SDMS Document
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NEWARK BAY STUDY AREA

ADDITIONAL SITES AND CANDIDATE PRPS FOR THE NEWARK BAY STUDY AREA

VOLUME II OF II

EVIDENCE CONCERNING

PSE&G – WEST END

PREPARED FOR:
TIERRA SOLUTIONS, INC.

SUBMITTED TO:
USEPA REGION II

OCTOBER 6, 2005

921010001

PSE&G West End

921010002

921010003

REMEDIAL INVESTIGATION REPORT
REVISION 01

FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

VOLUME 1 OF 10
Text and Tables

Submitted by:

PSEG Services Corporation
80 Park Plaza
Newark, NJ 07102

BJC000044

February 2002

PSEG
Services Corporation

921010004

REMEDIAL INVESTIGATION REPORT
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Submitted by:

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February 2002

921010005

Exhibit "A"

CERTIFICATION

Pursuant to N.J.A.C. 7:26C-1.2(b)

Regarding the Revised Remedial Investigation Report dated February 2002 for the former West End Gas Works site located in Jersey City, New Jersey:

"I certify, under penalty of law, that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information, and that I am committing a crime of the fourth degree if I make a written false statement that I do not believe to be true. I am also aware that, if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

SCHOOR DEPALMA

Robert Kunze

Typed/Printed Name | Title

2-27-02

Signature | Date

Sworn to and subscribed before me on this 27th day of February 2002:

MICHELE ZIELINSKI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Sept. 21, 2003

Michele Zielinski

Signature of Notary Public

(Stamp and Seal/Commission Expiration Date)

921010006

Exhibit "B"

CERTIFICATION

Pursuant to N.J.A.C. 7:26C-1.2(b)

Based on the Certification of Robert Kunze of Schoor DePalma dated February 22, 2002 (attached hereto) and information obtained in connection with my status as Project Manager for the preparation of the "Revised Remedial Investigation Report" regarding PSE&G's former West End Gas Works site in Jersey City, New Jersey:

"I certify, under penalty of law, that the information provided in the 'Revised Remedial Investigation Report, Former West End Gas Works, Jersey City, New Jersey' dated February 2002, is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information, and that I am committing a crime of the fourth degree if I make a written false statement that I do not believe to be true. I am also aware that, if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

PSEG SERVICES CORPORATION

Craig W. Veprek, P.E.	Project Manager
Typed/Printed Name	Title
	2.27.02
Signature	Date

Sworn to and subscribed before me on this 27th day of February 2002:

MICHELE ZIELINSKI
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Sept. 21, 2003

Signature of Notary Public
(Stamp and Seal/Commission Expiration Date)

921010007

Exhibit "C"
CERTIFICATION
Pursuant to N.J.A.C. 7:26C-1.2(c)

Based on the Certification of Robert Kunze of Schoor DePalma dated February 27, 2002 (attached hereto as Exhibit "A") and the Certification of Craig W. Veprek dated February 27, 2002 (attached hereto as Exhibit "B"):

"I certify, under penalty of law, that I have personally examined and am familiar with the 'Revised Remedial Investigation Report, Former West End Gas Works, Jersey City, New Jersey' dated February 2002, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information, and that I am committing a crime of the fourth degree if I make a written false statement that I do not believe to be true. I am also aware that, if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

PSEG SERVICES CORPORATION

Stanley LaBruna — Vice President - Environment, Health and Safety
Typed/Printed Name — Title

Stanley LaBruna — 3/4/02
Signature — Date

Sworn to and subscribed before me on this 4th day of March, 2002:

Marilyn G. Romano
Signature of Notary Public
(Stamp and Seal/Commission Expiration Date)

MARILYN G. ROMANO
NOTARY PUBLIC OF NEW JERSEY

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LIST OF ACRONYMS AND ABBREVIATIONS

ALM	Ash-Like Material
AOC	Area of Concern
B/N	Base/Neutral Extractable Compound
bgs	Below ground surface
°C	Degrees Celsius
CCRS	Cyclic Catalytic Reforming Set
CEA	Classification Exception Area
CLM	Clinker-like material
CLP	Contract Laboratory Program
cm/sec	centimeters per second
COC	Chain of custody
DNAPL	Dense Non-Aqueous Phase Liquid
DO	Dissolved Oxygen
DQO	Data Quality Objective
°F	Degrees Fahrenheit
FB	Field Blank Sample
Fe^{+2}	ferrous iron
Fe^{+3}	ferric iron
FSPM	NJDEP Field Sampling Procedures Manual (May 1992)
GPR	Ground-penetrating radar
GPS	Global positioning system
GWQS	Ground Water Quality Standards
HASP	Health and Safety Plan
HDPE	high-density polyethylene
HSA	Hollow-stem auger
I.D.	Inside diameter
IGW	Impact to Ground Water
ISC	Interim Specific Criteria
LNAPL	Light Non-Aqueous Phase Liquid
M&R	Metering and Regulating
MDL	Method Detection Limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MGP	Manufactured Gas Plant
MOA	Memorandum of Agreement
MS	Matrix spike
MSD	Matrix spike duplicate
MSL	Mean sea level
mV	Millivolts
NAD83	New Jersey State Plane Coordinate System
NAPL	Non-Aqueous Phase Liquid
NAVD	North American Vertical Datum
N.J.A.C.	New Jersey Administrative Code
NJDOT	New Jersey Department of Transportation
NJDEP	New Jersey Department of Environmental Protection
NO_3	Nitrate
NRDC	Non-Residential Direct Contact
OLM	Oil-Like material
PA	Preliminary Assessment
PAH	Polynuclear aromatic hydrocarbon
PAR	Preliminary Assessment Report

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PCB	Polychlorinated biphenyl
PID	Photoionization detector
PPL	Priority Pollutant List
PSE&G	Public Service Electric and Gas Company
PSEG SC	PSEG Services Corporation
PVC	Polyvinyl chloride
QA	Quality Assurance
QAPP	*Quality Assurance Project* Plan
QC	Quality Control
RASR	Remedial Action Selection Report
RAWP	Remedial Action Work Plan
RDC	Residential Direct Contact
Redox	Reduction/oxidation potential
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
SCC	Soil Cleanup Criteria
SD	Schoor DePalma
Selected Metals	Arsenic, beryllium, cadmium, lead and mercury
SI	Site Investigation
SIR	Site Investigation Report
SO_4	Sulfate
SOP	Standard Operating Procedure
Sor	Sor Testing Laboratories, Inc.
SRI	Supplemental Remedial Investigation
SRIWP	Supplemental Remedial Investigation Work Plan
SSI	Supplemental Site Investigation
SVOC	Semi-Volatile Organic Compound
TAL	*Target Analyte List*
TB	Trip blank
TCL	*Target Compound List*
TDS	Total dissolved solids
TGP	Transcontinental Gas Pipeline Corporation
TLM	Tar-like material
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	Underground storage tank
VAHs	Volatile Aromatic Hydrocarbons (benzene, toluene, ethylbenzene and *total xylenes*)
VOC	Volatile Organic Compound
µg/L	Micrograms per liter

921010021

This Revised Remedial Investigation Report (RIR) presents the findings of recent environmental investigations conducted at the former manufactured gas plant (MGP) facility known as the former West End Gas Works (Site) in Jersey City, New Jersey. This Site is comprised of Blocks 605, 606, 607, 647, 649, 651, 652, 654, 655, 656, 657, 658 and 660 as shown on the tax map for Jersey City, New Jersey.

The investigations were conducted to characterize environmental conditions at the Site for purposes of evaluation and selection of appropriate remedial alternatives. PSEG Services Corporation (PSEG SC) has conducted this investigation on behalf of Public Service Electric and Gas Company (PSE&G) with oversight provided by the New Jersey Department of Environmental Protection (NJDEP) in accordance with a Memorandum of Agreement (MOA) that was entered into by the parties on dated April 30, 1998.

PSE&G became owner of the Site upon purchase of the Holland Company properties in 1914 and the merging of Hudson County Gas Company in 1939. The MGP operated for more than 58 years (approximately 1868 to 1926) using coal and oil to produce gas and as a peak shaving facility from 1941 until 1985. Byproducts from the MGP process, consisting mainly of petroleum related compounds, had been identified in soils and ground water beneath the Site during previous investigations (BCM, 1989; HLA, 1999a and 1999b).

The Site consists of four Parcels. Parcels 1, 2 and 3 are currently fenced and controlled by PSE&G. Parcel 4 is partially fenced and occupied by other parties.

Parcel 1 comprises the western portion of the Site borders the Hackensack River. The southern portion of Parcel 1 is vacant. The northern portion is occupied by two natural gas metering and regulating (M&R) stations. Parcel 2 comprises the northern portion of the Site. The eastern portion of Parcel 2 is occupied by the PSE&G East Jersey District Gas Distribution headquarters and the Jersey City Appliance Service Business Unit. The western portion of Parcel 2 is vacant and is used for storage. Parcel 3 forms the central portion of the Site and is vacant. Parcel 4 comprises the southern portion of the Site. Parcel 4 is currently occupied by an Exxon service station, a PSE&G

electric substation and an equipment yard operated by Standard Wreckers and Excavators, Inc. (Standard).

The work conducted during this Remedial Investigation (RI) and Supplemental Remedial Investigation (SRI) consisted of the following

- Determining the lateral extent of the peat layer underlying fill materials across the Site.

- Delineating the extent of non-aqueous phase liquids (NAPLs), identified as tar-like material (TLM) and oil-like material (OLM) at the Site.

- Collecting and analyzing surface and subsurface soil samples from 15 Areas of Concern (AOC) to evaluate the extent of constituents that are related to historical MGP operations at the Site at concentrations above current NJDEP Soil Cleanup Criteria (SCC). This includes delineating Site-related contamination to the extent necessary to select appropriate remedial alternatives.

- Evaluating Site-related contamination in areas not previously investigated.

- Characterizing ground water conditions at the Site.

- Evaluating Site conditions with regard to the potential for natural attenuation of the organic constituents identified in the ground water.

- Investigating the adjacent Hackensack River bed for Site-related contamination.

The salient findings of this RI for each of the seven items listed above are presented below:

- The peat layer underlies most of the Site. The peat layer extends across Parcels 1 (western portion of the Site along the Hackensack River) and 3 (center of Site) and underlies roughly two thirds of Parcel 2 (northern

portion of the Site). The peat layer appears to pinch out beneath the easternmost portion of the Site. Evidence from several areas of the Site suggests that the peat layer has been breached and/or partially eroded in isolated areas. These features are associated with construction of several onsite structures and possible down-cutting by historical stream channels.

- NAPLs were identified across the southern portion of Parcel 1 and the western portion of Parcel 2. The NAPLs appear to be generally confined above the peat layer. However, data from two soil borings conducted during a geotechnical evaluation, separate from this RI, suggest that NAPLs have migrated to deeper zones near the Hackensack River.

- The extent of constituents at concentrations above current NJDEP SCC has been delineated adequately for the purposes of selecting and designing an appropriate remedial action.

- Soil borings were completed and sampled in areas of the Site that had not been previously investigated. Field observations and analytical results from samples collected at these locations have been used to delineate the overall extent of affected soil at the Site.

- Results of ground water sampling were generally consistent with the findings of the Site Investigation (SI). Benzene appears to be present in ground water across most of the Site. Ground water in AOC-1A above and below the peat layer has been affected. Ground water above the peat layer in AOCs 2A, 2D and 3B has been affected; however, the ground water below the peat layer in these two AOCs does not exhibit significant evidence of impact. Ground water samples collected from wells installed during the RI near former underground storage tank (UST) areas did not exhibit evidence of impacts other than elevated benzene concentrations, which appear to be present across most of the Site.

- During the RI, data were collected to evaluate the potential for natural attenuation of the organic constituents identified in the ground water. Several indicator parameters were used to evaluate the potential for biodegradation as a part of the natural attenuation process. The indicator

parameters suggested low to high potential for biodegradation at the various wells across the site. Overall, conditions in the deeper zone suggested a greater potential for biodegradation than conditions in the shallow zone.

During the SRI, a series of borings were completed to investigate the extent of TLM in the river and to collect river sediment samples for analysis. Results of the investigation indicate limited impacts to river sediments near the relieving platform at the southwestern border of the Site.

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Remedial Investigation Report Checklist

Oversight Document:

- ☐ UST Regulations
- ☐ Industrial Site Recovery Act (ISRA)
- ☐ Administrative Consent Order (ACO)
- ☒ Memorandum of Agreement (MOA)

A.

Case Name (and AKA):	Former PSE&G West End Gas Works
Address:	444 St. Pauls Avenue
Municipality/County:	Jersey City, Hudson County
RP Contact:	Craig Veprek — Telephone (973) 430-8663

B. (Check as appropriate)

Site Investigation (SI) Report

Remedial Investigation (RI) Report

C. (Complete all that apply)

Assigned Cased Manager	Anthony Cinque	
ISRA Case Number		(5 digits)
UST Registration Number		(7 digits)
Incident Report Number	98-03-18-1022-09	(10 or 12 digits)
Tank Closure Number	C9___-___C9___-___C9___-___ C9___-___C9___-___C9___-___	(7 characters)
EPA ID Number NJ	NJD981084817	(12 characters)

D. (Circle "Yes" or "No" as applicable for each statement. If the statement is not applicable, indicate "N/A")

1) All "Areas of Concern," as identified in N.J.A.C. 7:26E-1.8, noted in the attached report were sampled pursuant to N.J.A.C. 7:26E-3 and 4, and analyzed pursuant to Table 2-1, as applicable..... (Yes) No
(If "No," answer Questions 1A & 1B. If "Yes," go to Question 2.)
   A) Did the Department grant a variance from any of the requirements of N.J.A.C. 7:26E-2 through 6, pursuant to N.J.A.C. 7:26E-1.6(d)1 and 2?..... Yes No
   B) If alternative sampling and/or investigatory methods were utilized without Department pre-approval, is the documentation required by N.J.A.C. 7:26E-1.6(c) provided?..... Yes No

2) The attached report documents all individual contaminants below most recently published residential and impact to ground water soil cleanup criteria contained in the "Site Remediation Newsletter"..... (Yes) No

3) The attached report includes results from a ground water investigation conducted pursuant to N.J.A.C. 7:26E-3.7 or 4.4 (If "No," go to Question 5. If "Yes," answer Question 4.)..... (Yes) No

4) The attached report documents all individual contaminants below applicable Ground Water Quality Standards as contained in N.J.A.C. 7:9-6..... Yes (No)

5) The attached report was submitted in response to a discharge of any contaminants as defined at N.J.A.C. 7:26E-1.8..... (Yes) No
(If "Yes," continue to Questions 5A through 5E. If "No" go to Question 6.)
Pursuant to N.J.A.C. 7:26E-3.7 and/or 4.4:
   A) Was the dicharge associated with a substance with a solubility greater than 100 milligrams per liter (i.e., gasoline, #2 heating oil, etc.)..... Yes (No)
   B) Does all the soil between the dicharge (last depth of contamination above remediation standard) and ground water/bedrock contain less than 15 percent silt and clay?..... Yes (No)
   C) If a soil sample was collected 2 feet from the saturated zone or bedrock, does it contain a contaminant above the impact to ground water remediation criteria?..... (Yes) No
   D) Are any of the soil sampling results above the impact to ground water remediation criteria anywhere in the soil column <u>and</u> the contaminant is not going to be actively remediated?..... (Yes) No

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E) Was a sheen or product noted on the ground water? ..... (Yes) No

6) Were any wastes generated for disposal during the SI or RI? ..... (Yes) No

A) The attached contains a "soil reuse" proposal or report, including characterization sampling, as requested in November 18, 1998, "Revised Guidance Document for the Remediation of Contaminated Soils" ..... Yes (No)

B) The attached report contains documentation of the quantity, waste classification and status of all excavated soil/waste disposal (including drum contents, tank sludge/rinsate, overburden soils, etc.) remediation or reuse, and clean fill documentation ..... Yes (No)

Site Investigation (SI) and Remedial Investigation (RI) Report Submittal Checklist

E. SI Reporting Requirements

(Note page, figure, table or plate number(s), NA for Not Applicable, or AUR for Available Upon Request)

1) Historical Information (including maps and air photos) ..... Pg. No. 2-1

2) Physical Setting ..... Pg. No. 3-1

3) Technical Overview of investigation execution and results including reliability of laboratory data, summary of contamination, and any other significant events ..... Pg. No. 4-1 and 5-1

4) Findings and recommendations by Area of Concern (AOC) ..... Pg. No. 6-1

A) Description of each AOC including size (i.e., size of drum pad, volume of impoundment or area, length of UST and piping), suspected and actual contamination (presence of *discoloration, stressed vegetation, corrosion holes in USTs*, description of the excavation, if any), source or potential source of discharge and field measurements ..... Pg. No. 6-1

B) Results of Analyses ..... Pg. No. 6-1

C) Fully supported Recommendation for further remedial activities or "No Further Action" ..... Pg. No. 7-1

5) Summary Table of analytical methods and quality assurance indicators pursuant to N.J.A.C. 7:26E-2.2 (a)1v ..... Pg. No. Table 5-1

6) Laboratory Quality Assurance and Quality Control Deliverables pursuant to N.J.A.C. 7:26E-2.1 and Appendix A ..... Pg. No. AUR

A) Nonconformance Summary signed by the Laboratory ..... Pg. No. AUR

B) Completed Chain of Custody Forms ..... Pg. No. Vols 5 thru 10

7) Table summarizing sampling results, including media, sampling depth and location, field and laboratory identification numbers, date of sampling, analytical resuls, and comparison to applicable remediation standards (ARS). Identify all samples exceeding ARS and all samples with MDLs or PQLs exceeding ARS. Solid results on dry weight basis (in mg/Kg) and aqueous samples in ug/l ..... Pg. No. Tables 6-2, 6-3, 6-8 and 6-9

8) Electronic Data Submission (EDS) of analytical results using database format in the current HAZSITE application or appropriate spreadsheet format specified in the current NJDEP electronic data interchange handbook ..... Pg. No. Appendix D

9) Scaled Site map and AOC base map(s) with sample locations, sample depth, and contaminant levels. (see N.J.A.C. 7:26E-3.13 (d)2 or 4.8 (d)2 for map details) ..... Pg. No. Figs 4-1, 6-2 thru 6-21

10) Boring/Stratiographic logs including instrument readings and physical characteristics ..... Pg. No. Appendix E

11) Boring/Stratiographic cross sections ..... Pg. No. Figs 7-3 to 7-5

12) Boring, piezometer and monitoring well records with applicable permit numbers ..... Pg. No. Appendix J

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F. RI Reporting Requirements (Include all items above plus the following)

13) Additional information collected pursant to N.J.A.C. 7:26E-4.1 and any work plan approved per N.J.A.C. 7:26E-4.7 (i.e., well search information results/summary, subsurface gas threats, investigation of sediment, surface water, wetlands) as applicable..... Pg. No. NA

14) Well Search Results (pursuant to 7:26E-4.4(h) and Appendix B)..... Pg. No. 3-7

15) Description of treatability, bench scale, or pilot studies as well as data to develop permit limits for air, surface water and/or ground water discharges..... Pg. No. NA

16) Average contaminant concentrations for each AOC (see N.J.A.C. 7:26E-4.8 (c) 3i), and a description of the procedures used for averaging..... Pg. No. NA

17) Well casing and ground water elevations (include well Certifications A and B)..... Pg. No. Appendix J

18) Ground water temperature, pH and conductivity measurements..... Pg. No. Appendix K

19) Review of inventory control records to identify product loss..... Pg. No. NA

20) Results of an Ecological Assessment, if conducted..... Pg. No. AUR

21) Summary of Landfill records, if site is a landfill..... Pg. No. NA

22) Site base maps with sampling locations* and diagrams shall include:

A) ground water elevation contour maps with flow direction, and tidal studies, if applicable..... Pg. No. Figs 7-6 to 7-13

B) top of bedrock contour map, if bedrock was encountered..... Pg. No. NA

C) contaminant isopleth maps for ground water showing horizontal/vertical extent of contaminant above applicable standards, and free product..... Pg. No. Figs 6-1 & 6-7

D) *isopleth maps for soil contaminants (required if more than 25 soil samples collected; suggested for fewer than 25 samples)*..... Pg. No. Figs 6-2 thru 6-21

E) horizontal and vertical distribution of contaminants in soil and sediment with sample numbers* and contaminant concentrations..... Pg. No. Figs 6-2 thru 6-21

F) all ground water sampling points* including open hole and screened intervals..... Pg. No. Figure 6-7

G) if applicable, a map of surface water, structure and airborne contaminants..... Pg. No. NA

H) photos may be submitted of sample locations (identify photo location on site map)..... Pg. No. NA

I) other data collected (e.g. soil gas), specify type..... Pg. No. NA

*NOTE: The same alpha/numeric sample label used in the RI Work Plan shall be used in the RI Report

G. Report Contents Completeness and Two Part Certification:

23) The attached report conforms to the specific reporting requirements listed at N.J.A.C. 7:26E-3.13 for a SI Report or N.J.A.C. 7:26E-4.8 for a RI Report..... (Yes) No

Name: Robert Kunze Signature: [signature] UST Cert. No. NA

Firm: Schoor DePalma, Inc. Firm's UST Certification Number: NA

24) Two-part certification signed and completed pursuant to one of the following requirements (indicate the page number next to the appropriate regulatory citation):

(NOTE: Certification numbers required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.)

A) N.J.A.C. 7:26C-1.2..... Pg. No. front pocket

B) N.J.A.C. 7:14B-2.3..... Pg. No. NA

C) N.J.A.C. 7:26B-1.13..... Pg. No. NA

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SECTION 1 INTRODUCTION

1.1 BACKGROUND

This Revised RIR was prepared by Schoor DePalma, Inc. (SD) for PSEG SC, which is conducting RI activities at the Site. PSEG SC is performing this work on behalf of PSE&G.

This Revised RIR presents the results of RI activities as described in the Remedial Investigation Work Plan (RIWP) prepared by Harding Lawson Associates (HLA) dated October 1999 and SRI activities as described in the Supplemental RIWP (SRIWP) prepared by SD dated June 2001. This RIR also presents an evaluation for the data generated with regard to the data quality objectives (DQO) for the project and presents recommendations for each AOC identified.

The RI is being conducted and reported in accordance with the *NJDEP Technical* Requirements for Site Remediation at New Jersey Administrative Code (N.J.A.C) 7:26E, Subchapter 4.

This RIR considers the results of the following previous investigations that were used to develop the RI and SRI scopes of work.

- Preliminary Evaluation and Prioritization of 15 Manufactured Gas Plant Sites prepared by BCM Engineers and dated February 1989
- Preliminary Assessment Report prepared by Langan Engineering and Environmental Services, Inc. (Langan) and dated June 9, 1998
- Site Investigation Report (SIR) prepared HLA and dated April 1999
- Supplemental SI (SSI) activities reported in the RIWP (HLA, 1999b)

This RIR concludes with PSEG SC's recommendations to address environmental conditions at the Site. This RI has met the DQOs necessary to develop a Remedial Action Selection Report (RASR) and to proceed with the remedial action.

PSEG SC is submitting this report in accordance with the requirements of a MOA by and between NJDEP and PSE&G dated April 30, 1998.

PSEG SC has retained SD as its environmental consultant for preparation of this RIR and completion of the RI and SRI.

1.2 REPORT ORGANIZATION

This RIR includes the following sections:

The SITE HISTORY section (SECTION 2) presents information on the Site location and operating history, as well as regulatory information about the Site.

The ENVIRONMENTAL SETTING section (SECTION 3) presents a description of the Site, geology, hydrogeology, results of a well records search, and a summary of previous investigations at the Site.

The REMEDIAL INVESTIGATION ACTIVITIES section (SECTION 4) provides a description of the AOCs at the Site, a summary of the DQOs presented in the RIWP and SRIWP for the Site, a summary of the activities proposed in the RIWP and SRIWP and any subsequent modifications.

The TECHNICAL OVERVIEW OF REMEDIAL INVESTIGATION section (SECTION 5) presents a discussion of the reliability of the laboratory analytical data, a summary of RI results, and a description of significant events impacting results.

The PRESENTATION OF FINDINGS section (SECTION 6) presents the results of the RI. This section is organized by AOC for area-specific investigations, followed by Site-wide investigations and ancillary activities.

The SUMMARY AND CONCLUSIONS section (SECTION 7) summarizes the data collected through the RI and SRI from a Site-wide perspective. Subsections on remnant MGP structures, Site geology and hydrogeology, and the nature and extent of contamination are presented. An evaluation of the project DQOs is also provided.

The RECOMMENDATIONS section (SECTION 8) introduces prospective remedial activities for the Site. Details on proposed activities will be presented in the RASR.

The REFERENCES section (SECTION 9) presents a list of selected references.

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Volume 2 of this RIR contains the figures referenced. Volumes 3 and 4 contain the appendices referenced. The appendices include a recent tax map, NJDEP Computer Radius Search Results, Data Review Reports, Electronic Data Deliverables, Soil Boring Logs, Geotechnical Test Trench Logs, Geotechnical Test Boring Logs, Vertical Hydraulic Testing Results, Monitoring Well Logs, Monitoring Well Completion Records and Ground Water Sampling Field Data. Copies of the laboratory analytical results sheets are presented in Volumes 5 through 10.

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SECTION 2 SITE HISTORY

2.1 SITE LOCATION

The Site is located in an industrial area in the western side of Jersey City, New Jersey, along the Hackensack River (Figure 2-1). The Site is divided into four parcels, occupying a total area of approximately 33 acres (Figure 2-2). The four parcels are identified as follows.

Parcel 1 (Blocks 652 and 654): Bordered on the northwest by the Hackensack River, on the southwest by Howell Street, on the southeast by Duffield Avenue and on the northeast by a railroad right-of-way (approximately 9 acres).

Parcel 2 (Blocks 655, 656, 657, 658 and 660): Bordered on the northwest by Duffield Avenue, on the northeast by vacated Meadow Street, on the southeast by James Avenue and on the southwest by St. Paul's Avenue (approximately 13 acres)

Parcel 3 (Blocks 647, 649 and 651): Bordered on the northwest by Terminal Ventures, Inc. property, on the northeast by St. Paul's Avenue, on the southeast by Charlotte Avenue and on the southwest by Howell Street (approximately 9 acres)

Parcel 4 (Blocks 605, 606 and 607): Bordered on the northwest by Duffield Avenue, on the northeast by Howell Street, on the southeast by Charlotte Avenue and on the southwest by the Wallis Avenue traffic circle (approximately 2 acres).

For consistency with previous reports, the Lot and Block numbers referenced in this report are based on historical tax maps. Following closure of a number of streets that previously crossed and construction of new roads in the area, identification of the lots and blocks were changed. Appendix A includes a copy of a tax map for Jersey City dated October 3, 1977 showing the revised lot and block nomenclature.

2.2 OPERATING HISTORY

2.2.1 Site History

This section presents a discussion of the Site history based on a review of available documents. The following documents were used to develop the history of the Site:

- Sanborn Fire Insurance Maps Dated:
  1896 (Partial coverage)
  1910
  1950
  1956 (Photo-mosaic)
- Hopkins Atlas Maps Dated
  1873
  1908
  1919
- Site Plans Dated
  1972 (Partial coverage) Property Plan A-85-1
- Title and Deed Search Information

Between 1868 and 1869 the Peoples Gas Light Company of Hudson constructed the original MGP on the eastern portion of Parcel 1 and the southwestern portion of Parcel 2. Between 1902 and 1924 the Site was expanded by the acquisition of various properties forming the major portions of the current Site. The MGP manufactured gas from circa 1869 to 1926. Operations were reactivated in 1941 to manufacture gas during the winter months and continued until 1964. From 1965 until 1985 the Site served as a peak-shaving facility to supplement supplies of natural gas during periods of high demand. In 1985, all gas manufacturing facilities were retired from service. Between 1985 and 1995, all surface structures associated with the former MGP operations were razed from the Site.

According to available information, the plant utilized the following gas manufacturing processes: the coal gas manufacturing process, the reformed natural gas process, the modified air-jet gas process, the cold enrichment gas process, the cyclic catalytic petroleum air-gas process, the oil gas process, and the liquefied petroleum air-gas process. Section 2.2.2 presents a detailed discussion of these processes.

With the introduction of natural gas to PSE&G's system in the mid-1950s, natural gas metering and regulating stations were constructed and later upgraded at the Site. Two natural gas metering and regulating stations are currently active at the Site.

Details regarding historical Site operations and ownership are discussed below.

2.2.2 History of Ownership and Operations

This section describes the history of MGP operations since 1868 based on existing records. The SIR (HLA, 1998) included the results of a title search performed on July 12, 1995 that identifies the 67 property transactions that occurred at the Site. The SIR included a detailed discussion of Site history including the names of owners and operators, the dates of ownership by each owner, the dates of operation by each operator and a description of past industrial/commercial usage of the Site by each owner and operator.

