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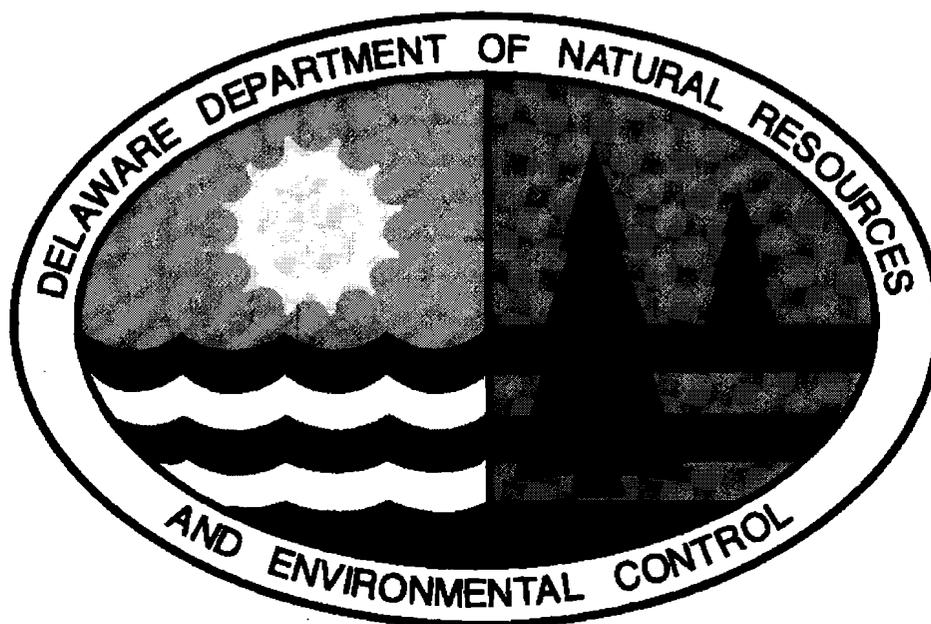
PROPOSED PLAN OF REMEDIAL ACTION

FOR THE

AMTRAK CNOC FACILITY

15 Poplar Street

Wilmington, Delaware



March, 1997

DNREC Project DE-1084

Prepared by:

Delaware Department of Natural Resources & Environmental Control

Division of Air and Waste Management

Site Investigation & Restoration Branch

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AMTRAK CENTRALIZED NATIONAL OPERATIONS CENTER (CNOC) PROPOSED PLAN OF REMEDIAL ACTION

I. INTRODUCTION

In March 1997, Riverfront Development Realty Company of Delaware, entered into an agreement with the Department of Natural Resources and Environmental Control (“DNREC” or “Department”) under the authority granted by the Hazardous Substance Cleanup Act (7 Del. C., Ch. 91) (“HSCA”) to conduct a Voluntary Cleanup Program Focused Feasibility Study (FFS), Remedial Design (RD) and Remedial Action (RA) at their property located at 15 Poplar Street, Wilmington, Delaware (Tax Parcel 26-043.00-019) (the “Site” or “Property”) and to perform remedial actions as necessary to protect public health, welfare and the environment.

The purpose of the FFS, RD and RA is to evaluate the nature and extent of contamination at the Site, evaluate risks to the public and the environment associated with identified contamination, and to develop remedial alternatives for the Site, if required and implement the selected remedial alternative, that will be protective of public health and the environment. The selected remedial action will be incorporated into the planned renovation of the facility and construction of the Amtrak Centralized National Operations Center (CNOC).

All work will be performed in accordance with the Delaware Regulations Governing Hazardous Substance Cleanup (“Regulations”), the Delaware Standard Operating Procedures for Chemical Analytical Program, July 1994 (“SOPCAP”) and the Facility Evaluation Guidance Manual, 1994.

This document is the Department’s Proposed Plan of Remedial Action for the property. This Proposed Plan is issued under the provisions of HSCA and the Regulations. It presents the Department’s assessment of the risk to public health and the environment posed by the Site and a comparison of the remedial alternatives. The Proposed Plan of Remedial Action also presents a summary of the background and history of the property, describes the results of the previous investigations and Focused Feasibility Study, presents a discussion of the remedial action objectives and a review of the applicable local, state and federal regulations.

The Department will provide public notice and opportunity to comment on the Proposed Plan in accordance with Section 12 of the Regulations. At the conclusion of the comment period, the Department, after review and consideration of the comments received, shall issue a Final Plan of Remedial Action which shall designate the selected remedial action. The Proposed Plan, the comments received from the public, responses to the comments and the Final Plan and the basis for all these actions will constitute the “Remedial Decision Record”.

