DECLARATION STATEMENT - RECORD OF DECISION
OPERABLE UNIT I

Orange and Rockland Utilities
Inactive Hazardous Waste Site
West Nyack, Rockland County, New York
Site No. 3440014

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected Operable Unit I (OU-I) remedial action for the Orange and Rockland Utilities (ORU) inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the ORU Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is listed in Appendix A.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the RI/FS, and the evaluation presented in Section 6, ORU has elected to proceed with Alternatives PCB-S4 and BTEX-S3 as the remedy for this site, and NYSDEC concurs with this remedy. The remedy consists of removal and off-site disposal of soils contaminated with PCBs and petroleum- related contaminants at levels exceeding the NYSDEC criteria. The components of the remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved.

BTEX

- Excavation and disposal of BTEX contaminated soil with total xylene exceeding 1.2 ppm,
- Sampling of the bottom and the sides of excavation for total benzene,
- Sampling of soil for benzene concentration in TCLP extract where total benzene exceeds 0.06 ppm,
- Additional excavation where benzene exceeds .06 ppm in total and 0.7 in TCLP extract and dispose to an off-site facility, and
- Backfill with clean fill.

PCBs

- Excavation of the top foot of soil with PCB concentrations above 1 ppm,
- Excavation of sub-surface soils with PCB concentration above 10 ppm,
- Off-site disposal of soils containing PCBs at greater than 10 ppm,
- Backfilling excavated areas up to one foot below original grade with clean fill or site soil with less than 10 ppm of PCBs,
- Backfilling remaining excavated areas to original grade with clean fill, and
- Placement of asphalt cap consisting of 12 inches of structural sub-base, 3 inches of a binder course and $1^1/_2$ half inch of wearing course.

Post-Remedial Monitoring

- Monitor the effect of the selected remedy on the groundwater quality.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

10/20/97
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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SECTION 1: SITE LOCATION AND DESCRIPTION

The site is approximately three acres in size and is situated north of Route 59 and immediately north of Old Nyack Turnpike, and seven-tenths of a mile west of the intersection of Route 59 and 303. The Site is bordered on the west by Consolidated Rail Corporation (Conrail) rail tracks and a small property occupied by Yaboo Fence Company, Inc. for storage purposes. The Hackensack River borders the Site to the north and east **(Figure 1)**. A site plan is presented on **Figure 2**. South of the site, across route 59 is the Grant Hardware site (Site ID No. 344031) where a Remedial Investigation (RI/FS) is being conducted to determine the extent of halogenated solvents in the groundwater.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

From the late 1920's to approximately 1981, the site was used to store and repair electrical transformers, capacitors and other utility equipment, some of which may have contained PCBs. Two underground storage tanks located in the center of the Site were used to store gasoline for fueling ORU's utility service repair trucks. In April 1980, it was discovered that one tank was leaking. As a result, this tank was repaired and fiberglass lined in 1980 and removed in 1989 after failing tightness testing. The second tank was also lined with fiberglass in 1980 and found to be sound, and remains in service for fuel storage.

2.2: Remedial History

Presented below is a chronological list of previous investigations performed at the Site:

1980: In response to concerns over the possibility of soil contamination and migration of PCBs into the Hackensack River due to the historical operation of the facility, a soil, surface water, sediment and groundwater investigation was performed. Orange & Rockland Utilities (ORU) concluded that PCBs were not migrating from the site but recommended that monitoring wells be installed and a short term monitoring program be instituted.

June-August 1981: ORU examined on-site air, soil and groundwater and Hackensack River surface water and sediment for PCB content. PCBs were detected in low concentrations in the following media: soil(on-site), groundwater (on-site), surface water and sediment from the nearby Hackensack River.

May 1987: A Phase I investigation was performed for the NYS DEC, which recommended that a Phase II investigation be performed.

May 1988: USEPA completed a Preliminary Assessment of the Site. The report recommended that surface water sampling be conducted at the intake point of the Nyack Water Company. Subsequent sampling of the surface water at the intake point demonstrated no impact on the intake water quality.

August 1988: A Final Draft Inspection Report of the Site was completed for the USEPA in which recommendations for further action at the Site were identified as being a high priority.

July 1989: A groundwater investigation was performed due to a failed integrity test of an on-site underground storage tank (UST) and the petroleum contaminated soil that was encountered during its subsequent excavation. Five monitoring wells were installed and sampled and three existing wells were

also sampled. Based on the analytical results, the presence of petroleum-related constituents and the probability of chlorinated solvents in on-site groundwater was confirmed.

February 1990: ORU sampled on-site groundwater and surface water and sediment from the Hackensack River. All samples were analyzed for PCBs, which was detected in only one sediment sample from the Hackensack River.

July 1991: ORU signed a consent Order with the NYS DEC to conduct a Phase II investigation to verify that no PCBs or chlorinated solvents were present in on-site soil and/or groundwater.

March 1992: A Phase II investigation was performed. Sampling of on-site soil (shallow surface and subsurface), surface water and sediment from the Hackensack River and on-site groundwater was conducted. Each sample was analyzed for the Target Compound List (TCL) organic parameters. PCBs were only identified in on-site soil and Hackensack River sediments samples, while chlorinated solvents were identified in on-site soil and groundwater.

August 1994: ORU enters into a consent order to perform an RI/FS

November 1995: RI was performed

April 1996: RI report was submitted.

November 8, 1996: Draft Feasibility Study Report was submitted

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and the environment, the ORU has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.