In 1868, the original Site operated by the Peoples Gas Light Company of Hudson was located in the northeastern section of Parcel 1 (Block 654) north of St. Paul's Avenue and on the southern section of Parcel 2 (Block 658). In 1884, the United Gas Improvement Company acquired operational control of the Site by lease. Based on available information, the original MGP operations consisted of coal gas manufacturing and appear to have been limited to the southern section of Parcel 2. Figure 2-4 shows the approximate location of MGP facilities in 1896.

In 1899, the Peoples Gas Light Company of Jersey City (formerly the Peoples Gas Light Company of Hudson) consolidated with other entities to form the Hudson County Gas Company. The United Gas Improvement Company surrendered its lease to the Hudson County Gas Company that year.

In 1903, Public Service Corporation leased the Site. The following facilities were identified in an inventory of structures at the Site in 1903 prepared in conjunction with Public Service Corporation.

Parcels 1 and 3

- Factory buildings – 41' x 61' x 23' high
- Foundation purifier house – 100' x 94' x 4' high
- Stable – 32' x 49' x 22' high
- Condenser foundation – 10' x 10' x 7' high
- Store house A – 50' x 135' x 21' high
- Store house B – 30' x 60' x 21' high
- Dwelling house – 17' x 21' x 12' high
- Shed (abandoned) – 57' x 20' x 22' high

- Stable (abandoned) – 17' x 24' x 10' high
- Dwelling (abandoned) – 13' x 18' x 9' high
- Halls dock – 216' x 39'
- Stevens dock – 230' x 30'
- Dwelling house (abandoned) – 19' x 24' x 13' high
- Foundation oil tank #1 – 60' diameter x 6' high
- Dwelling 25' front x 31' deep on block 660

Parcel 2, Lot 658

- Exhauster and engine room - 42' x 40' x 31' high
- Photometer and old exhauster room - 25' x 40' x 31' high
- Boiler house - 30' x 32' x 27' high
- Old generator house - 30' x 32' x 27' high
- Retort house (used as storeroom) - 33' x 19' x 19' high
- Coal shed (used as storeroom) - 25' x 12' x 12' high
- Experimental building (used as storeroom) - 16' x 20' x 13' high
- Old boiler house (used as storeroom) - 25' x 12' x 12' high
- Oxide shed - 25' x 12' x 12' high
- Stable and wagon shed - 22' x 13' x 17' high with a frame shed 24' x 12' x 11' high
- Dwelling house (of no value) 17' x 23'
- Gas holder #1 - 2,000,000 cubic feet capacity
- Gas holder (abandoned) 98,018 cubic feet capacity

Between 1903 and 1905, the remainder of Parcels 1 and 2, roughly half of Parcel 3 and a portion of Parcel 4 were acquired through multiple transactions. Between 1905 and 1909 the Site was enlarged and new MGP facilities were constructed. Figure 2-5 identifies the approximate facility layout in 1910. Hudson County Gas Company acquired the remainder of the Site through subsequent transactions. Presumably, most of the transactions were completed before 1926. Figure 2-6 identifies the approximate extent of properties comprising the Site in 1878, 1905, and 1933, respectively.

In 1926 gas manufacturing was discontinued and the facility was placed on a stand-by status until approximately 1941 when it was reactivated. Hudson County Gas Company merged with and into PSE&G in 1939.

From 1941 until 1964, the Site was used to manufacture gas only during the winter months.

In 1946, the Site was reactivated as a carbureted water gas manufacturing plant. Liquid petroleum gas-air facilities were added in 1949. With the advent of natural gas in 1950, the gas producing equipment was modified to permit fuel bed reforming of natural gas, air-jet gas facilities were added, and enrichment was carried out with natural gas. In 1950, Transcontinental Gas Pipeline Corporation (TGP) constructed a natural gas M&R station on the Site and Public Service acquired the southern corner of Parcel 1 (Block 652, Lot 5).

In 1953, PSE&G constructed a natural gas M&R station onsite.

Block 606 Lot 2, which comprises a portion of Parcel 4, was transferred to the PSE&G Electric Department through two transactions in 1952 and 1963. An electrical substation currently occupies this area.

In 1964, PSE&G sold the property acquired in 1950 and another portion of Parcel 4, consisting of Lot 606.1 to Standard. Also, in 1964, the gas distribution system served by the plant was converted to straight natural gas. The production of fuel bed and catalytic reforming of natural gas and kerosene was discontinued along with the use of air jet and enrichment gas. High Btu oil gas producing equipment using kerosene as a feed stock was installed in 1964.

In 1967, PSE&G sold Block 606.1, Lot 3 on Parcel 4 to Humble Oil and Refining Company.

TGP constructed a second M&R station onsite in the late 1960s.

Following the introduction of natural gas into PSE&G's service territory, the Site became an auxiliary gas manufacturing facility in 1965. From 1965 until 1985, the facility served in a peak shaving capacity, manufacturing oil gas and liquefied petroleum air-gas mixtures during periods of high demand to supplement natural gas supplies to PSE&G's customers.

As of July 1, 1985, the gas manufacturing facilities were retired from service. The MGP facilities were removed and the Site was razed between 1985 and 1995. Figure 2-3 presents the current facility layout.

In 1986, PSE&G constructed two new natural gas M&R stations and TGP modified the M&R station that had been constructed in the 1960s. These M&R stations are currently active at the Site.

2.2.3 Materials and Wastes Handled

This section identifies raw materials, finished products, formulations and hazardous substances, hazardous wastes, and pollutants that are or were present on the Site including intermediates and byproducts.

2.2.3.1 Raw Materials

The primary raw materials historically used in the manufactured gas process at the Site included:

- Coal
- Coke
- Oil
- Natural gas
- Kerosene
- Propane
- Butane

2.2.3.2 Byproduct and Waste Handling

The primary byproducts and wastes associated with the manufactured gas process onsite were:

- Ash
- Clinkers
- Tars
- Light oils
- Spent oxides
- Ammonia liquors
- Coke
- Spent catalysts

The SIR presented a summary of hazardous materials and waste materials handled at the Site and historical disposal practices as determined during the Preliminary Assessment (PA). The following sections discuss the primary waste materials associated with the types of MGP operations that took place at this Site.

Ash

Ash, the residue remaining from the burning of soft and hard coals, was generated in the steam producing portion of the plant until about 1945, when the boilers were converted to liquid fuels. Contractors normally removed the ash from the property in bulk and trucked the material to landfills.

Clinker

Clinker was the residue remaining from the coke used in the carbureted water gas operations. Clinker was normally removed and disposed of in the same manner as the ash.

Tars

Tars and tar sludges consist of heavy resinous material that ordinarily accumulated in portions of the gas cleaning areas. Most of the sludges included high concentrations of solids. Although the sludges contained constituents of potential concern, primarily polynuclear aromatic hydrocarbons (PAH), disposed tar sludges are not very mobile in the environment and therefore remain relatively stable.

Water gas, carbureted water gas and oil gas tars were removed from the manufactured gas stream usually as an emulsion with water. It was initially stored in separators and tanks where the water was removed. Tar was sold and transported via tank truck or barge for use in the road paving and building material industries.

Oils

Drip oil and light oil was removed from the manufactured gas stream by condensers and precipitators. It was mixed with the tar byproduct and sold with the tar.

Spent Oxides

Iron oxide sponge, a mixture of ferric hydrate and wood shavings, was used to remove hydrogen sulfide from the gas stream. The sponge was normally regenerated with air to reactivate the material. This material became waste when, after several years, it could no longer be regenerated. Spent oxide box wastes typically contained high

concentrations of sulfur and cyanide salts. The characteristic blue color of these wastes resulted from ferrocyanide salts such as Prussian Blue.

Ammonia Liquors

Various aqueous emulsions were formed when water gas was cooled and the water and oil condensed. A relatively large amount of condensate could form because steam was injected into the gas generator and was also used in the carburetion step. Most of these emulsions would be expected to escape the disposal Site relatively quickly.

Coke

Spent coke or off-specification coke may be present. These solid wastes are relatively stable but may contain leachable concentrations of trace metals. Much of their adverse environmental effects, such as fugitive dust emissions, would have been experienced shortly after they were formed.

Spent Catalysts

Spent catalysts associated with the cyclic catalytic reformed gas manufacturing process may be present. The catalysts typically contained nickel-based salts and may serve as a source of leachable heavy metals.

2.2.4 Production Processes

This section describes present and past production processes. The Site initially manufactured gas between 1868 and 1926. In 1926, the facility was placed on standby until 1941 when operations resumed during only the winter months. Gas manufacturing operations continued in a limited capacity, during winter months, until 1985. According to available information, the following gas manufacturing processes were performed at this Site:

- Coal gas process (1868 to 1904)
- Water gas process (1868 to 1904)
- Carbureted water gas process (1904 to 1964)
- Liquefied petroleum air-gas process (1949 to 1985)
- Reformed natural gas process (1950 to 1964)
- Modified air-jet gas process (1950 to 1964)
- Cold enrichment gas process (1950 to 1964)
- Cyclic catalytic reformed gas process (1954 to 1964)
- Oil gas process (1964 to 1985)

2.2.4.1 Coal Gas and Water Gas

In 1868, the coal gas and water gas manufacturing processes were initiated at the Site. These manufacturing processes involved the thermal reduction of coal in retorts to distill volatile material from the coal. Processes relating to coal gas manufacturing included coal charging, thermal reduction of coal, gas generation, condensing, cooling, gas cleanup and storage. Water gas was manufactured through the introduction of steam into an incandescent bed of hot coke or coal. The manufacturing equipment included a generator, which contained the incandescent bed, a waste heat boiler and purifiers. These gas manufacturing processes were used at the Site until about 1904.

2.2.4.2 Carbureted Water Gas

In approximately 1904, the carbureted water gas process replaced the coal gas and water gas processes. Carbureted water gas was the water gas process enriched with thermally cracked oil. Carbureted water gas was manufactured by passing steam over and through an incandescent bed of coke and consisted essentially of hydrogen and carbon monoxide which was formed following the chemical reaction:

$$H_2O + C \rightarrow H_2 + CO$$

The manufacturing equipment consisted of a generator, carburetor, superheater, waste heat boiler and a wash box. The generator contained the coke bed that was used to produce water gas and provide heat to the carburetor and superheater. Oil was added to the carburetor, vaporized, and the vapors thermally cracked. The cracked hydrocarbons were then fixed into methane, ethane and other gaseous hydrocarbons in the superheater, which was filled with checker bricks. The thermal value of carbureted water gas was approximately 525 Btu/cu.ft. The byproducts and wastes from the carbureted water gas process were clinker, tar, pitch and light oil. Except for the standby period from 1926 to 1941, the carbureted water gas process continued at the Site until 1964 when the gas manufacturing equipment was converted to the oil gas process.

2.2.4.3 Liquefied Petroleum Air-Gas

In 1949, liquefied petroleum air-gas manufacturing was also conducted at the Site. In this process, propane or butane was vaporized and mixed with air. The manufacturing equipment consisted of a liquid petroleum gas steam vaporizers, air blowers and/or

jets. This process continued at the Site until the retirement of the manufactured gas facilities in 1985.

2.2.4.4 Reformed Natural Gas

In 1950, the reformed natural gas process was added. The reformed natural gas process was a modification of the carbureted water gas process in which natural gas was used in place of thermally cracked oil. A small amount of light oil (physic oil) was added to the foul main to reduce solids carryover. The waste associated with this process was clinker. This process continued at the Site until 1964.

2.2.4.5 Modified Air-Jet Gas

The modified air-jet gas manufacturing process as also added in 1950. This process used natural gas pressure in conjunction with a venturi to aspirate air into the natural gas stream. Controlling the amount of air aspirated modified the heating value of the mixture. No wastes were associated with this process. This process continued at the Site until 1964.

2.2.4.6 Cold Enrichment Gas

The cold enrichment gas manufacturing process involved adding natural gas to the various manufactured gas streams to increase the heating value to a desired level. This gas manufacturing process continued at the Site until 1964.

2.2.4.7 Cyclic Catalytic Reformed Gas

In 1954, the cyclic catalytic reformed gas manufacturing process was added to the Site. In this process, reformer vessels containing a nickel catalyst were cyclically heated via combustion gases generated by burning a hydrocarbon in a combustible shell. In the process cycle, steam was introduced into the combustion shell and natural gas (methane) was introduced into the reformer vessel. The methane was cracked into hydrogen and carbon, which reacted with the steam to produce carbon monoxide and hydrogen. The waste associated with this process was spent nickel catalyst. This process continued at the Site until 1964.

2.2.4.8 Oil Gas

In 1964, oil gas manufacturing began at the Site. In the oil gas manufacturing process, a light oil (kerosene) was thermally cracked and reformed. Oil gas was produced in a three-vessel system similar to the carbureted water gas equipment. The water gas carburetor and generator were converted to vaporizers. Checker bricks replaced the

coke bed in the generator and were also installed in the carburetor. Number 6 fuel oil and tar were burned in the vaporizers to heat the checker bricks in the vaporizers and superheater. Following the heating cycle, kerosene was introduced into vaporizers and thermally cracked. Gases produced in the vaporizers were then fixed in the superheater. The byproduct of this process was tar. The oil gas process continued at the Site until the retirement of the gas manufacturing facilities in 1985.

From 1965 until 1985, the Site served as a peak shaving facility to supplement supplies of natural gas to customers during periods of high demand. In 1985, all gas manufacturing facilities were retired from service. Between 1985 and 1995, all surface structures associated with the former MGP operations were razed from the Site.

2.2.5 Storage and Containments

Former and current containers, storage areas, aboveground and underground storage tanks at the Site were identified in the Preliminary Assessment Report (PAR) and SIR. No surface impoundments, landfills or septic systems were associated with operations at this Site.

2.2.6 Aerial Photograph Interpretation

The PAR identified a review and interpretation of historical aerial photographs for the Site and surrounding areas.

2.2.7 Known Discharges

The PAR identified discharges that were known or suspected to have occurred on the Site. The SIR identified the discharges and presented copies of pertinent correspondence.

2.2.8 Past Remedial Actions

Other than the clean closure of the two gas holders, no past remedial actions were reported at this Site. Activities related to the gas holders are discussed in Sections 6.2.6.1 and 6.2.16.1.

2.2.9 Remedies Previously Approved by NJDEP

No past remedial actions were reported at this Site.

2.2.10 Existing Environmental Sampling Data

The only known existing environmental sampling data were for two surface water samples collected from the Hackensack River, upstream of the plant and at the plant discharge. The samples were collected on October 6, 1983 and analyzed by PSE&G Research Corporation for Priority Pollutant List (PPL) Volatile Organic Compounds (VOCs), base/neutral extractable compounds (B/N), phenols and metals. The results were presented in the Preliminary Site Assessment Report for the facility, dated November 25, 1985.

Copies of the above analytical results were included in the SIR. No VOCs, B/Ns or individual phenols were reported in either surface water sample. Cyanide, total phenols and five metals, consisting of chromium, copper, mercury, nickel and zinc, were detected at similar concentrations in both samples.

2.2.11 Known Changes in Site Conditions Since Previous Actions

Other than the activities reported herein, there have been no known changes in Site conditions since the facility was demolished.

2.2.12 Permits

The PAR and SIR identified the permits associated with this facility.

2.2.13 Enforcement Actions

The SIR presented a summary of enforcement actions related to environmental laws or regulations as identified during PAR. Available information includes the name of the enforcing agency, the law or regulation allegedly violated and the date, type, description and resolution of the violation.

2.3 CURRENT OPERATIONS

Current operations onsite are limited to the natural gas M&R stations on Parcel 1 (Block 652, Lot 1), the PSE&G East Jersey District Gas Distribution headquarters and the Jersey City Appliance Service Business Unit located on the eastern portion of Parcel 2 (Block 656, Lot 1). Figure 2-3 presents the current facility layout. The PSE&G East Jersey District Gas Distribution headquarters consists of offices, a parking area for a fleet of service vehicles, refueling facilities, a service garage and stockpiles of clean soil and maintenance materials. The refueling facility includes two

gasoline and one diesel fuel concrete-encased above-ground storage tanks, a fuel dispenser and a 25-bay natural gas refueling area.

SECTION 3 ENVIRONMENTAL SETTING

3.1 SITE DESCRIPTION

The Site is located in Jersey City, Hudson County, New Jersey (Figure 2-1). The Site is divided into four parcels occupying approximately 33 acres along the southeast bank of the Hackensack River (Figure 2-2).

The southwestern portion of Parcel 1 is currently abandoned. This area includes the vacated portion of St. Paul's Avenue and land extending to the southeastern and southwestern property boundaries. The northeastern portion of Parcel 1 contains two natural gas M&R stations, one operated by PSE&G and the other TGP. The northwestern border of Parcel 1 consists of two relieving platforms and sheet piling along the river. Several major utilities cross Parcel 1. These include high-pressure gas pipelines operated by PSE&G and TGP, an oil line operated by Amerada Hess, a water line and two storm sewers. The water line and one of the storm sewers are located along the abandoned portion of St. Paul's Avenue. The second storm sewer crosses the southwestern portion of this parcel.

The southeastern portion of Parcel 2 is currently occupied by the PSE&G East Jersey District Gas Distribution Headquarters and the Jersey City Appliance Service Business Unit. The central portion of Parcel 2 is used by PSE&G for storage of construction materials such as steel road plates, utility poles and gravel. The remainder of Parcel 2 is vacant.

Parcel 3 is vacant and unpaved.

Parcel 4 is currently occupied by an Exxon service station, a PSE&G electric substation and an equipment yard operated by Standard.

Parcels 1, 2 and 3 are currently fenced and controlled by PSE&G. Parcel 4 is partially fenced and occupied by other parties.

3.2 LAND USE

Land use surrounding the Site is mixed commercial and industrial. Streets, facilities, and landmarks bordering each parcel of the Site are identified in Section 2.1. The following facilities surround the Site.

The Site is bordered on the northwest by the Hackensack River. Facilities to the southwest of the Site include a Terminal Ventures, Inc., tank farm and Standard. Several commercial establishments are located to the southeast of the Site across James and Charlotte Avenues. Areas to the southeast of the Site are occupied by the facilities identified on Parcel 4 and several major thoroughfares including the Pulaski Skyway and Route 7.

Parcel 3 is bordered on the northwest by Duffield Avenue, on the northeast by St. Paul's Avenue, on the southeast by Charlotte Avenue and on the southwest by Howell Street. Several commercial establishments are located southeast of this parcel, across Charlotte Avenue.

Parcel 4 is bordered on the northwest by the Terminal Ventures, Inc., tank farm, on the northeast by Howell Street, and on the southeast and southwest by the Wallis Avenue Traffic Circle and Route 7 West.

3.3 TOPOGRAPHY AND SITE DRAINAGE

The topography of the Site is generally level. Surface elevations across the Site range from approximately 6 feet above mean sea level (MSL) near the western edge of Parcel 1 to approximately 18 feet MSL in the eastern portion of Parcel 2. The ground surface at the site slopes gently downward from east to west toward the Hackensack River. Section 6.4 of this RIR presents the results of the topographic survey performed during the RI.

3.4 LOCAL SURFACE WATER

The nearest surface water body is the Hackensack River which borders the northwestern side of the Site. This navigable waterway is used for commercial shipping and recreational boating. The Hackensack River flows in a southerly direction to Newark Bay, approximately two miles to the south. There are no public surface water supply intakes within three miles downstream of the Site.

3.5 LOCAL CLIMATE AND RAINFALL

The climate in Hudson County is generally temperate with an average annual rainfall of approximately 44 inches. The mean annual temperature is 54.8 degrees

Fahrenheit (°F) with a monthly mean low of 30.6°F in January and a monthly mean high of 76.4°F in August (National Oceanic and Atmospheric Administration, 1999).

3.6 SOILS

According to the U.S. Department of Agriculture Natural Resources Conservation Survey, there is no formal soil survey of Hudson County. Based on observations during the RI and previous investigations, most of the Site is underlain by fill consisting of ash-like material (ALM), clinker-like material (CLM), coal fragments, gravel and demolition debris including brick and concrete fragments. The upper approximately 18 inches of fill was reworked during Site demolition activities between 1985 and 1995. No documentation is available regarding historical placement of the underlying fill. Based on the drilling logs and historical Site maps, it appears that much of the area was filled in the early 1800s to reclaim land from the Hackensack River as the city expanded.

3.7 GEOLOGY

The Site is located in the Piedmont Physiographic Province of New Jersey. This province consists of lowlands and gently rolling hills, which are underlain by shales and argillites of the Jurassic and Triassic Age Passaic, Stockton and Lockatong Formations. Areas of relatively higher elevations are associated with the Watchung lava flows and Palisades intrusion. Much of the area in the Piedmont Province is overlain with interglacial gravels, glacial till and stratified drift.

A broad lowland, called the Hackensack Valley, exists between the first Watchung Mountain and the ridge of the Palisades Sill. Most of the lowland is less than 50 feet above MSL and some areas are tidally influenced. During the last glaciation period of the Pleistocene Epoch, most of this area was under glacial Lake Hackensack. Glacial lacustrine clays were deposited in the lake. In recent times, the presence of these clays has resulted in extensive areas of poorly drained marsh and meadowlands. Sand and gravel were also deposited during the glaciation and in some areas these deposits have filled pre-glacial river channels to depths of more than 200 feet. Low sandstone ridges that parallel the northeast-southwest trend of the Watchungs and Palisades create upland areas in the Hackensack Valley.

The following geological formations underlie the Site, from oldest to youngest:

- Stockton Formation
- Lockatong Formation
- Palisades Intrusion
- Glacial Deposits
- Alluvium

Figure 7-1 presents a bedrock geologic map of the area.

3.7.1 Stockton Formation

The Triassic Age Stockton Formation may occur as a very thin formation in the vicinity of the Site. It is known to be present for a short distance on both sides of the Palisades. The Stockton Formation is predominantly a light-colored arkosic sandstone that can contain beds of soft red shale. The Palisades Sill intruded into a portion of the Stockton Formation. The high temperatures generated by the molten rock altered the arkosic sandstone several feet above and below the sill, producing minor amounts of trace minerals and changing the chemical composition of the rock.

3.7.2 Lockatong Formation

The Triassic Age Lockatong Formation may also be present at the Site as a thin formation. Normally, the Lockatong Formation consists of dark gray, carbonate rich mudstone and massive, gray, calcareous argillite. In the vicinity of the Palisades intrusion, it has been extensively altered by thermal metamorphism. Here the formation has been changed into a very dense rock containing silica and abundant sodium.

3.7.3 Palisades Sill

The Palisades Sill formed during the Jurassic Age from a mass of molten rock that intruded into the surrounding Triassic Age shales and sandstones. This produced a dense, medium to coarse grained rock that is characteristically gray to black in color. The sill itself is composed chiefly of diabase, which is highly resistant to weathering.

In the Jersey City area, the Palisades Sill dips approximately 7 degrees to the west. The dip may be steeper below the Hackensack Meadowlands to the west.

3.7.4 Glacial Deposits

The glacial deposits of the Wisconsin ice sheet are composed of unconsolidated sediments deposited by three mechanisms:

- Glacial deposits — Deposited directly by the glacier
- Glaciolacustrine deposits — Deposited by glacial melt water in lakes
- Glaciofluvial deposits — Deposited by glacial melt water in streams

The sediments can be deposited as till or as stratified drift. Till is an unstratified mixture of boulders, cobbles, gravel, sand and clay. Stratified drift consists of stratified layers of similarly sized sediments. During the last ice advance of the Pleistocene ice age, the area of the Hackensack Meadowlands was submerged beneath glacial Lake Hackensack. This glaciolacustrine environment resulted in thick accumulations of silt and clay. Some of these fine-grained deposits are nearly 200 feet thick.

The Hackensack Meadowlands are crossed by a number of pre-glacial river channels that cut into the bedrock. These channels contain both till and stratified drift. In some area the channels are greater than 200 feet deep.

At the Site, bedrock is expected to occur roughly 100 feet below ground surface (bgs). Glacial deposits and a thin layer of alluvium overlie the bedrock. A glacial valley containing as much as 200 feet of sediments has been mapped less than one mile to the north. Less than one mile to the south, the bedrock is exposed at the surface.

3.7.5 Alluvium

Alluvium in this area typically consists of silty clays and silt with decomposed tidal marsh plant growth. This includes a peat layer that generally borders the Hackensack River.

3.8 HYDROGEOLOGY

The principal aquifers in the area are the stratified sands and gravels of the glacial drift and sandstones in the Passaic Formation. Because the Passaic Formation is not mapped at the Site, this formation is not discussed further in this report.

3.8.1 Stockton Formation

Although the Stockton Formation can be a good aquifer in other areas of the State, it is not productive in this area and in general in the vicinity of the Palisades. The intense heat from the intrusion sealed many of the fractures and reduced permeability.

3.8.2 Lockatong Formation

The Lockatong Formation is normally not considered to be a productive aquifer. The rock has very low primary porosity and secondary features such as joints and fractures are not common. The alteration produced by the Palisades intrusion did not improve the water-bearing properties of the rock. The Lockatong is not considered to be an aquifer in the vicinity of the Site.

3.8.3 Palisades Sill

The Palisades Sill is a very poor source of ground water. Occasionally the upper portions of the formation are fractured sufficiently to yield minor amounts of ground water.

3.8.4 Glacial Deposits

The unconsolidated stratified glacial drift deposits provide varying amounts of ground water. Where deposits of sand and gravel are thick, yield is generally good. Where silt and clay are present, yield tends to be very low.

The glacial channels in the bedrock underlying the Hackensack Meadowlands are filled primarily with fine-grained stratified drift. These sediments exhibit very low yields. Some interbedded lenses of sand and gravel are present in the glacial channels. These lenses can produce useful yields.

The aquifers in the Pleistocene glacial deposits are recharged through infiltration. These units store and transmit ground water to the underlying formations. In some areas there is a correlation between the thickness and permeability of the Pleistocene deposits and the yield of wells in the Passaic Formation, suggesting good hydraulic communication between the two units.

3.8.5 Alluvium

The alluvial deposits in this area are not considered to be productive.

3.9 TOPOGRAPHY

The topography of the Site is generally level, ranging from approximately 6 to 18 feet above MSL. To the northwest of the Site is the Hackensack River and meadowlands, generally at or near MSL. East of the Site is the Palisades sill that rises to over 100 feet above MSL.

3.10 RESULTS OF WELL RECORDS SEARCH

SD obtained a NJDEP computer radius search of large production wells and contaminated sites within 5 miles of the Site and a manual search of well records within a one-mile radius. Results of the well records search were consistent with data reported in the SIR. One domestic well and two recovery wells were identified within one mile of the Site. The domestic well is located at 180 Baldwin Avenue in Jersey City, approximately one mile southwest of the Site. The recovery wells are located in Kearny Township, approximately ¾ mile northwest of the Site across the Hackensack River. Appendix B contains a copy of the NJDEP computer radius search. The manual well search data are consistent with the records presented in the SI (HLA, 1999a).

SECTION 4 REMEDIAL INVESTIGATION ACTIVITIES

4.1 AREAS OF CONCERN

Results of the PA as documented in the PAR (Langan, 1998) identified 61 potential AOCs. Based on information developed in scoping the SI and on the actual results of the SI, PSEG SC determined that certain of the potential AOCs identified in the PAR are not actual AOCs. In addition, based on the nature of the contamination detected, certain of the potential AOCs identified during the PAR were combined to facilitate characterization of the extent of contamination for purposes of designing an effective remediation program. This process resulted in the identification of 17 final AOCs for the Site. Details regarding the process undertaken to identify the preliminary and final AOCs were presented in the SIR (HLA, 1999a). The 17 AOCs are shown on Figure 4-1. Following is a concise summary of the SI and SSI findings for each of the AOCs and notes regarding recommendations for RI and/or SRI activities. Details regarding the sampling activities and findings are discussed in Section 6.2.

- AOC-1A - Gas Manufacturing Area

  Results of the SI indicated PAHs and Volatile Aromatic Hydrocarbons (VAHs) consisting of benzene, toluene, ethylbenzene and total xylenes in Site soils at concentrations above the NJDEP Residential Direct Contact (RDC) SCC, Non-Residential Direct Contact (NRDC) SCC and Impact to Ground Water (IGW) SCC. Two monitoring wells were installed in this AOC during the SSI. NAPL were identified in the monitoring wells and dissolved-phase contaminants were identified in Site ground water at concentrations above the NJDEP Ground Water Quality Standards (GWQS) including Interim Specific Criteria. Further investigation of soils in this AOC was recommended for the RI to delineate the OLM/TLM and SCC exceedances. Based on initial results of the RI, the SRIWP recommended further investigation of this AOC.

- AOC-1B - Open Ditch

  This AOC was not investigated during the SI. No activities were conducted in this AOC during the SSI. Based on results of the SI and

discussions with NJDEP, the RIWP included recommendations for investigation of surface and subsurface soils in this AOC.

- AOC-1C - Coal Yard/LP Vaporizer Blowdown Tank

  This AOC was not investigated during the SI. Based on historical Site operations including the use of this area as a storage yard, the RIWP included recommendations for investigation of soils in this AOC. The SRIWP included recommendations for further soil and ground water investigation in this area.