II. SITE DESCRIPTION AND HISTORY

The site is located at 15 Poplar Street, southwest of the intersection of Poplar Street and Front Street and south of the Amtrak rail line. The 1.87± acre property, roughly rectangular in shape, is found on the United States Geological Survey (USGS) Wilmington South Quadrangle Topographic Map (7.5 minute series) at Latitude 39°44'08" and Longitude 75°32'02" (Figures 1 and 2).

The site is bordered to the south by the Christina River, to the west by a telecommunications relay station, to the east by a commercial/industrial complex and to the north by an elevated Amtrak rail line. The site is located within a region targeted for selective historic, commercial, environmental and economic revitalization by the Governor's Task Force on the Future of the Brandywine and Christina Rivers.

The property was formerly part of the historic Pusey and Jones Shipyard, and most recently owned by the Wilco Plumbing and Heating Company, a wholesale and retail plumbing supply distributor. The property was previously occupied by a number of machine shops, forge shops and boiler shops related to the shipyard from approximately 1884 to 1936.

III. PREVIOUS INVESTIGATIONS

In December 1995, a Brownfield Preliminary Assessment II (BPA II) was conducted by DNREC Site Investigation and Restoration Branch (SIRB) at the former Pusey and Jones Shipyard site. This study area included the Wilco Plumbing and Heating property. During this investigation, two (2) test pits were excavated at the Site and a total of five (5) soil samples were collected for field screening and analysis. As a result of field screening, two (2) soil samples were submitted to a DNREC approved laboratory for confirmatory analysis.

In addition, one groundwater monitoring well was constructed on the Wilco property and one groundwater sample was collected for laboratory analysis.

In July 1996, SIRB conducted a second BPA II at the Wilco property in support of state and local efforts to encourage Amtrak to relocate their Operations Center to Wilmington. The investigation included the excavation of five test pits and the collection of twenty (20) shallow and deep soil samples. (Figure 3)

Following field screening, a total of six (6) soil samples were sent to the laboratory for confirmatory analysis.

IV. RESULTS OF INVESTIGATION

Soil samples taken during the sampling event were field screened in the SIRB mobile laboratory to determine which samples should be sent to the DNREC Environmental Services laboratory for analysis. Each sample was analyzed for polychlorinated biphenyls (PCBs) and polyaromatic hydrocarbons (PAHs) using Omicron Immunoassay test kits. Gas Chromatography/ Mass Spectroscopy (GC/MS) was performed on all samples using a Bruker instrument for the analysis of pesticides, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). Metals analysis was performed using the DNREC mobile lab's X-Ray Fluorescence (XRF) instrument.

As a result of the field screening, a total of eight (8) soil samples from the two investigations were selected for submission to the laboratory. The samples were analyzed for all or part of the USEPA Target Analyte List (TAL) and Target Compound List (TCL).

The data generated during the two investigations indicates that soils at the property have been impacted by historic operations at the site, including the deposition of fill materials. Fill materials observed at the site included miscellaneous debris consisting of brick, wood, scrap metal, ash, slag, foundry sands and slags, and rock.

The laboratory analytical results are shown in Table 1. The results of analysis indicated the following contaminants exceeding DNREC screening levels ("screening levels") or EPA Region III Risk-Based Concentrations (RBC):

Surface Soil

Lead was detected above the screening level for industrial soil of 1000 mg/kg in two soil samples. The highest concentration detected was 1836 mg/Kg by X-ray Fluorescence (1520 mg/kg by lab analysis) in TP-7A.

Polycyclic aromatic hydrocarbons (PAHs) were detected above screening levels in four soil samples analyzed in the DNREC laboratory. The highest concentrations (5.1 mg/kg) were found at sampling location TP-6B.

Polychlorinated Biphenyls (PCBs) were detected slightly above the screening level of 0.74 mg/kg in one soil sample (TP-7A).

Groundwater

Analytical results for both filtered and unfiltered samples collected from the on-site groundwater monitoring well during the Pusey and Jones BPA II showed levels of iron and manganese which

exceeded RBC. It was not determined if the levels of manganese and iron were related to the site or a result of natural conditions.

Volatile and semi-volatile organics and PCBs were not detected in the monitoring well samples above practical quantitation levels. (Table 3)

V. REMEDIAL ACTION OBJECTIVES

According to 8.4(1) of the Regulations, during a remedial investigation, remedial action objectives must be established. For the Amtrak CNOC site, remedial action objectives were developed based on the findings and risks identified during the Brownfield Preliminary Assessments. These findings are:

