DRAFT 4/13/95

DECLARATION STATEMENT
RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

Pasley Solvents and Chemicals Site 130016
Town of Hempstead
Nassau County, New York

STATEMENT OF BASIS AND PURPOSE

This document presents the selected modification to the original remedial action for the Pasley Solvents and Chemical Site (the Site). The original remedial action was selected in the Record of Decision (ROD) signed by the U.S. Environmental Protection Agency (EPA) on April 24, 1992.

The modification to the original remedy was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This amended ROD documents the significant changes in the remedy previously selected by the EPA.

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy . A letter of concurrence from NYSDEC is appended to this document in Appendix 4.

The administrative record for the Site contains the documents that form the basis for EPA's selection of the remedial action. The index for the administrative record is appended to this document in Appendix 3.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF SELECTED REMEDY

The remedy presented in this document addresses the treatment of ground water at the Pasley Solvents and Chemicals Site.

The major components of the selected remedy include:

- Remediation of the ground water by injecting air into the saturated zone(that part of the subsurface that is soaked with ground water) to remove hazardous contaminants (air sparging).

- Removal of the hazardous contaminants from the unsaturated zone by soil vacuuming/soil vapor extraction.

- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern; and

- Implementation of a system monitoring program that includes vapor monitoring, ground-water monitoring and soil sampling.

EXPLANATION OF FUNDAMENTAL CHANGE

The 1992 ROD selected remediation of the contaminated soils at the Site by soil vacuuming, also called soil vapor extraction and/or soil flushing until recommended soil cleanup objectives were met or until no more contaminants could be effectively removed. In addition, the 1992 ROD selected remediation of the ground water by extraction, treatment and recharge of the treated ground water to the aquifer. The contaminated ground water would be treated to meet either Federal or State drinking water levels except in those cases where upgradient ground-water concentrations are above such standards.

EPA is not changing the soil vapor extraction portion of the original remedy. However, the soil flushing selected for removal of semi-volatiles will be eliminated. It will no longer be necessary to conduct soil flushing to remove semi-volatiles because it is assumed that air sparging will enhance the natural biodegradation of these compounds.

The results of a pilot study conducted at the Site demonstrated that the selected remedy described above would be an effective means for remediating the ground water at the Site. This change in method for remediation of the ground water is significantly different from the ROD, signed on April 24, 1992. In addition, air sparging combined with soil vapor extraction costs substantially less than pumping and treating the ground water and would, therefore, effectuate a quicker, cost effective cleanup. Further, the selected remedy meets the applicable and relevant and appropriate requirements (ARARs) at a lower cost.

DECLARATION OF STATUTORY DETERMINATIONS

This selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site. Because treatment is being used to address the principal threats at the Site, this remedy satisfies the statutory preference for treatment as a principal element of the remedy.

It is anticipated that the remedy selected will achieve chemical-specific ARARs for the ground water, unless potential upgradient contamination interferes with the Site ground-water remediation.

As the remedy will result in hazardous substances remaining on Site above health-based levels, a review will be conducted within five (5) years after commencement of the remedial action, and every five years thereafter, to ensure that the remedy continues to provide adequate protection of human health and the environment.

_____ _____

Jeanne M. Fox
Regional Administrator

Date

DECISION SUMMARY

PASLEY SOLVENTS AND CHEMICALS SITE

TOWN OF HEMPSTEAD, NEW YORK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

NEW YORK

TABLE OF CONTENTS

INTRODUCTION

The Pasley Solvents and Chemicals Site (Site) is the vacant land located just west of 585 Commercial Avenue, Town of Hempstead, Nassau County, New York. The Site lies between the borders of the political subdivisions of the Village of Garden City and Uniondale, in the Town of Hempstead (see Figure 1). The immediate area has light industrial and commercial properties; residential communities are located within 1/4 mile of the Site. The Site measures 75' by 275' with a fenced boundary on the north, east and south sides. A building and loading platform form the western boundary of the Site. The ground is covered by gravel and blue stone with some sparse vegetation. The U.S. Environmental Protection Agency (EPA) is the lead agency for the Site and New York State Department of Environmental Conservation (NYSDEC) is the support agency.

On August 19, 1988, EPA and Commander Oil Corporation (Commander) entered into an Administrative Order on Consent, Index NO. II-CERCLA-80212 (the Order). The Order required Commander to perform a Remedial Investigation/Feasibility Study (RI/FS) to determine the nature and extent of contamination at the Site, to develop and analyze cleanup alternatives and to remove the 12 above-ground storage tanks located on the Site. In November of 1988, Commander completed the tank removal.

The results of the Remedial Investigation (RI) for the Site are documented in the RI Report prepared by Metcalf and Eddy in 1991. After review of the Remedial Action Alternatives presented in the Feasibility Study, EPA issued a Record of Decision (ROD) on April 24, 1992. This ROD is included as Appendix 6.

Once the ROD was issued, notice letters and a draft Consent Decree were sent to Commander, the owner of the Site, and to the operators of the Site (Robert Pasley and Pasley Solvents and Chemicals Company) for implementation of the remedy selected in the ROD. These parties declined to perform the selected remedial action. Counsel for Commander contended that Commander was not financially able to implement the remedy which was estimated to cost 14 million dollars. EPA then obligated Superfund monies for performance of the Remedial Design by Ebasco Services, Inc., an EPA contractor.

Subsequently, Commander notified EPA that it believed that the air sparging modification to the ground-water remedy subsequently selected in this 1995 ROD would be an effective means to remediate the ground water at approximately half the cost of the selected remedy. Commander said that the company would be financially able to implement the air sparging remedy. EPA evaluated all available information on the air sparging technology and gave approval for Commander to submit a work plan to conduct a pilot study to

evaluate the effectiveness of air sparging at the Site. The results of the pilot study, which was documented in the Air Sparging/Soil Vapor Extraction Pilot Test Study Report, demonstrated that air sparging would be an effective means of remediating the ground water at the Site.

Since the air sparging remedy represents a fundamental post-Record of Decision change, this ROD Amendment is required. The ROD amendment and the documents supporting the decision will become part of the administrative record file. The administrative record file is located at two information repositories. The repositories are maintained at the EPA Region II Office, 290 Broadway, 18 Floor, New York, New York 10007 between the hours of 9:00 a.m through 4:30 p.m and at the Nassau Library System, 900 Jerusalem Avenue, Uniondale, New York 11553 between the hours of 8:30 a.m through 5:00 p.m.

As part of the requirements of CERCLA Section 117 and the NCP Section 300.435 public participation is necessary before adoption of any plan for remedial action. A Post-Decision Proposed Plan for the Site was released to the public for comment on November 30, 1994. The notice of availability for the public documents was published in Newsday on November 30, 1994. A public comment period was originally held from November 30, 1994 through December 30, 1994. This public comment period was extended to January 30, 1995 as requested by local residents at the public meeting which was held on December 13, 1994.

The responses to the comments received during the public comment period as well as those expressed verbally at the public meeting, are stated in the Responsiveness Summary which is an attachment to this ROD amendment.

REASONS FOR ISSUING THE ROD AMENDMENT

The 1992 ROD selected the following actions:

- Treatment of approximately thirteen thousand (13,000) cubic yards of contaminated soil by soil vacuuming, and/or by soil flushing;
- Disposal of treatment residuals at a RCRA Subtitle C facility;
- Remediation of the ground water by extraction/metals precipitation/air stripping with vapor phase granular activated carbon/GAC polishing/recharge;
- Pumping of contaminated ground water from three extraction wells at a combined flow rate of approximately 450 gallons per minute (GPM). The actual pumping rate would be determined

during the Remedial Design;

- Implementation of a long-term monitoring program to track the migration and concentrations of the contaminants of concern; and

- Implementation of a system monitoring program that would include the collection and analysis of the influent and effluent from the treatment systems and periodic monitoring.

The contaminated ground water would be treated to meet either Federal or State drinking water levels except in those cases where upgradient ground-water concentrations are above such standards.

The result of the pilot study conducted at the Site, demonstrated that air sparging/soil vapor extraction would be an effective means for remediating the ground water at the Site. This change in the method for remediation of the ground water is significantly different from the method in the 1992 ROD.

Air sparging offers several clear advantages over a conventional pump-and-treat approach. Specifically, the ground water will be treated in place by the relatively simple and inexpensive installation of air injection points, in contrast to the costly installation of ground-water recovery wells. Thus, the cost of the selected remedy is substantially lower than pump-and-treat remedy. Moreover, this remedy provides a quicker and more cost effective cleanup for the ground water.

EPA is not proposing any changes to the soil vacuuming or soil vapor extraction (SVE) portion of the remedy selected for the soils. However, the soil flushing selected for removal of semi-volatiles will be eliminated. It will no longer be necessary to conduct soil flushing to remove semi-volatiles because it is assumed that air sparging will enhance the natural biodegradation of these compounds.

DESCRIPTION OF ALTERNATIVES

CERCLA requires that the selected site remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

The costs presented for each remedy include capital costs and operation and maintenance (O&M) costs over a ten year period. The time to implement reflects only the time required to construct or

implement the remedy. This time-frame does not include the time required to design the remedy.

ALTERNATIVE:1 EXISTING REMEDY (PUMP-AND-TREAT) SELECTED IN THE 1992 ROD

Ground-Water Extraction/Metals Precipitation/Air Stripping with Vapor Phase Granular Activated Carbon/Granular Activated Carbon Polishing/Recharge.

This alternative utilizes three collection wells for the extraction of contaminated ground water followed by on-site treatment. To contain and remove ground water from the contamination plume, it is estimated that it would be necessary to pump 450 gallon per minute (GPM) from three extraction wells placed at depths of 60 feet. Ground water would be pumped from the extraction well system to a holding/equalization tank. The pumped ground water would then enter the treatment plant where it would go through an initial two-stage precipitation and clarification/filtration unit for the removal of heavy metals.

The heavy metals treatment would be followed by air stripping and carbon adsorption to remove volatile organic compounds (VOCs). Air stripping is a mass transfer process in which volatile contaminants in water are transferred to the gaseous phase. The off-gas emissions from the air-stripper would then be treated by passing the air stream through vapor phase carbon adsorption columns. The treated air would then leave the column with reduced concentrations of contaminants. Contaminant removal efficiencies utilizing vapor phase activated carbon have been greater than 98 percent in some cases.

The granular activated carbon (GAC) adsorption system that follows the air stripping would be used, if necessary, as a final polishing step to remove any remaining organic compounds in order to achieve ARARs. Carbon adsorption would remove organic compounds from water onto the activated carbon. The exact amount of treated water that would be recharged to the ground water by the recharge wells would be determined in the remedial design.

The by-products resulting from the treatment system include metals sludge, filtered solids, and spent granular activated carbon. The sludge would be transported off-site for treatment and disposal at a Resource Conservation and Recovery Act-permitted facility.

Periodic sampling and analysis of the influent and effluent would be required to monitor the progress of this treatment alternative.

Estimated Capital Cost:	$4,280,000
Estimated O & M Cost:	$ 829,000
Estimated 10-year Present Worth Cost:	$9,374,000

Time to Implement:	
Construction	2 years
Remedial Action	10-40 years

ALTERNATIVE 2: Air Sparging/Soil Vacuuming (Soil Vapor Extraction)

Air sparging essentially creates a simplified air stripper in the ground, with the saturated soil column acting as the packing. Injected air flows through the water column over the packing and air bubbles contacting dissolved/adsorbed-phase contaminants cause the VOCs to volatilize (Figure 2). The air bubbles dislodge trapped contaminants, vaporize dissolved contaminants, and carry them up to the unsaturated zone. As the VOC vapors reach the unsaturated zone, they are pulled into vapor extraction wells that are screened in this zone. The air sparging treatment process is designed and operated in conjunction with SVE to ensure that VOCs are properly captured and treated. SVE systems always accompany treatment by air sparging because they can capture the VOCs and semi-volatiles that are stripped from the saturated zone. As an added benefit, the sparged air maintains a high dissolved-oxygen content, which enhances natural biodegradation of some contaminants, including semi-volatiles. Biological treatment is an innovative technology that involves exposing contaminants to microorganisms, such as bacteria, which break down organic materials into harmless substances.

