Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Amtrak, Sunnyside Yard
Operable Unit 1: Proposed High Speed Trainset Facility (HSTF) Building
Queens, New York
Site Number 241006

August 1997

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Amtrak, Sunnyside Yard Inactive Hazardous Waste Site
Operable Unit 1: HSTF Building
Queens, New York
Site No. 241006

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for Operable Unit 1 of the Amtrak, Sunnyside Yard inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). **Operable Unit 1 is designated as the soils above the water table within the footprint of the proposed HSTF Building**. 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 OU 1 of the Amtrak, Sunnyside Yard Inactive Hazardous Waste Site. A public meeting was held on June 24, 1997 to present the Department's Proposed Remedial Action Plan (PRAP) to the public. No members of the public attended the meeting and no comments were received during the comment period which ran from June 13 through July 14, 1997. A bibliography of the documents included as a part of the Administrative Record is included in Appendix A of the ROD.

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 a Focused Investigation and a Feasibility Study for OU 1, a sitewide Remedial Investigation, and based upon the criteria identified for evaluation of alternatives, the NYSDEC has selected excavation and off-site disposal of hazardous and non-hazardous contaminated soils, backfilling with clean fill, and institutional controls. The components of the remedy are as follows:

- relocation of railroad tracks to prepare for excavation of contaminated soils;
- concrete removal and disposal;
- soil excavation;
- off-site disposal;

- backfill of excavation with clean fill;
- post excavation sampling; and,
- institutional controls

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.

8/13/97
Date

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

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SECTION 1: SITE LOCATION AND DESCRIPTION

Amtrak, Sunnyside Yard is located in an urban area in northwestern Queens County, New York, and is surrounded by commercial, industrial and residential areas (See Figure 1). The Yard occupies 105 acres and functions as a maintenance facility for electric and diesel locomotives. The yard consists of 38 tracks, several buildings, a car washing facility, a demolished engine shop where locomotives used to be serviced, and a metro shop where the train compartments are serviced.

Amtrak has undertaken an ambitious "High Speed Project" which will provide High Speed Train Service from Washington, D.C. to Boston including three-hour service between New York and Boston. The project calls for construction of two maintenance facilities in Boston and Washington, D.C. Amtrak is considering building a third maintenance facility on its property at Sunnyside Yard. **Remediation of soils above the water table within the footprint of this proposed facility (790' x 60' in area) and designated as High Speed Trainset Facility (HSTF) Service and Inspection Building, is Operable Unit 1 and the subject of this Record of Decision (ROD).** The groundwater underneath the building is not the subject of OU 1, and will be addressed as a separate operable unit.

Soil and groundwater data sitewide has already been collected through phased studies and are documented in the Report titled Phase II Remedial Investigation, Volumes I Through V. More data will be collected to complete the groundwater investigation. The groundwater underneath OU 1 will therefore be addressed later as a part of another operable unit, specifically, OU 6.

The Sunnyside Yard, is so large, the access problematic, and the contamination so widespread that it is best to segment it into several Operable units (See Figure 2). A brief description of the various operable units is as follows:

Operable Unit 1: OU 1 is designated as the soils above the water table within the footprint of the High Speed Trainset Facility (HSTF) Building, and is the subject of this ROD (See Figure 3).

Operable Unit 2: OU 2 is designated as the soils above the water table within the footprint of the HSTF ancillary structures (i.e. the access road and utilities route, the parking area, the construction easement area which surrounds the building)..

Operable Unit 3: OU 3 is designated as the soils and separate-phase petroleum above the water table in Area 1* of the Yard.

* The Remedial Investigation of the Sunnyside Yard was divided into sixteen (16) areas of concern based on past site use and reports of known or suspected contamination. These are described in Appendix B.

Operable Unit 4: OU 4 is designated as the soils above the water table in the remainder of the Yard.

Operable Unit 5: OU 5 is designated as the sewer system beneath the Yard.

Operable Unit 6: OU 6 is designated as the saturated soils and the groundwater beneath the Yard.

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

The Sunnyside Yard was originally constructed in the early 1900's by the Pennsylvania Railroad Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad, later known as the Penn Central Transportation Company. On April 1, 1976, the Consolidated Rail Corporation (Conrail) acquired the Yard, and the same day conveyed it to Amtrak, which has continued to operate it as a storage and maintenance facility. The Yard has widespread contamination from petroleum and polychlorinated biphenyls (PCBs). Petroleum disposal, apparently, occurred over a period of time due to leaks from several underground storage tanks (USTs) containing diesel fuel and #2 fuel oil. PCBs are believed to have been disposed as a result of accidental leaks from stationary transformers, and from transformers mounted on cars and locomotives. The transformers mounted on cars and locomotives occasionally leaked PCBs as a result of pressure build-up, or as a result of strikes by stones on the track to the under belly of the transformers. Specific dates of disposal are not known.