- . The site is currently occupied by a plumbing supply warehouse. Most of the site surface is currently covered with a bituminous pavement parking lot. A small grass covered area is located on the river side of the warehouse. The proposed future use of the site is a railroad operations center.
- . Surrounding land uses are manufacturing and commercial.
- . The site is within 1,000 feet of human populations; however, these populations consist of workers involved in commercial and industrial jobs including welding, road maintenance, warehousing and manufacturing. There are residential dwellings located approximately 500 feet north of the property.
- . The site overlies water-bearing geologic materials. These materials consist of unconsolidated sediments that have weathered from igneous and metamorphic rocks of the Wilmington Complex.
- . Shallow groundwater contains manganese and iron at levels exceeding EPA risk-based concentration criteria. Local groundwater in the area is not used as a drinking water supply and the area is served by a water utility.
- . Most soil samples at the site contained notable concentrations of inorganics such as arsenic, lead, iron and manganese. Soil at the site has been locally impacted by lead, PCBs and PAHs (benzo(a)pyrene, in particular at levels which exceed DNREC and EPA criteria.

The primary contaminant migration pathways are inadvertent ingestion of soil and airborne migration of dust containing benzo(a)pyrene, PCBs and/or lead, and transport of sediment containing benzo(a)pyrene, PCBs and/or lead.

The future site use is planned to be commercial. The property will become an operations center for the Amtrak rail system. The future plan for the site intends to make use of the existing

building and parking lot, construct two additions to the existing structure and construct a new first finished floor within the building.

Based upon these findings, the Qualitative Remedial Action Objectives for the site are as follows:

1. Control potential human contact (dermal, ingestion and inhalation) with contaminated soil.
2. Control soil erosion and the subsequent transportation of contaminated soil.
3. Control potential human contact (ingestion) with contaminated groundwater.

Based on the above Qualitative Remedial Action Objectives, the following Quantitative Remedial Action Objectives were developed:

- Prevent contact with soil that has a lead concentration greater than 1,000 mg/Kg.
- Prevent contact with soil that has a benzo(a)pyrene concentration greater than 0.78 mg/Kg.
- Prevent contact with soil that has a PCB concentration greater than 0.74 mg/Kg.
- Prevent ingestion of shallow groundwater that has an iron concentration greater than 11,000 ug/L and/or a manganese concentration greater than 180 ug/L.

VI. POTENTIAL REMEDIAL ALTERNATIVES

To accomplish the remedial action objectives, two potential remedial alternatives were identified. These are listed below:

1. A Presumptive Remedy consisting of permanently capping the site with a building and paved parking area, deed restricting the property and placing a Groundwater Management Zone (GMZ) on the property.
2. No further action. This alternative was eliminated from further consideration because it will not meet the cleanup levels in section 9 of the Regulations, to protect human health, welfare and the environment.

Alternative 1: Permanent Capping, Deed Restriction, GMZ would involve renovating the existing building on the site and regrading and repaving the existing parking lot. Soil excavation associated with foundation and utility construction will be minimized. Contingency plans have been developed in the Focused Feasibility Study for the determination and handling of excavated

soils that may be contaminated in excess of DNREC and/or EPA levels and which can not be replaced under a building foundation or under the asphalt parking lot. These soils shall be disposed of at a DNREC approved disposal facility. In addition, the property owner will deed restrict the property limiting the use of the property to commercial/industrial purposes only. A statement will be included in the deed restriction requiring prior DNREC approval for any excavation activities following the remediation. DNREC will also place a Groundwater Management Zone on the property to prohibit the use of shallow groundwater at the site.

According to the DNREC-commissioned Summary Report for the General Remedial Technology Cost Project; South Wilmington Area (TetraTech, 1995), this is an appropriate containment technology for soil contaminated with metals and PAHs.

VII. REMEDIAL ALTERNATIVES EVALUATION

The remedial alternatives evaluation criteria set forth in the HSCA regulations are summarized in Table 2. A brief discussion of the criteria follows:

Protection of public health, welfare and the environment - Alternative 1 provides long protection by physically isolating the site soils from the zone of casual human contact. Alternative 1 introduces an increased short term risk of exposure during implementation due to increased material handling. This will be handled by development and implementation of a workers Health and Safety Plan during construction activities.

Compliance with all applicable local, state and federal laws - Alternatives 1 complies with all applicable local, state and federal laws.

Community acceptance - Alternative 1 is anticipated to be acceptable to the community.

Monitoring required - Alternative 1 will require no additional monitoring upon completion, although it will require general maintenance of the cap.

Technical practicability - Alternative 1 is technically feasible.

Restoration time frame - Alternative 1 will take several months to implement as the property is renovated. This is a reasonable timeframe.

Reduction in toxicity, mobility and volume - Alternative 1 would reduce mobility and minimize exposure to potentially toxic material; the volume and concentration of contaminated material would generally remain the same or be slightly less if disposed of at an off-site approved facility.

Long term effectiveness - Alternative 1 is effective in protecting public health, welfare and the environment, and will be maintained by the implementation of the Operation and Maintenance Plan to be developed during remedial design.