For the on-site saturated zone, it is estimated that ten (10) air sparging (AS) wells would be required in the southwestern portion of the Site, along with nine (9) AS wells in the southeastern area to ensure that ground water would be treated before it migrated off-site (Figure 3). The AS wells would be approximately 52 feet deep. The remedial time frame is estimated at between five and ten years. For the unsaturated zone, the SVE system would remove contaminants stripped from the ground water by the AS system and contaminants from the contaminated soil in the unsaturated zone. It is estimated at this time that eight (8) SVE wells would be necessary for on-site coverage.

Soil gas and ground-water monitoring wells would be installed to provide the data needed to monitor the AS/SVE system effectiveness and to determine when recommended soil cleanup objectives as outlined in Table 1 are met or until no more VOCs can be effectively removed from the unsaturated zone. It is estimated that five (5), three-well-clusters would be required to monitor the ground water and to monitor soil gas in the unsaturated zone (Figure 4). Actual location and depth of these wells will be

determined during the Remedial Design.

Off-site remediation would consist of installing a line of AS/SVE wells approximately 400 feet south of the site to intercept the plume (Figure 5). It is estimated that twenty (20) 52-foot deep AS wells would be required to intercept the portion of the VOC plume containing greater than 100 parts per million total VOC's. Ten (10) SVE wells would be required to capture the VOCs stripped by the AS system. To monitor the off-site locations, six (6) two-well clusters would be installed to monitor the effectiveness of the remedy; one of the wells would be 30 feet deep and the other well would be 17 feet deep.

Estimated Capital Cost: $ 875,000
Estimated O & M Cost: $ 308,000
Estimated Present Worth Cost: $ 3,038,000

Time to Implement:

Construction	6 months
Remedial Action	5-10 years

EVALUATION OF ALTERNATIVES

In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), a detailed analysis of each alternative is required. The detailed analysis consists of an assessment of the two alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The following "threshold" criteria must be satisfied by any alternative in order to be eligible for selection:

1. Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. Compliance with ARARs addresses whether or not a remedy would meet all of the applicable (legally enforceable), or relevant and appropriate federal and state environmental statutes and requirements (i.e., those that pertain to similar situations encountered at a Superfund site so that their use is well suited to the Site) or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment of residuals and/or untreated wastes.

4. Reduction of toxicity, mobility, or volume via treatment refers to the remedial technology's expected ability to reduce the toxicity, mobility, or volume of hazardous substances, pollutants or contaminants at the site.

5. Short-term effectiveness addresses the period needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. Implementability refers to the technical and administrative feasibility of a remedy, including the availability of the materials and services needed.

7. Cost includes estimated capital and operation and maintenance costs, and the present-worth cost.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. State acceptance indicates whether, based on its review of the RI/FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the two remedies based upon these evaluation criteria follows.

Overall Protection of Human Health and the Environment

Both remedies are considered protective of human health and the environment. air sparging effectively provides overall protection of human health and the environment because it rapidly reduces VOC contaminant concentrations at their source, adsorbed to saturated sediments and dissolved in the ground water. The pump-and-treat remedy also effectively provides overall protection of human health and the environment by preventing the ground water from

contaminating down-gradient sources and by treating the ground water to protective levels.

Compliance with ARARs

Applicable or relevant and appropriate requirements (ARARs) are those federal or state environmental and public health regulations that apply to remedial activities at a site. There are three classifications of ARARs: chemical-specific, which are health- or risk-based concentration limits; location-specific, which are based on the geographical location of the site and its surroundings; and action-specific, which are controls on particular types of remedial activities.

It is anticipated that both remedies would achieve chemical-specific ARARs for the ground water, unless potential upgradient contamination interferes with the ground-water remediation at the Site. A list of chemical-specific ARARs for ground water is located in Table 2. EPA may evoke a technical waiver of the chemical-specific ARARs if the remediation program indicates that reaching Maximum Contaminant Levels in the aquifer is technically impracticable.

Until upgradient sources are remediated so they no longer impact the Site, EPA will attempt to attain ground-water cleanup levels which are equal to upgradient concentrations for certain contaminants.

One important advantage of air sparging is that it will not accelerate the movement of upgradient contaminants because no ground-water pumping is involved.

Long-Term Effectiveness

Long term effectiveness of both remedies requires the remediation of upgradient contamination. However, air sparging will reduce VOC concentrations more rapidly than pumping and treating due to the reduction of VOC and semi-volatile source material adsorbed to saturated soils and dissolved in the ground water.

Reduction in Toxicity, Mobility, or Volume

Reduction of toxicity, mobility, or volume is also evident in the selected remedy. Ground-water treatment has the goal of reducing contaminant concentrations in the aquifer to meet ARARs, effectively diminishing both toxicity and volume.

Both remedies would control the mobility of contaminants contributed by the Site. The remedies also would significantly reduce or eliminate the toxicity and volume of contaminated ground water by treatment. Air sparging/SVE reduces the toxicity,

mobility and volume of the ground water by volatilizing dissolved VOC's and removing them. In addition, since air sparging also effectively addresses adsorbed phase VOC's in the Site's saturated soils, the volume, or mass, of contaminated source material is rapidly reduced thus lessening the possibility for further dissolution of contaminants into the ground water.

Short-Term Effectiveness

The short-term effectiveness and implementability of the air sparging/SVE treatment alternative is high in that there is no exposure to contaminated ground water during implementation and the remedy employs standard equipment.

The installation of the air sparging and SVE systems involves little disturbance of contaminated subsurface areas; therefore, the potential risks to Site workers and the surrounding community are minimal and can be managed. With air sparging the potential risks to human health and the environment are primarily related to the spreading of dissolved contamination and the possible accumulation of vapors in enclosed spaces. However, proper system design and monitoring minimize the health and environmental risks to manageable levels. Based upon estimated time frames to reach ground water ARARs the existing pump and treat remedy would accomplish this goal in approximately 10-40 years and the air sparging/SVE remedy would accomplish this goal in approximately 5-10 years.

Implementability

Both remedies are well understood and have readily available commercial components. Although air sparging is an innovative technology, the pilot test that was conducted at the Site demonstrates that this remedy can be readily implemented at the Site. In addition, air sparging will not have the problems that are associated with pump and treat such as sludge handling and air stripper fouling due to iron in the ground water. The treatment of off-gas from the air sparging system will utilize the soil vapor extraction system which was part of the selected remedy in the 1992 ROD. Pump and treat, in contrast, requires additional off-gas treatment for the air stripper.

Cost

The present worth cost for the ground-water pump and treat remedy is estimated to be $9,374,000 over a ten year period. The present worth cost for the air sparging remedy, including the remedy for soil, is estimated to be $3,038,000 over a ten year period. This large difference in costs is due to the fact that the capital and annual O&M costs are lower for air sparging.

State Acceptance

The State of New York concurs with the proposed change to the ground-water remedy. The letter outlining this concurrence is attached to this ROD as Appendix 4.

Community Acceptance

All significant comments submitted during the public comment period were evaluated and are addressed in the attached Responsiveness Summary (Appendix 5). Community concern appears high in relation to the overall issue of ground-water contamination on Long Island but minimal regarding the Pasley Site in particular. Specifically, contamination emanating from the Roosevelt Field Site located upgradient of the Pasley Site, a State lead site, is of great concern to the public.

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that, when complete, the selected remedial action for a site must comply with applicable or relevant and appropriate environmental standards established under federal and state environmental laws unless a waiver is justified. The selected remedy also must be cost effective and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. Finally, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances as their principal element. The following sections discuss how the selected remedy meets these statutory requirements.

1. Protection of Human Health and the Environment

The selected remedy for ground water is protective of human health and the environment. The selected ground-water remedy eliminates all outstanding threats posed by ground water at the Site. The selected ground-water remedy reduces contamination to health-based levels except in those cases where upgradient concentrations exceed those levels. Contamination upgradient of the Site is suspected to be contributing to the ground-water contamination at the Site. The Roosevelt Field Site, which is one of the major suspected sources of the contamination detected in the upgradient ground-water monitoring well at the Site, was listed as Class GA, source of potable water supply, on the New York State Registry in July 1991. NYSDEC is currently negotiating with the potentially

responsible parties for possible performance of a Remedial Investigation/Feasibility Study at the Roosevelt Field Site.

2. Compliance with Applicable or Relevant and Appropriate Requirements

At the completion of response actions, the selected remedy will have complied with the following ARARs and considerations:

Action-specific ARARs:

Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (40 C.F.R. 141.11-141.16) and 6 NYCRR Ground Water Quality Regulations (Parts 703.5, 703.6, 703.7) and the NYS Sanitary code (10 NYCRR Part 5) provide standards for toxic compounds for public drinking water supply systems.

Air pollution control equipment, if required, would be carbon adsorption. Emissions controls would be installed as required to comply with Federal and State air regulations. Treatment residuals, if any, would be disposed of off-site in accordance with applicable RCRA land disposal restrictions under 40 C.F.R. 268.

Chemical-specific ARARs:

Since the ground water at the Site is classified by NYSDEC as Class GA, drinking water standards are relevant and appropriate. Again, these include SWDA MCLs and 6NYCRR Ground Water Quality Regulations. However, achieving chemical-specific ARARs for ground water is dependent on remediation of upgradient sources. This is due to the fact that regardless of the Site cleanup, upgradient sources will continue to be a source of contamination to the ground water beneath the Site. EPA believes that the selected remedial action will result in attainment of chemical specific ground-water ARARs provided the upgradient sources are remediated so that they no longer impact the Upper Glacial aquifer.

EPA may invoke a technical waiver of the chemical-specific ARARs if the remediation program indicates that reaching MCLs is technically impracticable.

3. Cost Effectiveness

The selected remedy is cost effective and provides the greatest overall protectiveness proportionate to costs. Air sparging/SVE, at a 10-year present worth of $3,038,000, is more cost effective than pump-and-treat at a present worth of $9,374,000, and offers an equivalent degree of protectiveness.

4. Utilization of Permanent Solutions and Alternative Treatment(or Resource Recovery) Technologies to the Maximum Extent Practicable

The selected remedy represent the maximum extent to which permanent solutions and alternative treatment technologies can be utilized in a cost effective manner for the Site. This is evident by the selection of soil vapor extraction. After treatment is complete, the soil will no longer be contributing contaminants to the underlying aquifer.

The ground-water treatment used in the selected remedy will reduce the contaminants of concern to levels protective of human health. In addition, EPA has determined that the air sparging/SVE remedy provides the best balance of trade-offs in terms of the five balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost. The modifying factors of State and community acceptance were also considered in this determination.

5. Preference for Treatment as a Principal Element

By treating the VOC contaminated soils and ground water by means of air sparging/SVE, the selected remedy addresses the principal threat posed by the Site through the use of treatment technologies. Therefore, the statutory preference for remedies that employ treatment as a principal element is satisfied. In addition, air sparging is an innovative technology.

In conclusion, the selected remedy is cost effective, protective of human health and the environment and provides for treatment of the most hazardous substances.