2.2: Remedial History

Amtrak records indicate that between 1977 and 1986 there were at least six releases of PCBs from the transformers all of which are believed to have been remediated to less than 50 ppm, the prevailing standard at the time. It appears there were other releases of PCBs that were not remediated. Diesel and #2 fuel oil leaks from USTs occurred for an unknown period until 1984. A plume of free product approximately 200 ft. in diameter and of non-uniform thickness, up to several feet thick in certain locations, overlies the groundwater table in Area 1. A passive collection system put in place since 1989 has recovered approximately 5000 gallons of this product. More than 65,000 gallons of this thick petroleum remain in place and require further investigation and study to determine the most feasible means of removal and disposal. The area covered by this Operable Unit is in the immediate vicinity of this plume, but is not known to contain any free product

SECTION 3: CURRENT STATUS

In response to a determination that Sunnyside Yard contains hazardous waste which presents a significant threat to human health and the environment, Amtrak has conducted a sitewide Remedial Investigation. The Department has concluded that more work is necessary to complete this investigation and that this can best be brought to a close by segmenting the entire investigation into six (6) operable units. These operable units were described in Section 2. A feasibility study will be conducted for each Operable Unit. OUs 1 and 2 have been created to allow timely construction of the HSTF building.

3.1 Summary of the Remedial Investigation (Excluding OUs 1 and 2)

A yardwide remedial investigation, which is still in progress, has so far been conducted in two phases. Phase I was conducted between October 1990 and March 1991. Phase II was conducted between August 1992 and August 1994. In addition, certain focused investigations have also been conducted. The report

titled Phase II Remedial Investigation, Volume I of V, dated February 1995 summarizes Phase I and all other investigations conducted as of that date.

The Phase I investigation targeted sixteen (16) areas of concern (AOC) based on inspections and knowledge of the Yard. The main objectives of the Phase I investigation were: 1) to define the nature and extent of the free product plume in Area 1, the area east of the Engine House where USTs were located; 2) to identify and determine the nature and extent of contamination in the other 15 areas of concern; and, 3) to determine hydrogeologic conditions at the Yard. (See **Appendix B** for a brief description of the 16 AOC under a summary of the Phase I Investigation.)

3.2 Remedial Investigation For OU 1:

OU 1 is the subject of this ROD. In view of the extensive data collected during Phase I & II investigations, only a limited focused investigation was necessary. The investigation of the proposed HSTF building construction site was conducted in April 1996, and the results are summarized in "Limited Phase II Site Environmental Assessment Report, dated December 1996. Since OU 1 is in the vicinity of Area 1 where there is a plume of free floating petroleum laced with PCBs, the Limited Phase II investigation had three objectives:

1. Confirm the lateral extent of the Separate-Phase petroleum. (When a petroleum product, such as heating oil or diesel fuel enters the subsurface, it moves downwards by gravity. Some of the petroleum product will be retained in the soil by capillary forces. The remaining excess petroleum beyond the retention capacity of the soil will float on top of the groundwater in free phase, also known as separate phase.)

2. Delineate the extent of contamination in the immediate vicinity of and within the footprint of the proposed HSTF building.

3. Determine groundwater quality around the proposed HSTF building.

Five (5) hand borings (Temporary Piezometers TP-1 through 5) were completed to approximately 2 feet below the water table to check for the presence of free petroleum in the immediate vicinity of the HSTF building. Ten (10) soil borings were advanced (8 within the building footprint and 2 outside the building) up to a depth of 9 feet below the ground surface and soil samples were collected to delineate the extent of contamination. Five (5) monitoring wells were installed outside the footprint of the proposed building to check for water quality and water levels during construction dewatering, if necessary.

To determine if the soil media contained contamination at levels of concern, the RI analytical data was compared to NYSDEC TAGM 4046 soil cleanup guidelines which serve as Standards, Criteria, and Guidance (SCGs) for the protection of groundwater, background conditions, and risk based remediation criteria.

After comparing remedial investigation results for OU-1 to TAGM 4046 values, and considering the site's present and future use as rail yard, the NYSDEC in consultation with the State Health Department (NYSDOH) established the following **Cleanup Criteria**:

PCBs: 25 ppm for both surface and subsurface soils.
Semi-volatiles: 10 ppm total carcinogenic PAHs for both surface and subsurface soils.
Lead: 1,000 ppm for both surface and subsurface soils.

These cleanup levels are based on the fact that the site will remain a rail yard and all future use of the site will be regulated through institutional controls, such as deed restrictions or notifications. To protect Yard employees from coming in contact with PCBs in surface soils, the NYSDOH has specified that the 25 ppm PCBs criteria will apply provided the following restrictions are enacted:

1. Access is restricted to employees by maintaining the existing perimeter fences and guards;

2. The facility will continue to be operated as a rail yard;

3. The majority of the rail yard is covered and shall continue to be covered with ballast, minimizing the potential for surficial runoff transporting PCBs offsite and the tracking of PCB contaminated soils into buildings or off-site by employees or vehicles.

Following clean up of materials with PCBs greater than 25 ppm, average surficial levels of PCBs remaining will be substantially less than 25 ppm.

3.3 Nature of Contamination:

Yardwide, PCBs and Petroleum spills are the main concerns at the Sunnyside Yard. PCBS, nine (9) Semi-volatiles (mostly petroleum PAHs), eight (8) Volatile Organic Compounds (VOCs) and twelve (12) metals were detected in soils above the recommended soil cleanup guidance numbers suggested in the Department's TAGM 4046. The likely sources of PCBs at the Sunnyside Yard include accidental leaks from stationary transformers and power transformers mounted on locomotives. The sources of petroleum contamination are diesel, heating oil, and gasolene underground storage tanks (USTs) which leaked in the past. The presence of metals above the background levels cannot be attributed to any specific source.

In **OU 1**, the following contaminants were detected:

VOCs - One or more of the following volatile organic compounds were detected in each of the soil samples: acetone, methylene chloride, chloroform, toluene, ethyl benzene, and xylene. The last three are petroleum constituents, other VOCs may have been used as solvents. Exposure to these VOCs can affect the liver, kidney and central nervous system. However, none of these volatiles were present above the recommended soil clean up levels.