- AOC 1D – Relieving Platform Area

  This AOC was not investigated during the SI or the RI. Because the horizontal extent of OLM and TLM detected in adjacent AOC-1C during the RI was not delineated, the SRIWP included recommendations for further investigation of this AOC during the SRI.

- AOC-2A - Storage Tank Area

  During the SI, PAHs, VAHs, polychlorinated biphenyls (PCBs) and several metals were detected in soil samples from this AOC at concentrations above the NJDEP SCC. During the SSI, VOCs, PAHs and metals were detected in the ground water at concentrations above the NJDEP GWQS. The RIWP included recommendations for investigation of soils in this AOC. Based on results of the SSI and RI, the SRIWP recommended investigation of ground water and offsite soils associated with this AOC.

- AOC-2B - Headquarters Area

  During the SI, VOCs, PAHs, PCBs and several metals were detected in soil samples from this AOC at concentrations above the NJDEP SCC. The RIWP recommended further investigation of soils in this AOC. Based on results of the RI, the SRIWP recommended investigation of offsite soils near this AOC.

- AOC-2C - Fueling Area/Original MGP Facility

  As part of the SI, five USTs were removed from this area. Benzene and several PAHs were detected in post-excavation soil samples from this AOC. However, based on the concentrations observed, PSEG SC concluded that these constituents were related to general conditions at the Site, not a release from the USTs. The RIWP recommended additional soil sampling to evaluate the extent of affected soil in this area. In addition, at the request of NJDEP, the RIWP included installation and sampling of ground water monitoring wells in the area from which the USTs were removed. Other than ground water sampling to investigate Site-wide conditions, the SRIWP recommended no further investigation of this AOC.

- AOC-2D - Tar Processing/Catalytic Reformer/Storage Area/Underground Oil Accumulations

  Limited sampling performed in this area during the SI indicated VAH concentrations above NJDEP SCC. Further investigation of this AOC was recommended in the RIWP. No further soil sampling was recommended for this AOC in the SRIWP. However, based on NJDEP comments, recommendations were made to incorporate field data collected from soil borings conducted as part of modeling activities, not directly related to the RI or SRI.

- AOC-2E - PSE&G Metering and Regulating Station

  This AOC was not investigated during the SI and SSI. Based on historical Site operations soil sampling was recommended in this AOC during the RI.

- AOC-3A - Purifier/Oxide Boxes/Recirculating Oil Tank Area

  This AOC was not investigated during the SI. Based on historical Site operations soil sampling was recommended in this AOC during the RI.

- AOC-3B - Processing Area

  Several test trenches conducted in this AOC during the SI exhibited evidence of possible impacts. However, no soil samples were collected from this AOC during the SI. Investigation of the possible impacts, including collection and analysis of soil samples in this AOC was recommended in the RIWP.

- AOC-3C - 13 kV Switch Yard

  This AOC was not investigated during the SI. Based on historical Site operations soil sampling was recommended in this AOC during the RI.

- AOC-3D - Gasoline Fueling Area

  During the SI, PSEG SC determined that a UST had been previously removed from this area. One soil sample collected in this AOC during the SI exhibited a benzene concentration above the NJDEP SCC. Additional soil samples were collected during the RI to delineate this AOC. At the request of NJDEP, ground water at this AOC was investigated during the RI. Other than ground water sampling to investigate Site-wide conditions, the SRIWP recommended no further investigation of this AOC.

- AOC-3E - Compressor House Area

  This AOC was not investigated during the SI. Based on historical Site operations soil sampling was conducted in this AOC during the RI. No further investigation was recommended in this area during the SRI.

- AOC-3F - Stockpile Area

  This AOC was not investigated during the SI. Based on historical Site operations soil sampling was recommended in this AOC during the RI.

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- AOC-3G - Gas Storage Holder No. 2

  Results of the SI indicated benzene and total xylenes concentrations above NJDEP SCC in this AOC. Further investigation of this AOC was recommended in the RIWP and SRIWP.

- AOC-4A - Tar Storage Tanks

  No sampling was conducted in this AOC during the SI, SSI or RI. A third party currently occupies this AOC. As discussed in the PAR and SIR, only limited operations were historically conducted on Parcel 4. This included the historical operation of three small tar ASTs and three oil ASTs and the PSE&G electric substation. Recent operations on this parcel, including an Exxon service station and a storage/maintenance yard used by Standard may have contributed to contamination in this area. This parcel will be acquired and condemned by the NJ Department of Transportation (NJDOT) as part of road improvement activities in the near future. PSEG SC understands that NJDOT has collected environmental data from the parcel. PSEG SC will review these data and incorporate the data in the RIR. Recommendations for further action, if any, on Parcel 4 will be developed based on the NJDOT data and will be presented following receipt and review of NJDOT's data.

- AOC-4B - Oil Storage Tanks

  Similar to AOC-4A, PSEG SC will evaluate this AOC based on data collected by NJDOT and provide recommendations for further action, as appropriate.

4.2 PROJECT DATA QUALITY OBJECTIVES

Seven project-specific DQO statements were developed in the RIWP and fifteen project-specific DQO statements were developed in the SRIWP to address the data gaps of the RIWP. The 22 DQOs were structured to ensure that the data collected were sufficient to make informed decisions regarding contaminant delineation and potential Site remedies, thus ensuring adequate Site characterization. Completion of the DQOs provided PSEG SC with the data needed to: (1) select the most

appropriate remedial action that will be protective of human health and the environment, and (2) satisfy applicable regulatory requirements. The DQOs were based on the following:

- Applicable regulatory requirements
- A vision of future land use
- An understanding of the Site history, construction, and operations as they relate to the production and disposition of manufacturing residuals and potential for migration of these residuals
- A preliminary conceptual site model that summarizes the nature and extent of contamination and identifies potential receptors
- Risk-based remedial action objectives
- Proven and effective remedial technologies to address Site-specific conditions.

The DQOs are presented below and are discussed further in Section 7.5.

1. What is the lateral extent of the peat layer underlying the fill materials across much of the Site?
2. What is the lateral extent of NAPLs detected on the Site?
3. What is the horizontal and vertical extent of Site soil contamination?
4. What is the overall concentration of Site-related contaminants?
5. What is the extent of ground water contamination?
6. What are the sources and extent of VAHs and styrene detected at monitoring well pair MW-2A/MW-2B?
7. Are Site conditions favorable for natural attenuation of the organic ground water contaminants?
8. What is the horizontal extent of ground water contamination along the down gradient Site boundary?
9. What is the vertical extent of ground water contamination at the Site?
10. What is the extent of soil contamination in AOC-1C?
11. What is the extent of contamination detected near the northern edge of AOC-1C?
12. Are elevated concentrations of benzene present in the soil in the northwestern portion of AOC-1C?
13. Does the Site-related contamination extend offsite beyond the northern Site boundary of Parcel 2?

14. What is the vertical extent of soil contamination detected below the peat layer in AOC-2D?
15. Does Site-related contamination extend offsite beneath the intersection of Duffield and St. Pauls Avenues?
16. Is MGP contamination typically associated with historical gas holders present to the west of Gas Holder No.2?
17. What is the potential for monitored natural attenuation to serve as a remedial alternative for ground water at the Site?
18. Do river bottom sediments contain elevated concentrations of site-related contaminants that could pose a risk to the environment?
19. If the river bottom sediments have been affected by site-related contaminants, what is the horizontal extent of the affected sediments?
20. Have river sediment conditions near the Site been adversely impacted due to contamination from other offsite source areas?
21. Does the OLM and/or TLM encountered at the Site extend into or beneath the riverbed?
22. To what depth will it be necessary to drive pilling to construct a cut-off wall and to replace the relieving platform?

In addition to the DQOs that were used to design the RI and SRI, on October 11, 2001, PSEG SC received a comment letter from PSEG regarding the SRIWP. Because the comment letter was received after completion of the SRI, it was not possible to incorporate NJDEP's comments that relate to field investigation activities. Based on NJDEP's comments, this RIR also addresses the following items:

1. NJDEP requested that the Site maps depict the locations of utilities. The RI and SRI did not include formal utility surveys. Therefore, accurate utility locations cannot be shown on the Site plans. Locations of major utilities are described in the conclusions and recommendations section for each of the AOCs.
2. NJDEP recommends use of diffusion samplers to assess possible ongoing releases to the river. This approach will be considered as part of the Remedial Action Work Plan (RAWP).
3. NJDEP recommended extending the river borings to depths greater than four feet to ensure that the river borings intercept the most appropriate depths at

which MGP related material may be encountered. The river bottom is at a substantially lower elevation than the depths at which MGP related material has been detected on the Site. Therefore, the river borings completed achieved this objective.

4. NJDEP recommended analysis of naphthalene along with VAH analyses. Due to the late receipt of this comment, this recommendation could not be accommodated in the SRI.

4.3 SUMMARY OF REMEDIAL INVESTIGATION ACTIVITIES

Surface soil, subsurface soil, riverbed, and ground water investigations were conducted as part of the RI and SRI. This section summarizes the media investigated and is presented according to each AOC. Investigation activities related to specific DQOs are indicated as well. Data from soil borings conducted in all of the AOCs were used to address DQO-1 through DQO-4. Following is a summary of RI and SRI activities conducted at each of the AOCs.

- AOC-1A – During the RI, 2 surface and 6 subsurface soil samples were collected and analyzed to investigate and delineate residual MGP contamination in this area. A total of 18 soil borings were completed in this AOC, 14 of the soil borings were not sampled for laboratory analysis due to the presence of OLM or TLM. PSEG SC is currently conducting a geotechnical evaluation to assess structural conditions associated with the relieving platform located along the Hackensack River at the southwestern corner of this parcel. As part of the geotechnical evaluation, 5 test trenches and 2 deep soil borings were conducted in the area of AOC-1A and three deep soil borings were conducted in the river adjacent to the western side of the relieving platform (see discussion of AOC-1D). While these investigations were not conducted as part of the RIWP, the data generated are considered to be useful and are considered in the overall evaluation of this AOC. During the RI, an oily Light Non-Aqueous Phase Liquid (LNAPL) was detected in monitoring well MW-2B. A sample of this LNAPL was collected and submitted to the laboratory for fingerprint analysis (DQO-6). During the SRI, an oily sheen was noted in MW-2B and a Dense Non-Aqueous Phase Liquid (DNAPL) was detected in monitoring well MW-2A. A sample of this LNAPL was collected and submitted to the laboratory for fingerprint analysis. During the SRI a third

ground water monitoring well (MW-2C) was installed and sampled to delineate the vertical extent of ground water contamination (DQO-9).

- AOC-1B – During the RI, 6 surface and 8 subsurface soil samples were collected from 6 soil borings and analyzed to evaluate conditions at this AOC. No further investigation of this area was conducted during the SRI.

- AOC-1C – During the RI, 6 surface and 16 subsurface soil samples were collected from 6 soil borings and analyzed to evaluate conditions at this AOC. During the SRI, 14 soil samples were collected from 7 soil borings within and north of this AOC to delineate conditions within the AOC and to evaluate the possibility of offsite impacts. Two ground water monitoring wells were installed in this AOC and two ground water samples were collected to assess the extent of affected ground water at the Site.

- AOC – 1D – During the SRI, seven soil borings were completed in this AOC to investigate the horizontal and vertical extent of OLM and TLM detected. Two ground water monitoring wells were installed and sampled to assess ground water quality near the southwest, downgradient property boundary. A series of riverbed soil borings were completed to investigate the possibility of TLM in the river bottom and six riverbed soil samples were collected to evaluate the possibility of Site related contamination on river sediment quality.

- AOC-2A – During the RI, 5 surface and 59 subsurface soil samples were collected from 21 soil borings and analyzed to evaluate conditions at this AOC. Ground water samples were collected from two monitoring wells in this area and analyzed. During the SRI, one additional ground water monitoring well was installed in this AOC to investigate the vertical extent of ground water contamination. Two additional soil borings were completed north of this AOC and four soil samples were collected for laboratory analysis to assess offsite conditions.

- AOC-2B – During the RI, 6 surface and 59 subsurface soil samples were collected from 17 soil borings and analyzed to evaluate conditions at this AOC. During the SRI, two additional soil borings were completed north of

this AOC and four soil samples were collected for laboratory analysis to assess offsite conditions.

- AOC-2C – During the RI, 9 subsurface soil samples were collected from 2 soil borings and analyzed to evaluate conditions in this AOC. Two ground water monitoring wells were installed and sampled to assess ground water conditions in this AOC. No further soil sampling was conducted in this AOC during the SRI.

- AOC-2D – 3 surface and 21 subsurface soil samples were collected from 10 soil borings and analyzed to evaluate conditions at this AOC. During the SRI, 2 ground water samples were laboratory analyzed from existing well pair MW-4A/B. At the request of NJDEP, PSEG SC included evaluation of data from several soil borings conducted in this area to collect data for construction of a three-dimensional model of the Site. While not specifically part of the RI or SRI, data from these borings were used to assess the extent of OLM and TLM in this area and the adjacent streets.

- AOC-2E – 4 surface and 11 subsurface soil samples were collected from 5 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area.

- AOC-3A – 5 subsurface soil samples were collected from 5 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area.

- AOC-3B – 9 surface and 18 subsurface soil samples were collected from 9 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area.

- AOC-3C – 4 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area.

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- AOC-3D – 3 subsurface soil samples were collected from 3 soil borings and analyzed to evaluate conditions at this AOC. Two sets of paired ground water monitoring wells were installed and sampled to evaluate ground water conditions in this AOC. During the SRI, 4 ground water samples were collected from the two well pairs for laboratory analysis.

- AOC-3E – 8 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area.

- AOC-3F – 1 surface and 9 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC. The SRIWP recommended no further investigation in this area

- AOC-3G – 2 surface and 4 subsurface soil samples were collected from 2 soil borings and analyzed to evaluate conditions at this AOC. During the SRI, 2 additional subsurface soil samples were collected to delineate this AOC.

In addition to the AOC-specific sampling activities, the RI and SRI included investigation of Site-wide conditions including:

- The extent of the peat layer/confining layer across the Site (DQO 1);
- The extent of NAPLs (DQO 2);
- Ground water conditions (DQO-5, DQO-7, DQO-9 and DQO-17);
- Offsite soils (DQO-13 and DQO-15); and
- Conditions in the Hackensack River bed (DQO-18, DQO-19, DQO-20 and DQO-21).

4.4 SUMMARY OF SCOPE MODIFICATIONS

During implementation of the RI, certain conditions were encountered that resulted in modifications to the RI activities described in the RIWP. These modifications are listed below by AOC:

4.4.1 AOC-1A

- During the RI, PSEG SC added one double-cased soil boring, identified as SB-01-DEEP to assess whether TLM identified near the former Tar Separators had migrated below the peat layer.
- During the RI, one soil sample was collected from below the peat layer at SB-01-DEEP for analysis of Target Compound List (TCL) VOCs plus a library search of up to 15 tentatively identified compounds (+15), TCL Semi-Volatile Organic Compounds (SVOC) +25, PCBs, metals and cyanide.
- During the RI, PSEG SC added a series of 15 soil borings to assess the horizontal and vertical extent of TLM identified in AOC-1A near the Tar Separators.

4.4.2 AOC-1B

- No modifications

4.4.3 AOC-1C

- During the RI, the two subsurface soil samples from soil boring SB-1C-01 were not analyzed. As specified in the RIWP, the sample from 1.5 to 2.0 feet below grade was to be analyzed for VAHs and the sample from the 2.0- to 4.0-foot interval was to be analyzed for PAHs. This location was resampled during the SRI.
- During the SRI, several offsite soil borings were proposed for the property owned by Conrail. During implementation of the field program, representatives of Conrail required relocation of the borings to avoid underground lines. Soil boring SB-1C-07 was moved approximately 30 feet northwest. Due to underground utilities along Duffield Street, it was not possible to complete soil boring SB-1C-08 in the proposed location. An alternate location was selected beneath the railroad overpass approximately 120 feet west-southwest of the proposed location. An additional location was attempted on the northern side of the railroad overpass. This location was tentatively identified as SB-1C-13. However, drilling equipment was unable to penetrate the boulders used to construct a berm that extends from railroad bridge approximately 60 feet north.

4.4.4 AOC-2A

- During the RI, proposed soil boring SB-2A-13 could not be sampled due to refusal encountered at 10 alternate locations in this area.
- During the RI, the two deep samples at soil boring SB-2A-17 and the two deep samples at soil boring SB-2A-18 could not be collected due to refusal at multiple locations in these areas. These samples were originally intended to provide supplemental data regarding the overall concentrations of contamination at the Site. These two borings were selected using an approximately 200- by 200-foot grid superimposed on Parcel 2; they were not required to determine the horizontal or vertical extent of contamination associated with a specific AOC. Based on this factor and because the subsurface structure(s) causing refusal may also prevent downward contaminant migration, PSEG SC did not attempt to advance the borings beyond this depth. Conditions in this area will be evaluated during the remedial action.
- During the SRI, the two deep samples at soil boring SB-2A-21 were combined due to the shallow depth to peat at this location.
- During the SRI, the two deepest samples at soil boring SB-2A-22 were eliminated due to the shallow depth to peat at this location.

4.4.5 AOC-2B

- During the RI, proposed soil boring SB-2B-10 was eliminated. This soil boring was located directly over the Amerada Hess pipeline. No alternative boring location was available.
- During the RI, the deepest samples at soil borings SB-2B-13 and SB-2B-14 were eliminated due to the shallow depth to peat at these locations
- During the RI, proposed soil boring SB-2B-15 was eliminated. This soil boring was originally planned to provide supplemental data regarding overall concentrations and was selected using the grid noted above for soil borings SB-2A-17 and SB-2A-18. The samples from SB-2B-15 were not required to determine the horizontal or vertical extent of contamination associated with a specific AOC. During implementation of the field program, PSEG SC determined that this grid-selected location was within the area of the clean closure of Gas Holder No. 1. Because no alternate location could be accessed within this grid square the soil boring was

eliminated to avoid damaging the liner installed as part of the clean closure activities (see Section 6.2.6.1).

- During the RI, proposed soil boring SB-2B-17 was eliminated due to the proximity of an underground gas pipeline. This boring was also intended to provide supplemental data regarding overall concentrations at the site and was selected using the grid noted above. No safe alternate location within this grid square could be accessed for this boring.
- During the RI, the shallow soil sample at soil boring SB-2B-18 could not be collected because no soils were present in this zone; this zone consisted entirely of concrete fragments, which could not be analyzed using the methodologies proposed for this program.

4.4.6 AOC-2C

- During the RI, proposed soil boring SB-2C-02 was not completed. This location was intended to assess the extent of PAHs detected in soil near SI sample location SB-33A. PSEG SC reviewed the data from this portion of the Site including the data collected during the SI and storage tank closure activities as documented in the SIR. The data indicate that PAHs are present in the fill in this area at concentrations similar to those observed across most of the Site. No evidence of NAPLs or other contaminants were identified in the area of the proposed soil boring. PSEG SC concluded that the PAH exceedances detected in this area are associated with the fill material. The anticipated future use of this portion of the Site is continued operation of the existing facility, which will include maintenance of the pavement that covers this area. Therefore, no uncontrolled exposure to the affected fill material is anticipated. No further delineation of PAH concentrations in this active area of the Site is necessary for purposes of the RI or to select remedial alternatives for the Site.
- During the RI, one soil sample was collected from the deep zone at MW-7B for analysis of VOCs+15, SVOCs+25, PCBs, metals and cyanide.

4.4.7 AOC-2D

- During the RI, the deepest samples at soil borings SB-2D-08 and SB-2D-10 were eliminated due to the shallow depth to peat at these locations.

4.4.8 AOC-2E

- During the RI, the deepest samples at soil borings SB-2E-01 and SB-2E-05 were eliminated due to refusal in these areas. Based on data from surrounding soil borings, including SB-2B-02, SB-2E-02 and SB-2E-04, it appears that fill material containing PAH and benzene concentrations above the NJDEP SCC extends to the top of the peat layer across this area. Therefore, the deeper data from these locations SB-2E-01 and SB-2E-05 are not considered to be critical in delineating the overall extent of contamination at the site or in selecting appropriate remedial alternatives. Based on these factors and because the subsurface structure(s) causing refusal may also prevent downward contaminant migration, PSEG SC did not attempt to advance the borings beyond the depth of refusal. Conditions in this area will be confirmed during the remedial action.
- During the RI, the deepest samples at soil boring SB-2E-02 were eliminated due to the shallow depth to peat at this location.

4.4.9 AOC-3A, 3B, 3C, 3E, 3F and 3G

- No modifications

4.4.10 AOC-3D

- During the RI, two soil samples were collected below the peat layer for analysis of VOCs+15, SVOCs+25, PCBs, metals and cyanide. The samples were collected from the soil borings for monitoring wells MW-6B and MW-8B.

4.4.11 Ground Water Sampling

- The RIWP specified collection of ground water samples using low flow sampling techniques. SD initially attempted to purge the wells using low-flow techniques as specified in the RIWP. However, because pumping at the minimal rates resulted in changes in water level greater than allowed, SD field personnel changed to standard ground water sampling procedures as specified in the NJDEP Field Sampling Procedures Manual (FSPM). Pumping rates were kept low in an effort to limit turbidity. Three to five well volumes were removed from each well during purging and field

analytical parameters were allowed to stabilize before sample collection. During the SRI, the wells were sampled using conventional methods, as specified in the SRIWP.

4.4.12 River Bottom Sampling

- During the river bottom sampling program, TLM was identified in river bottom borings adjacent to the relieving platform. Nine additional step-out borings were completed to evaluate the horizontal extent of TLM in the river bottom.

SECTION 5 TECHNICAL OVERVIEW OF REMEDIAL INVESTIGATION

5.1 RELIABILITY OF LABORATORY ANALYTICAL DATA

The soil and ground water samples collected during the RI and SRI were submitted to Accutest Laboratories of Dayton, New Jersey (NJ Certification No. 12129) for the analyses discussed in this report. SD conducted a review of results for the samples collected during the RI and SRI. The analytical results were found to be acceptable and, in most instances, may be used without qualification. A limited number of analytes for certain samples were qualified as "estimated" due to conditions related to instrument calibration, matrix spike/surrogate recoveries, duplicate results, and analytical/extraction holding times. These qualified data were all deemed usable. None of the results were rejected during the review. Data evaluation reports are provided in Appendix C.

5.2 QUALITY ASSURANCE/QUALITY CONTROL

All activities were conducted in accordance with the RIWP. The following sections describe field quality assurance (QA) and quality control (QC) activities, QC samples collected, laboratory testing, data reporting and data review of the laboratory results. Table 5-1 presents a summary of the analytical methods used during the RI and the quality control samples collected.

5.2.1 Field Quality Assurance

5.2.1.1 Soil Sample Collection and Preservation

Soil samples were collected and preserved in accordance with the procedures and requirements specified in the SIWP and SRIWP and the requirements of the NJDEP FSPM. Soil samples were collected using stainless steel hand trowels and stainless steel mixing bowls. The trowels and mixing bowls were decontaminated prior to use following the steps outlined in the NJDEP FSPM and the SIWP. VOC soil samples requiring methanol preservation were sampled directly from the split spoons or direct push liners using laboratory-prepared syringes. Samples were collected in accordance with PSEG SC Standard Operating Procedure (SOP) 220/221.

Dedicated, contaminant-free sample containers were prepared and provided by the laboratory consistent with U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) procedures, where applicable. Each soil sample was transferred directly from the sampling equipment or mixing bowl to the labeled

sample container. Labels for the sample containers indicated the sample date and time, alphanumeric sample identification and analyses to be performed by the laboratory. This information was also recorded in the field notebook, dedicated logs and on the chain-of-custody (COC) form. Samples were placed in insulated containers with ice, along with the signed COC forms and shipped directly from the Site to the laboratory by courier. Soil samples were preserved and containerized in accordance with the procedures specified in the SIWP.

5.2.1.2 Ground Water Sample Collection and Preservation

Ground water samples were collected in accordance with the guidelines and procedures specified in the NJDEP Field Sampling Procedures Manual and the RIWP.

5.2.2 Quality Control Samples

5.2.2.1 Soil Sampling Program

SD collected the following field QA/QC samples for soil during the soil and sediment sampling programs:

- Field Blanks (FB)
- Trip Blanks (TB)
- Laboratory-Blind Duplicates

The QA/QC samples collected during the RI and SRI are discussed below. Results for the Field Blank and Trip Blank samples are summarized in Table 5-2.

Field Blanks

SD collected five FB samples for analysis during the soil sampling program. With the exception of zinc, which was detected in the field blank collected on December 14, 2000, no analytes were detected in the FB samples. During the SRI, SD collected six FB samples for analysis of VAHs during the soil sampling program. No analytes were detected in these FB samples.

Trip Blanks

SD submitted six TB samples for analysis during the RI soil sampling program. The TB samples accompanied each sample shipment to the laboratory and were analyzed for TCL VOCs. During the SRI, six TB samples were analyzed for VAHs.

Results for TB sample analyses are summarized in Table 5-2. None of the target analytes were detected in any of the TB samples.

5.2.2.2 Ground Water Sampling Program

As specified in the Quality Assurance Project Plan (QAPP), SD collected the following field QA/QC samples during the ground water sampling.

- Field Duplicate
- Field/Equipment Blanks
- Matrix spike (MS)/ Matrix spike duplicate (MSD) samples
- TB sample

The QA/QC samples collected during the ground water sampling event are discussed below. Results for the Field Blank and Trip Blank samples are summarized in Table 5-3. Results for the MS/MSD samples were used solely during the data evaluation and are referenced as appropriate in the data evaluation summaries in Appendix C.

Field/Equipment Blanks

SD collected three FB samples during the ground water sampling program for complete analysis. The TCL VOCs sample was obtained by collecting a sample of reagent-grade water that had been passed through the sampling bailer following decontamination. The other samples were collected by running reagent-grade water through the peristaltic pump. Zinc was detected in the FB sample collected on January 12, 2000. No other analytes were detected in the samples. During the SRI ground water sampling event, SD collected 2 FB samples. Each sample was laboratory tested for VOCs, SVOCs, PCBs, Metals, and general chemistry parameters. None of the analytes tested were detected in the FB samples.

Trip Blanks

SD submitted two TB samples during the RI and one TB sample during the SRI ground water sampling program. The TB samples were analyzed for TCL VOCs. Results for TB sample analyses are summarized in Table 5-3. Methylene chloride was detected in the TB sample collected on January 14, 2000. None of the other parameters analyzed were detected in the TB samples. No analytes were found in the sample during the SRI ground water sampling event.

5.2.3 Analytical Laboratory Methodology

Samples collected during the remedial investigation were analyzed following the methods specified in the QAPP.

5.2.4 Data Reporting

Because of the volume of analytical data generated during the remedial investigations, complete analytical data packages are not provided in this RIR. Analytical data packages are on file with PSEG SC.

5.3 SUMMARY OF RESULTS

Copies of the analytical results are presented in Volumes 3, 4 of this report. Complete analytical data packages are kept on file with PSEG SC and are available upon request. Appendix D in Volume 2 of this RIR contains copies of the electronic data deliverables.

Analytical results confirmed concentrations of PAHs, VAHs and several metals in soils and ground water above current NJDEP soil and ground water criteria.

5.4 SIGNIFICANT EVENTS IMPACTING RESULTS

Poor weather conditions prevailed during most of the RI soil sampling program. Heavy precipitation, high humidity and low temperatures limited the functioning of the photo-ionization detectors (PIDs) employed. Therefore, organic vapor readings are not available for many of the soil samples. The soil borings that were conducted when the PIDs were not functioning are noted on the respective soil boring logs. During the SRI, there were no adverse weather conditions that hindered the soil sampling program.

SECTION 6 PRESENTATION OF FINDINGS

6.1 INTRODUCTION

The primary goal of the RI and SRI was to investigate environmental conditions at the 16 AOCs identified on Parcels 1, 2 and 3 of the Site and to fulfill the 22 Site-specific DQOs. The RI and the SRI field activities were performed in accordance with the Site-specific project Health and Safety Plan (HASP) dated December 1999 with subsequent revisions (SD, 2000a). Sample handling and field decontamination procedures were performed in accordance with the procedures specified in the project RIWP, SRIWP and QAPP. Utility mark outs (including surface geophysical verification) were conducted at all intrusive sampling locations prior to the initiation of intrusive fieldwork.

The scope of the RI consisted of a geophysical survey, soil investigation and a ground water investigation. A total of 123 sampling locations were investigated at the Site during the RI. This included 117 soil sample locations and 6 new ground water monitoring wells. In addition, ground water samples were collected from 10 existing monitoring wells installed during the SSI. The scope of the SRI consisted of a geophysical survey, soil, ground water, and a riverbed investigation. A total of 29 locations were investigated at the Site during the SRI. This included 17 soil sample locations, 6 river sediment sampling locations and 6 new ground water monitoring wells. In addition, ground water samples were collected from 16 existing monitoring wells previously installed during the SSI and RI. RI and SRI sampling locations are shown on Figure 4-2.

