II INVESTIGATION
GLENWOOD LANDING, NY

<u>Sample Location</u>	<u>Matrix</u>	<u>Probable # of Samples</u>	<u>Analytes</u>
SB-1	Soil	1	TPH, VO+15, RCRA Metals
SB-2	Soil	1	TPH, VO+15, RCRA Metals
SB-3	Soil	1	TPH, VO+15, RCRA Metals
SB-4	Soil	1	TPH, VO+15, RCRA Metals
SB-5	Soil	1	TPH, VO+15, RCRA Metals
SB-6	Soil	1	TPH, VO+15, RCRA Metals
MW-1	Groundwater	1	TPH, VO+15, RCRA Metals
MW-2	Groundwater	1	TPH, VO+15, RCRA Metals
MW-3	Groundwater	1	TPH, VO+15, RCRA Metals
MW-4	Groundwater	1	TPH, VO+15, RCRA Metals
<u>QA/QC Samples: Soil -</u>		1 Trip Blank	
		1 Field Blank	
		1 Duplicate	
Groundwater -		1 Trip Blank	
		1 Field Blank	
		1 Duplicate	

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contamination, if present. Specific outputs from this task are expected to include:

- 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 6: Report Preparation

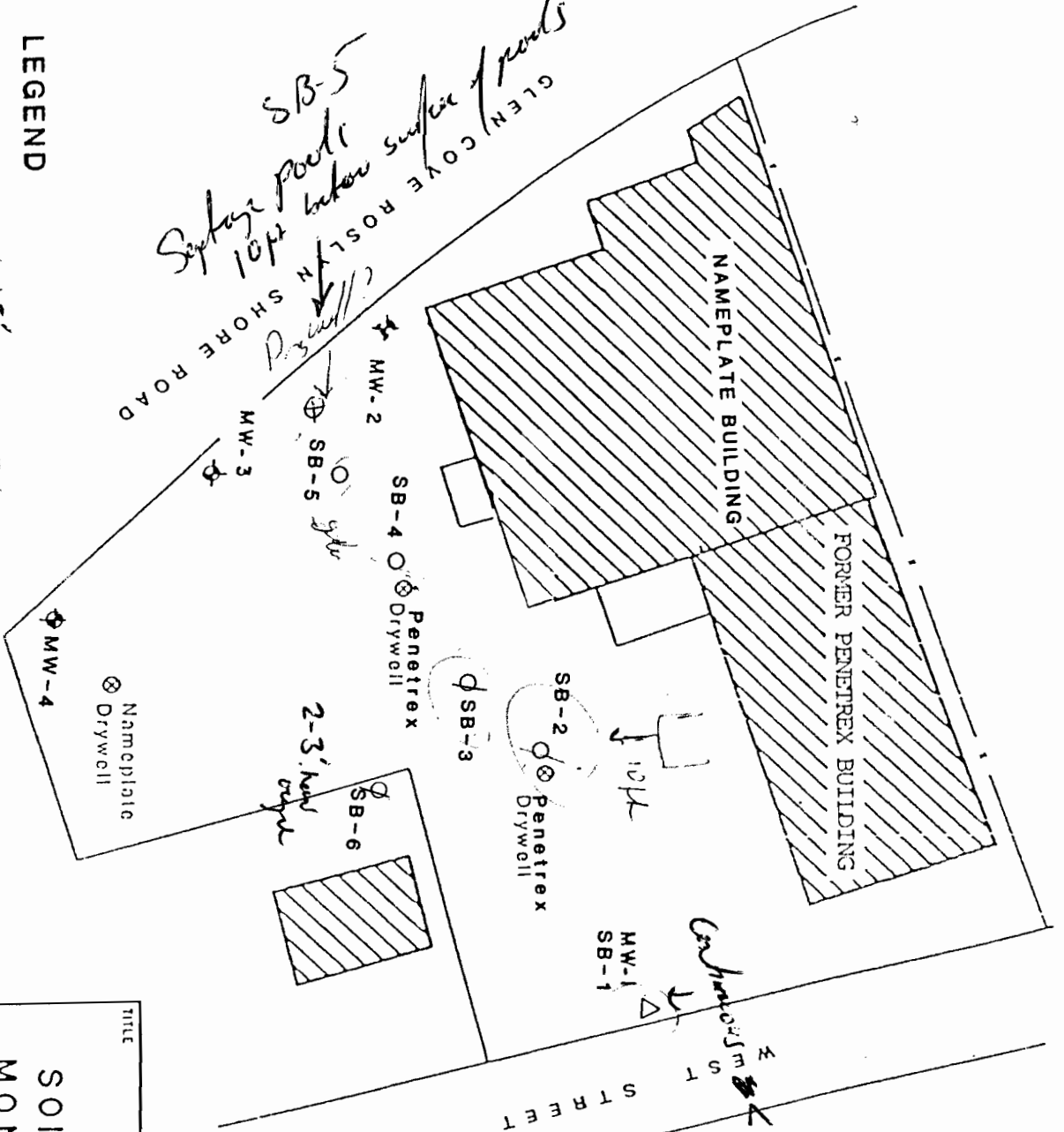
ERM will prepare a technical report documenting all field procedures and analytical results. Laboratory data will be reported according to CLP deliverables. ERM will present its conclusions relative to the extent of any existing contamination, HRS scoring, and the need for additional investigation.