PAHs - Polycyclic aromatic hydrocarbons (PAHs) are semivolatile organic compounds. These are frequently produced as a combustion by-product, and are found in petroleum and coal product residues.. PAHs are of concern because they include known and potential carcinogens. Exposure to high levels of PAHs can cause lung and kidney tumors.

PCBs - PCBs were detected in low concentrations in most samples. PCBs are classified as probable carcinogens that persist in the environment for a long time. PCBs cause toxic effects in animals and

humans. This can range from physiological disturbances in humans to loss of life in lower micro-organisms.

Metals - Six (6) metals were detected in soils at concentrations above the TAGM 4046 recommended soil clean up levels or background levels. Of all these, lead is the main contaminant of concern because it is a carcinogen that affects kidney and lungs.

3.4 Extent of Contamination

Yardwide: PCBs and petroleum are present in soils across most of the Yard, but the concentrations are highest in Areas 1, 4, 8, 9 and 17. There is a separate phase petroleum plume in Area 1 with up to 127 ppm of PCBs. Maximum concentraions of PCBs detected in surface soils were 31,000 ppm in Area 8. Lead was detected at a maximum concentration of 1300 ppm. PCBs were also found in sewers at concentrations of up to 149 ppm in sediments and up to 0.91 ppb in water. See Tables 3 through 6 for details.

OU 1: **PCBs** were detected in 16 of the 19 soil samples; all but one were less than 1 ppm. The maximum concentration was 2 ppm. No **VOCs** were detected above the TAGM 4046 Recommended Soil Clean Up Objectives (RSCOs). Several SVOCs were detected, but only six (all **PAHs**) were detected above the TAGM 4046 (RSCOs). (See Table 1 for details.) As stated before, groundwater quality underneath OU 1 will be addressed later as part of OU 6.

3.5 Summary of Human Exposure Pathways:

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.

Sunnyside Yard is a restricted access rail yard, an industrial facility, located in a busy urban area. Therefore, potential exposure to Yard workers is the only concern.

A separate Risk Assessment was not necessary for OU 1, because a Risk Assessment was conducted for the entire Yard, and the contaminant concentrations in OU 1 are lower than concentrations found in other portions of the Yard. The clean up numbers established for OU 1 are consistent with numbers used for similar sites elsewhere in the State, and are protective of human health and the environment.

3.6 Summary of Environmental Exposure Pathways:

As stated above, Sunnyside Yard is an industrial facility located in a busy urban area. Environmental exposure pathways were therefore not considered to have a significant environmental impact.

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.

On September 21, 1989, The NYSDEC entered into an order on consent with Amtrak and New Jersey Transit which provides for Amtrak to conduct a remedial investigation and a feasibility study (RI/FS) under NYSDEC's oversight.

Date	Index No.	Subject of Order
9/21/89	W2-0081-87-06	RI/FS

A revision to the above consent order is currently being negotiated to recognize segmentation of the entire investigation into the various operable units as discussed above.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

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.

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 in the soils above the water table within the footprint of the proposed HSTF building;
- eliminate any potential threat to surface waters by eliminating any contaminated sediments and soils on site; and,
- mitigate any potential continuing impacts to groundwater from OU 1.

SECTION 6: SUMMARY OF THE EVALUATION OF 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 Sunnyside Yard were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled Operable Unit 1 Feasibility Study, Dated April 18, 1997.

A summary of the detailed 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 Alternatives

As stated above, Operable Unit 1 has limited focus. The potential remedies are intended to address the soil contamination above the water table within the footprint of the HSTF building.

Alternative I - 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. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

No Action is not a viable option because if the HSTF building is not constructed, the yard workers would potentially continue to be exposed to PAH contaminated soil. As such, the cost for this Alternative was not developed.

Alternative II - Excavation, Solid-Phase Biological Treatment and On-Site Disposal

Solid-Phase Biological Treatment has been shown to be highly effective in biodegradation of PAHs in soil. The removal rates in various studies are reported to be as high as 98 percent. This Alternative involves relocation of railroad tracks (trackwork) to provide access to the contaminated area; concrete removal and disposal; excavation of contaminated soil down to the water table; backfilling of excavation with clean fill; construction of solid-phase-biological treatment unit; decommissioning of the treatment unit; and, onsite re-use of the treated soil. It is estimated that 148 cubic yards of concrete and 485 cubic yards of contaminated soil would need to be excavated. The excavation would be done by hand due to the suspected presence of utilities. Approximately 760 cubic yards of clean fill would be backfilled to compaction. Institutional controls would be imposed to control access to and future use of the site.

Estimated cost	$343,100.
Time to implement	1 year

Although it is difficult to estimate the time required for PAHs to biodegrade, it is expected that this Alterative can be implemented within the project mandated time frame of one year.

Alternative No. III - Soil Excavation and Offsite Disposal

This alternative consists of hand excavation and off-site disposal of PAH-contaminated soils. The major elements of this Alternative include: trackwork to gain access to the contaminated area; removal and disposal of approximately 148 cubic yards of concrete; excavation and disposal of approximately 485 cubic

yards of contaminated soil (down to the water table which is 3 ft. below the ground surface); and, backfilling of excavation with clean fill (estimated to be 760 cubic yards to allow for compaction). Institutional controls would be imposed to control access to and future use of the site.