Concurrently with the RI, PSEG SC conducted a geotechnical evaluation of conditions related to a relieving platform at the western edge of the site. The geotechnical evaluation included two (2) deep soil borings and five (5) test trenches. Data relevant to the RI obtained from the geotechnical evaluation are included in this report. During the SRI, three (3) geotechnical borings were completed along the riverside of the existing relieving platform. The results of the borings are being used to design the structural system(s) that will address the failing relieving platform.

This section presents the results of the AOC-specific soil sampling activities. Site-wide activities, including the ground water investigation are discussed in Section 6.3.

Results of the RI and SRI are summarized in the following subsections. Soil analytical results are compared to the NJDEP RDC, NRDC and IGW Criteria. Ground water analytical results presented in Section 6.3.3 are compared to the NJDEP GWQS.

The RI findings are organized by AOC followed by Site-wide or other investigations and then ancillary activities. The findings are summarized on Table 6-1 through Table 6-10 and in Figure 6-1 through Figure 6-21.

Laboratory deliverables are kept on file at PSEG SC and are available upon request.

6.2 AREAS OF CONCERN

The RI and SRI included the following AOCs as defined in Section 10.0 of the SIR (HLA, 1999):

- AOC-1A: Gas Manufacturing Area
- AOC-1B: Open Ditch
- AOC-1C: Coal Yard/LP Vaporizer Blowdown Tank
- AOC-1D: Relieving Platform Area
- AOC-2A: Storage Tank Area
- AOC-2B: Headquarters Area
- AOC-2C: Fueling Area/Original MGP Facility
- AOC-2D: Tar Processing/Catalytic Reformer/Storage Area/Underground Oil Accumulations
- AOC-2E: PSE&G Metering and Regulating Station
- AOC-3A: Purifier/Oxide Boxes/Recirculating Oil Tank Area
- AOC-3B: Processing Area
- AOC-3C: 13 kV Switch Yard
- AOC-3D: Gasoline Fueling Area
- AOC-3E: Compressor House Area
- AOC-3F: Stockpile Area

- AOC-3G: gas Storage Holder No. 2

As discussed in Section 4.1, the two remaining AOCs, located on Parcel 4 were not investigated during the SI, RI, or SRI.

The following subsections present descriptions of each of the AOCs investigated, results of previous sampling, results of RI activities, conclusions regarding delineation of contamination and recommendations.

6.2.1 AOC-1A – Gas Manufacturing Area

6.2.1.1 Description

AOC-1A is located in the southwestern half of Parcel 1 and comprises the area historically used for the majority of gas manufacturing activities.

The following potential AOCs were identified in this area during the PA:

- Coal Yard
- No. 4 Tar Tank
- Condensors
- Boiler House
- Generator House
- Tar Separators
- Pump House 1
- Accelerator Tank and Filtration Plan
- Overflow Tank
- Dock Areas
- Repair/Maintenance Shop Area
- Oily Water Separator
- Electrical Transformer Pads

Details regarding these structures were presented in the SIR (HLA, 1999a) as AOC 1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 15, and 16.

6.2.1.2 Historical Sampling Results

During the SI and SSI, 17 soil borings and 1 ground water monitoring well pair were completed in this area. The soil borings ranged from 8 to 16 feet in depth and the

boring for the deep monitoring well (MW-2B) extended to 28 feet bgs. OLM and/or TLM were detected in soil samples from nine of these locations. Table 6-1 presents a summary of OLM and TLM reported during the SI, SSI and RI activities. Figure 6-1 identifies the approximate horizontal extent of OLM and TLM identified. Copies of logs for soil borings completed during the RI are included in Appendix E.

The following six soil samples were collected during the SI and analyzed for VOCs, SVOCs, PCBs, Target Analyte List (TAL) metals and/or total cyanide:

SB-03A-0.0-2.5
SB-13A-0.0-2.0
SB-13A-5.0-5.25
SB-15A-0.0-2.0
SB-15C-2.5-4.0
SB-16A-0.5-2.0

Historical sampling locations are shown on Figure 3-1. Analytical results for the soil samples were presented in the SI. Soil samples from this area exhibited concentrations of benzene, xylenes, PAHs, and cadmium in excess of the NJDEP SCC. Based on these results and the operations identified in this area, the SIR recommended that the potential AOCs be combined for investigation and delineation during the RI.

6.2.1.3 Remedial Investigation Results

During the RI, two soil borings were originally planned for AOC-1A. These two soil borings, identified as SB-1A-01 and SB-1A-02 were intended to assess the extent of exceedances in this area. During an interim review of project DQOs, PSEG SC determined that the source of petroleum hydrocarbons and related constituents detected in the monitoring wells on this parcel had not been determined. Therefore, during implementation of the drilling program, PSEG SC elected to complete additional soil borings in this area in an effort to evaluate the possible source. SD installed soil boring SB-01-DEEP between the historical location of the tar separators and the two monitoring wells. TLM was observed in this soil boring between 3 and 9 feet bgs. Based on this observation, PSEG SC identified the tar separator area as a likely source for the TLM observed. A total of 15 additional soil borings were conducted along traverses stepping radially outward from the former

location of the tar separators. The borings in this area were identified with the prefix "SB-TS-" to indicate the tar separator area. The soil borings extended to the south, southwest, north and east of the tar separators. Underground utilities including several major gas lines prevented investigation to the west of this area. Soil samples from each of the TS-series borings were inspected visually for evidence of TLM. TLM was observed in 14 of the 15 TS-series borings. Figure 6-1 presents the estimated horizontal extent of NAPL including TLM, observed on Parcel 1.

During the geotechnical evaluation noted in Section 6.1 SD completed five test trenches and two deep soil borings near the western edge of AOC-1A. The test trenches extended between four and nine feet bgs. Copies of the test trench logs are included in Appendix F. The two soil borings, identified as GB-01 and GB-02, extended to 72 feet bgs. Copies of the geotechnical soil boring logs are included in Appendix G.

No TLM or OLM was observed in the test trenches. OLM and/or TLM were observed in 17 of 20 soil borings conducted in this AOC during the RI and geotechnical evaluation. TLM was encountered in most of the RI soil borings at depths ranging from approximately 2 to 9 feet bgs. OLM was observed in the three deep soil borings in this AOC at approximately 13 to 20 feet bgs.

Because no TLM was evident in soil boring TS-15, SD collected a representative soil sample from this location to evaluate soil conditions in this area.

A total of eight soil samples were collected from this area for laboratory analysis during the RI. This included three samples each from SB-1A-01 and SB-1A-02 and one sample each from TS-15 and SB-01-DEEP. The sample from SB-01-DEEP was collected below the peat layer; the remaining samples were collected above the peat layer. The samples from SB-1A-01 and SB-1A-02 were collected between 0 and 3 feet bgs and were analyzed for VAHs, PAHs, cyanide and the following Selected Metals: arsenic, beryllium, cadmium, lead and mercury. For purposes of this report, the term "Selected Metals" refers to these five elements.

The sample from TS-15 was collected from the 7.5- to 8.0-foot depth interval and analyzed for VOCs, PAHs and PPL metals. The sample from SB-01-DEEP was collected from the 25.5- to 26-foot depth interval and analyzed for VOCs, SVOCs,

PCBs and PPL metals. Table 6-2 presents a summary of the analytical results for soil samples collected during the RI. Figures 6-2, 6-3 and 6-4 identifies VOCs, SVOCs and inorganic constituents, respectively, detected in soil samples at concentrations above NJDEP RDC, NRDC and IGW criteria.

With the exception of benzene, none of the parameters analyzed in the sample from SB-01-DEEP were detected at concentrations above the NJDEP SCC. Based on the relatively high concentrations of VAHs in the ground water samples from nearby monitoring well MW-2B, PSEG SC concluded that the benzene detected in the soil sample was likely related to dissolved-phase hydrocarbons and does not reflect soil conditions.

The soil samples collected above the peat layer contained PAH concentrations above the NJDEP SCC. In addition, the soil sample from TS-15 exhibited benzene, ethylbenzene, styrene and xylenes concentrations above the NJDEP SCC.

The vertical extent of soil contamination, including TLM, in this area extends to the peat layer. In several areas, contamination was observed below the peat layer. The horizontal extent of soil contamination appears to extend across AOC-1A.

6.2.1.4 Supplemental Remedial Investigation Results

No further soil sampling was conducted in AOC-1A during the SRI. The extent of TLM noted in this area was delineated during the investigation of adjacent AOC-1D (see Section 0). One additional ground water monitoring well was installed in AOC-1A during the SRI. This monitoring well, identified as MW-2C was installed as a cluster with existing wells MW-2A and MW-2B. MW-2C was installed to investigate the vertical extent of ground water contamination detected at the Site. Results of the Site-wide ground water investigation are discussed in Section 6.3.3.

During the supplemental remedial investigation, two additional monitoring wells were installed in this AOC to delineate the horizontal and vertical extent of ground water contamination in this area. MW-9A is a single-cased monitoring well screened above the peat layer in this area. The 2-inch inside diameter 0.010-inch factory slotted polyvinyl chloride (PVC) screen was set from 2 to 10 feet bgs. OLM was observed in the boring between 4 and 10 feet bgs. TLM was not observed in the boring for this well. MW-9B is a double cased monitoring well screened below the

peat layer in this area. The outer 6-inch stainless steel casing of MW-10B was set 4 feet into the confining peat layer at 14 feet bgs. The inner 2-inch inside diameter 0.010-inch factory slotted PVC screen was set from 15 to 25-feet bgs.

One ground water sample was collected from each of these wells during the SRI. The ground water samples were analyzed for VOCs, SVOCs, PCBs, metals and general chemistry. Table 6-8 presents a summary of analytical results for the ground water samples collected at the Site. Figure 6-7 identifies the constituents detected in the ground water samples at concentrations above the GWQS and Interim Specific Criteria (ISC).

The sample from MW-9A exhibited inorganic exceedances of arsenic, chromium, lead, mercury, total dissolved solids (TDS), chloride and sulfate. MW-9B exhibited exceedances of arsenic, lead, nickel, TDS, ammonia, and chloride.

6.2.1.5 AOC-1A Conclusions and Recommendations

AOC-1A Major Utilities

Four major underground utilities have been identified traversing this AOC. A water line and a storm sewer extend across the northern edge of this AOC, along the St. Pauls Avenue extension. A second storm sewer crosses the southern portion of this AOC. The southern storm sewer extended from an inlet that was located on Duffield Avenue at the southeastern corner of Parcel 1. This storm sewer extends approximately 220 feet along the southern property boundary (AOC-1B) to a surface inlet. At this point, the storm sewer extends across the southern portion of AOC-1A to an outfall located approximately 40 feet north of the southern relieving platform (AOC-1D). The fourth utility is a high-pressure TGP gas pipeline that crosses the Hackensack River. This pipeline reaches the riverbank just north of the southern relieving platform (AOC-1D) at which point it turns north paralleling the riverbank to the M&R Station (AOC-1C).

AOC-1A OLM and TLM

As summarized on Table 6-1, of the 39 soil borings and 12 test trenches conducted in this AOC, 13 borings encountered OLM and 20 borings encountered TLM. Six of the borings in this AOC penetrated the peat layer. OLM was encountered below the peat layer at 4 locations in this AOC (GB-01, MW-2B, MW-2C, and SB-01-DEEP). The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-1A Soil

Figure 6-2 identifies soil samples collected on Parcel 1 that exhibited VOC concentrations above the SCC. During the investigations, 10 soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene was detected in the sample from soil boring SB-15C (2.5 to 4.0 feet bgs) and benzene, ethylbenzene, styrene and xylenes were detected in the sample from soil boring TS-15 at concentrations above the RDC, NRDC and/or and IGW SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-3 identifies soil samples collected on Parcel 1 that exhibited SVOC concentrations above the SCC. During the investigations, 10 soil samples were collected from this AOC and analyzed for SVOCs or PAHs. All 10 samples exhibited concentrations of one or more PAHs above the RDC and NRDC SCC. In addition, the samples from soil borings SB-15C (2.5-4.0) and TS-15 (7.5-8.0) exhibited concentrations of several PAHs above the IGW SCC.

Figure 6-4 identifies soil samples collected on Parcel 1 that exhibited concentrations of inorganics above the SCC. During the investigations, 10 soil samples were collected from this AOC and analyzed for TAL or Selected Metals. Nine of the ten samples exhibited no metals concentrations above the SCC. Lead was detected in SB-1A-01 at a concentration slightly above its RDC SCC but below its NRDC SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 milligrams per kilogram (mg/kg) total VOCs and 10,000 mg/kg total organics. Figure 6-5 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-6 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. One of the samples collected on Parcel 1, sample TS-15 (7.5-8.0) exhibited total VOC concentrations greater than 1,000 mg/kg. None of the other samples exhibited total VOC concentrations above 1,000 mg/kg. None of the samples from this AOC exhibited total organic concentrations greater than 10,000 mg/kg.

Five samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. These samples SB-15A (0.0-2.0); SB-15C (2.5-4.0); SB-16A (0.5-2.0); and SB-1A-02 (0.0-0.5 and 2.5-3.0). Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One soil sample from this AOC (15C 2.5-4.0) exhibited PAH concentrations more than 100 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

AOC-1A Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. Five of the ground water monitoring wells installed at the Site are located within this AOC. These include a cluster of three monitoring wells (MW-2A, MW-2B and MW-2C) located in the western portion of this AOC and a pair of monitoring wells (MW-9A and MW-9B) located near the southwest, hydraulically downgradient, corner of this AOC. Table 6-9 presents a summary of analytical results that exceeded the GWQS. Styrene, benzene, ethylbenzene, toluene, naphthalene, 2-methylnaphthalene, iron, lead and ammonia were detected in samples from MW-2A and MW-2B at concentrations above their respective GWQS. The sample collected from MW-2B during the SRI also exhibited concentrations of manganese, arsenic and aluminum above their respective GWQS and concentrations of two PAHs (benzo(a)anthracene and benzo(a)pyrene) above their respective interim specific criteria. The sample from the deep well, MW-2C, exhibited concentrations of benzene, bromodichloromethane, chloroform, aluminum, iron and manganese above their respective GWQS. The three metals are commonly associated with naturally occurring minerals. Two of the organic compounds detected (bromodichloromethane and chloroform) have not been detected at the Site. These two compounds were also detected in the sample from MW-3C. Based on the occurrence only in the deeper zone and absence of these compounds at the Site, PSEG SC concludes that these two exceedances reflect an offsite or regional source and are not associated with Site-related contamination. The remaining compound, benzene, was detected at 3.9 micrograms per liter (µg/L). This concentration indicates that this well is screened near the bottom of the zone of contaminated ground water at the Site.

Concentrations of TDS, chloride and several metals reported in the samples from well pair MW-9A and MW-9B exceeded their respective GWQS. In addition, the sample from MW-9A exhibited concentrations of three PAHs slightly above their respective Interim Specific Criteria. MW-9B exhibited an ammonia concentration above its GWQS. Because VOCs were not detected in these samples, this monitoring well pair delineates the southwestern limit of the VAH contamination detected in ground water across much of the Site.

AOC-1A Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.2 AOC-1B – Open Ditch

6.2.2.1 Description

This AOC is an approximately 300-foot long open ditch located along the southern perimeter of Parcel 1. The ditch is partially filled. The ditch currently receives runoff and previously also received discharge from a former storm sewer inlet along Duffield Avenue. The ditch extends to the Hackensack River. Other parties reportedly used the storm sewer for disposal of waste oils and other materials. The storm sewer inlet was closed in conjunction with the facility demolition. This AOC was identified in the PA as potential AOC-2.

6.2.2.2 Historical Sampling Results

No sampling was conducted in this AOC prior to the RI.

6.2.2.3 Remedial Investigation Results

Prior to implementation of the RI, the ditch had been filled. Efforts were made during the RI to identify the former bottom of the ditch. Six shallow soil borings were conducted and sampled in AOC-1B to evaluate conditions in the swale. The soil borings, identified as SB-1B-01 through SB-1B-06 extended from 2 to 4 feet bgs. A total of 15 soil samples were collected from this AOC. This included two to three samples from each of these borings.

The samples from the six soil borings in this AOC were analyzed for VOCs or VAHs and SVOCs or PAHs. Samples from soil borings SB-1B-01, SB-1B-04, SB-1B-05

and SB-06 were analyzed for PPL metals and the surface samples from SB-1B-05 and SB-1B-06 were analyzed for PCBs.

Benzene concentrations detected in the soil samples from SB-1B-01, SB-1B-02 and SB-1B-04 exceeded the NJDEP SCC. One or more PAHs exceeded the NJDEP SCC in samples from all six of the soil borings in this area. Three PPL metals were detected at concentrations above the NJDEP SCC. These exceedances consisted of lead and arsenic concentrations detected in the deep sample from SB-1B-01 and nickel in the surface sample from SB-1B-04. PCBs were not detected in either of the samples analyzed.

Based on these results, benzene and PAHs are present at the southwestern limit of Parcel 1. The PAHs appear to be ubiquitous across the Site and are believed to be related to fill material identified throughout this area. The benzene concentrations detected in this area are likely related to the TLM detected across much of AOC-1A. The metals exceedances observed were each limited to a single sample and are therefore considered to be limited in extent.

6.2.2.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.2.5 AOC-1B Conclusions and Recommendations

AOC-1B Major Utilities

As noted in the discussion of AOC-1A, one underground utility has been identified traversing this AOC. An abandoned storm sewer crosses the southern portion of this AOC. The southern storm sewer extended from an inlet that was located on Duffield Avenue at the southeastern corner of Parcel 1. The inlet was reportedly sealed to prevent illegal discharges by passersby. This storm sewer extends approximately 220 feet along the southern property boundary (AOC-1B) to a surface inlet. At this point, the storm sewer extends across the southern portion of AOC-1A to an outfall located approximately 40 feet north of the southern relieving platform (AOC-1D).

AOC-1B OLM and TLM

As summarized on Table 6-1, none of the 6 soil borings conducted in this AOC encountered OLM or TLM. None of the borings in this AOC penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-1B Soil

Figure 6-2 identifies soil samples collected on Parcel 1 that exhibited VOC concentrations above the SCC. During the investigations, eight soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene concentrations reported in three samples exceeded the IGW SCC: SB-1B-01 (1.5-2.0), SB-1B-02 (2.5-3.0) and SB-1B-06 (1.5-2.0). The concentration reported in SB-1B-06 also exceeded the RDC SCC. The results were below the NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-3 identifies soil samples collected on Parcel 1 that exhibited SVOC concentrations above the SCC. During the investigations, nine soil samples were collected from this AOC and analyzed for SVOCs or PAHs. Eight of the nine samples exhibited PAH concentrations above the RDC and NRDC SCC. Sample SB-1B-03 (3.5-4.0) exhibited no PAH exceedances. None of the SVOC concentrations reported in samples from this AOC exceeded the IGW SCC.

Figure 6-4 identifies soil samples collected on Parcel 1 that exhibited concentrations of inorganics above the SCC. During the investigation, six soil samples were collected from this AOC and analyzed for TAL or PPL metals. Four of the six samples exhibited no exceedances. Arsenic and lead were reported in sample SB-1B-01 (3.5-4.0) at concentrations above their respective RDC and NRDC SCC. Nickel was reported in the sample from SB-1B-04 at a concentration above its RDC but below its NRDC SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-5 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-6 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 100 times their

respective SCC. None of the samples collected on Parcel 1 exhibited total VOC concentrations greater than 1,000 mg/kg or total organic concentrations greater than 10,000 mg/kg.

Five samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. These included samples SB-1B-01 (0.0-0.5 and 2.5-4.0), SB-1B-02 (0.0-0.5), SB-1B-05 (0.0-0.5) and SB-1B-06 (0.5-1.0). Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC. None of the samples collected from AOC-1B exhibited analyte concentrations greater than 100 times their respective SCC.

AOC-1B Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-1B Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.3 AOC-1C – Coal Yard/LP Vaporizer Blow-down Tank

6.2.3.1 *Description*

AOC-1C comprises most of the northern half of Parcel 1. This area was historically used as a coal yard and was the location of a former LP Vaporizer Tank that was closed prior to this investigation. PSE&G and TGP M&R stations currently occupy this AOC. This area was identified in the SIR as potential AOC 14 and 14A.

6.2.3.2 Historical Sampling Results

No sampling was conducted in this AOC prior to the RI.

6.2.3.3 Remedial Investigation Results

Six soil borings, identified as SB-1C-01 through SB-1C-06 were completed and sampled in AOC-1C during the RI. Evidence of OLM was identified in four of the borings at depths ranging from approximately 4 to 11 feet bgs. Table 6-1 presents a summary of OLM and TLM reported in the soil borings. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed in soil borings on Parcel 1.

Twenty-two soil samples were collected from the six borings in this area. The soil samples were analyzed for VAHs, PAHs and either PPL or Selected Metals. VAH concentrations detected in samples from SB-1C-05 and SB-1C-06 exceeded NJDEP SCC. PAH concentrations detected in samples from SB-1C-01 through SB-1C-05 exceeded NJDEP SCC. Neither the metals analyzed nor total cyanide were detected at concentrations above the NJDEP SCC in the soil samples from this AOC.

6.2.3.4 Supplemental Remedial Investigation Results

AOC-1C Soil Investigation

During the SRI, five additional soil borings were completed in AOC-1C and two soil borings were conducted offsite, to the north of this AOC. One onsite boring (SB-1C-01A) was advanced through the location of boring SB-1C-01. This boring was completed to obtain deeper samples at this location. Four additional locations were investigated in AOC-1C to delineate horizontal and vertical extent of VAHs, PAHs, previously detected in this AOC. These locations were identified as SB-1C-09 through SB-1C-12. Two soil samples were collected from each soil boring for laboratory analysis.

Benzene concentrations exceeded the IGW SCC of 1.0 mg/kg in the shallow samples collected from SB-1C-09, SB-1C-10 and SB-1C-12. The deeper samples at these locations exhibited no exceedances. Several PAHs were detected at concentrations above the SCC in the shallow samples from four locations sampled in this AOC during the SRI. The deeper samples collected from two of these locations (SB-1C-09 and SB-1C-11) exhibited no PAH exceedances. The deeper sample from SB-1C-12 exhibited PAH exceedances slightly above the RDC but below the NRDC and IGW SCC. The deeper sample from SB-1C-10 exhibited PAH concentrations above the RDC and NRDC but below the IGW SCC.

During the SRI, two soil borings were completed on the Conrail property to the north of the Site. These borings, identified as SB-1C-07 and SB-1C-08 were located beneath the railroad overpass. During implementation of the field program, representatives of Conrail required relocation of the borings to avoid underground lines. Soil boring SB-1C-07 was moved approximately 30 feet northwest. Due to

underground utilities along Duffield Street, it was not possible to complete soil boring SB-1C-08 in the proposed location. An alternate location was selected beneath the railroad overpass approximately 120 feet west-southwest of the proposed location. An additional location was attempted on the northern side of the railroad overpass. This location was tentatively identified as SB-1C-13. However, drilling equipment was unable to penetrate the boulders used to construct a berm that extends from railroad bridge approximately 60 feet north.

Two samples were collected from soil borings SB-1C-07 and SB-1C-08 for analysis of VAHs and PAHs. None of these samples exhibited VAH exceedances. Several PAHs were detected in the deeper samples collected from these two locations at concentrations above the RDC and NRDC but below the IGW SCC. The constituents detected in this sample are commonly associated both with historical MGP operations and historical railroad operations. It is therefore not practical to distinguish between these contaminant sources. Therefore, it is not practical to delineate the horizontal extent of contamination associated with historical MGP operations beyond the northern boundary of Parcel 1. No further delineation of the northern extent of this AOC is recommended.

AOC-1C Ground Water Investigation

During the supplemental remedial investigation, two monitoring wells were installed in this AOC to delineate the horizontal and vertical extent of ground water contamination in this area. MW-10A is a single cased monitoring well screened above the peat layer in this area. The 2-inch inside diameter 0.010-inch factory slotted PVC screen was set from 2 to 10 feet bgs. OLM was observed in the boring between 8 and 12 feet bgs. TLM was not observed in the boring for this well. MW-10B is a double cased monitoring well screened below the peat layer in this area. The outer 6-inch stainless steel casing of MW-10B was set 4 feet into the confining peat layer at 14 feet bgs. The inner 2-inch inside diameter 0.010-inch factory slotted PVC screen was set from 18 to 28-feet bgs.

One ground water sample was collected from each of these wells during the SRI. The ground water samples were analyzed for VOCs, SVOCs, PCBs, metals and general chemistry. Table 6-8 presents a summary of analytical results for the ground water samples collected at the Site. Figure 6-7 identifies the constituents detected in the ground water samples at concentrations above the GWQS and ISC.

6.2.3.5 AOC-1C Conclusions and Recommendations

AOC-1C Major Utilities

Three major underground utilities have been identified traversing this AOC. In addition, numerous underground electric conduits cross this area. The major utilities consist of an Amerada Hess oil pipeline and two high pressure gas pipelines.

AOC-1C OLM and TLM

As summarized on Table 6-1, of the 15 soil borings conducted in this AOC, 6 encountered OLM and none encountered TLM. Five borings in this AOC penetrated the peat layer. OLM was not encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-1C Soil

Figure 6-2 identifies soil samples collected on Parcel 1 that exhibited VOC concentrations above the SCC. During the investigations, 30 soil samples were collected from this AOC and associated offsite areas and analyzed for VOCs or VAHs. Benzene concentrations reported in 6 samples exceeded the IGW SCC: SB-1C-05 (3.5-4.0), SB-1C-06 (3.5-4.0), SB-1C-06 (7.5-8.0), SB-1C-09 (9.0-9.5), SB-1C-10 (5.0-5.5), and SB-1C-12 (3.5-4.0). The concentrations reported in the samples from SB-1C-09 and SB-1C-06 also exceeded the RDC SCC. The results were below the NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-3 identifies soil samples collected on Parcel 1 that exhibited SVOC concentrations above the SCC. During the investigations, 30 soil samples were collected from this AOC and associated offsite areas and analyzed for SVOCs or PAHs. Of these 30 samples, 21 exhibited PAH concentrations above the RDC and NRDC SCC. No PAH exceedances were reported in the following samples: SB-1C-04 (11.0-11.5) SB-1C-05 (7.5-8.0 and 11.0-11.5), SB-1C-06 (all four intervals sampled), SB-1C-08 (4.5-5.0), and SB-1C-11 (16.0-16.5).

Figure 6-4 identifies soil samples collected on Parcel 1 that exhibited concentrations of inorganics above the SCC. During the investigations, 18 soil samples were collected from this AOC and associated offsite areas and analyzed for TAL or PPL metals. Of these 18 samples, 14 exhibited no metals concentrations above RDC or

NRDC SCC. Concentrations of arsenic in SB-1C-07 (6.0-6.5) and SB-1C-08 (4.5-5.0); arsenic and lead in SB-1C-08 (11.0-11.5); and zinc in SB-1C-12 (7.5-8.0) exceeded their respective RDC and NRDC SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-5 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-6 identifies soil samples collected on Parcel 1 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. None of the samples collected on Parcel 1 exhibited total VOC concentrations greater than 1,000 mg/kg or total organic concentrations greater than 10,000 mg/kg.

Three samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. These included samples SB-1C-03 (7.0-7.5); SB-1C-05 (3.5-4.0), and SB-1C-10 (5.0-5.5). Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One sample collected from this AOC, SB-1C-10 (5.0-5.5) exhibited concentrations of three PAHs greater than 100 times their respective SCC). Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

AOC-1C Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. Two of the ground water monitoring wells installed at the Site are located within this AOC. These consist of monitoring well pair MW-10A and MW-10B located near the northwest perimeter of this AOC. Table 6-9 presents a summary of analytical results that exceeded the GWQS. Several metals were detected in samples from both wells at concentrations above their respective GWQS. In addition, the sample from MW-10A exhibited concentrations of TDS, chloride and ammonia above the GWQS and concentrations of three PAHs slightly above their respective Interim Specific Criteria. Because

VOCs were not detected in these samples, this monitoring well pair delineates the northwestern limit of the VAH contamination detected in ground water across much of the Site.

AOC-1C Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.4 AOC-1D – Relieving Platform Area and River

6.2.4.1 Description

AOC-1D is located in the southwest portion of Parcel 1. This area is adjacent to the location of the former tar separators and borders the relieving platform along the Hackensack River. Details regarding the size and operating history of these separators are presented in the SIR (HLA, 1999a).

6.2.4.2 Historical Sampling Results

During the SI and RI, there were no investigative sampling activities conducted in this area.

6.2.4.3 Remedial Investigation Results

During the RI, no investigative activities were conducted in this area.