Amtrak CNOC Facility
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Short term effectiveness - Alternatives 1 is protective of public health, welfare and the environment. Potential short-term risks from exposure to excavated materials will be minimized through the use of appropriate Health and Safety procedures, excavation and filling procedures and site access controls.

Table 2 shows the presumptive remedy comparison with each of the evaluating criteria.

VIII. PROPOSED REMEDIAL ACTION PLAN

Based on the above criteria, Alternative 1 (permanent capping with a building and paved parking lot, deed restriction, GMZ) is the proposed remedial action to be undertaken at the property.

IX. PUBLIC PARTICIPATION

The Department actively solicits public comments or suggestions on the Proposed Plan and welcomes opportunities to answer questions. Please direct written comments to:

DNREC Site Investigation & Restoration Branch
ATTN: Lawrence J. Jones
715 Grantham Lane
New Castle, Delaware 19720

or call (302)323-4540. The public comment period begins on March 22, 1997 and closes on April 11, 1997. Requests for a public meeting must be received by the close of business at 4:30 PM on April 11, 1997. Requests should be addressed to Lawrence Jones, DNREC-Site Investigation & Restoration Branch, located at 715 Grantham Lane, New Castle, Delaware 19720.

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FIGURE 1
LOCATION OF THE AMTRAK CNOC FACILITY
NEW CASTLE COUNTY, DELAWARE