APPENDIX 1

FIGURE 1

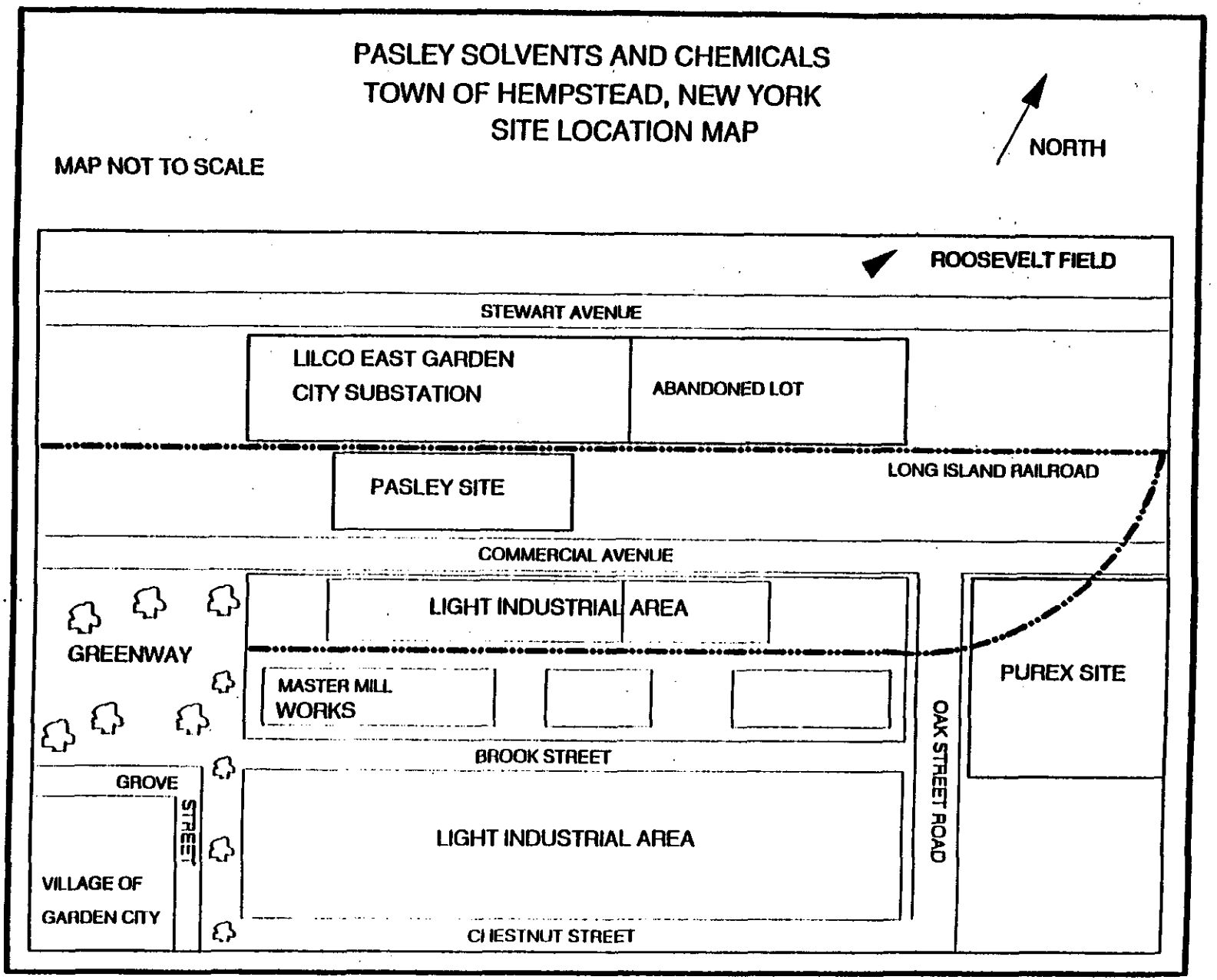

PASLEY SOLVENTS AND CHEMICALS
TOWN OF HEMPSTEAD, NEW YORK
SITE LOCATION MAP
MAP NOT TO SCALE
NORTH
ROOSEVELT FIELD
STEWART AVENUE
LILCO EAST GARDEN
CITY SUBSTATION
ABANDONED LOT
PASLEY SITE
LONG ISLAND RAILROAD
COMMERCIAL AVENUE
LIGHT INDUSTRIAL AREA
GREENWAY
MASTER MILL
WORKS
PUREX SITE
OAK STREET ROAD
BROOK STREET
GROVE
STREET
LIGHT INDUSTRIAL AREA
VILLAGE OF
GARDEN CITY
CHESTNUT STREET

FIGURE 2

Typical Air Sparging/ Soil Vapor Extraction System for Illustration Purposes.