6.2.4.4 Supplemental Remedial Investigation Results

During the SRI, seven soil borings were completed along the eastern edge of this AOC to assess the horizontal and vertical extent of OLM and TLM detected in this area. Evidence of OLM was identified in three of the seven borings. OLM was detected between 10 and 16 feet bgs at boring locations SB-1D-01, SB-1D-03 and SB-1D-07. No evidence of TLM was identified in the seven borings completed in this area during the SRI. Table 6-1 presents a summary of OLM/TLM reported in the soil borings. Figure 6-1 presents the estimated extent of OLM and TLM observed at the Site.

A series of borings was completed through the riverbed. Certain of the borings were used to determine the extent of TLM beyond the relieving platform. Results of the barge-mounted river boring program are discussed in Section 6.5.

6.2.4.5 AOC-1D Conclusions and Recommendations

AOC-1D Major Utilities

No major underground utilities cross this AOC. However, a TGP gas pipeline crosses the Hackensack River just north of this AOC and an unspecified cable crossing was identified by a sign located immediately south of the relieving platform.

AOC-1D OLM and TLM

As summarized on Table 6-1, of the 14 soil borings conducted in this AOC, 5 encountered OLM and 3 encountered TLM. Two borings in this area penetrated the peat layer. Neither OLM nor TLM was encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1. A 0.5- to 1.0-foot thick layer of TLM was encountered in the river bed approximately 10 feet west of the relieving platform. Step-out borings, conducted in accessible areas 30 feet or more from the platform did not encounter TLM. These results indicate that TLM extends beneath the relieving platform and extends up to 30 feet horizontally into the river bed.

AOC-1D Soil

During the investigations no soil samples were collected from this AOC for laboratory analysis.

AOC-1D Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-1D Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.5 AOC-2A – Storage Tank Area

6.2.5.1 Description

AOC-2A is located in the northwest portion of Parcel 2. This area is the historical location of five above-ground storage tanks consisting of the No. 1, 2, 3, and 4 Oil Tanks, and the No. 5 Tar Tank and Tar Separator. Details regarding the

construction, sizes and operating history of these tanks were presented in the SIR (HLA, 1999a) as potential AOCs 17 through 21.

6.2.5.2 Historical Sampling Results

During the SI and SSI, 21 soil borings and 1 ground water monitoring well pair were completed in this area. The soil borings ranged from 4 to 24 feet in depth and the boring for the monitoring well extended to 28 feet bgs. OLM and/or TLM were detected in soil samples from seven of these locations. Table 6-1 presents a summary of OLM and TLM reported during the SI, SSI and RI activities. Figure 6-1 identifies the approximate horizontal extent of OLM and TLM identified.

The following 12 soil samples were collected from this AOC during the SI and analyzed for VOCs, SVOCs, PCBs, TAL metals and/or total cyanide:

SB-17A 0.0-2.0
SB-17A 2.0-2.25
SB-17C 1.5-2.0
SB-18A 1.0-3.0
SB-18D 2.0-2.5
SB-19A 0.5-2.0
SB-19B 1.5-2.0
SB-19C 1.5-2.0
SB-19D 1.5-2.0
SB-20A 0.0-2.0
SB-21A 1.5-2.5
SB-21C 1.5-2.0

Historical soil sampling locations are shown on Figure 3-1. Results of previous sampling are summarized in the SI report (HLA, 1999a). VAHs and PAH concentrations in several samples from this AOC exceeded the NJDEP SCC. In addition, total PCBs, beryllium and arsenic were detected above the NJDEP SCC in one sample, identified as SB-18A-1.0-3.0. Lead was detected above the NJDEP SCC in one sample, identified as SB-21A-1.5-2.5.

6.2.5.3 Remedial Investigation Results

During the RI, 21 soil borings were completed in AOC-2A. The soil borings, identified as SB-2A-01 through SB-2A-22 (SB-2A-B was eliminated due to refusal), extended from 4 to 16 feet bgs. Evidence of OLM was identified in nine of the borings conducted in AOC-2A during the RI at depths ranging from approximately 1 to 11 feet bgs. Evidence of TLM was identified in two of the borings at depths ranging from approximately 2 to 8 feet bgs. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 2.

A total of 64 soil samples were collected from AOC-2A during the RI. Benzene concentrations in samples from all but four of the soil borings (SB-2A-08, SB-2A-12, SB-2A-20 and SB-2A-21) exceeded the NJDEP SCC. One or more PAHs was detected in samples from all but three of the soil borings in this AOC (SB-2A-05, SB-2A-11 and SB-2A-21) at concentrations above the NJDEP SCC. Total PCB concentrations in samples from two locations (SB-2A-03 and SB-2A-10), arsenic concentrations in samples from three locations (SB-2A-06, SB-2A-10 and SB-2A-16) and the lead concentration at one location (SB-2A-10) exceeded the NJDEP SCC.

6.2.5.4 Supplemental Remedial Investigation Results

During the supplemental remedial investigation, two soil borings and one ground water monitoring well were completed in this area. The two soil borings, identified as SB-2A-23 and SB-2A-24, were located offsite, approximately 30 feet north of this AOC. Soil boring SB-2A-23 delineated the horizontal extent of OLM and affected soil previously detected at soil boring SB-2A-05. Soil boring SB-2A-24 investigated the horizontal extent OLM and affected soil previously detected at soil boring SB-2A-10. No evidence of OLM was detected in soil boring SB-2A-23. OLM was identified in SB-2A-24 boring at 4 to 6 feet bgs. No evidence of TLM existed during the SRI boring activities in this area. Table 6-1 presents a summary of OLM/TLM reported in the soil borings. Figure 6-1 presents the estimated horizontal extent of OLM/TLM observed in the soil borings at the Site.

No additional soil borings were attempted further north to due access restrictions. Heavy vegetation and piles of construction debris, including logs and rubble, prevented vehicular access between this boring location and the base of the railroad embankment.

Four soil samples were collected from the two borings in this area and submitted for laboratory analysis of VAHs, PAH and metals. VAH concentrations detected in SB-2A-23 exceeded the NJDEP SCC. PAH and inorganic analytes were detected in SB-2A-24 above the NJDEP SCC.

One additional ground water monitoring well was installed in AOC-2A during the SRI. This monitoring well, identified as MW-3C was installed as a cluster with existing wells MW-3A and MW-3B. MW-3C was installed to investigate the vertical extent of ground water contamination detected at the Site. MW-3C is a triple cased monitoring well designed to investigate the vertical extent of ground water contamination in this area. The outer 10-inch stainless steel casing of MW-3C was set 4-feet into the first confining layer of peat at 14-feet bgs. The middle 6-inch stainless steel casing was set at 72 feet bgs into a tight silty confining unit. The inner 2-inch inside diameter 0.010-inch factory slotted PVC screen was set from 81 to 86-feet bgs. During well installation, OLM was observed in the boring between 8 and 12 feet bgs. TLM was not observed in the boring during the SRI activities. Results of the Site-wide ground water investigation are discussed in Section 6.3.3.

One ground water sample was collected from each of these wells during the SRI. The ground water samples were analyzed for VOCs, SVOCs, PCBs, metals and general chemistry. Table 6-8 presents a summary of analytical results for the ground water samples collected at the Site. Figure 6-7 identifies the constituents detected in the ground water samples at concentrations above the GWQS and ISC.

6.2.5.5 AOC-2A Conclusions and Recommendations

AOC-2A Major Utilities

Two major underground utilities have been identified traversing this AOC. A gas pipeline crosses the northern edge of this AOC and the Amerada Hess oil pipeline crosses the southern portion of this AOC.

AOC-2A OLM and TLM

As summarized on Table 6-1, of the 47 soil borings and 6 test trenches conducted in this AOC, 19 borings encountered OLM and 6 borings encountered TLM. Five borings in this area penetrated the peat layer. OLM was not encountered below the

peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-2A Soil

Figure 6-8 identifies soil samples collected on Parcel 2 that exhibited VOC concentrations above the SCC. Three VOCs were detected in this AOC at concentrations above their respective SCC. These included benzene in 38 samples, ethylbenzene in 4 samples and xylenes in 1 sample. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-9 identifies soil samples collected on Parcel 2 that exhibited SVOC concentrations above the SCC. PAH exceedances were detected in 46 soil samples collected from this AOC. No other SVOC exceedances were reported in samples collected from this AOC.

Figure 6-10 identifies soil samples collected on Parcel 2 that exhibited concentrations of inorganics above the SCC. Concentrations of metals exceeded the SCC in seven samples. These included arsenic only in SB-2A-06 (3.5-4.0) and SB-2A-16 (5.5-6.0); arsenic and lead in SB-2A-10 (7.5-8.0) and SB-2A-24 (6.5-7.0); lead only in soil boring SB-21A (1.5-2.5) and SB-2A-10 (9.5-10.0) and beryllium in soil boring SB-18A (1.0-3.0). Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC. The PCB concentration in two samples, SB-18A (1.0-3.0) and SB-2A-10 (3.5-4.0), exceeded the RDC SCC. The PCB concentration reported in SB-18A (1.0-3.0) also exceeded the NRDC SCC. The PCB concentration reported in the sample from SB-2A-10 (3.5-4.0) was but was below the NRDC SCC. PCB concentrations reported in both samples were below the IGW SCC. No other PCB exceedances were reported in samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-11 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-12 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-13 identifies soil samples collected on Parcel 2 that

exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-14 identifies soil samples collected on Parcel 2 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Eight samples collected in this AOC exhibited benzene concentrations more than 10 times its SCC. Twenty-two samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One sample collected from this AOC, SB-21C (1.5-2.0) exhibited a benzene concentration greater than 100 times its SCC. Three samples from this AOC: SB-2A-07 (6.5-7.0), SB-2A-15 (7.5-8.0) and SB-2A-20 (3.0-3.5) exhibited PAH concentrations greater than 100 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

AOC-2A Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. Three of the ground water monitoring wells installed at the Site are located within this AOC. These wells, identified as MW-3A, MW-3B and MW-3C, are installed as a cluster in the western portion of this AOC. Benzene was detected in the samples from MW-3A and in the first two rounds of sampling from MW-3B at concentrations above the GWQS. The benzene concentration detected in MW-3B declined rapidly with time suggesting that the benzene detected may have been a result of limited local disturbance or cross-contamination. Benzene was not detected in the deeper well, MW-3C. However, two other VOCs, bromodichloromethane and chloroform, were detected in the sample from MW-3C at concentrations above their GWQS. These two compounds were also detected in the sample from MW-2C. Based on the occurrence only in the deeper zone and absence of these compounds at the Site, PSEG SC concludes that these two exceedances reflect an offsite or regional source and are not associated with Site-related contamination.

These results indicate that the benzene-contaminated ground water is present above the peat layer but not below in this AOC. The benzene concentrations reported in the samples from MW-3A ranged from 1.02 to 2.4 µg/L, only slightly above the GWQS of 1.0 µg/L. These date indicate that this well is located near the edge of the zone of affected ground water at the Site.

Several PAHs and metals were detected at concentrations above the GWQS or ISC in samples collected from these wells during the SSI. The PAH concentrations generally diminished below the ISC indicating that the concentrations reported were likely due to suspended particles that were not fully removed during the initial well development.

Three soil samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg. These included samples SB-21C (1.5-2.0), SB-17A (2.0-2.25) and SB-18D (2.0-2,5) all of which were collected during the SI. None of the samples from this AOC exhibited total organic compound concentrations greater than 10,000 mg/kg.

AOC-2A Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.6 AOC-2B – Headquarters Area

6.2.6.1 Description

AOC-2B comprises the northeastern portion of Parcel 2. This AOC includes the original MGP area including the former location of the original MGP gas holder, Gas Holder No. 1, the oil house, fuel oil tank, meter oil tank, paint and oil shed, and a disposal area as well as the historical location of a Texas Eastern M&R station. In 1993, PSE&G completed a clean closure of Gas Holder No. 1. The closure involved removing the tank and all materials down to the top of the foundation and then backfilling the area with clean fill wrapped in a high-density polyethylene (HDPE) liner. Details regarding the historical structures and clean closure were presented in the SIR as potential AOCs 25, 26, 27, 28, 29, 30, 31 and 34.

The parking lot, storage areas and refueling facility for the PSE&G East Jersey District Gas Distribution headquarters currently occupy this AOC. As noted in Section 2.2.1, the refueling facility includes two gasoline and one diesel fuel concrete-encased above-ground storage tanks, a fuel dispenser and a 25-bay natural gas refueling area.

As part of the SI, PSEG SC located and removed the meter oil tank (former AOC-28). Based on excavation in the area identified as the location of a former fuel oil tank, PSEG SC determined that this structure had been removed previously. Details regarding tank closure activities were presented in the SIR (HLA, 1999a).

6.2.6.2 Historical Sampling Results

During the SI, 20 soil borings were completed in this area. In addition, the background monitoring well pair, MW-1A and MW-1B, was installed just east of this AOC during the SSI. The soil borings ranged from 8 to 24 feet in depth and the boring for the monitoring well extended to 30 feet bgs. OLM and/or TLM were detected in soil samples from six of these locations. Table 6-1 presents a summary of OLM and TLM reported during the SI, SSI and RI activities. Figure 6-1 identifies the approximate horizontal extent of OLM and TLM identified.

The following 11 soil samples were collected from this AOC during the SI and analyzed for VOCs, SVOCs, PCBs, TAL metals and/or total cyanide:

SB-25A-0.5-2.0
SB-25A-4.0-4.5
SB-26A-0.5-2.5
SB-26A-4.5-5.0
SB-30A-0.0-2.0
SB-30A-5.5-6.0
SB-30C-6.0-6.5
SB-31A-0.5-3.0
SB-31A-4.0-5.0
SB-31C-5.5-6.0
SB-34A-0.5-2.0

In addition, five post-excavation samples were collected following removal of the meter oil tank.

Historical soil sampling locations are shown on Figure 3-1. Results of previous sampling are summarized in the SI report (HLA, 1999a). VAHs, PAH, lead and arsenic concentrations in several samples from this AOC exceeded the NJDEP SCC. In addition, the PCB Aroclor 1248 was detected in one sample, SB-26A 0.5-2.5 at a concentration that exceeded the NJDEP SCC.

6.2.6.3 Remedial Investigation Results

During the RI, 17 soil borings were completed in AOC-2B. The soil borings were identified as SB-2B-01 through SB-2B-20. (As noted in Section 4.4.5, three soil boring locations, identified as SB-2B-10, SB-2B-15 and SB-2B-17, were eliminated from this AOC during the RI.) The 17 soil borings extended from 6 to 12 feet bgs. Evidence of OLM was identified in four of the borings conducted in AOC-2B during the RI at depths ranging from approximately 4 to 10 feet bgs. No evidence of TLM was identified in the borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 2.

A total of 65 soil samples were collected from AOC-2B during the RI. VAHs were analyzed in 53 of the soil samples from this AOC. One or more VAHs were detected in 22 of these samples and exceeded the NJDEP SCC in the following 9 samples:

SB-2B-02 7.0-7.5
SB-2B-04 9.0-9.5
SB-2B-08 3.5-4.0
SB-2B-09 5.0-5.5
SB-2B-09 10.0-10.5
SB-2B-13 3.5-4.0
SB-2B-14 3.5-4.0
SB-2B-14 6.5-7.0
SB-2B-16 3.0-3.5

VAHs were not detected at concentrations above the NJDEP SCC in the other soil samples analyzed from this AOC.

PAHs were analyzed in 63 of the 64 samples from this AOC. One or more PAHs were detected at concentrations above the NJDEP SCC in following 30 samples, collected from 12 of the soil borings in this AOC:

SB-2B-02 3.0-3.5	SB-2B-05 1.5-2.0	SB-2B-09 5.0-5.5
SB-2B-02 5.5-6.0	SB-2B-06 3.5-4.0	SB-2B-11 1.5-2.0
SB-2B-02 7.0-7.5	SB-2B-07 1.5-2.0	SB-2B-11 3.5-4.0
SB-2B-03 3.0-3.5	SB-2B-07 2.5-3.0	SB-2B-12 0.0-0.5
SB-2B-03 5.5-6.0	SB-2B-07 4.0-4.5	SB-2B-12 1.0-1.5
SB-2B-03 7.5-8.0	SB-2B-08 1.5-2.0	SB-2B-12 3.5-4.0
SB-2B-04 3.5-4.0	SB-2B-08 11.5-12.0	SB-2B-12 7.5-8.0
SB-2B-04 5.5-6.0	SB-2B-08 3.5-4.0	SB-2B-13 7.5-8.0
SB-2B-04 7.5-8.0	SB-2B-08 6.5-7.0	SB-2B-14 3.5-4.0
SB-2B-04 9.0-9.5	SB-2B-09 10.0-10.5	SB-2B-14 6.5-7.0

PAHs were not detected at concentrations above the NJDEP SCC in the other soil samples analyzed from this AOC.

Metals were analyzed in 45 of the 64 samples from this AOC. Lead and/or arsenic were detected at concentrations above the NJDEP SCC in the following 10 samples:

SB-2B-03 0.0-0.5
SB-2B-04 5.5-6.0
SB-2B-06 3.5-4.0
SB-2B-07 2.5-3.0
SB-2B-07 4.0-4.5
SB-2B-08 1.5-2.0
SB-2B-08 3.5-4.0
SB-2B-12 1.0-1.5
SB-2B-13 3.5-4.0
SB-2B-20 2.5-3.0

In addition, the concentration of mercury detected in sample SB-2B-06 3.5-4.0 exceeded the NJDEP SCC for this metal. None of the remaining metals analyzed in samples from this AOC were detected at concentrations above the NJDEP SCC.

6.2.6.4 Supplemental Remedial Investigation

During the supplemental remedial investigation, two soil borings were completed in this area. The two soil borings, identified as SB-2B-21 and SB-2B-22, were located offsite, approximately 20 feet north of this AOC. Soil boring SB-2B-21 delineated the horizontal extent of OLM, TLM and affected soil previously detected at soil borings SB-2B-06 and SB-31C. Soil boring SB-2B-22 delineated the horizontal extent OLM and affected soil previously detected at soil boring SB-2B-08. No evidence of OLM or TLM was detected in soil borings SB-2B-21 and SB-2B-22. Table 6-1 presents a summary of OLM/TLM reported in the soil borings. Figure 6-1 presents the estimated horizontal extent of OLM/TLM observed in the soil borings at the Site.

Four soil samples were collected from the two borings in this area and submitted for laboratory analysis of VAHs, PAH and metals. PAH concentrations detected in SB-2B-21 at 6.0 to 6.5 feet bgs. The remaining results were below the NJDEP SCC.

6.2.6.5 AOC-2B Conclusions and Recommendations

AOC-2B Major Utilities

Two major underground utilities have been identified traversing this AOC. A high-pressure gas pipeline crosses the middle of this AOC. In addition, a series of gas feed lines are located beneath the parking area. These lines feed individual gas refueling ports for PSE&G vehicles.

AOC-2B OLM and TLM

As summarized on Table 6-1, of the 39 soil borings conducted in this AOC, 4 encountered OLM and 2 encountered TLM. Three borings in this area penetrated the peat layer. Neither OLM nor TLM was encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-2B Soil

Figure 6-8 identifies soil samples collected on Parcel 2 that exhibited VOC concentrations above the SCC. Four VOCs were detected in this AOC at concentrations above their respective SCC. These included benzene in 11 samples,

ethylbenzene and toluene in 1 sample and xylenes in 3 samples. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-9 identifies soil samples collected on Parcel 2 that exhibited SVOC concentrations above the SCC. PAH exceedances were detected in 33 soil samples collected from this AOC. No other SVOC exceedances were reported in samples collected from this AOC.

Figure 6-10 identifies soil samples collected on Parcel 2 that exhibited concentrations of inorganics above the SCC. Concentrations of metals exceeded the SCC in 14 samples. These included arsenic only in SB-2B-13 (3.5-4.0) and SB-2B-08 (3.5-4.0); arsenic and lead in SB-30A (0.0-2.0); SB-31A (0.5-3.0); SB-2B-07 (4.0-4.5); SB-2B-08 (1.5-2.0); lead only in SB-25A (0.5-2.5); SB-34A (0.5-2.0); SB-2B-03 (0.0-0.5); SB-2B-04 (5.5-6.0); SB-2B-07 (2.5-3.0); SB-2B-12 (1.0-1.5); and SB-2B-20 (2.5-3.0); and mercury and lead in SB-2B-06 (3.5-4.0). Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC. The PCB concentration in one sample, SB-2B-03 (0.0-0.5) exceeded the RDC SCC but was below the NRDC and IGW SCC. No other PCB exceedances were reported in samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-11 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-12 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-13 identifies soil samples collected on Parcel 2 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-14 identifies soil samples collected on Parcel 2 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Three samples collected in this AOC exhibited VAH concentrations more than 10 times their respective SCC. Eleven samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective

SCC. None of the samples from this AOC exhibited contaminant concentrations greater than 100 times their SCC.

Three soil samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg. These included samples SB-31C (5.5-6.0) and SB-2B-09 (5.0-5.5 and 10.0-10.5). Two soil samples from this AOC exhibited total organic compound concentrations greater than 10,000 mg/kg. These included samples SB-31C (5.5-6.0) and SB-2B-09 (5.0-5.5).

AOC-2B Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-2B Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.7 AOC-2C – Fueling Area/Original MGP Facility

6.2.7.1 Description

AOC-2C is located in the southeast portion of Parcel 2. This AOC includes a fueling area and the original MGP facility. The fueling area consisted of five USTs installed in the 1970s. As discussed in the SIR, the USTs were historically used to store gasoline, diesel fuel and waste oil and were taken out of service between 1977 and 1994. The five USTs were removed during the SI. Details regarding UST closure were presented in the SIR (HLA, 1999a). This area was identified as potential AOC-32.

Based on the Hopkins Atlas Map for this area dated 1873, the original MGP facility located in this AOC consisted of two primary buildings: an exhaust house and a second building, presumably the gas manufacturing facility. By 1908, this area appears to have been used for storage. Details regarding the history of this area were presented in the SIR (HLA, 1999a) as potential AOC-33.

6.2.7.2 Historical Sampling Results

During the SI, four soil borings were completed in this AOC. No evidence of OLM or TLM was identified in the borings conducted in AOC-2C during the SI.

One soil sample, identified as SB-33A 0.5-2.0' was collected and analyzed for VOCs+15, SVOCs+25, metals, cyanide, PCBs and Total Petroleum Hydrocarbons (TPH). In addition, 21 post-excavation soil samples were collected during removal of the five USTs.

Concentrations of benzene and xylenes exceeded NJDEP SCC in two of the post-excavation samples. PAH concentrations in the sample from the soil boring and several of the post-excavation samples exceeded the NJDEP SCC.

6.2.7.3 Remedial Investigation Results

During the RI, two soil borings and one monitoring well pair were completed in AOC-2C. The soil borings, identified as SB-2C-01 and SB-2C-03 extended to 12 feet bgs. The soil boring for monitoring well MW-7B extended to 26 feet bgs. No evidence of OLM or TLM was identified in the borings conducted in AOC-2C during the RI.

A total of 10 soil samples were collected from the three borings. The samples from the two soil borings were analyzed for VAHs, PAHs, and metals. The sample from the monitoring well boring was analyzed for VOCs+15, SVOCs+25, PCBs, metals and cyanide.

Benzene and PAH concentrations in the first three samples from SB-2C-01 and PAH concentrations in the two intermediate samples from SB-2C-03 exceeded the NJDEP SCC. None of the parameters analyzed in the deep sample at MW-7B exceeded the NJDEP SCC.

Ground water samples were collected from well pair MW-7A/MW-7B located hydraulically downgradient from the former refueling area. Three parameters were detected at concentrations above the GWQS: iron, ammonia and TDS. Ammonia was also detected in background ground water samples collected during the SI and RI, suggesting an offsite source. No VOCs, SVOCs, cyanide, PCBs, other metals or general chemistry parameters were detected in the ground water samples at

concentrations above the GWQS. Findings of the Site-wide ground water sampling activities are presented in Section 6.3.3.

6.2.7.4 Supplemental Remedial Investigation Results

During the supplemental remedial investigation, ground water samples were collected from the existing well pair MW-7A/MW-7B, located downgradient from the former refueling area. The samples were laboratory analyzed for VOCs, SVOCs, PCBs, metals and general chemistry parameters for delineation of ground water contamination. The only exceedance of the NJDEP GWQS in the sample from MW-7A was benzene. The remaining laboratory analytical results were below the NJDEP GWQS.

6.2.7.5 AOC-2C Conclusions and Recommendations

AOC-2C Major Utilities

No major underground utilities have been identified traversing this AOC. Minor utilities include underground electric, water and sewer lines in this area.

AOC-2C OLM and TLM

As summarized on Table 6-1, none of the 7 soil borings conducted in this AOC encountered OLM or TLM. None of the borings in this area penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-2C Soil

Figure 6-8 identifies soil samples collected on Parcel 2 that exhibited VOC concentrations above the SCC. One VOC (benzene) was detected in this AOC at concentrations above its SCC. These exceedances were detected in three samples collected from soil boring SB-1C-01. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-9 identifies soil samples collected on Parcel 2 that exhibited SVOC concentrations above the SCC. PAH exceedances were detected in 6 soil samples collected from this AOC. No other SVOC exceedances were reported in samples collected from this AOC.

Figure 6-10 identifies soil samples collected on Parcel 2 that exhibited concentrations of inorganics above the SCC. None of the metals concentrations reported in this AOC exceeded applicable SCC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-11 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-12 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-13 identifies soil samples collected on Parcel 2 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-14 identifies soil samples collected on Parcel 2 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

One samples collected in this AOC exhibited a benzene concentration more than 10 times its SCC. Two samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC. None of the samples from this AOC exhibited contaminant concentrations greater than 100 times their SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-2C Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. One pair of ground water monitoring wells, MW-7A and MW-7B, is located along the western (hydraulically downgradient) perimeter of this AOC. Benzene, arsenic, lead, cyanide, aluminum, iron, sodium, manganese, and several PAHs were detected in the samples from MW-7A at concentrations above their respective GWQS and ISC. No VOC, SVOC, cyanide, lead, or arsenic exceedances were detected in the samples from the deeper well, MW-7B. These data delineate the vertical extent of ground water contamination in this AOC. Aluminum, iron, manganese and TDS concentrations reported in MW-7B exceeded their respective GWQS. However, these exceedances

are attributed to suspended particles in the monitoring well and are not considered to be ground water contamination.

AOC-2C Recommendations

Based on these results, PSEG SC recommends no further investigation and the establishment of a deed notice for this AOC.

6.2.8 AOC-2D – Tar Processing/Catalytic Reformer/Storage Area and Underground Oil Accumulations

6.2.8.1 Description

AOC-2D comprises the southwestern portion of Parcel 2 and includes reported subsurface oil accumulations. This AOC includes the former Tar Processing Area and the former Cyclic Catalytic Reforming Set (CCRS) area. In addition, this AOC includes the area to the east of the former CCRS that was historically used for storage and the area to the west of the former Tar Processing Area. Details regarding the two historical operation areas and the underground oil accumulations were presented in the SIR as potential AOCs 22, 23 and 57A. The underground oil accumulations in this area were originally identified during the PAR as petroleum that was observed in and pumped from manholes along St. Paul's and Duffield Avenue between 1960 and 1985. Recent monitoring indicates that petroleum is no longer accumulating in the manholes. Documentation of recent monitoring of the manholes by the Hudson Regional Health Commission is provided in Appendix M.

6.2.8.2 Historical Sampling Results

During the SI, Five soil borings were completed in this AOC. Evidence of OLM was identified in the four test trenches and in two of the borings conducted in AOC-2D during the SI at depths ranging from approximately 1 to 16.5 feet bgs. Evidence of TLM was identified in one of the test trenches and one of the borings at depths ranging from approximately 0.9 to 2.8 feet bgs. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 2.

Three soil samples, identified as SB-22B-1.75-2.25, SB-22C-0.5-1.0 and SB-22C-1.5-2.0 were collected and analyzed for VOCs+15. Results indicated VAH concentrations above the NJDEP SCC in this AOC.

During the SSI, one monitoring well pair (MW-4A/MW-4B) was installed and sampled in this area. Ground water samples from the monitoring wells were analyzed for VOCs+15, SVOCs+25, metals, cyanide, and general chemistry. The ground water sample from MW-4A exhibited a benzene concentration above the NJDEP GWQS. No SVOCs, cyanide or other VOCs were detected at concentrations above the NJDEP GWQS in the ground water samples from the shallow or deep well at this location. Several metals consisting of aluminum, arsenic, iron, lead, and sodium, as well as ammonia and TDS were reported in one or both samples at concentrations above the NJDEP GWQS.

6.2.8.3 Remedial Investigation Results

During the RI, ten soil borings were completed in AOC-2D. The soil borings, identified as SB-2D-01 through SB-2D-10, extended from 6 to 12 feet bgs. Evidence of OLM was identified in seven of the borings conducted in AOC-2D during the RI at depths ranging from approximately 0.5 to 11 feet bgs. Evidence of TLM was identified in two of the borings at depths ranging from approximately 2.5 to 6.5 feet bgs. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 2.