The RI was conducted between November 1995 and March 1996. The RI Report dated April 24, 1996 describes the field activities and findings of the RI in detail. The locations of wells and sampling points are shown on **Figure 2**

The RI included the following activities:

- Review of existing data and inspection of existing monitoring network
- Site mapping and topographic survey
- Install two additional bedrock interface monitoring wells and one shallow overburden monitoring well
- Establish groundwater flow pattern in the various hydrogeologic units

- Collect and analyze soils surface and subsurface soil samples including those from the former UST area and in the vicinity of the former Dry Well Area

- Obtain surface water and sediment samples from selected locations to confirm prior analytical results and assess background results

- Perform additional in-situ hydraulic conductivity testing

- Perform a fish and wildlife analysis

- Perform 2 soil bores, collect 32 subsurface soil/refuse samples at the Suspected Disposal Area, and analyze 4 of these samples

- Excavate 3 test pits at the UST area, collect 18 samples and analyze 4 soil samples from the test pits

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the ORU site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of the State Sanitary Code. Soil cleanup guidelines in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 and Spill Technology and Remediation Series (STARS) Memo #1, background conditions, and risk-based remediation criteria were used as SCGs for soil. The Division of Fish and Wildlife Technical Guidance for Screening Contaminated Sediments was used for surface water sediments.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations in water are reported in parts per billion (ppb), and those for soil and sediment are in parts per million (ppm). For comparison purposes, SCGs are given for each medium.

3.1.1 Nature of Contamination

As described in the RI Report, many soil, groundwater and sediment samples were collected at the Site to characterize the nature and extent of contamination. The contamination in the soils essentially consist of PCBs and petroleum related contaminants, and their characteristics are briefly described in **Appendix A.**

3.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in groundwater, soil and the river sediment and compares the data with the proposed remedial action levels (SCGs) for the Site. Since this OU-I deals with the remediation of the soil only, a summary of the findings of the investigation, as it relates to the soil, is presented below:

Soil

PCB: For unrestricted future use of a site, the cleanup guidance level for PCBs in surficial soil , generally agreed to be between 0 to 2 feet below final ground surface, is 1 ppm and that for lower depths is 10 ppm. The corresponding cleanup guidance levels for industrial sites are 10 ppm and 25 ppm, but will usually include restrictions on the use of the property. ORU elects to cleanup the site to ensure unrestricted use of the site. Low levels of PCB contamination exist generally throughout the site, and in locations exceed the cleanup guidance levels. Two areas in particular , the northern PCB area and the Eastern PCB area (**Figure 3**) have maximum surficial concentrations of 58 and 45 ppm respectively, thus posing an unacceptable risk to the public health through contact with and ingestion of PCB. PCBs at lower depths are to be found exceeding 10 ppm at only one location. A sample from boring SB-24 at a depth of 4 feet contained PCBs at 120 ppm.. Additional borings conducted to further delineate the extent of this contamination did not encounter any PCBs concentration in excess of 10 ppm.

BTEX: The contamination of the soil by BTEX was caused by a leak in the underground gasoline storage tank. The DEC is proposing to have ORU cleanup the spill as a part of this remedial action. It has proposed the use of TAGM 4046 and STARS Memo #1 be used for establishing cleanup levels. Total xylenes and benzene are key contaminants that will be used to measure the effectiveness of the cleanup. As **Table 1** shows, total xylenes predominate the mass of contaminants, and benzene because of its toxicity, has a low cleanup level. The cleanup levels for xylene and benzene are 1.2 ppm and .06 ppm respectively. A total of 322 samples were analyzed using field laboratory instruments. **Figure 4** shows the area of the soil contaminated in excess of the cleanup levels. The areal extent of the soil in excess of the cleanup levels encompass the underground storage tanks. This excess extends to 14 feet below ground surface. The maximum concentration of xylenes is 2,365 ppm and that for benzene is 215 ppm. The levels of these compounds are high enough to pose significant threat to the public health through inhalation and ingestion, and the environment through contamination of groundwater.

3.2 Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Completed pathways which are known to or may exist at the site include:

- ingestion of soil that are contaminated with PCB and BTEX.
- inhalation of VOCs from the gasoline spill.

While the contaminated area at the site is not in use for any sustained activity by ORU personnel, it may pose a significant threat if a change in use occurs. The surficial soil contains contaminants in excess of cleanup levels designed to protect public health, should the site be put to unrestricted use.

3.3 Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the

potential impacts from the site to fish and wildlife resources. The following pathways for environmental exposure have been identified:

The only complete exposure pathways through which aquatic life could potentially be exposes to site related contaminants is through ingestion or contact with water and/or sediments or ingestion of impacted aquatic life from the Hackensack River water. The only exposure pathway for terrestrial life is through ingestion/direct contact with Hackensack River water and or sediments or ingestion of aquatic life.

Analytical data indicate that PCBs were the only site-related compound detected in Hackensack River surface water or sediments, and since Hackensack River water data from samples collected adjacent to and downstream of the site had lower concentrations of PCBs than in water samples upstream, only the presence of PCBs in sediments are evaluated.