Estimated cost	$270,000.
Time to implement	6 months - 1 year

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 Feasibility Study.

As stated before the purpose of this operable unit is to address the contamination in soils only and while the remedies under consideration are intended to protect Yard workers as well as the environment, this operable unit does not address contamination that may be present in other media. **Specifically, groundwater, surface water, and sewers are not addressed by this Operable Unit, and accordingly, SCGs applicable to these media are not discussed here.**

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 contaminated media of concern for this operable unit is soils above the water table and the main contaminants of concern are PAHs. The relevant SCGs are:

- OSHA standards at 29CFR 1910, 1904, and 1926 - these apply to hazardous/ construction safety and require employers to communicate risks at the workplace to employees.
- Federal RCRA requirements at 40CFR260 through 268 - these apply to generation, handling, treatment, storage, and disposal of hazardous waste.
- NYSDEC TAGM 4046 - this guidance document provides a basis and a procedure to determine recommended soil cleanup levels at hazardous waste sites.

Alternative 1, the No Action Alternative would potentially not satisfy OSHA standards. It would also not meet TAGM 4046 guidelines which state that the total carcinogenic SVOCs in soils should be less than 10 ppm. Both Alternatives II and III would satisfy the above identified SCGs.

2. 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 No Action Alternative would not satisfy this criteria because a lack of action would continue to subject the Yard workers to the contamination.

Both Alternatives II and III would be protective of human health and the environment.

3. Short-term Effectiveness. This criterion evaluates the potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/ or implementation.

Both Alternatives II and III involve excavation of contaminated soil. In Alternative II the soil would be biologically treated onsite whereas in Alternative III, the contaminated soil would be hauled away to a secure landfill. Alternative II would have no impacts to the community since the Yard is an industrial facility and the excavated soil would not leave the site. Alternative III would have no impacts to the community either, because the contaminated soil could be safely transported to a permitted facility. The difference in time needed to implement Alternative II (9 months) or Alternative III (2 ½ months) is not substantial. This criterion therefore does not favor one Alternative over the other.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation.

Alternative II would fully meet this criterion in that the solid-phase biological treatment would permanently degrade PAHs present in the soil. Alternative III would not treat the contaminated soil, but the contaminated soil would be removed. The criterion would be therefore effectively met, in that there would be no remaining risks and no continuing controls needed to limit the risk. Thus, both Alternatives would equally satisfy the criterion.

5. Reduction of Toxicity, Mobility or Volume. This criterion clearly favors Alternative II in that the biological treatment would permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site. Alternative III (Disposal to a permitted landfill), on the other hand would not involve any treatment, but would reduce the mobility of the wastes.

6. Implementability. Amtrak construction plans require that a remedy be implementable within one year. Alternatives II - degradation of PAHs by bioremediation - would be complete in no longer than a year, and would therefore be considered implementable. Alternative III - excavation and offsite removal would be completed in less than one year, and would be considered highly implementable. Considering the potential economic impacts of a delay, this criterion favors Alternative III over Alternative II.

7. Cost. Since Alternative II and III would both be implemented in relatively a short time - within a time frame of one year - all costs are based on today's dollars without any present worth considerations. No O&M costs are involved in either of the two Alternatives.

Alternative II	$343,100
Alternative III	$270,700

Based on cost, Alternative III would be preferred.

8. Community Acceptance - Alternative II would require air monitoring during the bioremediation of the soil. Alternative III - offsite disposal - would likely receive higher community acceptance. The NYSDEC requested public comments, but none were received.

SECTION 7: SUMMARY OF THE SELECTED ALTERNATIVE

The evaluation of Alternatives clearly shows that both Alternative II and III would satisfy the site specific clean up criteria. The NYSDEC has selected Alternative III, excavation of contaminated soil down to the water table within the footprint of the building and disposal at a permitted landfill, due to its lower cost and higher implementability.

The major elements of the preferred remedy are as follows:

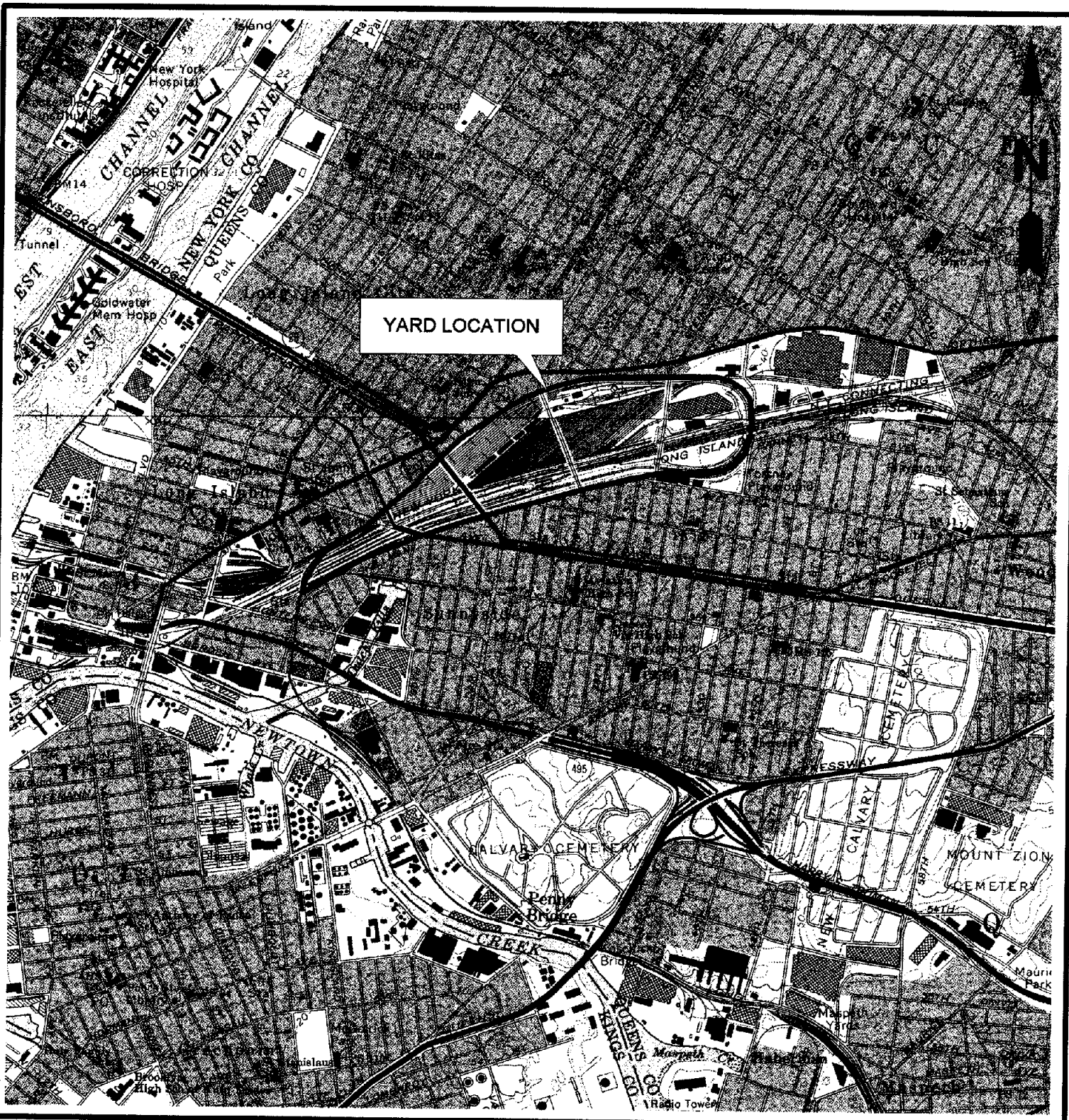
- relocation of railroad tracks to prepare for excavation of contaminated soils;
- concrete removal and disposal;
- soil excavation;
- off-site disposal;
- backfill of excavation with clean fill;
- post excavation sampling; and,
- institutional controls.

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. A Public Meeting was organized for June 24, 1997 at the Department's Region 2 Office in Long Island City, Queens, New York. State officials from the Departments of Health and Environmental Conservation as well as representatives of Amtrak were available to present the preferred remedy and seek public comments. No members of the public attended the meeting, and no comments were received through mail or phone.

FIGURES



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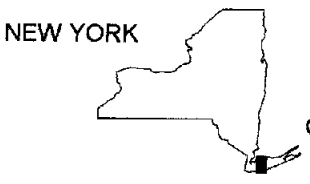
QUADRANGLES 7.5 MINUTE SERIES (TOPOGRAPHIC)



Title:

YARD LOCATION MAP

SUNNYSIDE YARD, QUEENS, NEW YORK

Prepared For:

AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: D.L.	Date: 4/97	FIGURE	
Prepared by: R.R.	Scale: 1"=2,000'		
Project Mgr: D.L.	Status: Final	1	
File No: 62119001	Project: 05552E03		