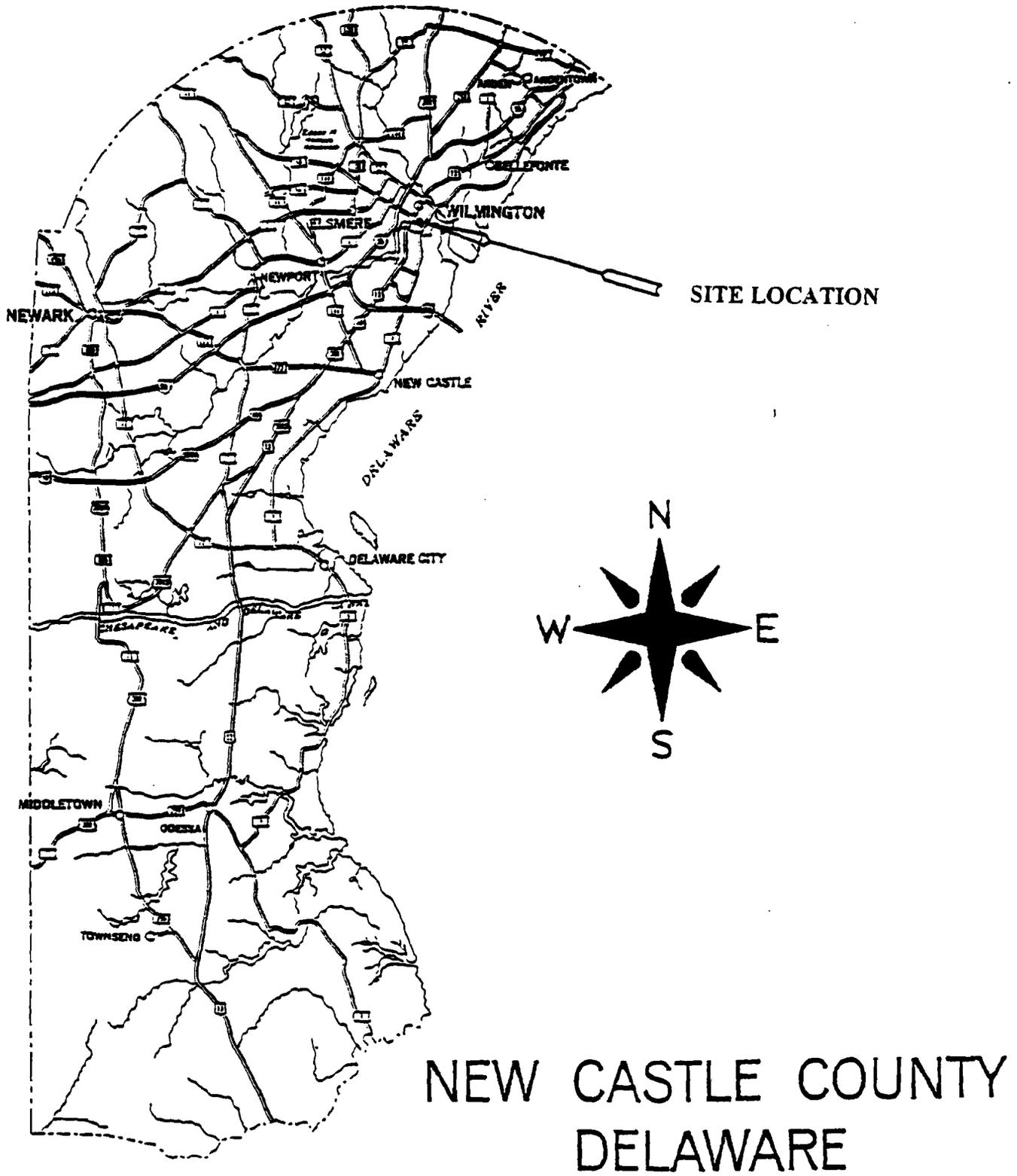
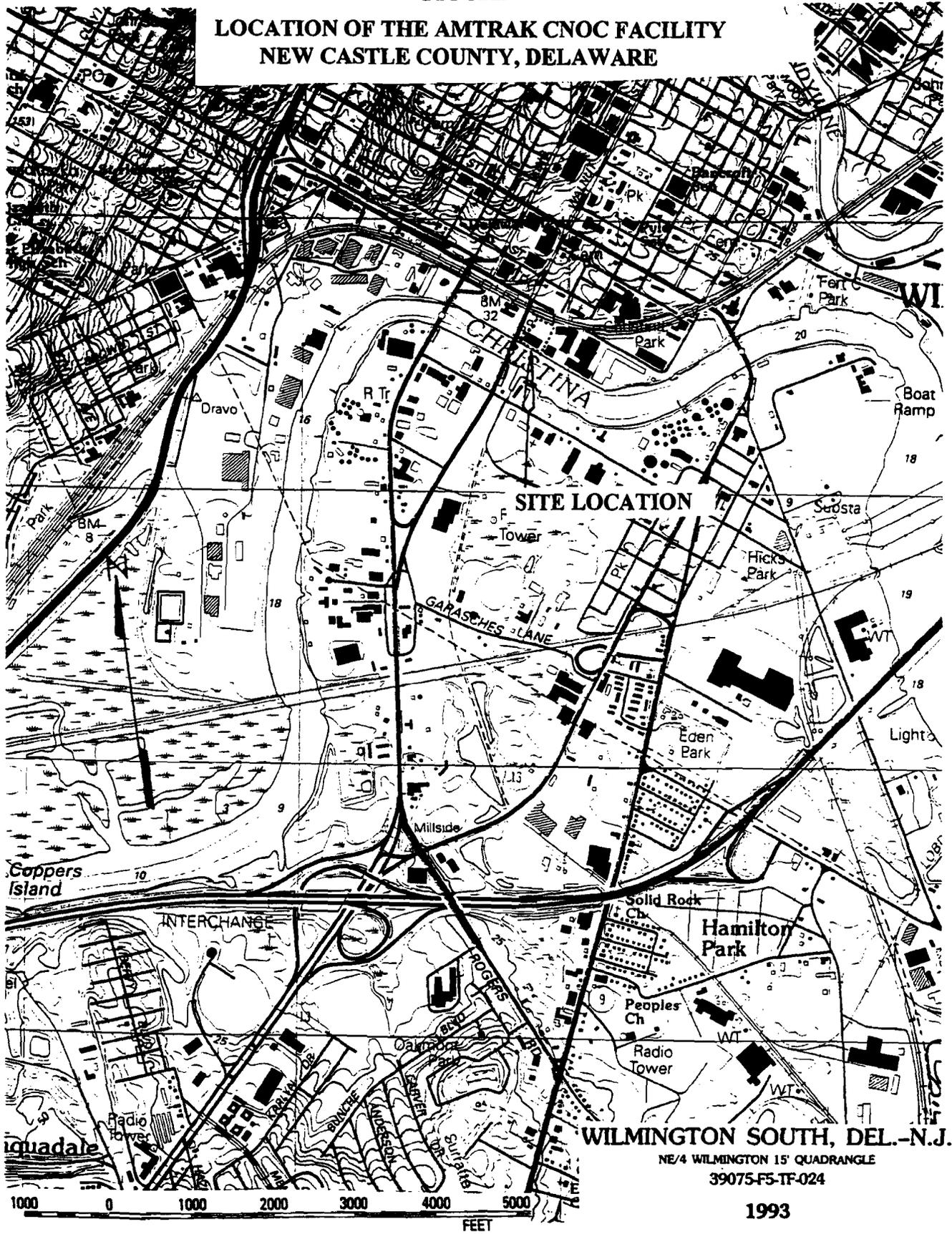