- LEGEND**
- = SOIL BORING
 - ⊕ = MONITORING WELL
 - △ = BORING AND WELL

*SB-5
Surface pool
10 ft below surface of ponds*

Disposal?

GLEN COVE ROSSLIN SHORE ROAD



TITLE

LOCATIONS OF SOIL BORINGS AND MONITORING WELLS

PENETREX SITE
GLENWOOD LANDING, NY

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

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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 sampling techniques are discussed below. Ground water sampling will be conducted as per USEPA SW-611, "Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities". Soil sampling procedures will conform to the specifications of USEPA SW-846 "Test Methods for Evaluating Solid Waste" (3rd Edition). Samples will be prepared, preserved and stored as specified in the USEPA "Guidelines Establishing Test Procedures for the Analysis of Pollutants" (40 CFR Part 136).

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 sample chain-of-custody form is provided as Figure A-1.

○ 88 Sunnyside Boulevard • Plainview • New York 11803 ☎ (516) 349-0050
○ 283 Franklin Street • Boston • Massachusetts 02110 ☎ (617) 542-7839

Project No. / I.D. _____ Sheet No. _____
 Sampler(s) _____ Bottles Supplied By _____
 Date Sampled _____ Bottle Batch No. _____

Sample I.D.	Sample Description	Sample Type	Sampling Method	Time	No. Of Containers	Analysis Requested	Remarks
Relinquished By (Signature)		Received By (Signature)		Date/Time		Reason For Transfer	

Copies: White - Sampler; Yellow - Lab

FIGURE A-1
Sample Chain of Custody Form

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A.1 Soil Sampling Procedures and Equipment

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. Soil samples will be collected using either a stainless steel hand auger/trowel or split spoon sampler. 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.

Downhole drilling tools will be steam cleaned before use at each boring/well. Sampling equipment decontamination and steam cleaning operations will be conducted in a staging area located in the southern portion of the site (see Figure 4-1). This area

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is downslope from most of the sampling locations. Spent solvents from decontamination of the sampling gear will be contained in a 5-gallon plastic bucket. These solvents will subsequently be transferred to a 55-gallon drum along with all cleaning and rinse water from this process. Steam cleaning operations will be conducted over an impermeable containment structure. These fluids will also be transferred to 55-gallon drums.

A.2 OVA Screening Procedures

In order to determine which soil samples will be sent to the laboratory for VOC analysis, a Foxboro Model 128 Organic Vapor Analyzer (OVA) will be used. All soil samples collected during the investigation will be field screened using the following procedures:

1. The split spoon sampler or hand auger will be removed from the boring and the contents immediately placed into the laboratory-supplied containers, plus an additional clean glass jar.
2. This jar will be covered by aluminum foil with a screw-on cap placed tightly over the foil.

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3. These jars will subsequently be placed in a bath of boiling water for a period of five minutes.
4. Upon removal from the bath, the cap will be removed and the foil pierced by the OVA probe. The concentration of organic vapor in the head space will then be recorded.

A.3 Ground Water Sampling

Ground water will be sampled using a dedicated, bottom-loading, PVC bailers after the monitoring wells have been installed, developed by pumping, and allowed to equilibrate to in-situ aquifer conditions. This requires a minimum period of seven days between development and sampling.

Three to five well volumes of water will be removed by bailer or submersible pump prior to sampling. Specific conductivity, pH and temperature will be monitored during the well evacuation. If a bailer is used for purging, one will be dedicated to each well, and used for both purging and sampling.

If used, purge pumps will be cleaned prior to use and between wells. Cleaning will be conducted as described in A.1.

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A.4 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 identify them. The additional samples will consist of a duplicate sample of both soil, ground water for each analysis, travel blanks and field blanks.

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

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by the laboratory by filling the sample container with distilled water. Field blanks for the appropriate medium will be collected daily. The blanks will be made by collecting deionized water poured over decontaminated sampling equipment. The field blanks will be analyzed for all of the parameters to be run that day.