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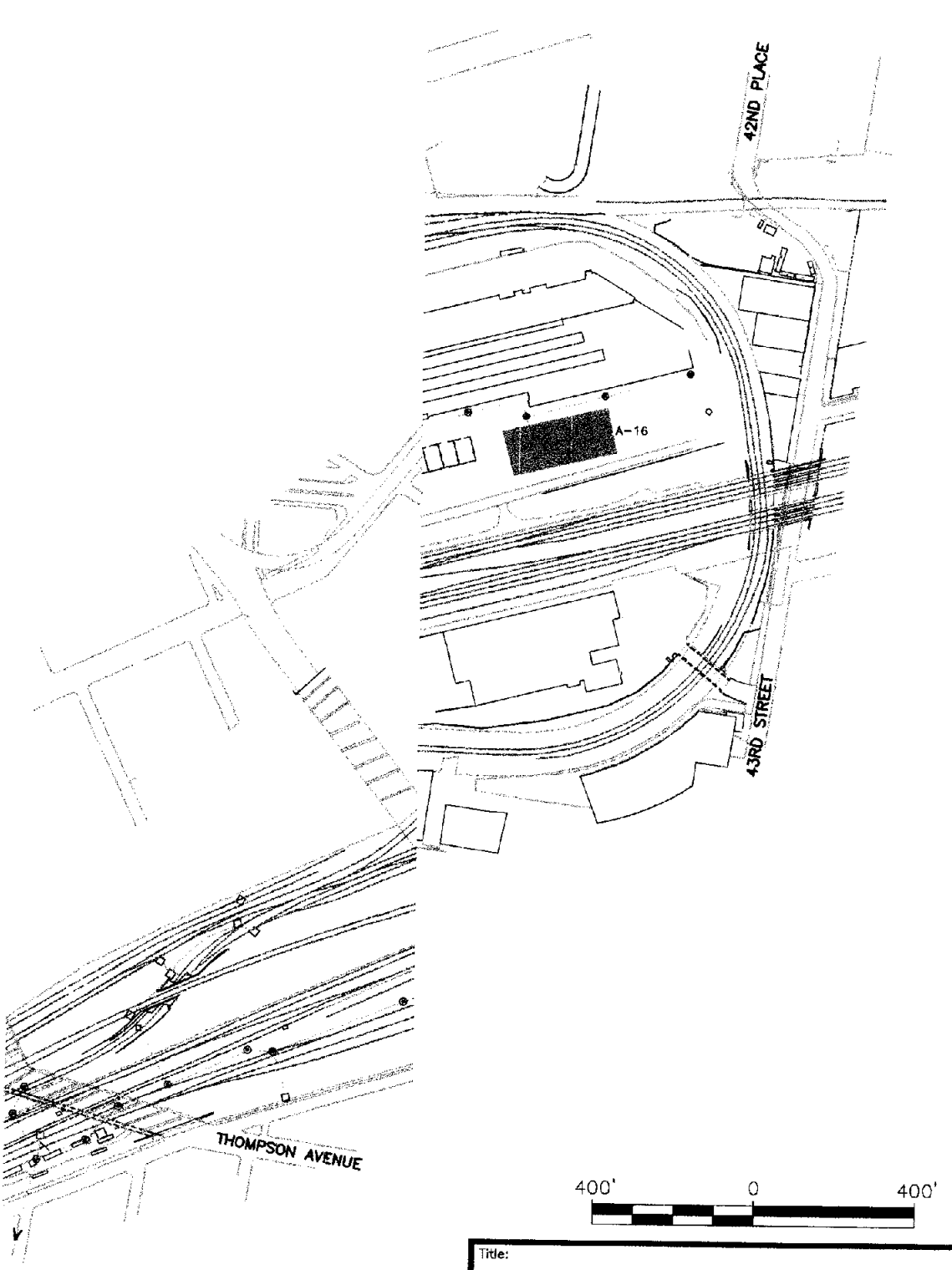
TABLES



Title:

LOCATION OF OPERABLE UNITS

SUNNYSIDE YARD, QUEENS, NEW YORK

Prepared For:

AMTRAK

ROUX

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: H.C.	Date: 4/97	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	2
Project Mgr: H.C.	Status: FINAL	
File No: 52119005	Project: 05552Y03	

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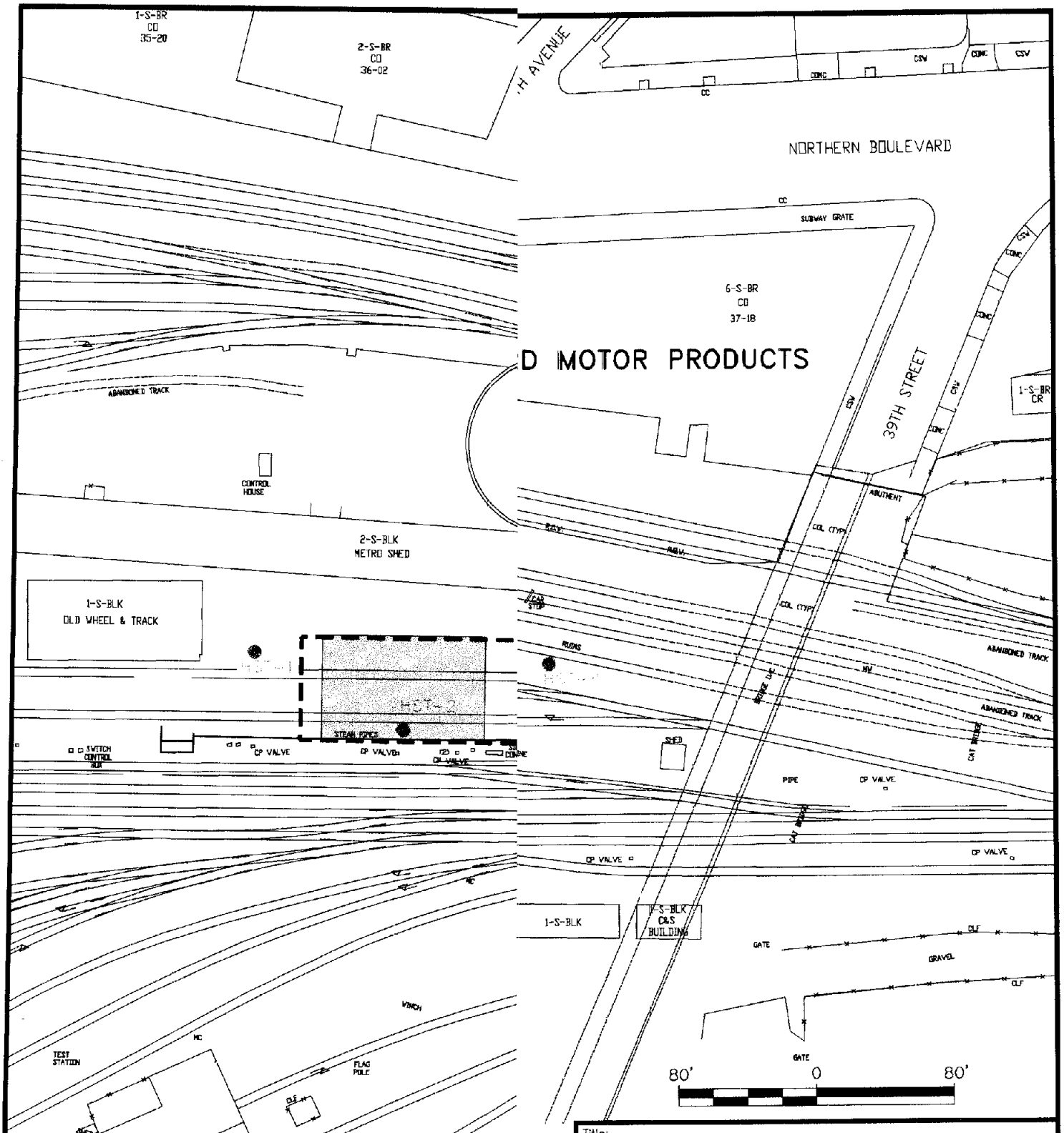