FIGURE 2

LOCATION OF THE AMTRAK CNOC FACILITY
NEW CASTLE COUNTY, DELAWARE



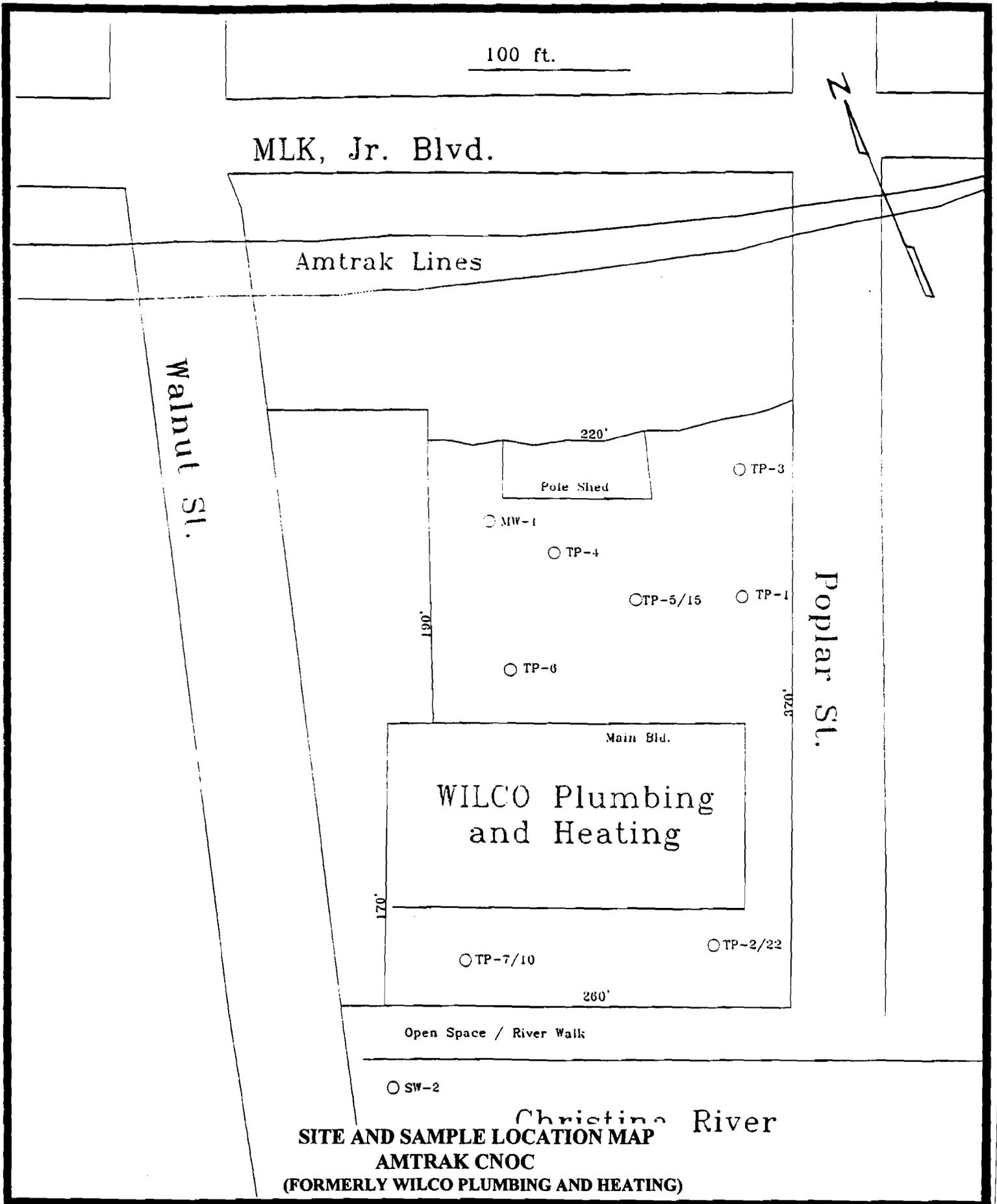


FIGURE 3

TABLE 1

**SUMMARY OF SOIL SAMPLES WITH
CONCENTRATIONS EXCEEDING DNREC
GUIDELINES AND EPA REGION III RBCS FOR
INDUSTRIAL SOILS**

FOCUSED FEASIBILITY STUDY
FORMER WILCO PLUMBING AND HEATING PROPERTY
WILMINGTON, DELAWARE

TABLE 1
SUMMARY OF SOIL SAMPLES WITH CONCENTRATIONS EXCEEDING DNREC GUIDELINES AND EPA REGION III RBCs FOR INDUSTRIAL SOILS