Sediment sample SED-1 **(Figure 2)** collected upstream of the site exhibited PCB concentration of 0.071 ppm. Three of the seventeen samples collected adjacent to and down gradient of the site exceeded the background levels. Sample SED-6 had 0.100 ppm, SED-7 had 0.230 ppm, and SED-11 had 3.000 ppm. All three sample locations are downstream of the Nyack Water Company's water intake. Sediment samples SED-2 to SED-5, collected upstream of the intake, had no detectable levels of PCBs. The NYS DEC's Division of Fish and Wildlife have concluded that the impact on fish and wildlife because of this contamination are not appreciable and that, based on available data, no clean up of the sediment is necessary.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and Orange and Rockland Utilities, Inc., as a PRP, entered into a Consent Order on August 2, 1994 (Index No. W3--5-8-93-12). The Order obligates ORU to implement an RI/FS program. Upon issuance of the Record of Decision the NYSDEC will approach the PRP to implement the selected remedy under a separate Order on Consent.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Operable Unit No. I (OU-I), which is the subject of this PRAP, consists of removal of soils that are contaminated with PCBs and PHCs in excess of the NYS DEC cleanup goals. An Operable Unit represents a portion of the site remedy which for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remediation of the groundwater at the site will be performed under OU-II. While a considerable body of data on groundwater quality has been collected, the remedy will be deferred because, in addition to the contaminants from on-site releases, there is a suspected up gradient off-site source that has be to located and, if necessary, remediated before the on-site groundwater cleanup is undertaken. The impact of soil cleanup on groundwater quality must also be evaluated before groundwater remedial activities are implemented.

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance

(SCGs) and be protective of human health and the environment. ORU has expressed an intent to return the site to unrestricted use.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- ***Reduce, control, or eliminate to the extent practicable the contamination present within the soils***
- ***Eliminate the threat to surface waters by eliminating any future contaminated surface run-off from the contaminated soils on site to the Hackensack River.***
- ***Eliminate the potential for direct human or animal contact with the contaminated soils on site.***
- ***Mitigate the impacts of contaminated groundwater to the environment.***
- ***Prevent, to the extent possible, migration of contaminants to groundwater.***

SECTION 6: SUMMARY OF THE EVALUATION OF REMEDIAL ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the ORU site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled **"Feasibility Study Report, Orange & Rockland Utilities, Inc., West Nyack , New York, Inactive Hazardous Waste Site #: 344014"**, dated March 1997.

Tables 2 & 3 summarize the various alternatives evaluated. A summary of the analysis follows. As used in the following text, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

6.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated soils at the site.

Alternatives PCB-S2, S3 & S4 involve removal and disposal of PCB to an off-site facility. Since PCB-S4 removes the most PCBs from the site, and is consistent with ORU's intended use of the site, it is the only alternative whose evaluation will be presented here.

Alternatives BTEX-S2 and BTEX-S4 consist of soil Vapor Extraction and Bio-sparging Technologies. The site's soils strata contain an organic silt layer which in places is 5 feet deep and covers a significant portion of the area that needs BTEX cleanup. Under this condition, the technologies in the above alternatives would be ineffective or inefficient and are not considered any further.

\No Action

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. Alternatives PCB-S1 and BTEX-S1 are no action Alternatives. This alternative would leave the site in its present condition and would not provide the necessary protection to human health or the environment.

PCBs

Costs

Capitol Cost :	$479,000
Annual O&M Cost	$ 15,000
Total Present Worth	$620,000

PCB-S4 consists of the following tasks **(Figure 3)**:

- Excavation of the top foot of soil with PCB concentrations above 1 ppm,
- Excavation of sub-surface soils with PCB concentration above 10 ppm,
- Off-site disposal of soils containing PCBs at greater than 10 ppm,
- Backfilling excavated areas up to one foot below original grade with clean fill or site soil with less than 10 ppm of PCBs,
- Backfilling excavated areas to original grade with clean fill, and
- Placement of asphalt cap consisting of 12 inches of structural sub-base, 3 inches of a binder course and $1^1/_2$ half inch of wearing course.

BTEX

Costs

Capitol Cost:	$879,000
Annual O&M Cost:	$0
Total Present Worth	$879,000

BTEX-S3 consists of the following elements **(Figure 4)**:

- Excavation and disposal of BTEX contaminated soil with total xylene exceeding 1.2 ppm,
- Sampling of the bottom and the sides of excavation for total benzene,
- Sampling of soil for benzene concentration in TCLP extract where total benzene exceeds 0.06 ppm,
- Additional excavation where benzene exceeds .06 ppm in total and 0.7 in TCLP extract and dispose to an off-site facility, and
- Backfill with clean fill.

6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the FS Report with its addendum.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The NYSDEC TAGM 4046 recommends cleanup objectives for PCBs of 1.0 ppm from 0 to 2 feet below surface and 10 ppm at depths greater than 2 feet for unrestricted use. With the 16 inch topping in place alternative PCB-S4 would be in compliance with the guidance in the TAGM. The SCGs for BTEX as set out in **Table 2** would be achieved by excavation and removal of soil containing BTEX in excess of SCGs.

Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective. The alternatives will provide a high level of protection to human health and the environment. Potential risks resulting from exposure to PCBs and BTEX would be eliminated under these alternatives.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives. There would be minimum impact to the community during the implementation of this alternative. Fugitive dust would be controlled using engineering measures. Traffic increases due to transportation of soil would have minimal impact on the community as this is a one time occurrence with an approximate duration of five weeks.

Risks to workers involved in the remedial action to the nearby would be mitigated would be controlled and mitigated by the implementation of a Health & Safety Plan in accordance with OSHA.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

The risks to potential future receptors due to direct dermal contact or incidental ingestion of contaminated soils is mitigated effectively by removal of the affected soil. Disposal of affected soils in an off-site approved landfill effectively isolates the constituents from potential receptors. There would be no longer management or deed restrictions placed on the Site in regard to this alternative for soils, since risks to human health and the environment would be sufficiently and permanently mitigated.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site. The toxicity of the materials being excavated and removed is not reduced. However, reduction in contaminant mobility is achieved by encapsulation of the material within a controlled landfill environment.

6. Implementibility. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..
All components of this alternative utilize relatively common construction equipment and materials. Soil excavation and removal utilizes routine construction procedures. It may be necessary to obtain a hazardous waste generator USEPA Identification number. Soil shipments considered hazardous must be manifested and transported by a permitted waste transporter. There are no aspects of these alternative that would require specialty services. One nearby TSCA regulated facility has been identified as potentially capable of receiving such waste. It is anticipated that the construction activities would be completed within a five week time frame.

Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in **Table 2.**

The estimated cost for implementation of PCB-S4 is $620,500. Estimated cubic yards of contaminated soils that would be handled are as follows: PCB at greater than 1 ppm and less than 10 ppm 950 cu. yds.; PCBs at greater than 10 ppm and less 50 ppm 1,100 cu. yds.; PCBs at greater than 50 ppm 150 cu. yds.

The estimated cost for implementation of BTEX-S3 is $879,000. The estimated quantity of contaminated soils that would be excavated is 6,000 cu. yds.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

7. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary included as **Appendix C** presents the public comments received and the Department's response to the concerns raised. In general the public comments received were supportive of the selected remedy.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 6, ORU has elected to proceed with Alternatives PCB-S4 and BTEX-S3 as the remedy for this site, and NYSDEC concurs with this remedy.

The estimated present worth cost to implement the remedy is $1,500,000. The cost to construct the remedy is estimated to be $1,359,000 and the estimated average annual operation and maintenance cost for 30 years is $141,000.

The elements of the selected remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS would be resolved.

BTEX

- Excavation and disposal of BTEX contaminated soil with total xylene exceeding 1.2 ppm,
- Sampling of the bottom and the sides of excavation for total benzene,
- Sampling of soil for benzene concentration in TCLP extract where total benzene exceeds 0.06 ppm,
- Additional excavation where benzene exceeds .06 ppm in total and 0.7 in TCLP extract and dispose to an off-site facility, and
- Backfill with clean fill

PCBs

- Excavation of the top foot of soil with PCB concentrations above 1 ppm,
- Excavation of sub-surface soils with PCB concentration above 10 ppm,
- Off-site disposal of soils containing PCBs at greater than 10 ppm,
- Backfilling excavated areas up to one foot below original grade with clean fill or site soil with less than 10 ppm of PCBs,
- Backfilling remaining excavated areas to original grade with clean fill, and
- Placement of asphalt cap consisting of 12 inches of structural sub-base, 3 inches of a binder course and $1^1/_2$ half inch of wearing course.

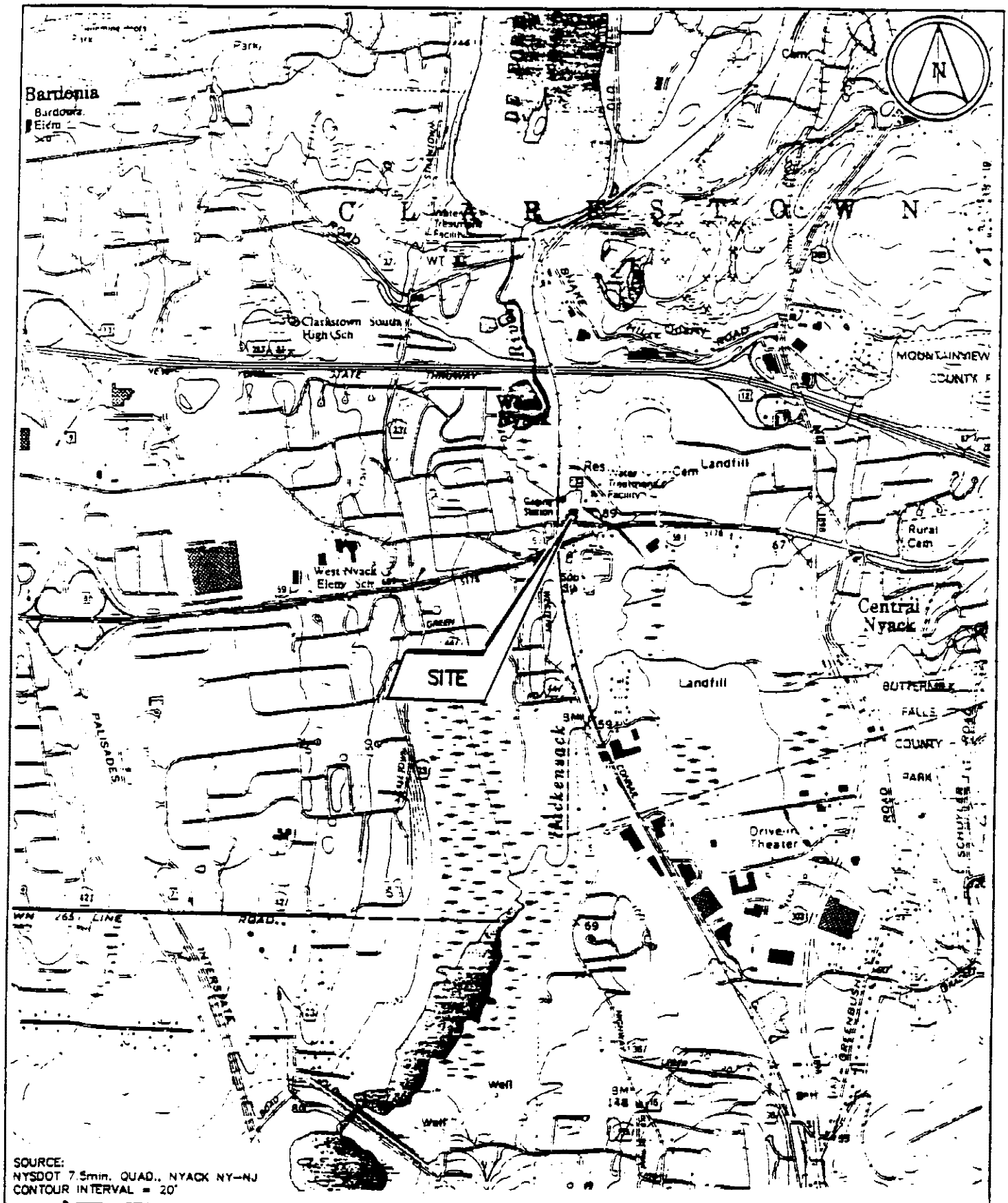
Post-Remedial Monitoring

- Monitor the effect of the selected remedy on the groundwater quality.

SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- NYSDEC's Proposed Remedial Action (PRAP) was released to the public for comments on August 28, 1997
- A public meeting was held on September 9, 1997 to inform the public of the details of the PRAP, and solicit oral comments.
- In September 1997 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.



SOURCE:
NYSDOT 7.5min. QUAD., NYACK NY-NJ
CONTOUR INTERVAL = 20'

RUST ENVIRONMENT & INFRASTRUCTURE

SITE LOCATION MAP

Figure 1

ORANGE AND ROCKLAND UTILITIES, INC.

VILLAGE OF WEST NYACK ROCKLAND COUNTY, NEW YORK

PROJECT NO. 38301.200	DATE 9/94	DWG. NO. 38301-03	SCALE 1"=2000'	FIGURE NO. 1

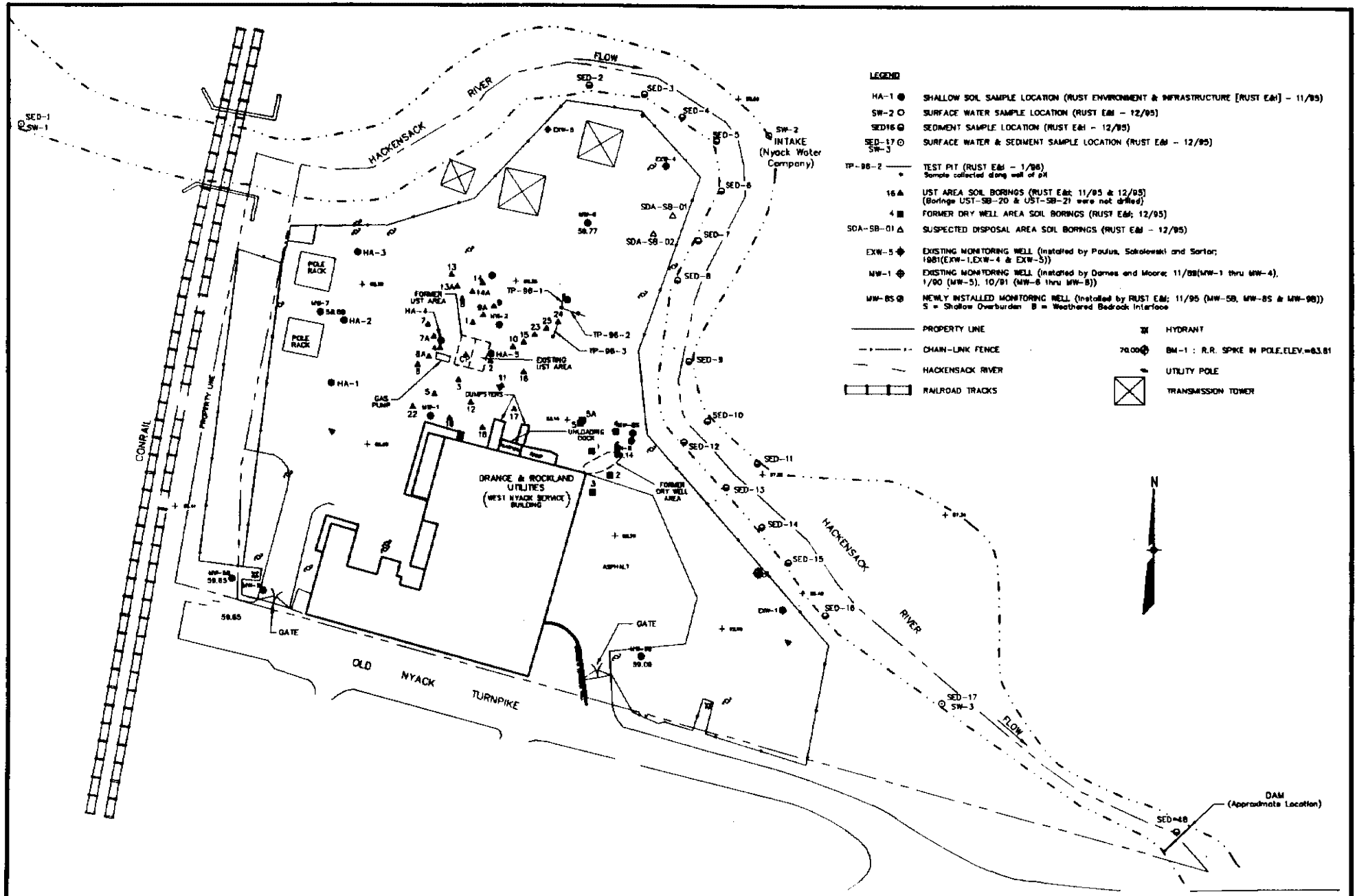


FIGURE 2

RUST
Rust Environment & Infrastructure Inc.