Figure 1
Cross-Section Of An Air Sparging/Vapor Extraction System

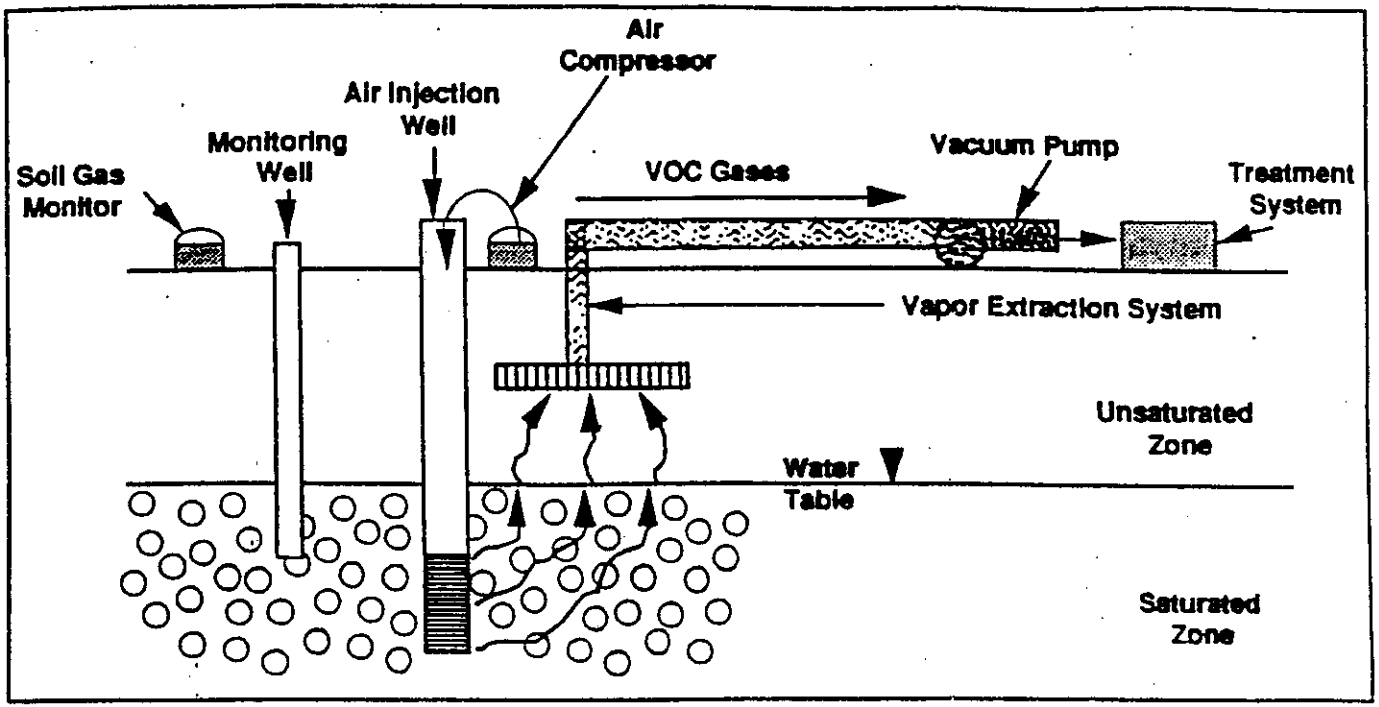


FIGURE 3

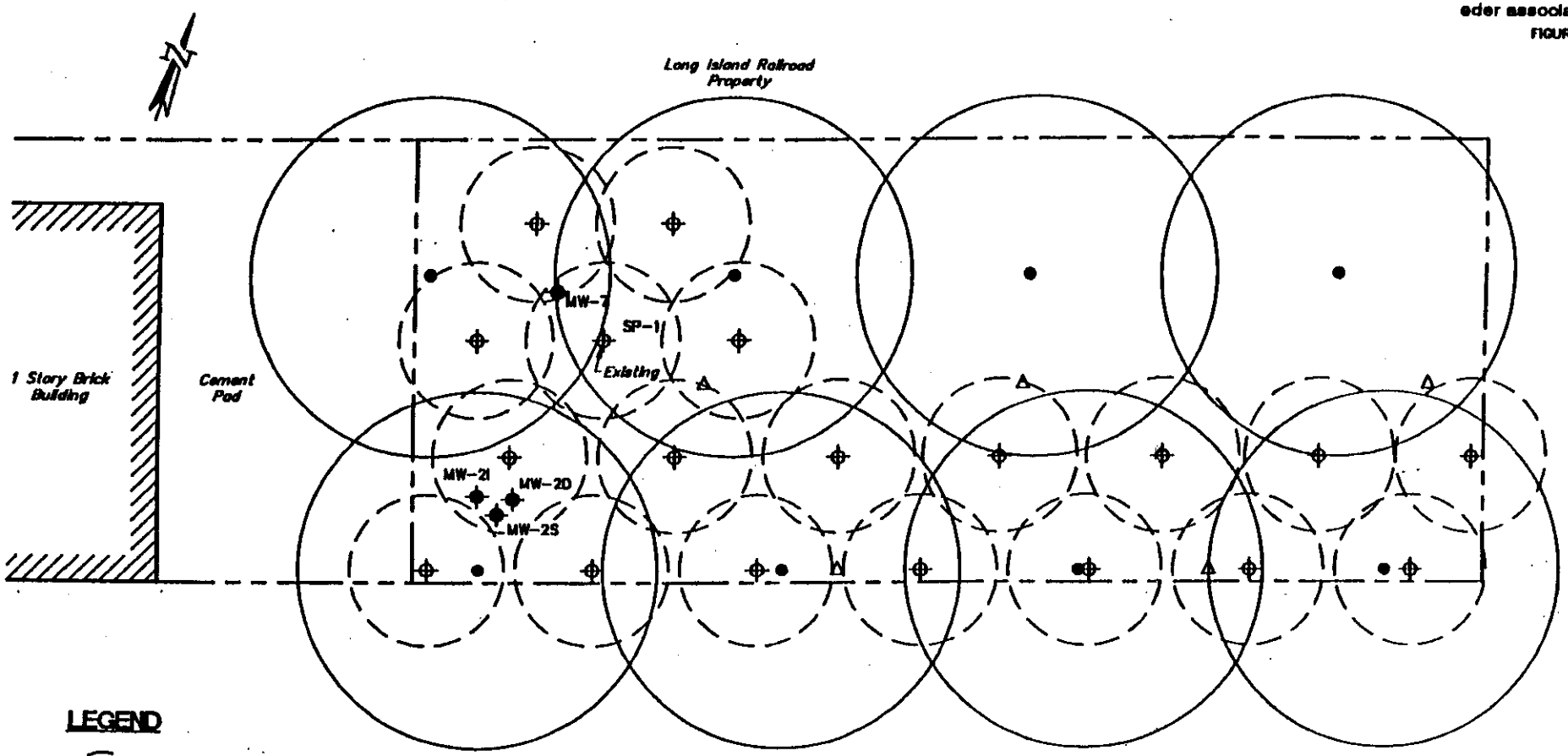
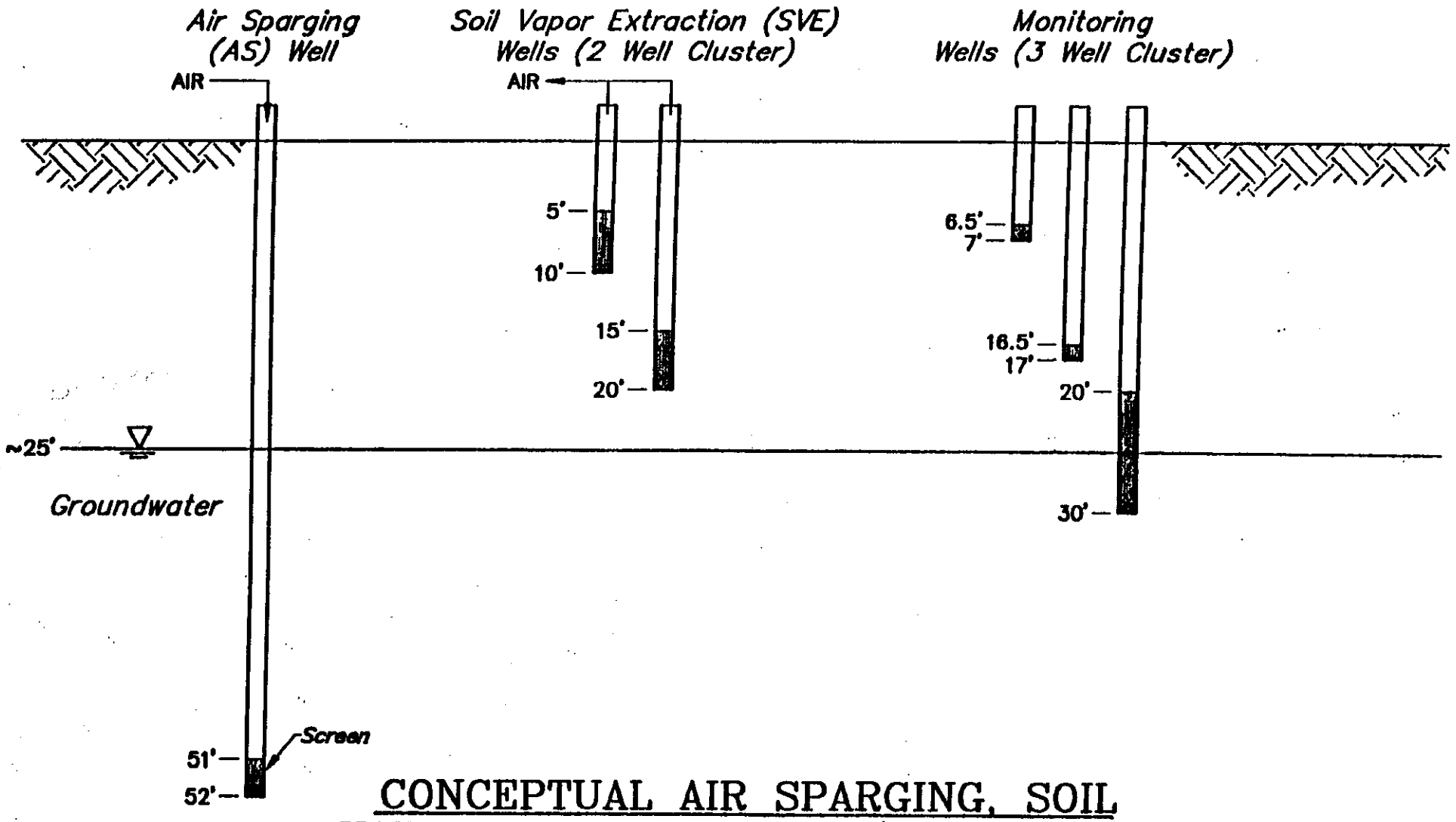

eder associates
FIGURE 1
Long Island Railroad Property
1 Story Brick Building
Cement Pad
MW-1
SP-1
Existing
MW-2I
MW-2D
MW-2S
COMMERCIAL AVENUE
LEGEND
Air Sparge Well With Area Of Influence
SVE Well Cluster With Area Of Influence
Existing Monitoring Well
Monitoring Well Cluster
Property Line
0
20
Scale in Feet
CONCEPTUAL ON-SITE REMEDIATION
COMMANDER OIL CORP.
PASLEY SOLVENTS AND CHEMICALS SITE
HEMPSTEAD, NEW YORK
SK121S1A
071494

FIGURE 4



CONCEPTUAL AIR SPARGING, SOIL VAPOR EXTRACTION AND MONITORING WELL DESIGN

COMMANDER OIL CORP.
PASLEY SOLVENTS AND CHEMICALS SITE
HEMPSTEAD, NEW YORK

SK12151C
071494

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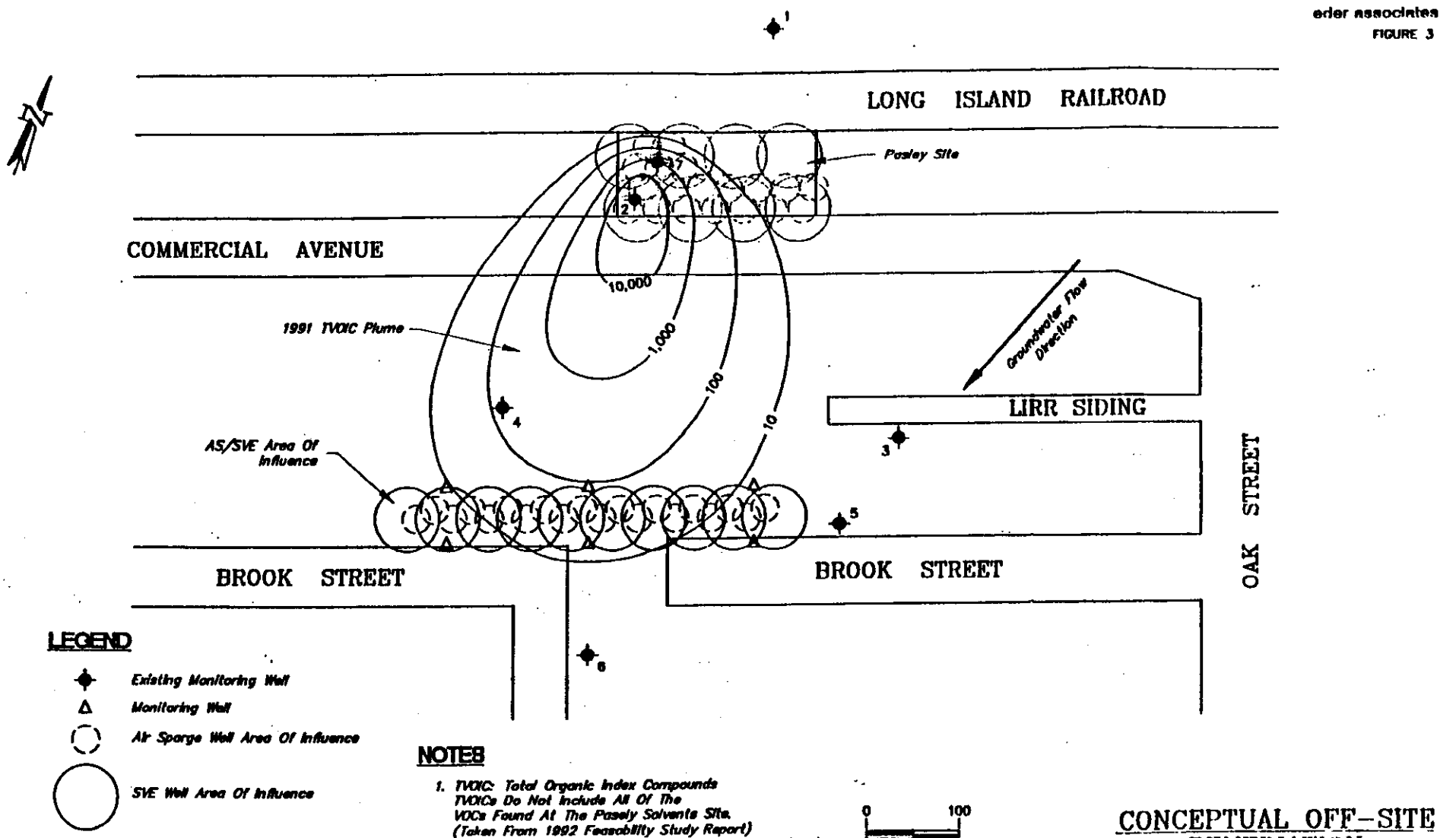
FIGURE 2

FIGURE 5



order associates
FIGURE 3

CONCEPTUAL OFF-SITE REMEDIATION
COMMANDER OIL CORP.
PASLEY SOLVENTS AND CHEMICALS SITE
HEMPSTEAD, NEW YORK

SK121510
071494

APPENDIX 2

TABLE 1
Recommended soil cleanup objectives (ug/kg or ppm)
Pasley Solvents Site, # 1-30-016

Contaminant	Solubility mg/l or ppm S	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	[a] Allowable Soil conc. ppm. Cs	[b] [NK] Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	USEPA Health Based (ppm) Systemic Toxicants	CRQL (ppb)	[NNK] Rec.soil Cleup Objct. (ppm)
Xylenes	198	240	5	0.012	1.2	N/A	200,000	---	1.2
Ethylbenzene	152	1,100	5	0.055	5.5	N/A	0,000	5	5.5
Toluene	535	300	5	0.015	1.5	N/A	2,000	5	1.5
Tetrachloroethene	150	277	5	0.014	1.4	11	800	5	1.5
Trichloroethene	1,100	126	5	0.007	0.70	61	N/A	5	1.0
1,1,1-Trichloroethane	1,500	152	5	0.0076	0.76	N/A	7,000	5	1.0
1,2-Dichloroethene(trans)	6,300	59	5	0.003	0.3	N/A	N/A	5	0.5
Chloroform	0,200	31 [M]	7	0.002	0.2	111	000	5	0.2
1,2-Dichlorobenzene	100	1,700	4.7	0.079	7.9	N/A	N/A	330	0.0
Phenanthrene	1.0	4,365 [M]	50	2.20	220.0	N/A	N/A	330	50.0 [NNK]
Fluoranthene	0.206	38,000	50	19	1900.0	N/A	3,000	330	50.0 [NNK]
Naphthalene	31.70	1,300	10	0.130	13.0	N/A	300	330	13.0
2-methylnaphthalene	26.00	727 [M]	50	0.365	36.0	N/A	N/A	330	36.0
Di-n-butyl phthalate	400	162 [M]	50	0.08	0.0	N/A	0,000	330	0.0

a. Allowable Soil Concentration Cs = f x Cw x Koc
b. Soil cleanup objective = Cs x Correction Factor (CF)

NNK is Method Detection Limit
M Partition coefficient is calculated by using the following equation:
log Koc = -0.55 log S + 3.64. Other values are experimental values.
NK Correction Factor (CF) of 100 is used as per proposed TACM
NNK As per proposed TACM, Total VOCs ≤ 10 ppm., Total Semi-VOCs ≤ 500 ppm. and Individual Semi-VOCs ≤ 50 ppm.

Note: Soil cleup objectives are developed for soil organic carbon content (f) of 1%, and should be adjusted for the actual soil organic carbon content if it is known.