A total of 3 surface and 21 subsurface soil samples were collected and analyzed to evaluate conditions at this AOC during the RI. The soil samples were analyzed for VAHs, PAHs and Selected Metals and cyanide.

With one exception, concentrations of one or more VAHs and several PAHs exceeded the NJDEP SCC in samples from each of the soil borings in this AOC. PAH concentrations were below the NJDEP SCC in the samples from SB-2D-06. Arsenic concentrations exceeded the NJDEP SCC in two samples SB-2D-06 3.5-4.0 and SB-2D-07 6.0-6.5. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

VAH concentrations were higher in the ground water samples collected from this AOC during the RI than in those collected during the SI. The remaining constituents were detected at similar concentrations during both rounds of sampling.

6.2.8.4 Supplemental Remedial Investigation Results

During the SRI, one soil boring was completed in this AOC. Soil Boring SB-2D-11 was completed to delineate the extent of affected soils detected at previously completed soil boring SB-22DP. One soil sample was collected from the 5.5- to 6.0-foot depth interval and a second sample was collected at the top of the peat layer, from the 8.5- to 9.0-foot depth interval to delineate the horizontal extent of affected soil in this AOC. A third sample was collected at the 20.0- to 20.5-foot depth interval to provide vertical delineation. A fourth soil sample was collected from this boring at 29.5 to 30.0 feet below grade for purposes of the model. The three samples collected for the SRI were analyzed for VAHs, PAHs and TAL inorganics.

The sample from 8.5 to 9.0 feet exhibited a benzene concentration above the IGW and RDC SCC but below the NRDCSCC. VAH concentrations in the remaining soil samples from this boring were below the SCC. The samples from the 5.5- to 6.0-foot and 8.5- to 9.0-foot depth intervals exhibited concentrations of several PAHs RDC and NRDC SCC. Concentrations of three PAHs detected in the sample from 8.5 to 9.0 feet bgs exceeded their respective IGW SCC. The samples from 5.5 to 6.0 feet bgs and 8.5 to 9.0 feet bgs exhibited no metals exceedances. The sample from 20.0- to 20.5 feet bgs exhibited no VAH, PAH or metals exceedances.

During the SRI, ground water samples were collected from the two ground water monitoring wells in this AOC: MW-4A and MW-4B. These samples were collected as part of the Site-wide ground water investigation. Results of the Site-wide ground water investigation are discussed in Section 6.3.3. Conclusions and recommendations regarding ground water conditions as they pertain to this AOC are discussed in Section 6.2.8.5, below.

6.2.8.5 AOC-2D Conclusions and Recommendations

AOC-2D Major Utilities

One major underground utility has been identified traversing this AOC. A high-pressure gas main crosses Duffield Avenue from the PSE&G M&R Station on Parcel 1. This gas main then traverses the southern perimeter of AOC-2D and AOC-2E, along St. Paul's Avenue.

AOC-2D OLM and TLM

As summarized on Table 6-1, of the 17 soil borings and 4 test trenches conducted in this AOC, 13 borings encountered OLM and 4 borings encountered TLM. Three borings in this area penetrated the peat layer. Neither OLM nor TLM was encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1. Based on the location of OLM and TLM encountered, it is possible that this material may extend to the south and west beneath St. Pauls and Duffield Avenues. These areas were not investigated during the project.

AOC-2D Soil

Figure 6-8 identifies soil samples collected on Parcel 2 that exhibited VOC concentrations above the SCC. Four VOCs were detected in this AOC at concentrations above their respective SCC. These included benzene in 22 samples, ethylbenzene in 3 samples, and toluene in 1 sample and xylenes in 5 samples. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-9 identifies soil samples collected on Parcel 2 that exhibited SVOC concentrations above the SCC. PAH exceedances were detected in 20 soil samples collected from this AOC. No other SVOC exceedances were reported in samples collected from this AOC.

Figure 6-10 identifies soil samples collected on Parcel 2 that exhibited concentrations of inorganics above the SCC. None of the metals concentrations reported in this AOC exceeded applicable SCC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-11 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-12 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-13 identifies soil samples collected on Parcel 2 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-14 identifies soil samples collected on Parcel 2 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Nine samples collected in this AOC exhibited benzene concentrations more than 10 times its SCC. One sample also exhibited concentrations of ethylbenzene and total xylenes greater than 10 times their respective SCC. Eight samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

Two samples collected from one boring in this AOC, SB-2D-10 (3.5-4.0 and 5.5-6.0) exhibited benzene concentrations greater than 100 times its SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

Three soil samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg. These included samples SB-22B (1.75-2.25) and SB-22C (0.5-1.0 and 1.5-2.0) all of which were collected during the SI. One soil sample from this AOC exhibited a total organic compound concentration greater than 10,000 mg/kg. This sample was identified as SB-22C (0.5-1.0).

AOC-2D Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. One pair of ground water monitoring wells, MW-4A and MW-4B, is located near the western (hydraulically downgradient) perimeter of this AOC. Benzene, ethylbenzene, arsenic, chromium, cyanide, lead, mercury, aluminum, iron, sodium, manganese, and several PAHs were detected in the samples from MW-4A at concentrations above their respective GWQS and ISC. No VOC, SVOC, chromium, cyanide, lead, or mercury exceedances were detected in the samples from the deeper well, MW-4B. These data delineate the vertical extent of ground water contamination in this AOC. Aluminum, iron, manganese and TDS concentrations reported in MW-4B exceeded their respective GWQS. However, these exceedances are attributed to suspended particles in the monitoring well and are not considered to be ground water contamination.

AOC-2D Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.9 AOC-2E – PSE&G Metering and Regulating Station

6.2.9.1 Description

AOC-2E is located on Parcel 2 north of the end of Charlotte Street and west of the existing maintenance building. The M&R station was constructed in 1953 and removed after 1985 during demolition of the facility. Details regarding the M&R station were presented in the SIR (HLA, 1999a) as potential AOC-24.

6.2.9.2 Historical Sampling Results

No sampling was conducted in this AOC prior to the RI.

6.2.9.3 Remedial Investigation Results

During the RI, five soil borings were completed and sampled in AOC-2E. The soil borings extended from 4 to 12 feet bgs. No evidence of OLM or TLM was identified in the borings conducted in AOC-2E during the RI.

Four surface and eleven subsurface soil samples were collected and analyzed to evaluate conditions in this AOC. The surface samples were analyzed for PAHs and PPL metals. The subsurface samples were analyzed for VAHs, PAHs and Selected Metals and cyanide.

With one exception, concentrations of benzene and several PAHs exceeded the NJDEP SCC in the samples from each of the soil borings in this AOC. PAH concentrations were below the NJDEP SCC in the samples from SB-2E-03. Lead concentrations exceeded the NJDEP SCC in three soil samples: SB-2E-02 (7.0-7.5), SB-2E-03 (3.0-3.5) and SB-2E-04 (2.5-3.0). Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

6.2.9.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.9.5 AOC-2E Conclusions and Recommendations

One major underground utility has been identified traversing this AOC. A high-pressure gas main crosses Duffield Avenue from the PSE&G M&R Station on Parcel 1. This gas main then traverses the southern perimeter of AOC-2D and AOC-2E, along St. Paul's Avenue.

AOC-2E OLM and TLM

As summarized on Table 6-1, none of the 5 soil borings conducted in this AOC encountered OLM or TLM. One of the borings in this AOC penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-2E Soil

Figure 6-8 identifies soil samples collected on Parcel 2 that exhibited VOC concentrations above the SCC. One VOC, benzene, was detected in this AOC at concentrations above its SCC. Benzene was detected in 8 samples from this AOC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-9 identifies soil samples collected on Parcel 2 that exhibited SVOC concentrations above the SCC. PAH exceedances were detected in 7 soil samples collected from this AOC. No other SVOC exceedances were reported in samples collected from this AOC.

Figure 6-10 identifies soil samples collected on Parcel 2 that exhibited concentrations of inorganics above the SCC. Concentrations of lead exceeded the RDC and NRDC in three samples from this AOC. These included samples SB-2E-02 (7.0-7.5); SB-2E-03 (3.0-3.5); and SB-2E-04 (2.5-3.0). No other inorganic exceedances were reported in samples collected from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-11 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-12 identifies soil samples collected on Parcel 2 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-13 identifies soil samples collected on Parcel 2 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-14 identifies

soil samples collected on Parcel 2 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Six samples collected in this AOC exhibited benzene concentrations more than 10 times its SCC. Four samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. One sample from this AOC exhibited a lead concentration more than 10 times its SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One sample collected from this AOC, SB-2E-02 (7.0-7.5) exhibited a lead concentration greater than 100 times its SCC. One sample collected from this AOC, SB-2E-04 (6.5-7.0) exhibited a benzene concentration greater than 100 times its SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg.

AOC-2E Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-2E Recommendations

Based on these results, PSEG SC recommends no further investigation and the establishment of a deed notice for this AOC.

6.2.10 AOC-3A – Purifier/Oxide Boxes/Recirculating Oil Tank Area

6.2.10.1 Description

AOC-3A is located along the northeastern side of Parcel 3. This AOC includes the area formerly occupied by purifiers, oxide boxes and a recirculating oil above-ground storage tank. These structures were removed during demolition of the facility between 1985 and 1995. Foundations for the purifiers and oxide boxes are currently visible. Details regarding these structures were presented in the SIR as potential AOCs 35, 36 and 37.

6.2.10.2 Historical Sampling Results

No sampling was conducted in this AOC prior to the RI.

6.2.10.3 Remedial Investigation Results

During the RI, five 2-foot deep soil borings, identified as SB-3A-01 through SB-3A-05, were completed and sampled in AOC-3A. Evidence of OLM was identified in one of the borings conducted in AOC-3A during the RI (SB-3A-01) from approximately 1 to more than 2 feet bgs. No evidence of TLM was identified in the five borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3.

One sample was collected from the 1.5- to 2.0-foot depth interval at each location and analyzed for PAHs and Selected Metals and cyanide.

With the exception of the sample from SB-3A-03, concentrations of one or more PAHs exceeded the NJDEP SCC in the samples from this AOC. Arsenic concentrations detected in the samples from soil borings SB-3A-01 and SB-3A-05 exceeded the NJDEP SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the five samples from this AOC.

6.2.10.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.10.5 AOC-3A Conclusions and Recommendations

AOC-3A Major Utilities

One major underground utility has been identified traversing this AOC. An electric main extends from north to south across Parcel 3. This electric conduit crosses the western edge of AOC-3A and the eastern edge of AOC-3B.

AOC-3A OLM and TLM

As summarized on Table 6-1, of the five soil borings conducted in this AOC, one encountered OLM and none encountered TLM. None of the borings penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3A Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, five soil samples were collected from this AOC and analyzed for VOCs or VAHs. No VOC exceedances were detected in any of these soil samples.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, five soil samples were collected from this AOC and analyzed for PAHs. PAH concentrations exceeded the RDC and NRDC SCC in four of the five samples. No exceedances were reported in sample SB-3A-03 (1.5-2.0).

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, five soil samples were collected from this AOC and analyzed for PPL metals and cyanide. One metal, arsenic, was detected in two samples at concentrations above its RDC and NRDC SCC. These samples were identified as SB-3A-01 (1.5-2.0) and SB-3A-05 (1.5-2.0). No other metal or cyanide exceedances were reported in the soil samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Two samples collected in this AOC exhibited PAH concentrations more than 10 times their SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

None of the samples collected from this AOC exhibited contaminant concentrations greater than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-3A Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-3A Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.11 AOC-3B – Processing Area

6.2.11.1 Description

AOC-3B comprises the western corner of Parcel 3. This AOC includes the locations of the following former structures:

- Naphthalene scrubbers
- Spent Oil UST
- Fresh Oil UST
- Tar Precipitators
- Tar Pit
- Relief Holder
- Condensor Area
- Garage Building/Exhauster Plant

The above-grade portions of these structures were removed between 1985 and 1995. This area was identified as having been inundated by a fuel oil spill in 1976 and/or 1978. Details regarding the historical structures and activities were presented in the SIR as potential AOCs 42, 43, 44, 45, 46, 47, 48 and 57B.

6.2.11.2 Historical Sampling Results

During the SI, eleven test trenches, nine soil borings and one monitoring well pair were completed in this AOC. Evidence of OLM was identified in eight of the test trenches, six of the borings and at the location of the monitoring well pair at depths ranging from grade to approximately 9 feet bgs. Evidence of TLM was identified in six of the test trenches conducted in this area during the SI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3. The OLM detected in this area is believed to be partially attributable to historical petroleum releases from the neighboring tank farm to the southwest. As discussed in the PAR and SIR, at least one release from this area reportedly inundated the area near the intersection of Duffield Avenue and Howell Street.

Five soil samples, identified as SB-46A-0.5-2.5; SB-46C-1.5-2.0; SB-57A-0.0-0.5; SB-57B-0.5-1.0 and SB-57C-0.0-0.5 were collected and analyzed for VOCs+15. In addition, samples SB-46A-0.5-2.5 and SB-57B-0.5-1.0 were analyzed for SVOCs+25, PCBs and TAL inorganics including cyanide. Results indicated VAH, PAH, cadmium and lead concentrations above the NJDEP SCC in this AOC.

During the SSI, one monitoring well pair (MW-5A/MW-5B) was installed and sampled in this area. Ground water samples from the monitoring wells were analyzed for VOCs+15, SVOCs+25, metals, cyanide, and general chemistry. The ground water samples exhibited concentrations of benzene, ammonia and several metals including aluminum, arsenic, iron, lead and manganese above the NJDEP GWQS. No SVOCs, cyanide or other VOCs were detected at concentrations above the NJDEP GWQS in the ground water samples from the shallow or deep well at this location.

6.2.11.3 Remedial Investigation Results

During the RI, nine soil borings were completed in AOC-3B. The soil borings, identified as SB-3B-01 through SB-3B-09, extended from 4 to 8 feet bgs. Evidence of OLM was identified in one of the borings conducted in AOC-3B during the RI at approximately 2 feet bgs. No evidence of TLM was identified in the nine borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3.

A total of 9 surface and 18 subsurface soil samples were collected and analyzed to evaluate conditions at this AOC. The soil samples were analyzed for VAHs, PAHs and Selected Metals and cyanide. Samples from SB-3B-07, SB-3B-08 and SB-3B-09 were also analyzed for styrene.

Samples from eight of the nine borings in this area exhibited concentrations of one or more VAHs and several PAHs above the NJDEP SCC. Concentrations of VAHs and PAHs were below NJDEP SCC in the samples from SB-3B-01. Styrene was detected in the deepest sample at SB-3B-09 at a concentration above the NJDEP SCC for this compound. The arsenic concentration in the surface sample from SB-3B-09 and the lead concentrations in samples from SB-3B-04, SB-3B-06, SB-3B-07 and SB-3B-09 exceeded the NJDEP SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

6.2.11.4 Supplemental Remedial Investigation

No soil samples were collected in AOC-3B during the SRI. During the SRI, ground water samples were collected from the two ground water monitoring wells in this AOC: MW-5A and MW-5B. These samples were collected as part of the Site-wide ground water investigation. Results of the Site-wide ground water investigation are discussed in Section 6.3.3. Conclusions and recommendations regarding ground water conditions as they pertain to this AOC are discussed in Section 6.2.11.5, below.

6.2.11.5 AOC-3B Conclusions and Recommendations

AOC-3B Major Utilities

One major underground utility has been identified traversing this AOC. An electric conduit extends from north to south across Parcel 3. This electric conduit crosses the western edge of AOC-3A and the eastern edge of AOC-3B.

AOC-3B OLM and TLM

As summarized on Table 6-1, of the 19 soil borings and 11 test trenches conducted in this AOC, 16 borings encountered OLM and 6 borings encountered TLM. Two of the borings in this AOC penetrated the peat layer. Neither OLM nor was

encountered below the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3B Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, 23 soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene concentrations reported in 19 samples exceeded the IGW SCC, concentrations in 14 of these samples also exceeded the RDC and NRDC SCC. Ethylbenzene concentrations reported in five samples exceeded the IGW SCC but were below the RDC and NRDC SCC. Total xylenes concentrations in seven samples exceeded the IGW SCC, exceeded the RDC SCC in three samples and the NRDC SCC in one sample. Toluene was detected in two samples at concentrations above the IGW SCC and one of these also exceeded the RDC SCC. Styrene was detected in two soil samples from this AOC at concentrations exceeding the IGW, RDC and NRDC SCC. No other VOC exceedances were detected in the soil samples from this AOC.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations 20 soil samples were analyzed for SVOCs or PAHs. PAH concentrations exceeded the RDC and NRDC SCC in 15 of these samples. Eight of these samples also exhibited PAH concentrations above their respective IGW SCC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, 20 soil samples were collected from this AOC and analyzed for TAL inorganics or Selected Metals. Concentrations of metals exceeded the SCC in eight samples. These included lead only in SB-46A (0.5-2.5); SB-57A (0.0-0.5); SB-3B-04 (0.0-0.5 and 5.0-5.5); SB-3B-06 (0.0-0.5); SB-3B-07 (0.0-0.5 and 3.0-3.5); and arsenic and lead in SB-3B-09 (0.0-0.5). Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their

respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Thirteen samples collected in this AOC exhibited VAH concentrations more than 10 times their SCC. Fourteen samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

Three of the samples collected from this AOC exhibited benzene concentrations greater than 100 times its SCC. Eight of the samples collected from this AOC exhibited a PAH concentration greater than 100 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

Four of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg. Two of these samples also exhibited total organic compound concentrations greater than 10,000 mg/kg.

AOC-3B Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. One pair of ground water monitoring wells, MW-5A and MW-5B, is located near the middle of this AOC. Benzene, arsenic, lead, nickel, aluminum, iron, sodium, manganese, and several PAHs were detected in the samples from MW-5A at concentrations above their respective GWQS and ISC. Except for the initial round of sampling, no VOC, PAH, arsenic, lead or nickel exceedances were detected in the samples from the deeper well, MW-5B. These data delineate the vertical extent of ground water contamination in this AOC. Aluminum, iron, manganese and TDS concentrations reported in MW-5B exceeded their respective GWQS. However, these exceedances are attributed to suspended particles in the monitoring well and are not considered to be ground water contamination.

AOC-3B Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.12 AOC-3C – 13 kV Switch Yard

6.2.12.1 Description

AOC-3C is located near the eastern corner of Parcel 3. This is the location of an electrical switch yard that was removed from the site after 1985. This area was identified as potential AOC-38 in the SIR.

6.2.12.2 Historical Sampling Results

No sampling was conducted in this AOC prior to the RI.

6.2.12.3 Remedial Investigation Results

During the RI, four 2-foot deep soil borings, identified as SB-3C-01 through SB-3C-04, were completed and sampled in AOC-3C. No evidence of OLM or TLM was identified in the borings conducted in AOC-3C during the RI.

One sample was collected from each soil boring. The samples were collected from selected 6-inch intervals between 1.0 and 2.0 feet bgs and analyzed for PAHs, PCBs, cyanide and PPL metals.

With the exception of the sample from SB-3C-03, concentrations of one or more PAHs exceeded the NJDEP SCC in the samples from this AOC. The arsenic concentration detected in the sample from soil borings SB-3C-02 exceeded the NJDEP SCC. PCBs were not detected in any of the samples. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the four samples from this AOC.

6.2.12.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.12.5 AOC-3C Conclusions and Recommendations

AOC-3C Major Utilities

No major underground utilities have been identified traversing this AOC.

AOC-3C OLM and TLM

As summarized on Table 6-1, none of the four soil borings conducted in this AOC encountered OLM or TLM. The four borings in this AOC were conducted to investigate shallow soil conditions. As such, these borings extended to 2.0 feet bgs and did not penetrate the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3C Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. The soil samples collected from AOC-3C were not analyzed for VOCs during the investigations.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, four soil samples from this AOC were analyzed for PAHs. PAH concentrations detected in three of the samples exceeded their respective RDC and NRDC SCC. None of the PAH concentrations reported in the samples from this AOC exceeded the IGW SCC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, four soil samples were collected from this AOC and analyzed for PPL metals and cyanide. Concentrations of one metal, arsenic, was detected in one sample, SB-3C-02 (1.5-2.0) at a concentration that exceeded its RDC and NRDC SCC. Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

None of the soil samples collected in this AOC exhibited contaminant concentrations more than 10 (or 100) times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-3C Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-3C Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.13 AOC-3D – Gasoline Fueling Area

6.2.13.1 Description

AOC-3D is located in the northeastern portion of Parcel 3. A 2,000-gallon unleaded gasoline UST was removed from this area in 1987. Details regarding the historical operation of this UST were presented in the SIR as potential AOC-39.

6.2.13.2 Historical Sampling Results

During the SI, one test trench and four soil borings were completed in this AOC. Evidence of OLM was identified in the test trench at depths ranging from 5 to more than 8 feet bgs. No evidence of OLM or TLM was identified in the four borings conducted in AOC-3D during the SI.

Two soil samples, identified as SB-39A-1.0-2.0 and SB-39C-1.5-2.0 were collected and analyzed for VOCs+15. Sample SB-39A-1.0-2.0 was also analyzed for SVOCs+25, metals, cyanide, PCBs and TPH.

The only exceedance detected in the soil samples collected from this AOC during the SI was the concentration of benzene detected in sample SB-39C-1.5-2.0. Concentrations of the remaining constituents analyzed during the SI were below NJDEP SCC in this AOC.

6.2.13.3 Remedial Investigation Results

During the RI, three soil borings and two monitoring well pairs were completed in AOC-3D. The soil borings, identified as SB-3D-01 through SB-3D-03 extended to 4 feet bgs. The soil borings for the two deep monitoring wells (MW-6B and MW-8B) extended to 26 feet bgs. No evidence of OLM or TLM was identified in the borings conducted in AOC-3D during the RI.

One depth interval was sampled at each of these locations. Locations SB-3D-02 and SB-3D-03 were resampled because insufficient sample material was obtained during the initial sampling at these locations. Therefore each of these sample intervals is reflected by two separate samples identified on Table 6-2. The samples were analyzed for VAHs and PAHs. In addition, a duplicate sample was collected from SB-3D-02 at 3.0 to 3.5 feet bgs and analyzed for VOCs+15.

The benzene concentration detected in the sample from SB-3D-01 exceeded the NJDEP SCC for this compound. None of the other VOCs were detected at concentrations above the NJDEP SCC in this AOC. PAH concentrations in samples from SB-3D-01 and SB-3D-03 exceeded the NJDEP SCC. PAH concentrations were below the NJDEP SCC in the sample from SB-3D-02.

6.2.13.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.13.5 AOC-3D Conclusions and Recommendations

AOC-3D Major Utilities

No major underground utilities have been identified traversing this AOC.

AOC-3D OLM and TLM

As summarized on Table 6-1, of the 9 soil borings and 1 test trench conducted in this AOC, 1 boring encountered OLM and none encountered TLM. Two of the borings in this AOC penetrated the peat layer. OLM was not encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3D Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, six soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene concentrations reported in two samples exceeded the RDC and IGW SCC: SB-39C (1.5-2.0) and SB-3D-01 (3.0-3.5). The concentration reported in SB-39C (1.5-2.0) also exceeded the NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, four soil samples from this AOC were analyzed for SVOCs or PAHs. PAH concentrations detected in two of the samples exceeded their respective RDC and NRDC SCC. None of the PAH concentrations reported in the samples from this AOC exceeded the IGW SCC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, one soil sample was collected from this AOC and analyzed for TAL inorganics. This sample exhibited no exceedances.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

One samples collected in this AOC exhibited a benzene concentrations more than 10 times its SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

None of the soil samples collected in this AOC exhibited contaminant concentrations more than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-3D Ground Water

Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS. Two pairs of ground water monitoring wells were installed in this AOC: MW-6A/MW-6B and MW-8A/MW-8B. The samples collected from the shallow monitoring wells (MW-6A and MW-8A) exhibited benzene concentrations above the GWQS. The benzene concentration reported in the samples from MW-8B exceeded the GWQS during the first round of sampling but was not detected during the second round. Several PAHs were detected above the ISC in the sample from MW-8A collected during the SRI. Ground water sampling results indicate that organic ground water contamination is present above the peat layer. The single exceedance noted in MW-8B, below the peat layer, will be confirmed during future sampling activities.

AOC-3D Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.14 AOC-3E – Compressor House Area

6.2.14.1 Description

AOC-3E is located in the northwestern portion of Parcel 3. This structure was constructed in 1930 and was removed after 1985 during facility demolition. Details regarding this structure were presented in the SIR as potential AOC-41.

6.2.14.2 Historical Sampling Results

No historical sampling was conducted in this area.

6.2.14.3 Remedial Investigation Results

During the RI, four soil borings were completed in AOC-3E. The soil borings, identified as SB-3E-01 through SB-3E-04, extended from 4 to 6 feet bgs. Evidence of OLM was identified in one of the borings conducted in AOC-3E during the RI (SB-

3E-01) at approximately 4 to more than 6 feet bgs. No evidence of TLM was identified in the four borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3.

Two soil samples were collected from each of the soil borings for a total of eight soil samples from this AOC. The deep soil sample at each location and two of the shallow soil samples were analyzed for VAHs. Samples from SB-3E-01, SB-3E-02 and SB-3E-03 were also analyzed for PAHs. All eight soil samples from this AOC were analyzed for PPL metals and cyanide.

Concentrations of benzene and benzo(a)pyrene exceeded the NJDEP SCC in samples from SB-3E-01. Concentrations of lead in the shallow sample from SB-3E-03 and mercury in the shallow sample from SB-3E-02 exceeded their respective NJDEP SCC. None of the remaining analytes were detected in soil samples from this AOC at concentrations above the NJDEP SCC.

6.2.14.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.14.5 AOC-3E Conclusions and Recommendations

AOC-3E Major Utilities

No major underground utilities have been identified traversing this AOC.

AOC-3E OLM and TLM

As summarized on Table 6-1, of the four soil borings conducted in this AOC, one encountered OLM and none encountered TLM. None of the borings in this AOC penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3E Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, six soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene concentrations reported in two samples exceeded the IGW SCC: SB-3E-01 (1.5-2.0 and 5.5-6.0). The concentration reported in SB-3E-01 (1.5-2.0) also exceeded the RDC SCC.

The results were below the NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, five soil samples from this AOC were analyzed for SVOCs or PAHs. The concentrations of one PAH, benzo(a)pyrene, detected in one of the samples exceeded its RDC and NRDC SCC. None of the PAH concentrations reported in the samples from this AOC exceeded the IGW SCC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, eight soil samples were collected from this AOC and analyzed for TAL inorganics. Concentrations of metals exceeded the SCC in two samples. These included lead only in SB-3E-04 (1.0-1.5) and mercury only in sample SB-3E-02 (1.5-2.0). Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the remainder of the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

None of the soil samples collected in this AOC exhibited contaminant concentrations more than 10 (or 100) times their respective SCC.

None of the soil samples collected in this AOC exhibited contaminant concentrations more than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-3E Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-3E Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.15 AOC-3F – Stockpile Area

6.2.15.1 *Description*

AOC-3F is located in the southwestern portion of Parcel 3. A stockpile, suspected to have been coal or coke, was observed in a historical aerial photograph of the area dated 1943. This area was identified in the SIR as potential AOC-49.

6.2.15.2 Historical Sampling Results

No historical sampling was conducted in this AOC.

6.2.15.3 Remedial Investigation Results

During the RI, four soil borings were completed in AOC-3F. The soil borings, identified as SB-3F-01 through SB-3F-04, extended from 4 to 5 feet bgs. Evidence of OLM was identified in one of the borings conducted in AOC-3F during the RI at depths ranging from approximately 3 to 3.5 feet bgs. No evidence of TLM was identified in the four borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3.

One surface and nine subsurface soil samples were collected from this AOC. Soil samples from this AOC were analyzed for VAHs and SVOCs+25. Concentrations of one or more VAHs and one or more PAHs exceeded the NJDEP SCC in samples from soil borings SB-3F-02, SB-3F-03 and SB-3F-04. Concentrations of non-PAH SVOCs (i.e. the SVOCs that are not included in the PAH scan) were below the NJDEP SCC in all of the samples from this AOC.

6.2.15.4 Supplemental Remedial Investigation Results

This AOC was not investigated during the SRI.

6.2.15.5 AOC-3F Conclusions and Recommendations

AOC-3F Major Utilities

No major underground utilities have been identified traversing this AOC.