Title:

SITE MAP OF OPERABLE UNIT 1

SUNNYSIDE YARD, QUEENS, NEW YORK

Prepared For:

AMTRAK

ROUX

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: J.Y.	Date: 4/97	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	3
Project Mgr: H.G.	Status: FINAL	
File No: 52119006	Project: 05552Y03	

Table 1. Nature and Extent of Soil Contamination - Operable Unit 1

Class	Contaminant of Concern	Concentration Range (ppm)[a]	NYSDEC Site-Specific Cleanup Level (ppm)[a]	Frequency Exceeding Cleanup Level
SVOCs[b]	Carcinogenic PAHs[c]	ND[d] - 16.5	10[e]	1 of 19

a. ppm - parts per million

b. SVOC - Semivolatile Organic Compounds

c. PAH - Polycyclic Aromatic Hydrocarbons

d. ND - non detect

e. Cleanup level for total carcinogenic PAHs

Table 2. Nature and Extent of Soil Contamination - Operable Unit 2

Class	Contaminant of Concern	Concentration Range (ppm)[a]	NYSDEC Site-Specific Cleanup Level (ppm)[a]	Frequency Exceeding Cleanup Level
None	None	NA[b]	NA	NA

a. ppm - parts per million

b. NA = not applicable

Table 3. Nature and Extent of Soil Contamination - Operable Unit 3

Class	Contaminant of Concern	Concentration Range (ppm)[a]	NYSDEC Site-Specific Cleanup Level (ppm)[a]	Frequency Exceeding Cleanup Level
PCBs[b]	Total PCBs	0.023 - 73	25	1 of 16
Metals	Lead	ND[c] - 1,080	1,000	1 of 12

a. ppm - parts per million

b. PCBs - Polychlorinated biphenyls

c. ND - non detect

Table 4. Nature and Extent of Soil Contamination - Operable Unit 4

Class	Contaminant of Concern	Concentration Range (ppm)[a]	NYSDEC Site-Specific Cleanup Level (ppm)[a]	Frequency Exceeding Cleanup Level
SVOCs[b]	carcinogenic PAHs[c]	ND[d] - 46.3	10[e]	2 of 23
PCBs[f]	Total PCBs	ND - 31,000	25	8 of 84
Metals	Lead	ND - 1,290	1,000	2 of 44

a. ppm - parts per million

b. SVOCs - Semivolatile Organic Compounds

c. PAH - Polynuclear Aromatic Hydrocarbons

d. ND - non detect

e. Cleanup level for total carcinogenic PAHs

f. PCBs - Polychlorinated biphenyls

Table 5. Nature and Extent of Contamination - Operable Unit 5

Media	Class	Contaminant of Concern	Concentration Range (ppm)[a]	NYSDEC Standard[b]	NYSDEC Site-Specific Cleanup Level	Frequency Exceeding Cleanup Level
Sewer Water	PCBs[c]	Total PCBs	ND[d] - 0.020 (unfiltered)	0.0003	*	**
		Total PCBs	0.000015 - 0.0001 (filtered)	0.0003	*	**
Sewer Sediment	PCBs	Total PCBs	0.170 - 148.9	NA[e]	*	**

a. ppm - parts per million

b. NYSDEC Standard - New York State Department of Environmental Conservation Technical and Operational Guidance Series (1.3.8) New Discharges to Publicly Owned Treatment Works

c. PCBs - Polychlorinated biphenyl

d. ND - non detect

e. NA - not available

* no site-specific cleanup levels established by NYSDEC

** frequency to be determined upon receiving site-specific cleanup levels

Table 6. Nature and Extent of Ground-Water Contamination - Operable Unit 6

Class	Contaminant of Concern	Concentration Range (ppb)[a]	NYSDEC Standard[b](ppb)[a]	NYSDEC Site-Specific Cleanup Level	Frequency Exceeding Cleanup Level
VOCs[c]	Trichloroethene	ND[d] - 75	5	*	**
	1,2-Dichloroethene	ND - 46	5	*	**
	Tetrachloroethene	ND - 23	5	*	**
PCBs[e]	Total PCBs	ND - 8.9	0.1	*	**
Metals	Antimony	ND - 46.9	3	*	**
	Barium	18.1 - 1,020	1,000	*	**
	Beryllium	ND - 3.7	3	*	**
	Chromium	ND - 146	50	*	**
	Copper	ND - 421	200	*	**
	Iron	377 - 152,000	300	*	**
	Lead	ND - 207	25	*	**
	Magnesium	1,540 - 49,800	35,000	*	**
	Manganese	85 - 9,410	300	*	**