TABLE 2 POTENTIAL ARARS FOR GROUNDWATER CONTAMINANTS
PASLEY SOLVENTS AND CHEMICAL SITE

				ARARS			GOAL TO BE CONSIDERED					
	MAXIMUM CONCENTRATION DETECTED IN ON-SITE WELLS 2S & 2I	MOST STRINGENT ARAR	MOST STRINGENT GOAL TO BE CONSIDERED	FEDERAL SDWA MCL (a)	NY AMBIENT WATER QUALITY STANDARDS (b)	NY DRINKING WATER MCLs (c)	FEDERAL SDWA MCLG (d)	PROPOSED FEDERAL SDWA MCL (d)	NY AMBIENT WATER QUALITY GUIDANCE VALUES (b)	EPA DRINKING WATER HEALTH ADVISORIES (e)	EPA AWQC DW ONLY (f)	REFERENCE CONCENTRATION FOR POTENTIAL CARCINOGENS (g)
VOLATILE ORGANICS COMPOUNDS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Methylene Chloride	16J	5	0	NS	NS	5	0[j]	5	NS	NS	0(0.19)	4.7
Benzene	43J	0.7	0	5	0.7(h)	5	0	NS	NS	NS	0(0.67)	1.2
Acetone	3800J	50	NS	NS	NS	50	NS	NS	50G	NS	NS	NS
Chloroform	74J	7	0	100(i)	NS	10	NS	NS	NS	NS	0(0.19)	5.7
1,1-Dichloroethene	84J	5	0	7	NS	5	7	NS	NS	NS	0(0.33)	.06
1,1-Dichloroethane	630	5	NS	NS	NS	5	NS	NS	NS	NS	NS	NS
Trans-1,2-Dichloroethene	37,000	5	100	100	NS	5	100	NS	NS	350	NS	NS
Ethylbenzene	510	5	700	700	NS	5	700	NS	NS	3,400	2400	NS
Tetrachloroethene	160J	5	0	5	NS	5	0	NS	NS	NS	0(0.88)	.7
Toluene	1100	5	1000	1000	NS	5	1000	NS	NS	10,800	15,000	NS
Trichloroethene	320	5	0	5	NS	5	0	NS	NS	NS	0(2.8)	3.2
1,1,1-Trichloroethane	3600	5	200	200	NS	5	200	NS	NS	1,000	19,000	NS
Chlorobenzene	510	5	100	100	NS	5	100	NS	NS	3,150	488	NS
Xylene (Total)	817.3	5	2,200	10,000	NS	5	10,000	NS	NS	2,200	NS	NS
SEMI-VOLATILE ORGANIC COMPOUNDS												
di-n-butyl phthalate	40	50	44,000	NS	50	50	NS	NS	50G(h)	NS	44,000	NS
2-Methylnaphthalene	110	50	NS	NS	NS	50	NS	NS	50G	NS	NS	NS
Naphthalene	270	50	NS	NS	NS	50	NS	NS	10G(h)	NS	NS	NS
Dibenzofuran	5J	50	NS	NS	NS	50	NS	NS	50G	NS	NS	NS
Phenanthrene	5J	50	NS	NS	NS	50	NS	NS	50G(h)	NS	NS	NS
di-n-Octyl phthalate	2J	50	NS	NS	NS	50	NS	NS	50G(h)	NS	NS	NS
Acenaphthylene	21	50	NS	NS	NS	50	NS	NS	50G	NS	NS	NS
Acenaphthene	7J	50	20	NS	NS	50	NS	NS	20G(h)	NS	20	NS
Fluorene	7J	50	NS	NS	NS	50	NS	NS	50G(h)	NS	NS	NS
Bis(2-ethylhexyl)phthalate	40	50	2.5	NS	50	50	NS	NS	50G	NS	NS	2.5

TABLE 2 Cont'd. POTENTIAL ARARS FOR GROUNDWATER CONTAMINANTS
PASLEY SOLVENTS AND CHEMICAL SITE

				ARARS			GOAL TO BE CONSIDERED					
	MAXIMUM CONCENTRATION DETECTED IN ON-SITE WELLS 2S & 2I	MOST STRINGENT ARAR	MOST STRINGENT GOAL TO BE CONSIDERED	FEDERAL SDWA MCL (a)	NY AMBIENT WATER QUALITY STANDARDS (b)	NY DRINKING WATER MCLs (c)	FEDERAL SDWA MCLG (d)	PROPOSED FEDERAL SDWA MCL (d)	NY AMBIENT WATER QUALITY GUIDANCE VALUES (b)	EPA DRINKING WATER HEALTH ADVISORIES (e)	EPA AWQC DW ONLY (f)	REFERENCE CONCENTRATION FOR POTENTIAL CARCINOGENS (g)
METALS	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Aluminum	97,400	NS	50	NS	NS	NS	50-200(k)	NS	NS	NS	NS	NS
Antimony	39.9	10/5P(m)	3	10/5P(m)	NS	NS	3P	10/5(m)	NS	NS	146	NS
Arsenic	-	25	20	50	25	50	50P	NS	NS	50	(25 ng/l)	20
Barium	372	1,000	1,800	2,000	1,000	1,000	5,000P	NS	NS	1,800	NS	NS
Beryllium	6.6	1P	0	1P	NS	NS	0P	1	NS	NS	(3.9 ng/l)	.008
Cadmium	4.5	5	5	5	10	10	5	NS	NS	18	10	NS
Calcium	36,000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	255	50	50	100	50	50	100	NS	NS	170	50	NS
Cobalt	45.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	279	200	1,000	1,300P	200	NS	1300P	1300	NS	NS	1000	NS
Cyanide	70	100	200	200P	100	NS	200P	200	NS	750	200	NS
Iron	152,000	300(n)	NS	NS	300 (n)	NS	300(k)	NS	NS	NS	NS	NS
Lead	34.6	15(l)	0	15	25	50	0P	NS	NS	20 ug/day	50	NS
Magnesium	8330	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	16,100	300(n)	50	NS	300(n)	NS	50(k)	NS	NS	NS	NS	NS
Mercury	-	2	2	2	2	2	2	NS	NS	5.5	10	NS
Nickel	318	100P	15.4	100P	NS	NS	100P	100	NS	350	15.4	NS
Potassium	10,200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	-	10	10	50	10	10	50	NS	NS	NS	10	NS
Silver	5.6J	50	50	NS	50	50	100(k)	NS	NS	NS	50	NS
Sodium	390,000J	20,000	NS	NS	20,000	NS	NS	NS	NS	NS	NS	NS
Thallium	5.7	2/1P(m)	17.8	2/1P(m)	NS	NS	NS	2/1(m)	NS	NS	17.8	NS
Vanadium	94.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	3,200	300	5,000	NS	300	NS	5,000(k)	NS	NS	NS	5000	NS

TABLE 2 Cont'd.

NOTES:

J - ANALYTE PRESENT. REPORTED VALUES MAY NOT BE ACCURATE OR PRECISE.
P - PROPOSED VALUE
NS - NO STANDARD OR GUIDELINE EXISTS
G - GUIDANCE VALUES
ND - NOT DETECTABLE
(a) SAFE DRINKING WATER ACT MAXIMUM CONTAMINANT LEVEL; NOVEMBER 1991
(b) 6 NYCRR PARTS 701 - 703 WATER QUALITY REGULATIONS FOR SURFACE WATER & GROUNDWATER; SEPTEMBER 1991
(c) NYS DRINKING WATER MCLs; STATE SANITARY CODE, PART 5, DATED JANUARY 1991
(d) SAFE DRINKING WATER ACT MAXIMUM CONTAMINANT LEVEL GOALS
(e) EPA DRINKING WATER HEALTH ADVISORIES, SUPERFUND PUBLIC HEALTH EVALUATION MANUAL, 1986
(f) EPA AMBIENT WATER QUALITY CRITERIA FOR PROTECTION OF HUMAN HEALTH ADJUSTED FOR DRINKING WATER ONLY (CONCENTRATIONS IN PARENTHESES CORRESPOND TO MIDPOINT OF RISK RANGE FOR POTENTIAL CARCINOGENS ONLY)
(g) CORRESPONDS TO AN INCREASED LIFETIME CANCER RISK OF 1E-6. CALCULATED FROM SLOPE FACTORS PUBLISHED IN THE HEALTH EFFECTS ASSESSMENT SUMMARY TABLES (1991) AS FOLLOWS: REFERENCE CONCENTRATION = [1E-6 X 70 KG]/[SLOPE FACTOR IN (MG/KG/DAY) X 2L/DAY]
(h) TOTAL ORGANIC CHEMICALS CANNOT EXCEED 100 UG/L.
(i) PROPOSED FOR REVISION
(j) APPLIES TO EACH ISOMER INDIVIDUALLY
(k) SECONDARY MCL
(l) NO HUMAN HEALTH STANDARDS. THIS STANDARD IS FOR PROTECTION OF AQUATIC LIFE.
(m) TWO OPTIONS PROPOSED BY EPA RESULTING IN DIFFERENT STANDARDS.
(n) IF IRON & MANGANESE ARE PRESENT, THE TOTAL CONCENTRATION OF BOTH SHOULD NOT EXCEED 500 MG/L
(q) FORMULA TO DETERMINE STANDARD EXP(0.76[ln (PPM HARDNESS)]+1.06

APPENDIX 3

PASLEY SOLVENTS AND CHEMICALS SITE
ADMINISTRATIVE RECORD FILE UPDATE
INDEX OF DOCUMENTS

5.0 RECORD OF DECISION

5.2 Record of Decision Amendment

P. XXXXXX-XXXXXX Site Workplan: Proposed Air Sparge/Soil Vapor Extraction Workplan Outline, Commander Oil Corporation, Pasley Solvents and Chemicals Site, prepared by Groundwater Technology, Inc., August 13, 1993.

P. XXXXXX-XXXXXX Site Report: Air Sparge/Soil Vapor Extraction Pilot Test Study, Pasley Solvents and Chemicals Site, prepared by Groundwater Technology, Inc., prepared for Commander Oil Corporation, December 1, 1993.

P. XXXXXX-XXXXXX Site Report: Conceptual Design and Detailed Cost Evaluation of the Pasley Site, Air Sparging/Soil Vapor Extraction System, Pasley Chemicals and Solvents Site, Garden City, New York, prepared by Eder Associates, prepared for U.S. EPA, August 1994.

P. XXXXXX-XXXXXX Literature Report: Treatment Technology - Air Sparging: Savior of Groundwater Remediations or Just Blowing Bubbles in the Bath Tub?, prepared by Evan K. Nyer and Suthan S. Suthersan, GWMR, Fall 1993.

P. XXXXXX-XXXXXX Literature Report: A Technology Assessment of Soil Vapor Extraction and Air Sparging, prepared by Mary E. Loden, P.E., Camp Dresser and McKee Inc., prepared for U.S. EPA, September 1992.

P. XXXXXX-XXXXXX Literature Report: Project Summary - A Technology Assessment of Soil Vapor Extraction and Air Sparging, by Mary E. Loden, Camp Dresser and McKee, Inc., for U.S. EPA, September 1992.

P. XXXXXX-XXXXXX Literature Report: Underground Tank Technology Update - Principles of Air Sparging, prepared by Department of Engineering Professional Development, The College of Engineering, University of Wisconsin- Madison, Volume 6, Number 3, June 1992.

P. XXXXXX-XXXXXX Literature Report: Air Sparging: A New Model for Remediation, by Richard A. Brown, Ph.D., and Frank Jasiulewicz, PG, Groundwater Technology Inc., reprinted from Pollution Engineering, July 1992.

P. XXXXXX-XXXXXX Literature Report: The Application of In Situ Air Sparging as an Innovative Soils and Ground Water Remediation Technology, by Michael C. Marley, David J. Hazebrouck, and Matthew T. Walsh, Spring 1992.