ORANGE AND ROCKLAND UTILITIES, INC.
WEST NYACK, NEW YORK

R I SAMPLING LOCATIONS

3E3011\FIG-2.DWG

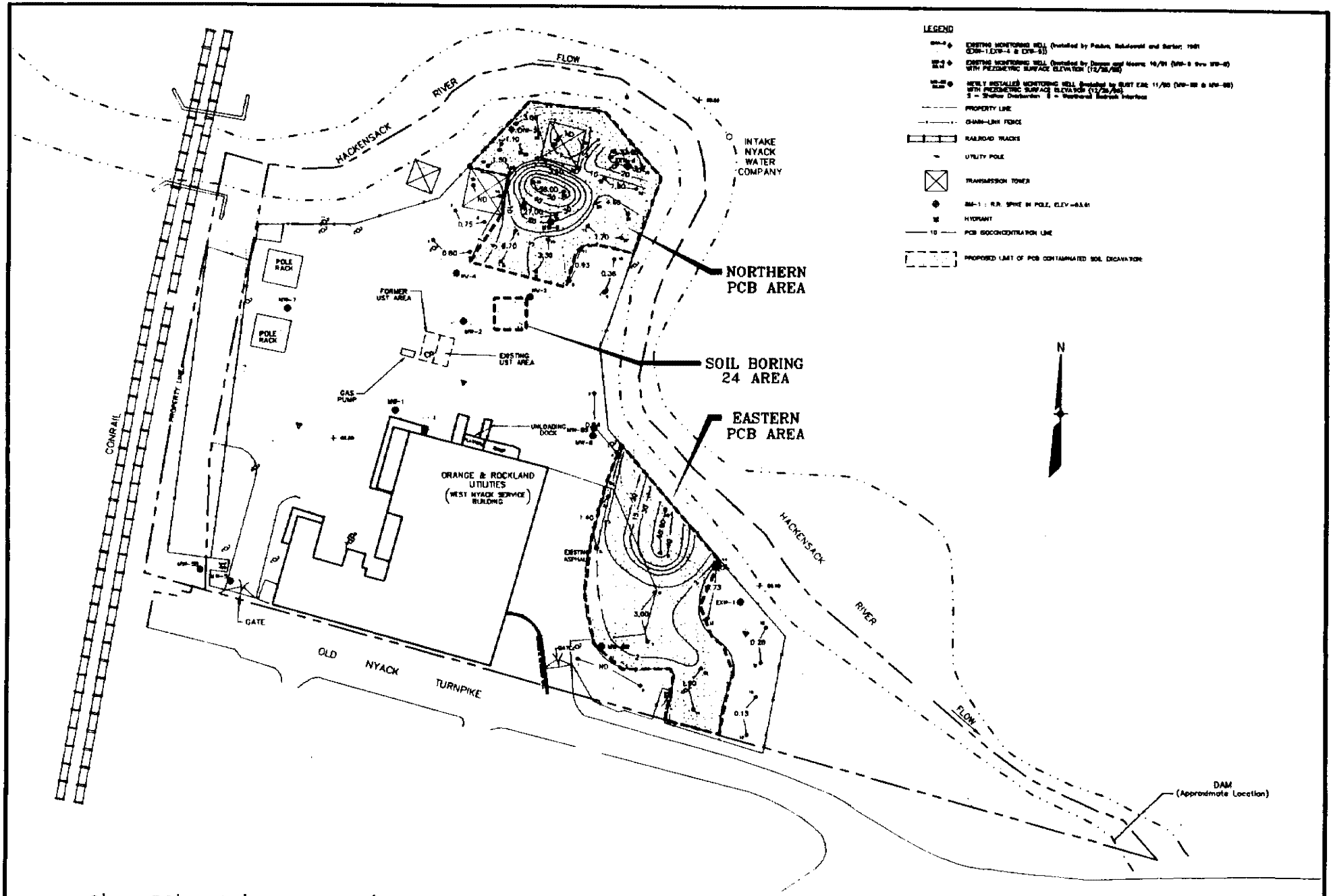


FIGURE 3

RUST
Rust Environment & Infrastructure Inc.