| DNREC Sample Number | Inorganics | | Semi-volatiles | Pesticides/PCBs |
|--|---|---|---|---|
| | Arsenic (mg/kg) (RBC 610/3.8 mg/kg) ⁽²⁾⁽³⁾ | Lead (mg/kg) (1,000 mg/kg) ⁽⁴⁾ | Benzo(a)pyrene (ug/kg) (RBC 780 ug/kg) ⁽²⁾ | Aroclor-1242 (ug/kg) (RBC 740 ug/kg) ⁽²⁾ |
| PUSEY & JONES SHIPYARD PBA II | | | | |
| TP-2A | 10.2 | | 2200 | |
| TP-22A | 15.3 | | 1800 | |
| WILCO PBA II | | | | |
| TP-3A | 8.1 | | | |
| TP-4A | 7.9 | | | |
| TP-6B | | | 5100 | |
| TP-7A | 18.2 | 1520 | 1500 | 980 |
| TP-7B | 10 | | | |
| TP-10A | 6.9 | | | |
| WILCO PBA II (XRAY FLUORESCENCE) | | | | |
| TP-1A | 7.54 | | | |
| TP-2B | 64.8 | | | |
| TP-3A | 46.6 | | | |
| TP-3B | 12.3 | | | |
| TP-3C | 4.18 | | | |
| TP-4A | 79.3 | 1371 | | |
| TP-4B | 6.67 | | | |
| TP-4C | 8.3 | | | |
| TP-5A | 6.41 | | | |
| TP-5B | 7.36 | | | |
| TP-5C | 9.29 | | | |
| TP-5D | 7.7 | | | |
| TP-6A | 39.5 | | | |
| TP-6B2 | 5.95 | | | |
| TP-6C | 21.8 | | | |
| TP-7A | 119.7 | 1836 | | |
| TP-7B | 19.4 | | | |
| TP-7C | 41.1 | | | |
| TP-10A | 15.8 | | | |
| BACKGROUND SOIL SAMPLE | | | | |
| SS-4 | 10.1 | | | |

Notes:

1. Data compiled from a report entitled "Brownfield Preliminary Assessment of the Wilco Plumbing and Heating Property," prepared by Delaware DNREC and dated December 1996.
2. RBCs taken from the EPA Region III Risk Based Concentration Tables (Jan-June 1996).
3. Non-carcinogenic effects/carcinogenic effects.
4. Interim Guidance on Reporting Levels for Hazardous Substances During Site Assessments under Delaware HSCA, Oct. 1995.

TABLE 2

**COMPARATIVE ANALYSIS OF
ALTERNATIVES**

TABLE 2

COMPARATIVE ANALYSIS OF ALTERNATIVES¹

**FOCUSED FEASIBILITY STUDY
FOR THE
FORMER WILCO PLUMBING AND HEATING PROPERTY
WILMINGTON, DELAWARE**

| CRITERIA | NO ACTION | CONTAINMENT PRESUMPTIVE REMEDY |
|---|---|---|
| Overall protection of public health, welfare and the environment. | Although no action is currently required by DNREC, this alternative will not likely be protective of the public health, welfare and the environment in the long term. | Provides both long and short-term protection by physically isolating the site soils from the zone of casual human contact and providing institutional safeguards to ensure appropriate long-term management of the site. |
| Compliance with applicable laws and regulations. | The site is potentially subject to action under HSCA. | <p>The proposed construction and operation of the facility must be in compliance with applicable federal, state and local laws.</p> <p>Site redevelopment plans will be submitted to the City of Wilmington, Planning Department for review and approval prior to planned redevelopment. These plans will address the issues of storm water management, sediment and erosion control during construction, flood plain construction, water supply, domestic wastewater disposal and site access control. The plans will also be reviewed by DNREC.</p> |
| Community acceptance. | <p>No community interest in performing remediation of this site has been reported.</p> <p>Therefore, in the short term, this alternative may be acceptable to the community. However, in the long term, the no action alternative may not be acceptable to the community.</p> | <p>The site is located within a region targeted for selective historic, commercial, environmental and economic revitalization by the Governor's Task Force on the Future of the Brandywine and Christina Rivers.</p> <p>The community is typically supportive of development plans that provide economic benefits to the community in the form of jobs and increased tax revenues.</p> |

¹ This table is part of a report titled, "Focused Feasibility Study for the Former Wilco Plumbing and Heating Property, Wilmington, Delaware," dated March 14, 1997, and should only be viewed in the context of the report.