P. XXXXXX-XXXXXX Literature Report: In Situ Remedial Methods: Air Sparging, by Keith G. Angell, P.E., David H. Bass, Sc.D., Richard A. Brown, Ph.D., Michael F. Dacey, Curtis Herman, and Eric Henry, Groundwater Technology, Inc., reprinted from The National Environmental Journal, January/February 1992.

P. XXXXXX-XXXXXX Literature Report: Air Sparging, An Innovative Technique for Site Remediation, by Keith G. Angell, P.E., Groundwater Technology, Inc., prepared for Hazardous Materials Management Conference, October 2-4, 1991.

10.0 PUBLIC PARTICIPATION

10.4 Public Meeting Transcripts

P. XXXXXX-XXXXXX Public Meeting Transcript: "Pasley Solvents and Chemicals Site, Post-Decision Proposed Plan", Garden City, New York, December 13, 1994.

10.6 Fact Sheets and Press Releases

P. XXXXXX-XXXXXX Technology Fact Sheet: A Citizen's Guide to Air Sparging, prepared by U.S. EPA, Office of Solid Waste and Emergency Response, March 1992.

10.9 Proposed Plan

P. XXXXXX-XXXXXX Plan: Superfund Post-Decision Proposed Plan, Pasley Solvents and Chemicals Site, Town of Hempstead, New York, prepared by U.S. EPA, November 1994.

APPENDIX 4

APPENDIX 5

DRAFT 4/10/95

RESPONSIVENESS SUMMARY
AMENDED RECORD OF DECISION
PASLEY SOLVENTS AND CHEMICALS SUPERFUND SITE
TOWN OF HEMPSTEAD, NASSAU COUNTY, NEW YORK

RESPONSIVENESS SUMMARY
FOR THE
PASLEY SOLVENTS AND CHEMICALS SITE
TOWN OF HEMPSTEAD, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of citizens' comments and concerns and the U.S. Environmental Protection Agency's (EPA) responses to those comments regarding the EPA's Post-Decision Proposed Plan for the modification of the remedy originally selected for the Pasley Solvents and Chemicals Site (Pasley Site or Site).

EPA originally held a public comment period from November 30, 1994 through December 30,1994. This public comment period was extended to January 30, 1995 as requested by local residents at the public meeting which was held on December 13, 1994. The purpose of the public meeting was to review the Post-Decision Proposed Plan, to present the EPA's preferred modification to the original remedy as defined in the Record of Decision signed on April 24, 1992 (1992 ROD), and to solicit, record, and consider all comments received from interested parties during the course of the public meeting and submitted in writing.

Community interest focused on ground-water contamination on Long Island rather than the Site and EPA's Post-Decision Proposed Plan. Approximately 35 people attended the meeting. The audience consisted of a representative from the local environmental citizens' group, local businessmen, residents, and state and local government officials. Since there were only a few questions from the audience, the question and answer session was brief. EPA was asked to clarify some specifics of the Proposed Plan. A summary of the questions posed and during the meeting are provided in Section III.

This community relations responsiveness summary is divided into the following sections:

I. **OVERVIEW:** This section briefly outlines the EPA's preferred remedial alternative.

II. **BACKGROUND:** This section provides a brief history of community concerns and interests regarding the Pasley Site.

III. **COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES:** This section summarizes oral comments received by EPA at the public meeting for the Pasley Site and those raised in written comments by the Village of Garden City, Citizens Campaign for the Environment, and the Coalition Organized for Public Health and the Environment.

I. OVERVIEW

At the start of the public comment period, EPA published its recommended change to the ground-water portion of the remedy selected in the 1992 ROD for the Site. EPA generally prefers treatment or removal technologies which reduce the toxicity, mobility, or volume of waste contaminants.

EPA screened the two alternatives (the remedy from the 1992 ROD and the preferred remedy from the Post-Decision Proposed Plan), giving consideration to nine key criteria:

- Threshold criteria, including
  - -- Overall protection of human health and the environment
  - -- Compliance with Federal, State, and local environmental and health laws
- Balancing criteria, including
  - -- Long-term effectiveness
  - -- Short-term effectiveness
  - -- Reduction of mobility, toxicity, or volume
  - -- Implementability
  - -- Cost, and
- Modifying criteria, including
  - -- State acceptance, and
  - -- Local acceptance.

EPA weighed State and local acceptance of the remedy prior to reaching the final decision regarding the remedy for the Site.

EPA's selected remedy for cleaning up ground water at the Site is: air sparging/Soil Vapor Extraction. Based on current information, the selected remedy provides the best balance of trade-offs among the alternatives, with respect to the nine criteria.

II. BACKGROUND

Community concern appears high in relation to the overall issue of ground-water contamination on Long Island but minimal regarding the Pasley Site in particular. Specifically, contamination emanating from the Roosevelt Field Site located upgradient of the Pasley Site, a State lead site, is of great concern to the public.

EPA's community relations efforts included preparation of a community relations plan (CRP) in October 1987; an informational public meeting on the Post-Decision Proposed Plan on December 13, 1994; and the establishment of site information repositories, which contain the air sparging/Soil Vapor Extraction Pilot Study Report and other relevant documents, located at the EPA Region II's office in New York City and the Nassau Library System; and a public meeting notice that appeared in the November 30, 1994 edition of Newsday. In addition, EPA prepared a Fact Sheet, describing the Agency's Post-Decision Proposed Plan for the Site. This post-decision proposed plan fact sheet was sent to the information repositories and distributed to citizens and officials listed on EPA's site mailing list in November 1994. A public meeting was held on December 13, 1994.

The CRP for the Pasley Site states that the community's primary request at the onset of RI/FS activities was that accurate information regarding the Site be made available to the public. The local officials and community residents who were interviewed during the development of the CRP, expressed interest in participating in the remedial decision making process and learning about the availability of a Technical Assistance Grant.

The issues raised at the December 13, 1994 public meeting were different from those originally identified in the CRP. Approximately 35 people, including a representative from the local environmental citizens' group, local businessmen, residents, and state and local government officials attended the meeting. During the question and answer session, EPA was asked to clarify some specifics of the Post-Decision Proposed Plan. A summary of the questions posed during the meeting is provided in Section III.

III. COMPREHENSIVE SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS AND RESPONSES

This section summarizes oral comments raised at the public meeting and EPA's responses to these comments.

A. SUMMARY OF QUESTIONS AND RESPONSES FROM THE PUBLIC MEETING CONCERNING THE PASLEY SOLVENTS AND CHEMICALS SUPERFUND SITE

COMMENT:

A faculty member at Nassau Community College wanted to know why a site is a Superfund site rather than a New York State toxic site?

EPA'S RESPONSE:

New York State has an inventory of all the hazardous waste sites in the State. Some of the worst or most hazardous Sites in New York are referred to EPA for inclusion on the National Priorities List or NPL, and are eligible for funds from the Superfund. If a site scores high enough using EPA's Hazard Ranking System model, the site is proposed for the NPL. If the site does not score high enough for inclusion on the NPL, the site would remain on the New York State's list of sites.

The following four questions and comments were made by the Co-Founder of the Coalition for Public Health and the Environment (also submitted written comments.)

COMMENT:

Why didn't EPA excavate the soils instead of allowing the chemicals to keep going down into the glacial area and then possibly into the Magothy.

EPA'S RESPONSE:

Excavating the soils on-site was one of the options that was evaluated during the Feasibility Study. The remedy selected for the remediation of soils is soil vapor extraction.

COMMENT:

The figures that we have of the contaminants are from 1991, so in order to design the air-sparging program for the clean up we have to again go to the site, check all of the monitoring wells, all of those probes, et cetera, and find out what the level of contaminants is now in 1995, correct?

EPA'S
RESPONSE:

One of the first tasks that will be done prior to the design of a remedy will be sampling of all existing wells to get current data.

COMMENT:

In the Proposed Plan EPA talked about installation of 36 air sparging wells and 32 monitoring wells. Will the numbers change after the current contaminant levels are determined ?

EPA'S
RESPONSE:

The number of wells is only an estimate. If during the design of the remedy it is determined that additional wells are necessary for remediation and monitoring of the ground-water plume, they will be added.

COMMENT:

The other thing which is, I think, my biggest concern is that in five years, nothing remained stationary in the migration of contaminants flowing toward Hempstead. Will it be necessary to have the equipment for the air sparging to go beyond that green belt?

EPA'S
RESPONSE:

The area around the Site is populated. The location of the green belt was chosen because it was down gradient of the site and offered an open space to install the various wells.. The off-site well locations are for containment of the ground-water plume. Once the soils on-site (the source area) are cleaned up the levels of contaminants in the ground water will decrease. Therefore, EPA is not anticipating installation of any wells beyond the green belt.

COMMENT:

A resident wanted to know if air sparging only handles the volatile organic compounds?

EPA'S
RESPONSE:

Correct. Air sparging has been shown only to be effective in eliminating volatile and semi-volatile compounds.

COMMENT:

The same resident asked if chromium was a problem at the Site.

EPA'S
RESPONSE:

The results of the ground-water sampling, that was conducted during the remedial investigation, did not indicate the presence of chromium or any other metals above drinking water standards on the Site. However, chromium was detected above the drinking-water standard in one downgradient ground-water monitoring well. Since chromium was not detected on the Site above the drinking water standard, the chromium that was detected downgradient at a higher level appears not be linked to the Pasley Site.

COMMENT:

A College student wanted to know if there was a potential problem with the drinking water on campus because of its close proximity to the Site.

EPA'S
RESPONSE:

The ground water beneath the Site was found to be contaminated. No one is drinking the ground water beneath the Site. All drinking water comes from public supply wells which are monitored by the Nassau County Health Department to ensure that it is not contaminated.

The following three questions and comments were made by a resident from Garden City.

COMMENT:

Do we have any experience with a similar treatment remedy on Long Island at other Superfund Sites?

EPA'S
RESPONSE:

There are currently nine (9) NPL sites, in eight (8) different EPA regions, where air sparging was selected for remediation of the ground water. There are currently no Superfund sites on Long Island utilizing air sparging. However, air sparging is being used extensively on Long Island to clean up problems associated with gasoline stations.

COMMENT:

When you say 60 feet, did we test below 60 feet?

EPA'S
RESPONSE:

The monitoring wells were clustered (three wells each, screened at depths of 30, 60, and 90 feet). Samples were analyzed from each of the three screened depths.

COMMENT:

Is the problem of contaminants in the drinking water aquifer?

EPA'S
RESPONSE:

On Long Island there are four (4) major water producing aquifers. In ascending order, they are: the Basal Lloyd Member of the Raritan Formation which immediately overlies the basement bedrock; the Magothy Formation; the Jameco Gravel; and the unconsolidated glacial deposits. Of these four, the two water-table aquifers, the Magothy and the glacial aquifers, are the most utilized, primarily because they provide the greatest well yields, and they are most accessible for drilling. The Magothy is the aquifer used for drinking water. Contaminants associated with the Pasley Site were only detected in the Glacial aquifer.

COMMENT:

A resident stated that the level of the VOC's was stated in the Post-Decision Proposed Plan as 603,000 ppb. What is the acceptable level that you go by?

EPA'S
RESPONSE:

The level of 603,000 ppb was the number for total VOCs detected in soil samples. The concentration for each VOC detected in the soils was added together to get the total VOCs. The acceptable level or standard is different for each compound.

COMMENT:

The same resident wanted to know what health risks were involved with direct exposure from the soil because of the high concentrations found in the surface soils.