ORANGE AND ROCKLAND UTILITIES, INC.
WEST NYACK, NEW YORK

APPROXIMATE LIMIT OF PCB CONTAMINATED SOIL EXCAVATION

38301\FIG-3.DWG

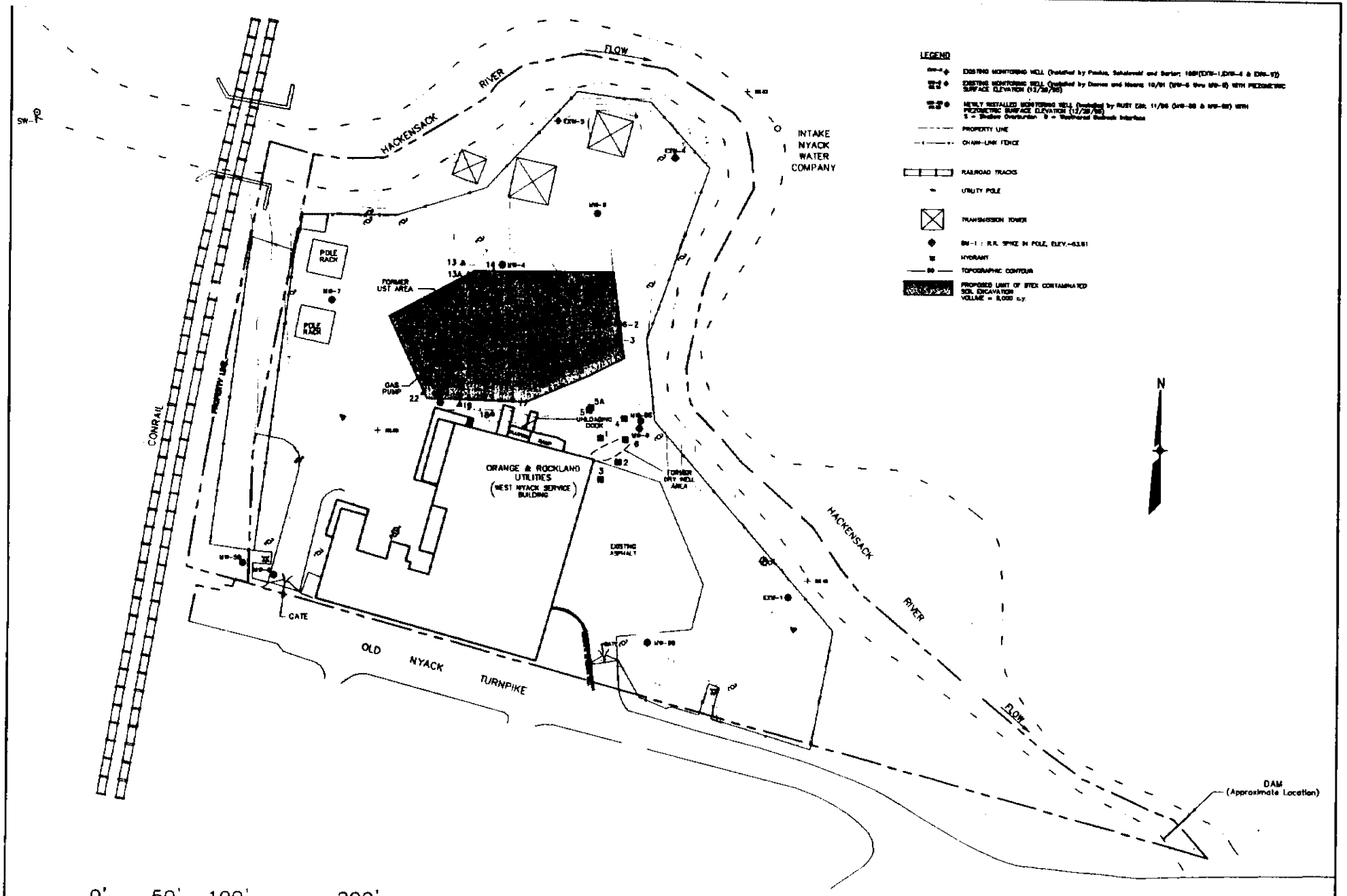


FIGURE 4

RUST
Rust Environment & Infrastructure Inc.

ORANGE AND ROCKLAND UTILITIES, INC.
WEST NYACK, NEW YORK

APPROXIMATE LIMIT OF BTEX CONTAMINATED SOIL EXCAVATION

38301\FIG-4.DWG

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE	FREQUENCY of EXCEEDING	SCG
Groundwater (Shallow Overburden) (ppb)	Volatile Organic Compounds (VOCs)	Benzene	ND (.001) to 100	22 of 24	0.7
		Toluene	ND to 160	1 of 9	5
		Ethyl benzene	ND to 100	2 of 9	5
		Xylene (Total)	ND to 310	2 of 9	5
		TCE	ND to 430	6 of 9	5
		1,1,1 TCA	ND to 1900	5 of 9	5
		PCB s	ND to 1	2 of 9	0.1
Groundwater (Bedrock/Overburden Interface) (ppb)	VOCs	Benzene	ND	0 of 9	0.7
		Toluene	ND	0 of 9	5
		Ethylbenzene	ND	0 of 9	5
		Xylene (Total)	ND	0 of 9	5
		TCE	2 to 360	6 of 9	5
		1,1,1 TCA	ND to 150	5 of 9	5
		PCB s	ND	0 of 5	0.1
Soils (ppm)	VOCs	Benzene	ND to 215	97 of 322	0.06
		Toluene	ND to 1,430	51 of 322	1.5
		Ethylbenzene	ND to 224	4 of 322	5.5
		Xylene (Total)	ND to 2,365	59 to 322	1.2
		PCBs (Surficial)	ND to 58	18 of 33	1
		PCBs (Subsurface)	ND to 120	2 of 28	10
Sediment (ppm)	Pesticide/PCB	PCBs	ND to 3	5 of 18	.042

Table 2
Remedial Alternative Costs
PCBs in Soil

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
PCB-S1: No Action	$0	$0	$0
PCB-S2: Excavate >10ppm;Asphalt cover; Institutional Controls	423,007	15,000	549,411
PCB-S3: Excavate >1ppm top two feet & >10 ppm below	900,100	0	900,100
PCB-S4: Excavate >1ppm top one foot; >10 ppm below; two feet of cleanfill and/or site soil meeting SCGs and/or pavement	479,011	15,000	620,421

Note: Details of Alternative PCB-S4 are provided as amendment to the FS Report.

Table 3
Remedial Alternative Costs
BTEX in Soil

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
BTEX-S1: No Action	$0	$0	$0
BTEX-S2: Soil Vapor Extraction	146,300	34,500	277,082
BTEX-S3: Excavation & Disposal	879,900	0	879,900
BTEX-S4: Bio-Sparging	207,800	60,000	435,247

APPENDIX A

ADMINISTRATIVE RECORDS
ORANGE & ROCKLAND UTILITIES
WEST NYACK, ROCKLAND COUNTY
Site ID# 344014

- "***Soil & Groundwater Investigation***" by Paulus, Sokolowski and Sartor, dated July 15, 1980
- "***Phase I Investigations***" by Wehran Engineering, dated May 1987
- "***Phase II Investigation***" by Lawler, Matusky & Skelly Engineers, dated February 1992
- "***Remedial Investigation Report***" by Rust Environment & Infrastructure, dated April 1996
- "***Feasibility Study Report***" by Rust Environment & Infrastructure, dated March 1997
- "***Amendment to Feasibility Study Report***" by Rust Environment & Infrastructure, dated July 2, 1997
- August 21, 1997 letter from Orange & Rockland Utilities expressing its decision to select Alternative PCB-S4

APPENDIX B

CHARACTERISTICS OF BTEX & PCBs

BENZENE

Benzene is a naturally occurring substance and a major industrial chemical made from coal and oil. As a pure chemical, benzene is a colorless liquid. It is used as a solvent and in the manufacture of other chemicals. Benzene is also found in petroleum products such as gasoline. It generally gets into drinking water from gasoline or fuel oil spills, leaking storage tanks or by improper waste disposal.