AOC-3F OLM and TLM

As summarized on Table 6-1, of the four soil borings conducted in this AOC, one encountered OLM and none encountered TLM. None of the borings in this AOC penetrated the peat layer. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3F Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, seven soil samples were collected from this AOC and analyzed for VAHs. Benzene concentrations reported in four samples exceeded the IGW SCC: SB-3F-02 (1.5-2.0 and 4.0-4.5), SB-3F-03 (3.0-3.5) and SB-3F-04 (1.5-2.0) The benzene concentration reported in SB-3F-03 (3.0-3.5) also exceeded the RDC and NRDC SCC. The results were below the NRDC SCC. Sample SB-3F-03 (3.0-3.5) also exhibited concentrations of ethylbenzene and total xylenes above their respective IGW SCC but below the RDC and NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, eight soil samples were collected from this AOC and analyzed for SVOCs. PAH concentrations reported in five of the samples exceeded the RDC and NRDC SCC. PAH concentrations reported in one sample, SB-3F-03 (3.0-3.5) also exceeded the IGW SCC. No other SVOC exceedances were reported in the soil samples from this AOC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. None of the soil samples collected from this AOC were analyzed for inorganics.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

One sample collected from this AOC exhibited a benzene concentration more than 10 times its SCC. Three samples collected in this AOC exhibited PAH concentrations more than 10 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One sample collected from this AOC, SB-3F-03 (3.0-3.5) exhibited benzene and PAH concentrations greater than 100 times their respective SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg.

One sample, SB-3F-03, exhibited a total organic compound concentration greater than 10,000 mg/kg.

AOC-3F Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-3F Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.2.16 AOC-3G – Gas Storage Holder No. 2

6.2.16.1 Description

AOC-3G is located in the southern corner of Parcel 3. This holder was previously closed in a manner similar to that described for Gas Holder No. 1 as discussed in Section 6.2.6.1. Details regarding this area were presented in the SIR as potential AOC-50.

6.2.16.2 Historical Sampling Results

During the SI, four soil borings were completed in this AOC. Two soil samples, identified as SB-50A 0.5-2.0 and SB-50A-4.0-4.5 were collected and analyzed for VOCs+15. In addition, the shallow sample was also analyzed for SVOCs+25, metals, cyanide, PCBs and TPH.

Concentrations of benzene and xylenes in exceeded the NJDEP SCC in sample SB-50A-4.0-4.5. None of the other analytes were detected at concentrations above the NJDEP SCC in this AOC.

6.2.16.3 Remedial Investigation Results

During the RI, two soil borings were completed and sampled in AOC-3G. The soil borings both extended to 6 feet bgs. Evidence of OLM was identified in one of the borings conducted in AOC-3G during the RI at depths ranging from approximately 0.5 to greater than 6 feet bgs. No evidence of TLM was identified in the two borings conducted in this area during the RI. Table 6-1 presents a summary of OLM and TLM reported at the Site. Figure 6-1 presents the estimated horizontal extent of OLM and TLM observed on Parcel 3.

Three soil samples were collected from each of these borings at the 0.0- to 0.5-, 1.5- to 2.0- and 5.0- to 5.5-foot depth intervals. The shallow and deep samples were analyzed for PAHs. The intermediate and deep samples were analyzed for VAHs.

The benzene concentration detected in the deepest sample from SB-3G-01 and benzo(a)pyrene concentration in the shallow sample from this location exceeded their respective NJDEP SCC. None of the other analytes were detected at concentrations above the NJDEP SCC in this AOC.

6.2.16.4 Supplemental Remedial Investigation

During the SRI, one direct push boring was completed in AOC-3G. The purpose of this boring was to delineate soil conditions west of the former Gas Holder No. 2. The soil boring was advanced to the top of the peat layer. No evidence of OLM or TLM was detected in the boring. Two soil samples were collected from SB-3G-03 for laboratory analysis of VAHs, PAHs, and TAL inorganics. The sample intervals were 3.0 to 4.0 feet and 12.0 to 13.0 feet bgs. Benzene was detected in sample SB-3G-03 (3.0-4.0) at a concentration above the NJDEP SCC. The remaining results were below the NJDEP SCC.

6.2.16.5 AOC-3G Conclusions and Recommendations

AOC-3G Major Utilities

No major underground utilities have been identified traversing this AOC.

AOC-3G OLM and TLM

As summarized on Table 6-1, of the seven soil borings and two test trenches conducted in this AOC, two borings encountered OLM and none encountered TLM. One of the borings in this AOC penetrated the peat layer. OLM was not encountered below the peat layer in this AOC. The extent of OLM and TLM encountered at the Site is shown on Figure 6-1.

AOC-3G Soil

Figure 6-15 identifies soil samples collected on Parcel 3 that exhibited VOC concentrations above the SCC. During the investigations, eight soil samples were collected from this AOC and analyzed for VOCs or VAHs. Benzene concentrations reported in four samples exceeded the IGW SCC: SB-50A (4.0-4.5), SB-3G-01 (5.0-5.5), SB-3G-03 (3.0-4.0 and 12.0-13.0). The concentration reported in SB-3G-03 (3.0-4.0) also exceeded the RDC SCC but was below the NRDC SCC. The concentrations reported in SB-50A (4.0-4.5) and SB-3G-03 (12.0-13.0) also exceeded the RDC and NRDC SCC. No other VOC exceedances were reported in the soil samples from this AOC.

Figure 6-16 identifies soil samples collected on Parcel 3 that exhibited SVOC concentrations above the SCC. During the investigations, seven soil samples were collected from this AOC and analyzed for SVOCs or PAHs. One sample exhibited

on PAH, benzo(a)pyrene, at a concentration above its RDC and NRDC SCC. No other SVOC exceedances were reported in the soil samples from this AOC.

Figure 6-17 identifies soil samples collected on Parcel 3 that exhibited concentrations of inorganics above the SCC. During the investigations, three soil samples were collected from this AOC and analyzed for TAL inorganics Concentrations of cyanide and the other metals analyzed were below the NJDEP SCC in the samples from this AOC.

At the request of NJDEP, this RIR identifies analytical results that exceed 10 and 100 times their respective criteria as well as 1,000 mg/kg total VOCs and 10,000 mg/kg total organics. Figure 6-18 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 10 times their respective SCC. Figure 6-19 identifies soil samples collected on Parcel 3 that exhibited concentrations of any parameters that were more than 100 times their respective SCC. Figure 6-20 identifies soil samples collected on Parcel 3 that exhibited total VOC concentrations greater than 1,000 mg/kg. Figure 6-21 identifies soil samples collected on Parcel 3 that exhibited total concentrations of organic compounds, as the sum of VOCs and SVOCs, greater than 10,000 mg/kg.

Two samples collected in this AOC exhibited benzene concentrations more than 10 times its SCC. Results for the remaining parameters and samples from this AOC were less than 10 times their respective SCC.

One sample collected from this AOC, SB-50A (4.0-4.5) exhibited a benzene concentration greater than 100 times its SCC. Results for the remaining parameters and samples from this AOC were less than 100 times their respective SCC.

None of the samples from this AOC exhibited total VOC concentrations greater than 1,000 mg/kg or total organic compound concentrations greater than 10,000 mg/kg.

AOC-3G Ground Water

No ground water monitoring wells were installed in this AOC. Figure 6-7 identifies ground water samples collected at the Site that exhibited analyte concentrations above their respective GWQS.

AOC-3G Recommendations

PSEG SC recommends no further investigation of this AOC. Remediation of the contamination identified here will be discussed in the RASR.

6.3 SITE-WIDE OR OTHER REMEDIAL INVESTIGATION ACTIVITIES

6.3.1 Applicable Data Quality Objectives

The following DQOs apply to site-wide conditions.

1 What is the lateral extent of the peat layer underlying the fill materials across much of the Site?
2 What is the lateral extent of NAPLs detected on the Site?
3 What is the horizontal and vertical extent of Site soil contamination?
4 What is the overall concentration of Site-related contaminants?
5 What is the extent of ground water contamination?
7 Are Site conditions favorable for natural attenuation of the organic ground water contaminants?
8 What is the horizontal extent of ground water contamination along the down gradient Site boundary?
9 What is the vertical extent of ground water contamination at the Site?
17 What is the potential for monitored natural attenuation to serve as a remedial alternative for ground water at the Site?

6.3.2 Site-Wide Soil Evaluation

6.3.2.1 Peat Layer

Lateral Extent of Peat Layer

As noted under DQO-1, one of the goals of the RI was to assess the lateral extent of the peat layer underlying the fill materials across the site. The peat layer was

encountered in 128 of the 275 soil borings and 14 deep monitoring wells drilled during the SI, RI, SRI and geotechnical evaluation. The peat layer was encountered at depths ranging from 3.5 feet bgs at SB-3F-03 and SB-3F-04 to 17 feet bgs at geotechnical boring GB-01. Table 6-4 presents a summary of the depths and calculated elevations at which the peat layer was encountered.

The fact that a given soil boring did not encounter the peat layer does not necessarily indicate the absence of the peat layer at that location. Based on Site-wide data the borings that extended to at least 10 feet bgs in the eastern portion of the Site and to at least 12 feet bgs in the western portion of the Site, typically were expected to encounter the peat layer. A total of 115 soil borings and deep well borings extended to at least 10 feet bgs. The peat layer was encountered in 73 of these locations.

The peat layer was not encountered in 42 borings that extended to 10 feet or greater in depth. Fourteen of these borings were located in the western-most portions of the Site, in AOC-1A, AOC-1C and AOC-1D. Based on data from other borings in this AOC, the top of peat layer is believed to occur at 12 to 16 feet bgs and is roughly 4 to 7 feet thick. Therefore, the fact that these 14 borings did not encounter the peat layer does not necessarily indicate that the layer is absent in this area.

Based on the geologic cross-sections and strata encountered, two of the borings that did not encounter the peat layer at expected depths (SB-2A-15 and SB-2D-03) appear to be located in areas of down cutting by historical stream channels. It is uncertain whether the peat layer was partially or completely breached in these areas.

The peat layer does not appear to be present in the locations of the remaining 22 soil borings that extended to at least 10 feet bgs. One of these borings, SB-21A, was completed in the area of a former tar tank near the northwestern edge of AOC-2D. The remaining borings were located in the eastern half of Parcel 2:

Based on these observations, it appears that the peat layer pinches out in the eastern-most portion of the site. The peat layer does not appear to be present beneath the active portion of Parcel 2, east of a line extending roughly northeast from the end of Charlotte Avenue.

During the SI, SSI, RI, SRI and geotechnical evaluation 68 soil borings fully penetrated the peat layer. The thickness of the peat layer ranged from 0.1 feet at BIO-25C to 10.4 feet at SB-57A. The thickness of the peat layer encountered at each of these locations is summarized on Table 6-4.

In conjunction with field activities performed during the SRI, PSEG SC completed a series of soil borings to be used to develop a three-dimensional model of the Site. Because the sampling activities were not conducted as part of the RI or SRI to delineate specific AOCs, the resultant analytical data are not discussed in this report.

Vertical Conductivity of Peat Layer

The original RIWP included three Shelby tube soil samples from the peat layer for analysis of vertical hydraulic conductivity. One Shelby tube sample was to be collected from the peat layer where it was encountered in each of the three deep monitoring wells installed during the RI (MW-6B, MW-7B and MW-8B). During the RI, this aspect of the sampling program was modified. Samples of the peat were collected at MW-6B, MW-8B and in the deep soil boring SB-01-DEEP. The peat layer was not encountered at MW-7B and therefore could not be sampled at this location. In addition, Shelby Tube samples were also collected from the sediments below the peat layer to assess the vertical hydraulic conductivity of the deeper zone.

The Shelby tube samples were submitted to Sor Testing Laboratories, Inc. (Sor), of Cedar Grove, New Jersey, for analysis of vertical hydraulic conductivity. Measured vertical conductivities for the peat layer and underlying sediments are summarized on Table 6-5. Appendix H contains a copy of the report prepared by Sor.

The vertical hydraulic conductivities measured in the three peat layer samples collected during the RI were consistent with the four samples collected during the SI. The measured vertical hydraulic conductivities ranged from 3.8×10^{-7} centimeters per second (cm/sec) in the peat sample from MW-3B (collected during the SI) to 2.0×10^{-6} cm/sec in the peat sample from soil boring SB-01-DEEP collected during the RI. These conductivities fall within the range typically exhibited by clay (i.e. 10^{-6} to 10^{-9} cm/sec). These results indicate that, where it is present, the peat layer is acting to retard vertical migration of ground water and contaminants.

6.3.2.2 Extent of Non-Aqueous Phase Liquids

As noted under DQO-2, one of the goals of the RI was to evaluate the lateral extent of NAPLs across the Site. NAPLs consisting of OLM and/or TLM were encountered in soils at 124 of the 281 soil borings, deep well borings and test trenches completed during the SI RI, and SRI at the Site. Five of the borings and five of the test trenches encountered both TLM and OLM. Table 6-1 presents a summary of depths and thicknesses of OLM and TLM encountered in the soil borings and test trenches.

OLM was encountered in 60 borings and test trenches. Depths to the OLM ranged from 0 feet (surface) at MW-5B to 20 feet bgs at SB-01-DEEP. Observed OLM thicknesses ranged from 0.25 feet at SB-15D and SB-20A to 32 feet at MW-2C.

TLM was observed in 35 borings and test trenches. Depths to the TLM ranged from 8.0 feet bgs to 12.0 feet bgs at SB-1D-06. Observed TLM thicknesses ranged from 0.1 feet in SB-2B-06 to greater than 9 feet at SB-TS-07.

Figure 6-1 presents the approximate lateral extent of NAPLs identified as OLM and TLM encountered at the Site. NAPLs were encountered in soil borings and test trenches across most of the southern portion of Parcel 1 and the western portion of Parcel 2. NAPLs were identified in generally isolated areas on Parcel 3. The greatest accumulations identified on Parcel 3 are located in the former Processing Area, AOC-3B.

In addition to the AOC-specific soil borings, PSEG SC completed 47 soil borings in areas not associated with AOCs to obtain supplemental data for construction of a three-dimensional model of the Site. Fifteen of these borings encountered OLM and none encountered TLM. Of these 47 borings, 39 penetrated the peat layer. OLM was not encountered below the peat layer in these areas. Figure 6-1 includes data from these non-AOC-specific soil borings to depict the extent of OLM and TLM at the Site.

6.3.2.3 Overall Concentration of Site-Related Contaminants

As specified in DQO-4, one of the goals of the RI was to assess the overall concentration of Site-related contaminants identified in the soil. During the SI and RI, the primary constituents identified at concentrations above NJDEP SCC were VAHs and PAHs. Concentrations of several other constituents exceeded the

NJDEP SCC in limited areas across the Site. These constituents included styrene, PCBs, arsenic, beryllium, lead, mercury and nickel.

VAHs were analyzed in a total of 271 samples during the SI and RI. VAHs were detected in 205 samples. Reported total VAH concentrations ranged from below the method detection limit (MDL) in 66 samples to a maximum of 5,282 mg/kg in the soil sample from the 2.5- to 3.0-foot depth interval at soil boring SB-3B-09. The highest total VAH concentrations appear to be associated with AOC-1A, AOC-2A, AOC-2B, AOC-2D, AOC-2E, AOC-3B and AOC-3F.

PAH compounds were analyzed in a total of 280 samples during the SI, RI and SRI. These include samples that were analyzed for either PAHs or SVOCs. PAHs were detected in 256 samples. Reported total PAH concentrations ranged from below the MDL in 24 samples to 13,776 mg/kg in the soil sample from the 2.5- to 3.0-foot depth interval at soil boring SB-3B-09. The highest total PAH concentrations were associated with the same AOCs as those identified above for VAHs.

Because most of the soil sample locations were biased towards contaminated areas, calculation of an unweighted average concentration for the constituents detected would not reflect overall site conditions. Further analysis, such as three-dimensional modeling will be necessary to provide volumetric calculations necessary to assess the average concentrations in soil across the Site.

6.3.3 Ground Water Investigation

6.3.3.1 Historical Sampling Results

Five pairs of ground water monitoring wells were installed as part of the SSI. The well pairs, identified as MW-1A/1B through MW-5A/5B were installed to assess ground water quality above and below the peat layer across the Site. At four locations, the shallow well, identified by the suffix "A" was single-cased and screened above the peat layer and the deep well, identified by the suffix "B" was double-cased and screened below the peat layer. The peat layer was not encountered at the location of the background monitoring well pair MW-1A/1B. Therefore, these wells were screened at depths equivalent to the other wells across the Site. Details regarding well installation and sampling activities as well as the analytical results are presented in the RIWP (HLA, 1999b).

Results of the sampling performed during the SSI indicated that ground water across most of the Site contains benzene, several inorganics, ammonia and TDS at concentrations above the NJDEP GWQS. The highest concentrations of these substances and concentrations of four other VOCs above the GWQS were detected in ground water samples from monitoring wells MW-2A and MW-2B.

6.3.3.2 Remedial Investigation

Monitoring Well Installation

During the RI, three additional well pairs were installed to assess conditions at two former UST areas. Well pair MW-7A/7B was installed immediately west of (hydraulically downgradient from) the UST area in AOC-2C. Five USTs were removed from this area during the SI. Well pairs MW-6A/6B and MW-8A/8B were located to the east and west of the historical location of the UST in AOC-3D. During the SI, PSEG SC determined that this UST had been removed previously. During the RI, monitoring well pair MW-6A/6B was originally identified as MW-9A/9B. Therefore, certain of the data obtained during the RI used this erroneous designation.

The intermediate depth monitoring wells (MW-6B, MW-7B and MW-8B) were double-cased to seal off the peat layer. At each location, an 8 ¼-inch inside diameter hollow stem auger (HSA) was advanced to the top of the peat layer. A 6-inch diameter steal casing was inserted through the center of the HSA and the annulus was grouted to the surface using a cement/bentonite slurry. The grout was allowed a minimum of 24 hours to set and the boring was advanced to completion depth using 6-inch diameter rotary drilling techniques.

Each intermediate depth monitoring well was constructed using 2-inch inside diameter (I.D.), flush-joint, threaded PVC with a 10-foot section of 0.010-inch factory slotted screen. The annular space was filled to 2 feet above the top of the screen with Grade 1 Jessie Morie filter sand. A layer of Grade 00 sand was placed above the filter sand. The annulus was then grouted to approximately one foot bgs with cement/bentonite slurry. The top of the well was completed with a flush mount or locking standpipe set in pre-mixed concrete. Appendix I presents copies of the

monitoring well logs. Appendix J presents copies of the drilling permits and well completion records. Monitoring well construction details are presented on Table 6-6.

On December 22, 1999, the ground water monitoring wells were developed. Well development was performed in accordance with NJDEP requirements and PSEG SC's SOP No. 530 for well development. Well development water was containerized in 55-gallon drums and staged onsite for disposal.

6.3.3.3 Supplemental Remedial Investigation

During the SRI, two additional well pairs were installed to investigate the downgradient extent of affected ground water at the Site. Well pair MW-9A/MW-9B was installed immediately south of the relieving platform area (AOC-1D). Well pair MW-10A/MW-10B was located near the northwestern corner of the Site on Parcel 1. Two deep wells were installed to investigate the vertical extent of affected ground water. Monitoring well MW-2C was clustered with existing well pair MW-2A/MW-2B and monitoring well MW-3C was clustered with existing well pair MW-3A/MW-3B

The intermediate depth monitoring wells (MW-9B, and MW-10B) were double-cased to seal off the peat layer. At each location, an 8 ¼-inch inside diameter HSA was advanced to the top of the peat layer. A 6-inch diameter steal casing was inserted through the center of the HSA and the annulus was grouted to the surface using a cement/bentonite slurry. The grout was allowed a minimum of 24 hours to set and the boring was advanced to completion depth using 6-inch diameter rotary drilling techniques.

The deep monitoring wells (MW-2C and MW-3C) were triple-cased to seal off the peat layer and a second confining layer, if any, that did not exhibit any impacts based on field observations and screenings with a PID.

Each monitoring well was constructed using 2-inch I.D., flush-joint, threaded PVC with a 10-foot section of 0.010-inch factory slotted screen. The annular space was filled to 1 foot above the top of the screen with Grade 1 Jessie Morie filter sand. A 1-foot layer of Grade 00 sand was placed above the filter sand. The annulus was then grouted to approximately one foot bgs with cement/bentonite slurry. The top of the well was completed with a flush mount or locking standpipe set in pre-mixed concrete. Appendix I presents copies of the monitoring well logs. Appendix J

presents copies of the drilling permits and well completion records. Monitoring well construction details are presented on Table 6-6

On August 7, 2001, the six newly installed ground water monitoring wells were developed. Well development was performed in accordance with NJDEP requirements and PSEG SC's SOP No. 530 for well development. Well development purge water was containerized and in project labeled 55-gallon drums and staged onsite for disposal.

Water Level Gauging

Water levels were gauged on January 12, 2000 and March 15, 2000. Table 6-7 presents a summary of measured depths to ground water and calculated ground water elevations. During the SRI, two synoptic rounds of ground water levels were recorded on August 20 and 21, 2001. One synoptic round was measured during low tide and the second round was measured during high tide. Two rounds of ground water levels were measured to assess the potential tidal influence of the Hackensack River on ground water flow and direction on the Site.

Ground Water Sampling

Between January 12 and 14, 2000, SD collected a round of ground water samples from the new and existing ground water monitoring wells. The wells were purged and sampled in accordance with the procedures specified in the RIWP. The ground water samples were submitted to Accutest Laboratory for analysis of TCL VOCs+10, TCL SVOCs+20, TAL inorganics, PCBs and general parameters identified in the RIWP. Appendix K contains copies of data recorded during field sampling activities. Appendix N of this RIR contains copies of the laboratory report summary sheets for the ground water samples analyzed. Table 6-8 presents a summary of the analytical results for the ground water samples.

The analytical results indicated 13 constituents at concentrations above the GWQS in one or more of the ground water samples collected during the RI. These constituents consisted of five VOCs (VAHs and styrene), three metals (arsenic, iron and lead), Aroclor 1260, ammonia, nitrate, total nitrate/nitrite, and TDS. Table 6-9 identifies these exceedances and compares the results with exceedances identified in ground water samples collected during the SSI.

Because a NAPL was identified in the ground water sample from monitoring well MW-2B, this sample was not analyzed for dissolved phase constituents. Instead, the laboratory performed a fingerprint analysis of the aqueous solution containing NAPL to assess the possible source material. Results of the NAPL analysis are summarized on Table 6-10

During the SRI, SD collected a round of ground water samples on August 20 and 21, 2001, from the new and existing monitoring wells on Site. The wells were purged and sampled in accordance with the procedures specified in the SRIWP. The ground water samples were submitted to Accutest Laboratory for analysis of TCL VOCs+10, TCL SVOCs+20, TAL inorganics, PCBs and general chemistry parameters identified in the SRIWP. Appendix K contains copies of data recorded during field sampling activities. Appendix N contains copies of the laboratory report summary sheets for the ground water samples analyzed. Table 6-8 presents a summary of the analytical results for the ground water samples. The analytical results indicated 16 constituents at concentrations above the GWQS in one or more of the ground water samples collected during the SRI. These constituents consisted of five VOCs (benzene, bromodichloromethane, chloroform, ethylbenzene, and total xylenes, six metals (arsenic, cadmium, chromium, lead, Mercury and Nickel). Five general chemistry analytes were reported at concentrations above the GWQS in one or more of the ground water samples collected during the SRI. Theses analytes were ammonia, nitrate, total nitrate/nitrite, chloride and TDS. Table 6-9 identifies these exceedances and compares the results with exceedances identified in ground water samples collected during the SSI.

Because a NAPL was identified in the ground water sample from monitoring well MW-2A, this sample was not analyzed for dissolved phase constituents. Instead, the laboratory performed a fingerprint analysis of the aqueous solution containing NAPL to assess the possible source material. Results of the NAPL analysis are summarized on Table 6-10

6.3.4 Evaluation of Potential for Natural Attenuation

6.3.4.1 Natural Attenuation Evaluation Approach

During ground water sampling and laboratory testing, ground water samples were analyzed for various parameters to assess the potential for natural attenuation of the

organic constituents detected. The following natural attenuation parameters were analyzed in the field or laboratory during the RI and/or SRI:

Field Analyses

- pH
- Temperature
- Reduction/oxidation (Redox) potential
- Specific Conductance
- Dissolved oxygen
- Salinity

Laboratory Analyses

- Ferric Iron (Fe^{+3})
- Ferrous Iron (Fe^{+2})
- Nitrate
- Nitrite
- Sulfate
- Alkalinity
- Total Dissolved Solids
- Ammonia
- Chloride

Results for natural attenuation data obtained during the SSI, RI, and SRI are summarized on Table 6-11. SD evaluated the natural attenuation data with respect to considerations presented in the relevant articles presented in the NJDEP Site Remediation News issues dated March and August 1996. SD evaluated the potential for biodegradation by investigating the following conditions.

Initially SD evaluated temperature and pH to determine whether ground water conditions could support biological activities. As suggested in the NJDEP articles, ground water temperatures should be between 5 and 25°C and pH should be between 6 and 8 standard units.

SD then evaluated redox levels and the concentrations of four indicator parameters to assess the relative potential for biodegradation. For purposes of this evaluation, SD used the following general criteria specified by NJDEP as indicators of low, high

potentials for biodegradation; levels between the high and low were considered to be indicators of a moderate potential for biodegradation:

	Low	High
Redox potential (millivolts or mV)	<0	>800
Dissolved Oxygen (milligrams per liter or mg/L)	<0.1	>2
Alkalinity (mg/L)	<10	>50
Nitrate (mg/L)	<1	>10
Sulfate (mg/L)	<5	>10

SD also compared the relative concentrations of Fe^{+2} and Fe^{+3} iron. The production of Fe^{+2} within the plume is considered a potential indicator of biodegradation activities. Samples in which Fe^{+2} concentrations are higher than Fe^{+3} concentrations, were considered to indicate the production of Fe^{+2} and, therefore, an indicator of potential biodegradation.

The following conditions were identified as indicators of potential biodegradation:

- Inverse relationship between VOC and Dissolved Oxygen (DO) levels
- Depletion of DO, nitrate (NO_3) and sulfate (SO_4) in the plume
- Production of Fe^{+2} in the plume
- Dissolved oxygen concentrations greater than 0.1 mg/L
- Redox potential greater than 0 mV
- Alkalinity greater than 10 mg/L
- pH levels between 6 and 8 standard units
- Ground water temperature between 5 and 25 degrees Celsius (°C).

6.3.4.2 Natural Attenuation Data Evaluation Results

Table 6-11 presents the results of analyses of natural attenuation parameters and a summary of the evaluation results. Following is an initial evaluation of the results with respect to the potential for biodegradation.

With the exception of pH measured at monitoring wells MW-8A and MW-8B collected in January 2000 and in monitoring wells MW-2C and MW-3C in August

2001, temperature and pH results fell within the prescribed ranges. The pH readings for the samples from monitoring wells MW-8A and MW-8B were 4.02 and 4.08, respectively, indicating acidic conditions. The conditions at this well pair may be unfavorable to biodegradation. However, pH readings for these two wells during the sampling in August 2001 were nearly neutral indicating acceptable conditions. Only one round of pH readings have been collected for the deep monitoring wells MW-2C and MW-3C. The pH readings for these wells were 8.04 and 8.49 standard units, respectively. These results indicate slightly alkaline conditions. However, the ground water samples from these wells did not exhibit significant contaminant concentrations.

Redox, dissolved oxygen and nitrate data suggest moderate to low potential for biodegradation across the site. Total concentrations of alkalinity and sulfate suggest high potential for biodegradation. Fe^{+2} concentrations exceeded Fe^{+3} concentrations in samples from seven shallow wells and one deep well: MW-2A, MW-3A, MW-4A, MW-4B, MW-5A, MW-6A, MW-7A and MW-8A.

Dissolved oxygen data suggest moderate to high potential for biodegradation across the site, except for low potential in MW-1B. Alkalinity suggests a high potential for biodegradation across the Site. Nitrate suggests a moderate to low potential for Biodegradation across the Site, except in MW-1B where the potential is high. Sulfate suggests a high potential for biodegradation across the Site, except in MW's-2B, 4B, 3A and 4B where biodegradation has a low potential. Table 6-10 identifies each monitoring well with their results and potentials for biodegradation.

6.3.5 Mobilization and Utility Clearance

On December 3, 1999, SD and the geophysical survey subcontractor, USRadar Inc. (USRadar) of Matawan, New Jersey initiated site mobilization activities. During the SRI activities, SD retained Envirophysics, Inc., of Lawrenceville, New Jersey, as the geophysical survey contractor. This included identification of the proposed soil boring and ground water monitoring well locations. SD determined each location based on scaled measurements of the proposed sampling location map included in the RIWP and SRIWP. SD used a measuring wheel to determine the distance to each sampling location from two reference points in the field. SD marked each location using a wooden stake and/or paint depending on the location. Final locations were adjusted in the field where necessary to avoid potential obstacles.

SD screened each location during the RI for magnetic anomalies using a magnetic locator. USRadar performed a ground-penetrating radar (GPR) survey at each location and marked radar anomalies directly on the ground surface. USRadar initiated the GPR survey on December 3, 1999. Due to an equipment malfunction, USRadar was unable to complete the GPR survey on a portion of Parcel 1 on December 3. USRadar remobilized to the Site on December 8, 1999 to complete the GPR survey in this area. Envirophysics performed a GPR survey at each of the designated SRIWP exploratory boring locations on July 13, 2001.