EPA'S
RESPONSE:

Since access to the Site is restricted to the public, and the Site is covered by gravel, it is not considered likely that direct contact with the contaminated soil would occur.

COMMENT:

Do you have any idea, though, of what types of risks that it might pose?

NYSDOH'S
RESPONSE:

The risk posed by the Site was evaluated in the risk assessment prepared by EPA and in the public health assessment prepared by the New York State Department of Health (NYSDOH). There is a toxicological assessment that evaluate a number of contaminants that were identified at the Site. A copy of that report along with all other documents generated for the Site is located in the repository at the Nassau Library System, Uniondale, New York.

The following two questions are on the Roosevelt Field Site.

COMMENT:

A faculty member from Nassau Community College wanted to know what percentage of the ground-water contamination problem is represented by the Pasley Site, compared to the Roosevelt Field Site, compared to the Purex Site? Is that a huge problem? Are there many more chemicals at the Roosevelt Field Site? Is Pasley the main problem here?

NYSDOH'S
RESPONSE:

It is a fair assumption that because the area surrounding the Site is highly commercialized that there are multiple sources of contamination and a co-mingling of problems. There may be areas upgradient from the Pasley Site, including the Roosevelt Field Site which may be responsible for a number of the contaminants detected as entering onto the Pasley Site. To link any one particular site to any amount of contamination, without doing investigations would be impossible. The various sites would have to be thoroughly investigated and the problem would have to be tracked in order for the determination to be made as to the amount of contamination coming from any given site.

COMMENT:

I need to ask honestly of you, can we design and remediate this Site without addressing the strategy and remediation plan for the Roosevelt Field Site?

EPA'S
RESPONSE:

Data collected during the Remedial Investigation/ Feasibility Study revealed that the surface soils on-site were contaminated with high levels of VOCs. The determination was made that the surface soils on-site were a source of contamination to the ground water. So irrespective of upgradient concentrations, if the surface soils on the Site are not remediated, the soil will continue to be a source of contamination to the ground water. However, until upgradient sources are remediated, they will continue to be a source of contamination to the ground water beneath the Pasley Site.

The Roosevelt Field Site is a New York State Department of Environmental Conservation (NYSDEC) lead site. Currently, the NYSDEC is negotiating with potentially responsible parties for possible performance of a Remedial Investigation at the Roosevelt Field Site.

COMMENT:

Would an investigation of the other sites surrounding the Pasley Site shed light on the cases, as well as to the amount of contamination in our area?

NYSDOH'S
RESPONSE:

Based on the results of the Remedial Investigation that was performed at the Pasley Site, it is a fair assumption that contamination upgradient of the site is a source of contamination to the ground water beneath the Pasley Site. In addition, based on the direction of ground-water flow, it is also fair to assume that the Roosevelt Field Site has a role in this.

The following eight (8) questions were asked by the Executive Director from the Citizens Campaign for the Environment.

COMMENT:

You maintain that the air sparging treatment would reach a depth of 60 feet, but it is not clear how far into the ground water itself that represents. Explain how deep the air sparging system would be deployed.

EPA'S
RESPONSE:

The primary consideration in air sparging is not absolute depth (depth below grade) but sparge depth (depth below the water table). The ground water table at the Site fluctuates between 20 feet to 30 feet below grade. The air sparging system will measure 60 feet below grade. Therefore, the sparge depth be approximately 30 to 40 feet.

COMMENT:

The upper glacial aquifer is thicker than 20 to 60 feet.

EPA'S
RESPONSE:

Based upon field observations of representative soils obtained during drilling and available information from other local investigations, it was estimated in the Remedial Investigation that the thickness of the glacial aquifer sediments was 60 feet in the Pasley study area.

COMMENT:

The remedy of choice that you agreed to in 1992 indicated that it would be designed to treat metals in the soil. The new proposed remedy would not be able to treat the metals in the soil. Why was that changed?

EPA'S
RESPONSE:

The 1992 ROD selected remediation of the contaminated soils at the Site by soil vacuuming and/or soil flushing until recommended soil cleanup objectives were met or until no more contaminants could be effectively removed. EPA is not proposing any changes to the soil vacuuming, also called soil vapor extraction portion of the remedy selected for the soils. However, the soil flushing selected for removal of semi-volatiles will be eliminated. It will no longer be necessary to conduct soil flushing to remove semi-volatiles because it is assumed that air sparging will enhance the natural biodegradation of these compounds.

In addition, the 1992 ROD selected remediation of the ground water by Extraction/Metals Precipitation/Air Stripping with Vapor Phase Granular Activated Carbon/GAC Polishing/Recharge. The metal precipitation was not for treatment of metals but for removal of metals prior to air stripping because metals tend to clog up the air strippers making them ineffective.

Further, metals were found not to be a problem at the Site. The major problem associated with the Pasley is VOCs.

COMMENT:

How much of the vapors will escape as a consequence of the recommended technology? At what concentrations do you expect to find them escaping through the soils? And will the system work when the soil is wet?

EPA'S
RESPONSE:

An air sparging system strips VOCs from the ground water and transfers them to the unsaturated zone where they are captured by a soil vapor extraction system (SVE). Without an accompanying SVE system, uncontrolled soil vapor could escape through the soils.

However, the area of influence of the air sparging wells (the zone where VOCs are stripped from ground water) was determined from the pilot study to measure a radius of approximately 15 feet. The area of influence of the SVE wells (area where almost no vacuum is measured) was determined, from the pilot study, to measure a radius of approximately 35 feet. Placing the SVE wells with their greater area of influence above the air sparging wells ensures that all VOCs stripped from the ground water will be captured by the SVE system before they can migrate. The SVE system will work when the soil is wet. However, it is more effective when the soil is dry.

COMMENT:

Will the dampness of the soil affect the effectiveness of the system?

EPA'S
RESPONSE:

The soil vapor extraction system (SVE) will be installed in the unsaturated soil and at a depth that would not be affected by ground water. Any soil dampness would be from rainfall infiltrating through the ground surface. The SVE system would remove the soil dampness along with the VOCs. There could be a short-term effect on removal efficiency when soil dampness is high, but the system efficiency would improve quickly when the SVE system removes the dampness. Moisture in the soil vapor would be removed in a moisture separator installed between the SVE wells and the blower.

COMMENT:

What are the conditions that could affect the efficiency of the air sparging process and what are the conditions at this Site that would cause efficiency levels to drop?

EPA'S
RESPONSE:

The most important factors that could affect the efficiency the air sparging system are any conditions that restrict the

flow of air through the soil matrix, such as soil permeability, geology, and depth.

The soil permeability must be sufficient to allow movement of air. Coarse grained soils such as sand and gravel allows greater movement than fine grained soils, such as silt and clay. Long Island soil is generally fine to medium sand which is favorable for the air sparging application.

Any changes in permeability or in soil structure have the potential for trapping or channeling air flow. Air will flow preferentially through areas of high permeability. If a high permeability layer exists above the sparge interval, air flow can be channeled. Highly layered soils are not amenable to air sparging.

The primary consideration in air sparging is not absolute depth (depth below grade) but sparge depth (depth below the water table). There are no known absolute limitations with respect to sparge depth. The issue with the sparge depth is that the greater the depth, the greater the likelihood of barriers or layers which can trap or channel air. The general rule is to utilize air sparging at shallow to moderate depths.

There were conditions at the Site that was found to cause efficiency levels of the air sparging system to drop. The effect of the soil characteristics was demonstrated on site during the air sparging/SVE pilot study which showed significant volatile organic compounds removal rates and established the effective area of the influence of the system. The area of influence determined in the pilot study will be used to design an air sparging/SVE system that will cover the contaminated area.

COMMENT:

What about the high levels of contamination that you indicated, up to 600,00 parts per billion contaminants in some of the portions of the Site. Does the high level of contamination effect the effectiveness of the technology?

EPA'S
RESPONSE:

The high level of the contaminants detected in the soils would not affect the soil vapor extraction system because the air sparging/SVE system would remove contaminants on a continuous basis. The removal of contaminants would be high during the initial system operation which would reflect the high concentration of VOCs contaminants in the soil. The removal levels would decrease with decreasing concentrations.

COMMENT:

In the public health assessment, prepared by the New York State Department of Health (NYSDOH), the development of a registry for VOC exposures was discussed. I would like to formally requested that such a registry be created.

NYSDOH'S
RESPONSE:

The Public Health Action Plan for the Pasley site contains a description of actions to be taken by the USEPA, the Agency fo Toxic Substances and Disease Registry, and/or the NYSDOH at and near the site subsequent to the completion of the public health assessment. A VOC exposure registry was one of the items mentioned and will be performed.

COMMENT:

A resident wanted to know if there will be a secondary back-up system.

EPA'S
RESPONSE:

Based on the results of the air sparging/SVE pilot study and on research into other similar sites, EPA believes that air sparging is an effective remedy for remediating the Site. There is no alternate plan to switch methods if performances standards are not being met. However, there are contingency measures which are outlined in the Statement of Work that can be implemented to enhance the air sparging/SVE process if the Performance Standards are not being met. Specifically, contingency measures may include, but are not limited to, the following:

1. Changing the SVE/air sparging well configuration, blower capacity, compressor size, or vapor treatment systems;

2. Enhancing the mass transfer mechanism by either utilization of a higher vacuum or by heating to increase removal of contaminants;

3. Enhancing biodegradation by the addition of nutrients to the subsurface;

4. Pulsing of the SVE/air sparging wells.

COMMENT:

A resident of Garden City wanted to know how many times in the United States that air sparging has actually been

utilized and also whether or not it has been utilized at a site immediately downgradient to a residential area?

EPA'S
RESPONSE:

Air sparging applied to ground-water remediation is a relatively new technology but is backed-up by a long and successful history of industrial air sparging experience. The air sparging technology has been used with great success to clean spills at gasoline stations. There are currently nine (9) NPL sites, in eight (8) different EPA regions, where air sparging was selected for remediation of the ground water.

Air sparging was first used as a remediation technology in Germany in 1985 to enhance the clean-up of ground water contaminated with volatile organic compounds. If the system is designed correctly, it can be utilized at sites which are near residential areas.

B. SUMMARY OF WRITTEN COMMENTS PREPARED BY THE VILLAGE OF GARDEN CITY, GARDEN CITY, NEW YORK AND EPA RESPONSES CONCERNING THE PASLEY SOLVENTS AND CHEMICALS SUPERFUND SITE .

Potential for the Accumulation of vapors in enclosed spaces

COMMENT 1:

"The Village is questioning the extent of potential adverse effects based on the fact that there is potential for the possible accumulation of vapors in enclosed spaces. How will proper system design and monitoring minimize the health and environmental risks to manageable levels?

What are the extent of the risks and do they only impact commercial buildings adjacent to the site or do they extend to residential areas downgradient of the source?"

EPA'S
RESPONSE:

An air sparging system strips volatile organic compounds (VOCs) from the ground water and transfers them to the unsaturated zone where they are captured by a soil vapor extraction system (SVE). Without an accompanying SVE system, uncontrolled soil vapor could flow into enclosed spaces.

Therefore, the SVE is designed to ensure that there is always a vacuum in the unsaturated zone when the air sparging system is in operation so that VOCs can not accumulate in the unsaturated zone and migrate away from the immediate area of the extraction wells.

The design will incorporate an electrical interlock system that will prevent the air sparging system from operating unless the SVE blower operates. The SVE blower controls the local migration of gas released from the ground water into the unsaturated zone. In addition, the area of influence of the air sparging wells (the zone where VOCs are stripped from ground water) was determined from the pilot study to measure a radius of approximately 15 feet. The area of influence of the SVE wells (area where almost no vacuum is measured) was determined, from the pilot study, to measure a radius of approximately 35 feet. Placing the SVE wells with their greater area of influence above the air sparging wells ensures that all VOCs stripped from the ground water will be captured by the SVE system before they can migrate and accumulate in enclosed spaces.