Class	Contaminant of Concern	Concentration Range (ppb)[a]	NYSDEC Standard[b](ppb)[a]	NYSDEC Site-Specific Cleanup Level	Frequency Exceeding Cleanup Level
Metals	Sodium	4,470 - 213,000	20,000	*	**
	Zinc	ND - 696	300	*	**

a. ppb - parts per billion

b. NYSDEC Standard - New York State Department of Environmental Conservation Technical and Operational Guidance Series (1.1.1 TOGS)

c. VOCs - Volatile Organic Compounds

d. ND - non detect

e. PCBs - Polychlorinated biphenyl

* no site-specific cleanup levels provided by NYSDEC

** frequency to be determined upon receiving site-specific cleanup levels

APPENDIX A

APPENDIX A

ADMINISTRATIVE RECORD

1. Order on Consent - September 21, 1989
2. Order on Consent, Revised August 25, 1993
3. Limited Phase II Environmental Site Assessment Report - December 3, 1996
4. Operable Unit 1 Feasibility Study - April 18, 1997
5. Proposed Remedial Action Plan - June 1997

APPENDIX B

Area 1 - This area around the Engine House includes nine abandoned USTs; locomotive fueling area; Engine House; and, the Metro Shop. Phase I confirmed that a free product plume exists in this area. The free product exceeds 4 ft. in depth; extends northward to the property boundary; and, contains PCBs up to 122.673 ppm. Phase I also established that Area 1 discharges surface water and groundwater from several of its sources into the primary sewer system. PCBs were detected in two shallow monitoring wells (MW-13 and MW-22). The deep monitoring well MW-23 had petroleum constituents, but had no PCBs.

Area 2 - This is the Material Control Area. Phase I found that an UST exists in this are which may have leaked.

Area 3 - There are three(3) 22,000 gallon USTs present in this area that dispense gasolene. High total petroleum hydro carbons (TPH) were found in some track areas, but no significant impact from the USTs to the underlying soils or groundwater was found.

Area 4 - A 22,000 gallon UST is located here that supplies no. 2 fuel oil to the facility boiler. High TPH concentrations were found in both shallow and deep soils. The tank may have leaked.

Area 5 - Two PCBs transformers are located in this area. No PCBs or PHC sources appear to be present here.

Area 6 - Formerly known as Oil House, oil was once found floating here. The area was later capped. PHCs in surface soils were found up to 13,690 ppm, but no free product was found in the down gradient well.

Area 7 - This is a former empty drum storage area where PHC concentrations were less than 500 ppm. This does not appear to be a source of petroleum contamination, although a saturated soil sample had some sheen.

Areas 8A, 8B, and 8C -All these three are potential source areas. PCBs transformers were located here and PCBs were found in both surface and subsurface soils

Area 9 - Compressor and transformers are located in a two storey structure here. High concentrations of PHC were found in soils (up to 162,860 ppm) and in groundwater (up to 2.2 ppm). Oil leaks from compressors have impacted soil and groundwater.

Area 10 - The soils in this area around Transformer Substation 44 were found to be heavily stained. Phase I results showed soils have been impacted by petroleum and PCBs.

Area 11 - This former empty drum storage area was found to have some petroleum impacts, typical of the entire Yard, but did not appear to have impacted the groundwater quality.

Area 12 - This Car Wash Area did not appear to be a source of either petroleum or PCBs, although low levels of both PHCs and PCBs, typical of the entire Yard, were found in soils.

Area 13 - Soils in this former storage area were found to contain low levels of PHCs and PCBs (up to 5 ppm).

Area 14 - No PCBs were found in soils in this former empty drum storage area.

Area 15 - In this former drum storage area, surface soils were found to contain up to 3,480 ppm of PHCs and less than 1 ppm of PCBs. GW in this area (MW-25) was found to contain 2.85 ppb of PCBs.

Area 16 - This area near the old abandoned REA Building was investigated because several USTs were located in this area. (The USTs were emptied in 1989.) Low concentrations of PCE were found in a downgradient well (MW-32), but the area did not appear to be a source of petroleum or PCBs contamination.

Two other areas of concern were identified during the Phase I. One, the area known as 68 Spur, located west of Area 13, was used for Vehicle repair and fueling; and the other, a temporary transformer storage area near the southwest corner of the Wheel House Complex was found to have stained soils. PHC concentrations in the 68 Spur area were typical of the Yard, and no PCBs were found. The PHC and PCBs concentrations in the second area were as high as 14,267 ppm and 1.91 ppm respectively.

As a result of the Phase I findings, a Phase II Investigation was done :1) to confirm the results of Phase I and further delineate the extent of contamination; 2)to investigate if the contaminants were migrating offsite through the site sewer system and/ or through the dissolved phase in groundwater. More than 60 monitoring wells and 300 soil borings have been installed as part of these investigations.

SUMMARY OF THE PHASE II INVESTIGATION

- Areas 1, 8, 9, and 17 are heavily contaminated with petroleum and PCBs
- No further action is needed in Areas 2 through 6 and in areas 10 through 16
- PCBs are present in sewer water and sediments
- PCBs were detected in some wells, but their presence is attributed to contaminated sediments
- The free product plume is limited to Area 1 and not moving beyond the property boundary.
- Further investigation is needed in Area 1 and 7
- The Sewer System needs to be further investigated

The Department believes that further investigation is needed to support the conclusions of the Phase II report. A site wide sewer investigation has been continuing, and a report titled "Summary of The Results For The June-July 1996 Sampling Program and Recommended Scope of Work" was issued November 1, 1996.