Benzene has been associated with an increased risk of leukemia in industrial workers who breathed large amounts of the chemical over a long time in workplace air. Benzene has also caused cancer in laboratory animals exposed at high levels over their lifetimes. Chemicals that cause cancer among exposed industrial workers and laboratory animals are believed to increase the risk of cancer in humans exposed to lower levels over long periods of time. Benzene has also been associated with damage to the blood-cell-forming tissues and the immune and nervous system of industrial workers and laboratory animals.

TOLUENE

Toluene is a colorless liquid that is used to make other chemicals and is found in many consumer products such as paints, lacquers, adhesives, rubber, dyes and gasoline. Toluene generally gets into drinking water from improper waste disposal or leaking gasoline storage tanks.

Exposure to large amounts of toluene can damage the nervous system, liver and kidneys. High levels of toluene damage the unborn offspring of laboratory animals exposed during pregnancy. Chemicals that cause adverse health effects in humans and laboratory animals after high levels of exposure may also pose a risk of adverse health effects in humans who are exposed to lower levels over long periods of time.

ETHYLBENZENE

Ethylbenzene is a colorless liquid used as a solvent in the printing and paint industries. It is also used to make other chemicals and is found in gasoline. Ethylbenzene genera ly gets into drinking water from improper waste disposal or gasoline spills.

People exposed to large amounts of ethyibenzene had nervous system damage. High levels of ethylbenzene damage the nervous system, livers and kidneys of laboratory animals and the unborn offspring of laboratory animals exposed during pregnancy. Chemicals that cause adverse health effects in humans and laboratory animals after high levels of exposure may also pose a risk of adverse health effects in humans who are exposed to lower levels over long periods of time.

XYLENE

Xylene is a colorless liquid used as a solvent in the printing, rubber, leather, paint and insecticide industries. It is also used to make other chemicals and is found in gasoline. Xylene occurs in three forms: meta -xylene, ortho -xylene, and -xylene. The three forms have similar properties and are frequently grouped together and called total xylenes or just xylene. Xylene generally gets into drinking water from improper waste disposal or leaking gasoline storage tanks.

People exposed to large amounts of xylene had nervous system, liver and kidney damage. High levels of xylene damage the nervous system, liver, kidneys and heart of laboratory animals, and the unborn offspring of laboratory animals exposed during pregnancy. Chemicals that cause adverse health effects in humans and laboratory animals after high levels of exposure may also pose a risk of adverse health effects in humans who are exposed to lower levels over long periods of time.

POLYCHLORINATED BIPHENYLS (PCBs)

PCBs are a large group of related man-made chemicals that were used in many commercial and electrical products, especially in transformers, until their manufacture was banned in the mid 1970s. They generally get into drinking water from improper waste disposal or from leaking submersible water pumps.

Some types of PCBs cause cancer in laboratory animals exposed to high levels over their lifetimes. Chemicals that cause cancer in laboratory animals may increase the risk of cancer in humans exposed to lower levels over long periods of time. Whether PCBs causes cancer in humans is unknown. Industrial workers exposed to large amounts of PCBs suffered skin damage; however, these workers were also exposed to other, more toxic chemicals that may have caused the *skin* effects. There may be a link between a mother's increased exposure to PCBs and effects on her child's birth weight and behavior. Exposure to high levels of PCBs damages skin, liver and the nervous, immune and reproductive systems of laboratory animals. It also reduces the birth weight and changes the behavior of offspring born to animals exposed before, during and after pregnancy. A few forms of PCBs cause birth defects in offspring born to animals exposed to high levels during pregnancy.

APPENDIX C

RESPONSIVENESS SUMMARY

One written comment was received from United Water New Jersey expressing satisfaction with the selected remedy, and a request to be kept apprised of the remedial work and monitoring results. The following questions and responses were exchanged at the September 9, 1997 public meeting. For purpose of clarity, the transcriptions may not be ad verbatim quotes.

Question 1: Where is the off-site contamination coming from?
Response: It is suspected that the contamination is coming from Grant Hardware, a Class 2 site on the Inactive Hazardous Waste Disposal Site Registry.

Question 2: Is the Investigation of the off-site source being addressed?
Response: Yes. The present owner is under a stipulation to conduct a Remedial Investigation.

Question 3: Has the NYSDEC made a Best Use Determination (BUD) on the BTEX contaminated soil for disposal at this site, just as it was done at the Pyramid Mall site.
Response; No. The circumstances at the Pyramid site were different than the circumstances that exist at this site. Compared to the ORU site, the volume and the concentrations of BTEX in the soils at Pyramid Mall were considerably lower. The space for any on-site pre-treatment is limited, and the close proximity of West Nyack water supply intake renders the site sensitive for undertaking any relocation of heavily contaminated soils.

Question 4: Who will bear the cost of remediation, rate payers or share holders? (A question for O&R)
Response: This is a subject for the Public Service Commission to decide. Remediation costs in past cases have been considered normal costs of doing business to be borne by customers.