Further, soil gas will be monitored at the property line and the air sparging flow rate will always be maintained at a lower rate than the SVE flow rate. This will keep the vapors that are stripped within the influence of the SVE system.

The design and monitoring of the air sparging/SVE system will ensure that any potential risks associated with the accumulation of vapors in enclosed spaces are eliminated. There is no chance that VOCs can impact commercial buildings or extend to downgradient residential areas when the SVE vacuum is operating.

Comparison to Pump and Treat System

COMMENT 2:

"The Village is looking for assurance that the cleanup produced by the air sparging method will be as complete and effective as the original pump and treat. Is this method being substituted because of the problems associated with the site due to upgradient contamination which will contribute to the contamination of this site?"

EPA'S
RESPONSE:

The Post-Decision Proposed Plan compared the effectiveness of a pump and treat remedy to a air sparging/SVE remedy by utilizing EPA's nine criteria. Based on the detailed evaluation of both remedies and on the results of the air sparging/SVE pilot tests, EPA believes that air sparging combined with SVE will be as complete and as effective as the pump and treat remedy. However, the air sparging/SVE system is expected to remediate the VOCs in the ground water, on and off the Site, in less time and at a substantially lower cost than pump and treat.

In actuality, ground-water treatment by air sparging operates on the same mass-transfer principles as air stripping, except that air sparging is accomplished by injecting air into the ground water instead of exposing the ground water to the air in a stripping tower.

Upgradient contamination will continue to contribute to contamination at the Pasley Site irrespective of whether pump and treat or air sparging/SVE is chosen. However, the air sparging/SVE remedy will not mobilize the surrounding plumes and spread the contamination.

Best Available Method For Remediation of Site

COMMENT 3:

"Does the air sparging method represent the best available technology to clean up the Pasley site?"

EPA'S
RESPONSE:

The 1992 Record of Decision concluded that the pump and treat technology was the best available method for remediation of the Site. More recent information, including information gained from the pilot study at the Pasley Site, indicates that removing VOCs by air sparging can achieve the equivalent result as a pump and treat system but in less time and at a substantially lower cost. Air sparging applied to ground-water remediation is a relatively new technology but is backed-up by a long and successful history of industrial air sparging experience. The air sparging technology has been used with great success to clean spills at gasoline stations.

Chromium Detected

COMMENT 4:

"The Post-Decision Proposed Plan fails to note that there was chromium found at the site. The report does not indicate whether the air sparging will bring the chromium levels to drinking water standards. It only indicates that the air sparging will eliminate volatile organics. Please address the question of chromium removal as well as other contaminants other than volatile organics."

EPA'S
RESPONSE:

All available information pertaining to activities at the

Pasley Site indicates that the Site was a former tank farm used for the storage of oils, solvents and chemicals. Activities did not include the use of metals, such as chromium. In addition, the results of the ground-water sampling, that was conducted during the remedial investigation, did not indicate the presence of chromium or any other metals above drinking water standards on the Site. However, chromium was detected above the drinking water standards in one downgradient ground-water monitoring well . Since chromium was not detected on the Site above the drinking water standard, the chromium that was detected downgradient at a higher level could not be linked to the Pasley Site. As such, the remediation of chromium as part of he overall remediation of the Pasley site is not warranted.

Air sparging has been shown only to be effective in eliminating volatile and semi-volatile compounds. Air sparging can not be used to treat metals. The only contaminants detected in the ground water at levels of concern were volatile organics compounds.

Contingency Remedy

COMMENT 5:

"Regulatory action regarding failure or ineffectiveness of air sparging performance have not been addressed in the plan. How long will the process be allowed to continue if unsatisfactory removals are being obtained? Is there an alternate plan in place to switch methods if the need arises?"

EPA'S
RESPONSE:

Based on the results of the air sparging/SVE pilot study and on research into other similar sites, EPA believes that air sparging is an effective remedy for remediating the Site. The SVE/air sparging remediation process system will be operated for a minimum of five (5) years. After such time the SVE/air sparging remediation system will continue to be operated and maintained until the Performance Standards have not been exceeded for a period of three (3) consecutive years or until EPA determines following the implementation of Contingency Measures outlined, below, that Operation and Maintenance of the system may be terminated.

There is no alternate plan to switch methods if performances standards are not being met. However, there are contingency measures which are outlined in the Statement of Work that can be implemented to enhance the air sparging/SVE process if the Performance Standards are not being met. Specifically,

contingency measures may include, but are not limited to, the following:

1. Changing the SVE/air sparging well configuration, blower capacity, compressor size, or vapor treatment systems;

2. Enhancing the mass transfer mechanism by either utilization of a higher vacuum or by heating to increase removal of contaminants;

3. Enhancing biodegradation by the addition of nutrients to the subsurface;

4. Pulsing of the SVE/air sparging wells.

COMMENT 6:

"The Village insists that the site upgradient to the Pasley site be remediated also so that contamination to the Pasley site area can be stopped. This coordination will allow the ultimate cleanup of the Pasley site ground water to meet current drinking water standards."

EPA'S RESPONSE:

Contamination upgradient of the Site is contributing to the ground-water contamination at the Site. The Roosevelt Field Site is a suspected source of the contamination detected in the Pasley upgradient ground-water monitoring well cluster. The Roosevelt Field Site was listed as a Class GA, source of potable water supply, on the New York State Registry in July 1991. The New York State Department of Environmental Conservation is currently negotiating with potentially responsible parties for possible performance of a Phase II Remedial Investigation at the Roosevelt Field Site.

C. SUMMARY OF WRITTEN COMMENTS PREPARED BY THE COALITION ORGANIZED FOR PUBLIC HEALTH AND THE ENVIRONMENT, GARDEN CITY, NEW YORK AND EPA RESPONSES CONCERNING THE PASLEY SOLVENTS AND CHEMICALS SUPERFUND SITE

COMMENT:

".....It would appear that this remediation (ground water) plan can not be achieved utilizing the proposed technology. ....."

EPA'S
RESPONSE:

The effectiveness of air sparging was demonstrated on Site during the air sparging pilot study which showed significant volatile organic compound (VOC) removal rates and established the effective area of influence of the system. The data developed in this pilot study, which are documented in the Air Sparging/Soil Vapor Extraction Pilot Test Study Report, showed that air sparging is an effective remedial technology for remediating ground water at the Pasley Site.

COMMENT:

"The air sparging Pilot Test Study states that this remediation technology is as effective as A Pump and Treat Method. This can not be documented since no NPL site remediation project using only air sparging has been utilized. Long Island has its own unique geography (geology). No technical documentation exists to show how effective or fast this experimental technology would be in remediating existing ground water plumes on Long Island."

EPA'S
RESPONSE:

Based on the results of the air sparging/SVE pilot study and on research into other similar sites, EPA believes that air sparging combined with SVE will be as effective as the pump and treat remedy. There are currently nine (9) NPL sites, in eight (8) different EPA regions, where air sparging was selected for remediation of the ground water.

Air sparging is only useful at sites that contain soils that can be effectively treated by soil vapor extraction. For air sparging to be successful, soils in the saturated zone must allow the injected air to escape readily into the ground water. Coarse grained soils such as sand and gravel allow greater movement than fine grained soils, such as silt and clay. Long Island soil is generally fine to medium sand which is favorable for the air sparging/SVE application.

The air sparging/Soil Vapor Extraction is not experimental. Air sparging was first used as a remediation technology in Germany in 1985 to enhance the clean-up of ground water contaminated with volatile organic compounds. Currently, air sparging is widely practiced at hazardous waste sites throughout Europe.

The technical documentation that shows the effectiveness of air sparging is the Air Sparge/Soil Vapor Extraction Pilot

Test Study Report. The air sparging pilot test showed significant VOC removal rates and established the effective area of influence of the air sparging/SVE system.

COMMENT:

"Air sparging is proven to be effective at subsurface depths of 60' or shallow aquifers. Contamination exists in both the shallow (glacial aquifer) and the deeper Magothy aquifer at the Pasley Site. The Pasley Solvents and Chemical Site (public Health and Assessment, Aug. 22, 1994) documents this." .....

EPA'S
RESPONSE:

First, the primary consideration in air sparging is not absolute depth (depth below grade) but sparge depth (depth below the water table). There are no known absolute limitations with respect to sparge depth. Second, no contamination associated with the Pasley site was detected in the Magothy aquifer.

Based on results of soil borings taken during the Remedial Investigation, it was determined that unconsolidated sediments encountered to a depth of 60 feet belong to the Glacial aquifer. All of the deep ground water monitoring wells (90 feet) were screened in the upper portion of the Magothy aquifer. The thickness of the Magothy aquifer is estimated at 400 to 500 feet in the Pasley study area.

A group of VOCs which were found at the Site but which were not detected in the upgradient well cluster were chosen to define the plume associated with the Site. This group of compounds was defined as total volatile organic index compounds (TVOIC). The highest level of TVOIC contaminants with the largest plume was found at the 20 to 30 foot depth in the upper glacial aquifer. The maximum level of TVOIC detected was 37,000 parts per billion (ppb). The areal extent of the plume at a depth of 50 to 60 feet (lower glacial aquifer) was found to be smaller, and centered on a ground water monitoring well directly downgradient of the Site. The maximum level of TVOIC detected at that location was 15ppb. For the 70 to 90 foot interval (Upper Magothy aquifer) no TVOIC was found directly downgradient or on the Site. However, 13 ppb of TVOIC was detected at the eastern edge of the Site. Further, the contamination detected in the Upper Magothy aquifer did not appear to result from the Site because it did not follow the south southwesterly direction of ground-water flow from the Site.

The contamination that was referred to in the Public Health Assessment pertained to two VOCs, other than TVOIC, which were detected in the deep ground-water monitoring well on-site but were also detected in the upgradient deep ground-water monitoring well cluster, at higher concentrations. Since the concentrations in the upgradient ground-water well are higher than results on-site, the conclusion was made that the contamination was coming onto the Site.

D. SUMMARY OF WRITTEN COMMENTS PREPARED BY THE CITIZENS CAMPAIGN FOR THE ENVIRONMENT, MASSAPEQUA, NEW YORK AND EPA RESPONSES CONCERNING THE PASLEY SOLVENTS AND CHEMICALS SUPERFUND SITE.

COMMENT:

"CCE opposes using unproven technology to remediate groundwater contamination resulting from hazardous waste site on Long Island. ..... According to your comments there has been no completed groundwater remediation project at a NPL site using only air sparging as the Remediation technology. Without the documented evidence that can only be provided by a successful groundwater remediation project in an area geologically similar to Long Island, no technical documentation exists as to how effective or swift that experimental technology would be should it be implemented on Long Island....."

EPA'S
RESPONSE:

Air sparging/SVE is an innovative treatment technology. In general, a treatment technology is considered innovative if it has had limited full-scale application. However, it is not unproven.

The pilot study showed that air sparging can be effectively used at the Pasley Site to remediate the Site and capture contaminants within a radius of 10 to 15 feet from each air sparging well. The VOCs would be stripped within the air sparging zone as the ground water passes through it. The actual cleanup time cannot be determined until the system is operating and monitoring data is evaluated over a period that is sufficient to show a reliable trend.

The Pasley pilot study and use at other sites proves that air sparging is a feasible and effective remedial technology. The soil conditions on Long Island allow us to take advantage of this technology. Also, see response to comment 5, page 17, above.

APPENDIX 6