All samples will be analyzed by:

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

A.5 Documentation Procedures

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 (*)

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

* 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.

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A.6 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, specific actions in the field will be undertaken to maximize the quality of the data from this sampling plan.

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.

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 will be

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qualified in environmental studies. 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 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 three to five well volumes.

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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.

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.

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APPENDIX B HEALTH AND SAFETY

General

ERM-Northeast maintains a Health and Safety Program that consists of three integral parts: (1) a Health and Safety Manual, (2) medical monitoring and (3) OSHA required training. All ERM employees involved in field investigations participate in the Program as a condition of employment. The details of the medical monitoring program and the personnel training program are presented in the firm's Health and Safety Manual along with many standard operational and emergency procedures. This manual is available upon request.

ERM does not assume responsibility for the training or medical monitoring of any subcontract personnel. This is considered to be the responsibility of the subcontractor.

Site-Specific

The ERM Site Safety Officer will be responsible for the field implementation, evaluation, and any necessary field modification of the Health and Safety Plan. The Safety Officer

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has the authority to suspend site operations due to any ineffectiveness of this Health and Safety Plan. Mr. Michael Teetsel shall be the ERM field representative and will act as Site Operations Manager and Site Safety Officer.

Based on the analytical data collected during previous remedial action at the Penetrex site, it assumed that Level D protection will be appropriate for all field activities. During the soil and ground water sampling phases of the investigation, air quality in the work space will be monitored using the OVA. An action level of 25 parts per million has been established to upgrade the level of protection. This is based on the lowest ACGIH Threshold Limit Value for the Volatile Organic Compounds identified during the previous remedial activities, minus a safety factor of 50 percent. (See Section 3.0 - Review of Historical Data for list of identified compounds.) OVA readings of 25 ppm or greater will trigger an upgrade to Level C. Because several of the identified compounds are NIOSH designated carcinogens, repeated or prolonged readings of 25 ppm or greater will require an upgrade to Level B or the suspension of site activities.

Attached is a form sheet that presents the details of all pertinent elements of the Site Health and Safety Plan.

FORM C

SITE SPECIFIC HEALTH AND SAFETY PLAN

This form must be completed a minimum of one (1) week prior to the start of work. It is the responsibility of the Project Manager to complete Items 1 through 10 and 14 and 15. All project personnel must receive a copy of this form and familiarize themselves with its contents.

1. Site name: Penetrex, Glenwood Landing, NY
2. Work Order No.: 272-01
3. Location (attach site map): see Figure 4-1
4. Project Manager: Craig Herle
5. Project Engineer(s)/Scientist(s): Mike Teetsel
6. Period over which work is to be conducted: 1 week period
7. Site description (include pertinent features on site map):
2 story Warehouse-type bldg + Parking lot; see Figure 4-1
8. List of known contaminants (include locations and concentrations on site map):

<u>Constituents</u>	<u>Location</u>	<u>Media</u>	<u>Concentration/ Volume</u>	<u>Depth</u>
See Section 3.D Review of Historical Data	Dry Wells in parking lot	soil	unknown, most contaminated soil allegedly removed	~10'

9. Planned site activities (be specific; include on site map and identify personnel per task): soil borings + well installation
See Figure 4-1.
10. Plant required health and safety procedures (i.e., hard hats, long-sleeved shirts, eyewear, etc...):
None.

FORM C (CONTINUED)

11. Safety procedures (prepared by Safety Coordinator):

Procedure

Site Entry/Access site directly accessible to Shore Road

Monitoring Foxboro OVA model 128 - Survey Mode

Egress site directly accessible to Shore Road

Decontamination See LHM Home and Work Manual

12. Action levels (prepared by Safety Coordinator):

<u>Activity</u>	<u>Location</u>	<u>Action Level</u>	<u>Level of Protection</u>
soil borings + well installation	Parking lot	25ppm	D → C/B

13. Contingency procedures (prepared by Safety Coordinator):

Exit site.

14. Emergency contacts (name and telephone number):

Police: Nassau County PD, Dial 911

Fire: Glenwood FD, 742-3300

Ambulance: Dial 911

State/Federal Agency: NYSDEC

Plant Supervisor: On-Duty Emergency Coordinator

Plant Health and Safety Officer: None

15. Location of nearest hospital: St. Francis, Port Washington Blvd,
Port Washington.

16. Special procedures and precautions:

None.

M. Teetzl 4-25-88
Project Manager/Date

Albert J. ... 10/27/88
Safety Coordinator