TABLE 2

COMPARATIVE ANALYSIS OF ALTERNATIVES¹

FOCUSED FEASIBILITY STUDY
FOR THE
FORMER WILCO PLUMBING AND HEATING PROPERTY
WILMINGTON, DELAWARE

| CRITERIA | NO ACTION | CONTAINMENT PRESUMPTIVE REMEDY |
|---|--|---|
| Remediation Monitoring | No monitoring would occur under this alternative. | DNREC personnel will monitor the proposed remedial action for conformance with the approved remedial plan. |
| Technical Practicability | The no action alternative does not require the application of any remedial technology. | Containment of contaminated soils has been shown to be technically practicable in many situations in Wilmington that exhibited similar risk conditions and site features. The proposed remedial action is consistent with the proposed redevelopment of the site which intends to keep and expand the existing building and pavements. |
| Restoration Time Frame | No restoration is associated with this alternative. | The applicant intends to proceed with redevelopment of the site and, therefore, implementation of the remedial plan, as soon as it is approved by the DNREC. The benefits of the remedial action will begin as soon as containments are complete. |
| Reduction of Toxicity, Mobility and Volume or Concentration | This alternative does not reduce Toxicity, Mobility or Volume or Concentration. | This alternative does not reduce volume or concentration of the contaminants in the site soils. The contaminant mobility is effectively controlled by physical isolation. Reduced potential for leachate mobility is achieved by reducing current precipitation infiltration levels. |

¹ This table is part of a report titled, "Focused Feasibility Study for the Former Wilco Plumbing and Heating Property, Wilmington, Delaware," dated March 14, 1997, and should only be viewed in the context of the report.

TABLE 2

COMPARATIVE ANALYSIS OF ALTERNATIVES¹

**FOCUSED FEASIBILITY STUDY
FOR THE
FORMER WILCO PLUMBING AND HEATING PROPERTY
WILMINGTON, DELAWARE**

| CRITERIA | NO ACTION | CONTAINMENT PRESUMPTIVE REMEDY |
|--------------------------|---|--|
| Long-term effectiveness | Long-term risks associated with contact with the soils would remain. | <p>Containment is a proven long-term solution that effectively minimizes the potential for casual contact with the site soils.</p> <p>Long-term effectiveness will be maintained by the implementation of the Operation and Maintenance Plan to be supplied with the remedial plan.</p> |
| Short-term effectiveness | Short-term effectiveness is not applicable since no remedial action is implemented. | <p>Containment of the soils presents potential short-term risks to workers engaged in building foundation and site utilities installation activities. This risk can be reduced by the use of appropriate Health and Safety procedures. The procedures will be outlined in a Health and Safety Plan to be supplied with the remedial plan.</p> <p>A short-term risk to the community from exposure to excavated materials, if they are not properly controlled. This risk can be controlled by the use of controlled excavation and filling techniques and appropriate site access control and technical oversight.</p> <p>Involves potential short-term risks from handling and transporting waste (if the off-site disposal contingency is utilized). This risk can be controlled by the use of proper waste handling techniques.</p> |
| Costs | <p>No costs are associated with the implementation of the no action alternative.</p> <p>A loss of jobs and tax revenue could be anticipated if the facility is not re-utilized.</p> | <p>Costs for the remedial activity for site engineering and DNREC oversight will be borne by the applicant.</p> <p>Other positive economic benefits include employment opportunities, additional economic activity, as well as an increase in property and wage/income tax revenues.</p> |

¹ This table is part of a report titled, "Focused Feasibility Study for the Former Wilco Plumbing and Heating Property, Wilmington, Delaware," dated March 14, 1997, and should only be viewed in the context of the report.

TABLE 3
(REPRINTED)

DATA SUMMARY FORM: INORGANICS
GROUNDWATER SAMPLES

Site Name: WILCO Plumbing and Heating
 Sampling Date: December 18, 1995
 (as part of the Pusey and Jones Shipyard RPA II)

TABLE 3
 DATA SUMMARY FORM: INORGANICS
 Groundwater Samples
 (ug/L)

| Sample Number | MW-1 | | RBC* | | MCL** | |
|---------------|---------|-------------|------------|----------------|-----------|--|
| | (Total) | (Dissolved) | Tap Water | Drinking Water | | |
| Analyte | | | ug/L | | ug/L | |
| Aluminum | 325 | | 37000 | n | *** | |
| Arsenic | | [2.0] | 11.0/0.015 | n/c | 50 | |
| Barium | [102] | 104 | 2600 | n | **/p/2000 | |
| Calcium | 16900 | 17900 | NL | | NL | |
| Iron | 45500 | 47700 | 11000 | n | NL | |
| Lead | | | NL | | 15 | |
| Magnesium | 21700 | 23900 | NL | | NL | |
| Manganese | 1010 | J 1130 | 180 | n | NL | |
| Sodium | 84600 | 89400 | NL | | NL | |
| Zinc | [9.9] | L | 11000 | n | NL | |

* = EPA Region III, Risk-Based Concentration Tables, R.L. Smith.

** = National Primary Drinking Water Standards, EPA, February, 1994.

*** = Criterion pH dependent.

/p/ = Proposed criterion

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[] = Analyte present. As values approach the MCL, the quantitation may not be accurate.

n = Non-carcinogenic effects.

c = Carcinogenic effects.

NL = Not listed in table.