USRadar and Envirophysics, marked the stakes and/or ground surface to indicate clear areas and anomalies identified. SD adjusted the soil boring locations to avoid magnetic and radar anomalies detected. Because the data generated during the magnetic and GPR surveys were limited to clearance of drilling locations, neither SD nor USRadar generated a separate report for this work.

On December 8, 1999, and July 16, 2001, SD and our direct-push drilling subcontractor, Environmental Field Services of Marlton, New Jersey mobilized equipment, materials, and personnel to conduct the soil boring program. Mobilization activities included repairing and relining the existing drum storage pad.

On December 20, 1999 and July 16, 2001, SD and our drilling contractor, Advanced Drilling, Inc. (Advanced), of Pittstown, New Jersey, mobilized to the Site to install ground water monitoring wells and to complete one cased soil boring. SD constructed a temporary decontamination pad for use with the heavy equipment.

6.4 SITE SURVEY

During the RI, a survey of the site was completed. The survey included a horizontal and vertical survey of the soil borings and monitoring wells installed during the RI. In addition, a two-foot ground surface contour survey was completed. A SD New Jersey-licensed Land Surveyor performed the survey. The New Jersey State Plane Coordinate System (NAD83) was used for horizontal control and the North American Vertical Datum (NAVD-29) was used for vertical control. Survey data were added to the existing base map for this project. Figure 6-22 presents a topographic map of the Site.

During the SRI activities, SD surveyed the horizontal and vertical survey of soil boring and monitoring well locations that were completed during the SRI phase of this project. A SD New Jersey-licensed Land Surveyor surveyed the well locations with a global positioning system (GPS) survey unit using sub-centimeter accuracy. Well elevations were determined using a survey level and rod. NAD83 was used for horizontal control and the NAVD-29 was used for vertical control. Survey data were added to the existing base map for this project.

6.5 RIVER BOTTOM SAMPLING

The six barge mounted riverbed borings, identified as RB-1 through RB-6 were completed and sampled in this AOC to assess whether OLM/TLM extends into or beneath the Hackensack River bed. No evidence of OLM was identified in river boring logs. TLM was observed during boring activities in RB-4 at 0.0-0.5 foot and RB-5 from the 0-1 foot intervals below the Hackensack River bed. Table 6-1 presents a summary of OLM/TLM reported in the soil borings. Figure 6-1 presents the estimated horizontal extent of OLM/TLM observed in the soil boring in Parcel 1. Table 6-12 presents a summary of the river bottom sample analytical results. These data were compared to NJDEP Freshwater Sediment Screening Levels. The sample from river boring RB-05 exhibited concentrations of several PAHs above current SCC. None of the remaining analytes tested exceeded the SCC. Nine additional step-out borings were completed to evaluate the horizontal extent of TLM in the river bottom. The step out locations were identified as RB-3B, RB-4B, RB-6, RB-7, RB-7A, RB-7B, RB-8, RB-9, RB-9B and RB-10, Figure 4-2 shows the locations of the barge-mounted soil borings completed in the river bottom. TLM was not detected in any of the step-out boring locations.

SECTION 7 SUMMARY AND CONCLUSIONS

7.1 GENERAL

The RI conducted at the Former West End Gas Works consisted of intrusive and non-intrusive investigatory activities that provided general information about three of the four parcels that comprise the Site, including the location of remnant MGP structures, the geologic and hydrogeologic conditions and the nature and extent of contamination. These topics are discussed below.

The RI scope of work was developed to evaluate conditions at the Site relative to the seven DQOs presented in the RIWP. The seven DQOs were developed such that, when fulfilled, the RI would be considered complete (i.e. the Site has been adequately characterized to the extent needed to select the most appropriate remedial action that will be protective of human health and the environment and satisfy applicable agency requirements.)

At the time this RIR was prepared, DQOs 1, 3, 4 and 5 had been fulfilled for Parcels 1, 2 and 3. DQO 2, which is to determine the lateral extent of NAPL at the Site has been nearly completed. The extent of NAPL has been determined on the three parcels that were investigated. However, data from the deep boring in AOC-1A and the two geotechnical borings conducted near the Hackensack River, suggest the presence of NAPL in the deeper zone in this area. The extent of NAPL below the peat layer in this area has not been determined. DQO 6, which is to identify the sources and extent of VAHs and styrene detected at monitoring well pair MW-2A/MW-2B, has been partially fulfilled and has been addressed to the extent necessary for selection of remedial alternatives. DQO 7, which is to evaluate whether conditions are favorable for natural attenuation of the organic ground water contaminants has been partially fulfilled through collection of site-specific data. The data generally suggest a moderate potential for biodegradation to occur at the Site.

7.2 REMNANT MANUFACTURED GAS PLANT STRUCTURES

Based on historical information, the locations of former MGP structures relative to the present Site conditions and property boundaries were investigated and are depicted on Figure 4-2. During the subsurface soil investigation program, the locations of certain remnant structures including building footers and foundations

were detected. These locations confirmed the historical building location information.

7.3 SITE GEOLOGY AND HYDROGEOLOGY

7.3.1 Geology

Bedrock at the Site consists of the Triassic Age Lockatong Formation. Figure 7-1 presents a detail from the Bedrock Geologic Map of Northern New Jersey (U.S.G.S., 1996) showing the location of the Site and bedrock mapped in the area.

Data from the soil borings conducted during the SI and RI were used to construct geologic cross-sections for the Site. As noted in Section 6.1.5.1 of the SIR, PSEG SC identified nine historical soil boring logs prepared during development activities on Parcel 1, in the area of the M&R station. PSEG SC has located records for an additional series of historical soil borings, conducted prior to construction of the Cyclic Catalytic Reforming Set on Parcel 2. Copies of site plans showing the historical soil borings are included in Appendix L. Locations of the historical soil borings are also shown on Figure 3-1.

One representative geologic cross section was prepared for each parcel. Figure 7-2 depicts the lines of each cross section. Cross sections for Parcels 1, 2 and 3 are shown on Figure 7-3, Figure 7-4, and Figure 7-5, respectively.

The Site is underlain by roughly 3.5 to 15 feet of fill material. The fill material typically consists of varying amounts of medium to coarse sand, CLM, ALM, and coal, brick and concrete fragments.

In most areas of the Site, the fill is underlain by the peat layer. In several areas, a thin layer of red silty sand or gray silty clay is encountered between the fill and peat layer. The silty sand was encountered in 25 of the 123 locations drilled during the RI and appears to be deposits associated with historical stream channels.

The peat layer is generally thickest near the Hackensack River and appears to pinch out in the easternmost portions of the Site. The peat layer is underlain by glacial material consisting primarily of silty sands and clays. This material extends at least 72 feet bgs in the western portion of the Site.

7.3.2 Hydrogeologic Framework

Ground water occurs at the Site in two zones, which are separated by the peat layer. Where it is present, the peat layer appears to serve as a confining layer, limiting hydraulic communication and contaminant migration between the zones above and below the peat. Hydraulic conductivities determined in five samples of the peat layer ranged from 3.8×10^{-7} to 2.0×10^{-6} cm/sec. Hydraulic conductivities calculated for materials above and below the peat layer were significantly higher, ranging from 1.0×10^{-4} to 1.85×10^{-1} cm/sec. In some areas the peat layer may have been thinned or breached during construction of MGP structures and by downcutting associated with historical stream channels in the area.

7.3.3 Ground Water Flow

During the RI, SD measured the depth to ground water in the 16 onsite monitoring wells on January 12 and March 15, 2000. During the SRI, SD measured the depth to ground water in the 22 onsite monitoring wells on August 20 and 21, 2001. These data were used to calculate ground water contour maps for the zones above (shallow) and below (deep) the peat layer. Figure 7-6 and Figure 7-7 present ground water contour maps calculated for the shallow zone on these two dates. Ground water contour maps for the deep zone are presented on Figure 7-8 and Figure 7-9. Figure 7-14 presents a hydrogeological conceptual model that depicts the relationship between the Site, the river and underlying geologic formations.

Ground water generally flows across the Site from west to east. The horizontal hydraulic gradient is relatively shallow across Parcel 2 at roughly 0.003. The horizontal hydraulic gradient is steeper on Parcel 1 at approximately 0.01. The water levels on Parcel 3 in AOC-3D, near the area near of former UST suggest a water table depression. The cause of this apparent anomaly is not known, however this depression likely reflects preferential drainage in this area associated with channels in the fill materials. Based on work performed during the SI, ground water near the river is tidally influenced.

As indicated on Table 6-7, ground water elevations are higher in the deep zone than the shallow zone at four of the ten well clusters. Data for the following well pairs suggest an upward hydraulic gradient: MW-2A/2B; MW-5A/5B; MW-6A/6B and MW-8A/8B.

7.4 NATURE AND EXTENT OF CONTAMINATION

Based on results of the SI and RI activities, VAHs and PAHs are present in soils across most of the Site at concentrations above the NJDEP SCC. Several other constituents consisting of styrene, PCBs, arsenic, beryllium, lead, mercury and nickel were detected in isolated areas of the Site.

Benzene concentrations exceed the GWQS in ground water across the Site. Other VOCs, including ethylbenzene, toluene, xylenes and styrene were detected in ground water samples from Parcel 1 at concentrations above the GWQS both above and below the peat layer.

NAPLs were detected across much of Parcel 1, the western half of Parcel 2 and in isolated areas on Parcel 3. Generally the NAPLs appear to be confined above the peat layer. However, evidence of NAPLs was encountered below the peat layer in the southwestern portion of Parcel 1.

7.5 DATA QUALITY OBJECTIVES

In accordance with the iterative DQO process described in the RIWP, PSEG SC has assessed the RI data obtained to determine whether the seven DQOs outlined in Section 4.2 of this RIR have been fulfilled. A summary of the findings related to each DQO, including how each was fulfilled, is presented below:

7.5.1 DQO 1

What is the lateral extent of the peat layer underlying the fill materials across much of the Site?

Data from soil borings conducted during the SI, SSI, geotechnical evaluation and RI were compiled to determine the lateral extent of the peat layer at the site. Based on these observations, the peat layer appears to underlie all but the easternmost portion of the Site as defined by the area east of a line extending roughly northeast from the end of Charlotte Avenue. Data from several borings suggest thinning and/or breaches of the peat layer in isolated areas. This DQO is fulfilled; no further investigation is recommended for this DQO.

7.5.2 DQO 2

What is the lateral extent of NAPLs detected on the Site?

Data from soil borings and test trenches conducted during the SI, SSI, geotechnical evaluation and RI were compiled to evaluate the lateral extent of the NAPL encountered at the Site. NAPL has been identified above the peat layer on the three parcels that were investigated (see Figure 6-1). Data from the geotechnical borings conducted near the Hackensack River, suggest the presence of NAPL in the deeper zone in this area. The extent of NAPL below the peat layer in this area has not been determined. PSEG SC plans to complete further delineation of the extent of NAPL below the peat layer on Parcel 1.

7.5.3 DQO 3

What is the horizontal and vertical extent of Site soil contamination?

Soil samples were collected to evaluate the extent of contamination in each of the AOCs identified. These data indicate that soil contamination is present across the entire Site and, in many areas, extends to the depth of the peat layer. For purposes of remedial alternative selection, this DQO has been fulfilled. No further investigation is recommended for this DQO.

7.5.4 DQO 4

What is the overall concentration of Site-related contaminants?

Soil samples were collected in numerous areas of the Site that had not been identified previously as potential AOCs or had not been previously sampled. The purpose of this sampling was to generate data necessary to evaluate the overall concentrations of Site-related contaminants. These data may be used to model overall Site conditions and to perform volumetric calculations in support of selection of treatment options. The data collection phase of this DQO has been completed to the extent practicable as part of this RI. Further analysis, such as three-dimensional modeling will be necessary to provide volumetric calculations necessary to assess the average concentrations in soil across the Site. This work should be performed in conjunction with selection and design of the final remedial alternatives for the Site. No further investigation is recommended for this DQO.

7.5.5 DQO 5

What is the extent of ground water contamination?

A total of 22 ground water monitoring wells have been installed and sampled at the Site. These included 10 wells installed during the SSI to evaluate overall ground water conditions 6 wells installed during the RI to assess conditions at former UST

areas and 6 wells installed during the SRI to investigate the vertical and downgradient extent of ground water contamination. Based data from these wells, ground water contamination appears to be present across the entire Site. The most significant concentrations of ground water contaminants are present on Parcel-1. This DQO is fulfilled. Following remediation through removal and containment of residual soil contamination and NAPLs, a well network should be designed, installed and monitored to confirm ground water remediation through natural attenuation processes and/or the need for further action. No further investigation is recommended for this DQO.

7.5.6 DQO 6

What are the sources and extent of VAHs and styrene detected at monitoring well pair MW-2A/MW-2B?

Based on data generated during this investigation, much of the contamination detected at this monitoring well pair appears to be associated with NAPL that is present in the southwestern portion of Parcel 2. The NAPL appears to be related to the area of the former tar tanks. For purposes of this RI and selection of remedial alternatives for this area, the sources and extent of ground water contamination has been determined in this area. No further investigation is recommended for this DQO.

7.5.7 DQO 7

Are Site conditions favorable for natural attenuation of the organic ground water contaminants?

During the SRI, additional natural attenuation data were collected during the ground water sampling event on August 20 and 21, 2001. Data for many of the wells screened below the peat layer (or equivalent depth where the peat layer was not present) or deeper generally indicated a moderate to high potential for biodegradation. This included data from monitoring wells MW-1B, MW-2C, MW-3B, MW-3C, MW-5B, MW-6B, MW-7B, MW-8B, MW-9B and MW-10B. Data from the remaining wells screened below the peat layer generally indicated a moderate to low potential for biodegradation. This included data from monitoring wells MW-2B, MW-4B. Data for wells screened above the peat layer generally indicated a relatively lower potential for biodegradation than those screened deeper. These results indicate a good potential for monitored natural attenuation to serve as a

remedial alternative for deep ground water at the Site. Shallow ground water will be addressed through removal and containment options. This DQO has been satisfied.

7.5.8 DQO 8

What is the horizontal extent of ground water contamination along the downgradient Site Boundary?

Affected ground water has been delineated along the downgradient Site boundary. Ground water contamination was detected in samples from monitoring wells MW-2A and MW-2B. Monitoring wells MW-9A and MW-9B delineate this contamination to the south and monitoring wells pair MW-10A and MW-10B delineate this contamination to the north. This DQO has been fulfilled. No additional ground water monitoring wells are recommended for this Site as part of the RI.

7.5.9 DQO 9

What is the vertical extent of ground water contamination at the Site?

Two deep ground water monitoring wells were installed to investigate the vertical extent of ground water contamination. The sample from MW-2C exhibited a benzene concentration slightly above the GWQS and therefore, is close to the edge of the zone of benzene-contaminated ground water at the Site. Benzene was not detected in the sample from MW-3C, indicating that the vertical extent of ground water contamination has been delineated. Two other compounds, bromodichloromethane and chloroform, were detected in the samples from these wells at concentrations above their respective GWQS. However, because these constituents have not been detected in the soils or in any of the other ground water samples from this Site, the occurrence of these two constituents is not attributed to a Site-related contamination source. This DQO has been fulfilled. No further investigation is recommended for this DQO.

7.5.10 DQO 10

What is the extent of soil contamination in AOC-1C?

Five soil borings were advanced and sampled in the metering and regulating station area. The boring locations in this area were restricted by numerous underground utilities including unmarked electric and gas lines. Analytical results reported in this area indicated benzene and PAH exceedances extend across this AOC. This DQO has been fulfilled. Due to numerous underground high-pressure gas lines and electrical conduits, no further investigation is recommended in this area.

7.5.11 DQO 11

What is the extent of contamination detected near the northern edge of AOC-1C?

Two additional offsite borings (SB-1C-07 and SB-1C-08) were completed north of AOC-1C during the SRI. Sampling results indicated no evidence of OLM or TLM. However, several PAHs and metals were detected at concentrations slightly above their RDC and NRDC SCC. However, the constituents detected in these samples are commonly associated both with historical MGP operations and historical railroad operations. This DQO has been fulfilled to the extent practicable at this Site. Because it is not practical to distinguish between these contaminant sources, it is not practical to delineate the horizontal extent of contamination associated with historical MGP operations beyond the northern boundary of Parcel 1. No further delineation of the northern extent of this AOC is recommended

7.5.12 DQO 12

Are elevated concentrations of benzene present in the soil in the northwestern portion of AOC-1C?

During the RI, one soil sample from soil boring SB-1C-01 exhibited a benzene concentration above the SCC. Soil boring SB-1C-01A was advanced and sampled at this location to assess the vertical extent of benzene in this area. Samples from 3.5 to 4.0 feet and 7.5 to 8.0 feet bgs were analyzed for VAHs. No exceedances were detected in the sample results. This DQO has been fulfilled. No further investigation is recommended for this DQO.

7.5.13 DQO 13

Does Site-related contamination extend offsite beyond the northern Site boundary of Parcel 2?

Four offsite soil borings, identified as SB-2A-23, SB-2A-24, SB-2B-21 and SB-2B-22, were advanced to the north of Parcel 2 to assess the potential for Site-related contaminants extending beyond the northern Site boundary. Two samples were collected from each boring. OLM was detected in one of the four borings, SB-2B-21. The two samples from SB-2A-23 exhibited benzene concentrations slightly above the IGW SCC but below the RDC and NRDC SCC. The two samples from SB-2A-24 and the shallow sample from SB-2B-21 exhibited PAH concentrations above the RDC and NRDC SCC but below the IGW SCC. The shallow sample from SB-2A-24 also exhibited concentrations of arsenic and lead above the RDC and NRDC SCC.

The deeper sample from SB-2B-21 and both samples from SB-2B-22 exhibited no exceedances of SCC. Based on these results, some contamination does extend offsite to the north. However, because it is not practical to distinguish between these contaminant sources, it is not practical to delineate the horizontal extent of contamination associated with historical MGP operations beyond the northern boundary of Parcel 1. This DQO has been fulfilled to the extent practicable. No further delineation of the northern extent of this AOC is recommended

7.5.14 DQO 14

What is the vertical extent of soil contamination detected below the peat layer in AOC-2D?

One boring, SD-2D-11, was advance in this area to determine the vertical extent of contaminants below the peat layer. Three soil samples were collected to address this DQO. Samples were collected from the 5.5- to 6.0-foot, 8.5- to 9.0-foot and 20.0- to 20.5-foot depth intervals for laboratory analysis of VAHs, PAHs and TAL inorganics. The two shallower samples were collected above the peat layer. These samples exhibited PAH exceedances of RDC and NRDC SCC. The sample from 8.5 to 9.0 feet also exhibited concentrations of benzene and three PAHs above their respective IGW SCC. No exceedances were detected in the sample from below the peat layer (20.0 to 20.5 feet bgs. The vertical extent of soil contamination has been delineated. This DQO has been fulfilled. No further investigation is recommended for this DQO.

7.5.15 DQO 15

Does Site-related contamination extend offsite beneath the intersection of Duffield and St. Pauls Avenue?

OLM and TLM were detected on soil boring completed on either side of Duffield Avenue on Parcels 1 and 2. Although OLM and/or TLM may extend beneath Duffield Avenue, active gas pipelines and other utilities located beneath this street prevent direct investigation or other activities. Intrusive activities are not feasible adjacent to the gas pipeline as disruption of the backfill could affect the integrity of the gas pipelines. Therefore, it is not technically practicable to remove OLM and/or TLM if it is present adjacent to the gas pipelines.

7.5.16 DQO 16

Is MGP contamination typically associated with historical gas holders present to the west of former Gas Holder No. 2?

During the SRI, soil boring SB-3G-03 was advanced and sampled in this area. Two samples were taken at the 3.0- to 4.0-foot and 12.0- to 13.0-foot depth intervals. No OLM or TLM was detected in this boring. However, benzene concentrations exceeded the RDC and IGW SCC in the shallow sample and exceeded the RDC, IGW and NRDC SCC in the deeper sample. These data indicate that constituents typically associated with MGP Sites have contaminated soils above the peat layer, west of Gas Holder No. 2. This DQO has been fulfilled. This area will be addressed during the remediation of Parcel 3. No further investigation is recommended for this DQO.

7.5.17 DQO 17

What is the potential for monitored natural attenuation to serve as a remedial alternative for ground water at the Site?

During the SRI, additional natural attenuation data were collected during the ground water sampling event on August 20 and 21, 2001. Data for many of the wells screened below the peat layer (or equivalent depth where the peat layer was not present) or deeper generally indicated a moderate to high potential for biodegradation. This included data from monitoring wells MW-1B, MW-2C, MW-3B, MW-3C, MW-5B, MW-6B, MW-7B, MW-8B, MW-9B and MW-10B. Data from the remaining wells screened below the peat layer generally indicated a moderate to low potential for biodegradation. This included data from monitoring wells MW-2B, MW-4B. Data for wells screened above the peat layer generally indicated a relatively lower potential for biodegradation than those screened deeper. These results indicate a good potential for monitored natural attenuation to serve as a remedial alternative for deep ground water at the Site. This DQO has been fulfilled. Shallow ground water will be addressed through removal and containment options.

7.5.18 DQO 18

Do river bottom sediments contain elevated concentrations of site-related contaminants that could pose a risk to the environment?

Six barge mounted river borings (RB–01 through RB-06) were advanced adjacent to the Site to assess whether the river bottom sediments contained elevated concentrations of Site-related contaminants that could pose a risk to the

environment. Analytical results for several PAHs and metals in the sediment samples exceeded the NJDEP Freshwater Sediment Screening Guidelines Lowest Effect Levels. The sample from location RB-05 exhibited concentrations of two metals (copper and lead), two PAHs (2-methylnaphthalene and naphthalene) at concentrations above the NJDEP Freshwater Sediment Screening Guidelines Severe Effect Levels. TLM was detected in samples from RB-4 and RB-5 located along the edge of the relieving platform. This DQO has been fulfilled. This area will be addressed by remedial actions associated with AOC-1D. No further investigation is recommended for this DQO.

7.5.19 DQO 19

If the river bottom sediments have been affected by site-related contaminants, what is the horizontal extent of the affected sediments?

A series of step-out borings was conducted to investigate the extent of TLM detected along the relieving platform. Data the step-out borings conducted in this area indicated that the TLM is limited to the area near the relieving platform. This DQO has been fulfilled.

7.5.20 DQO 20

Have river sediment conditions near the Site been adversely impacted due to contamination from other offsite source areas?

Data from the upstream river borings indicated copper, nickel and arsenic concentrations above the LEL for these metals. These data suggest limited contamination from other offsite source areas. This DQO has been fulfilled.

7.5.21 DQO 21

Does the OLM and/or TLM encountered at the Site extend into or beneath the riverbed?

A series of soil borings were completed through the riverbed near the relieving platform. Based on data from these borings TLM is present below the platform. The TLM extends between 15 and 30 feet beyond the current bulkhead line. Borings conducted further out into the river did not encounter TLM. OLM was not encountered in any of the river borings. This DQO has been fulfilled.

7.5.22 DQO 22

To what depth will it be necessary to drive pilings to construct a cut-off wall and to replace the relieving platform?

Based on the results of the geotechnical evaluation, it will be necessary to drive pilings approximately 35 to 40 feet into the underlying sediments to construct a cutoff wall. This depth is approximately 75 to 80 feet below existing grade at the Site. This DQO has been fulfilled.

SECTION 8 RECOMMENDATIONS

The objective of the RI was to collect the data required to: (1) select the most appropriate remedial actions that will be protective of human health and the environment, and (2) satisfy all applicable regulatory requirements. Specific objectives were to fulfill the 22 DQOs discussed in Section 4.2.

A RASR will be developed based on this RI. The RASR will address Site remedies that will remove the bulk of potential source materials from the Site. Once this has been completed, it is expected that ground water contamination will decline to acceptable concentrations through natural attenuation processes. This will be confirmed through further evaluation of data collected after the remedial action is implemented. A deed notice will be established for areas in which soil remains in place with contaminant concentrations above current NJDEP SCC. A CEA will be established for affected ground water. The CEA will remain in place until ground water contaminant concentrations decline below the GWQS and ISC. As part of the remedial action, a monitoring well network will be installed to demonstrate the natural attenuation of ground water contamination.

SECTION 9 REFERENCES

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TABLES

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TABLE 5.1
SUMMARY OF ANALYTICAL METHODS AND QUALITY ASSURANCE INDICATORS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Matrix	Number of Samples Per Matrix	Trip/Field Blanks & Duplicate Samples/Matrix	Parameters	Analytical Method Reference	Sample Preservation	Container Volume and Type	Holding Time [1]
Soil	28 VAHs	7 TB, 5 FB, 1 Duplicate	BTEX	SW846/8260	Methanol, Ice (4°C)	4 oz. Glass	14 days
	26 PAHs	1 Duplicate	PAHs	SW846/8270	Ice (4°C)	4 oz. Glass	14 days to extraction, 40 days to analysis
	25 TAL Inorganics	1 Duplicate	TAL Metals	SW846/6010, 7471	Ice (4°C)	4 oz. Glass or plastic	6 months (mercury 28 days)
			Cyanide	SW846/9010	$NaOH$, Ice (4°C)	1 liter	14 days
Ground Water	21 VOCs	2 TB, 2 FB, 1 Duplicate	VOCs +15	SW846/8260	HCl, Ice (4°C)	2 x 40 ml glass w/ septum	14 days
	21 SVOCs	2 TB, 2 FB, 1 Duplicate	SVOCs + 20	SW846/8270	Ice (4°C)	1 gallon amber glass	7 days to extraction; 40 days to analysis
	21 PCBs	2 TB, 2 FB, 1 Duplicate	PCBs	SW846/8082	Ice (4°C)	1 gallon amber glass	7 days to extraction; 40 days to analysis
	21 TAL Inorganics	2 TB, 2 FB, 1 Duplicate	PPL Metals	SW846/6010, 7470	HNO_3, Ice (4°C)	600 ml glass or plastic	6 months (mercury 28 days)
	21 General Chemistry	2 TB, 2 FB, 1 Duplicate	Alkalinity	EPA 310.1	Ice (4°C)	100ml glass or plastic	14 days
		2 TB, 2 FB, 1 Duplicate	Chloride	SW846/9056	Ice (4°C)	100ml glass or plastic	28 days
		2 TB, 2 FB, 1 Duplicate	Cyanide	SW846/9012A	$NaOH$, Ice (4°C)	500ml glass or plastic	14 days
		2 TB, 2 FB, 1 Duplicate	Ferrous Iron	SM18/3500FED	HNO_3, Ice (4°C)	100ml glass or plastic	6 months
		2 TB, 2 FB, 1 Duplicate	Ammonia	EPA 350.1	H_2SO_4, Ice (4°C)	500ml glass or plastic	28 days
		2 TB, 2 FB, 1 Duplicate	Nitrate	EPA 353.2/SM18/4500	Ice (4°C)	100ml glass or plastic	48 hours
		2 TB, 2 FB, 1 Duplicate	Nitrate + Nitrite	EPA 353.2	H_2SO_4, Ice (4°C)	100ml glass or plastic	28 days
		2 TB, 2 FB, 1 Duplicate	TDS	EPA 160.1		100ml glass or plastic	7 days
		2 TB, 2 FB, 1 Duplicate	Sulfate	SW846/9056	Ice (4°C)	100ml glass or plastic	28 days
	10 Sulfide	2 TB, 2 FB, 1 Duplicate	Sulfide	EPA 376.1	$NaOH$, Ice (4°C)	500ml glass or plastic	7 days
	1 PHC GC Fingerprint	None	PHC	SW846/8015M	Ice (4°C)	1 gallon amber glass	14 days
Sediment	21 VOCs	1 TB, 1 FB, 1 Duplicate	VOCs + 15	SW846/8260	Methanol, Ice (4°C)	4 oz. Glass	14 days
	21 SVOCs	1 Duplicate	SVOCs + 20	SW846/8270	Ice (4°C)	4 oz. Glass	14 days to extraction, 40 days to analysis
	21 PCBs	1 Duplicate	PCBs	SW846/8082	Ice (4°C)	1 gallon amber glass	7 days to extraction; 40 days to analysis
	21 PPL metals	1 Duplicate	TAL Metals	SW846/6010, 7471	Ice (4°C)	4 oz. Glass or plastic	6 months (mercury 28 days)
	21 Selected metals	1 Duplicate	TAL Metals	SW846/6010, 7471	Ice (4°C)	4 oz. Glass or plastic	6 months (mercury 28 days)
		1 Duplicate	Cyanide	SW846/9010	$NaOH$, Ice (4C)	1 liter	14 days
	21 TOC	1 Duplicate	TOC	SW846/415.1	H_2SO_4, Ice (4°C)	500ml glass or plastic	28 days

NOTES:

[1]	Holding time begins at time of sample collection
FB	Field blank
HCl	Hydrochloric acid
HNO_3	Nitric acid
NaOH	Sodium hydroxide
PCBs	Polychlorinated biphenyls
SVOCs	Semi-volatile organic compounds
PPL	Priority Pollutant List
TB	Trip Blank
TDS	Total dissolved solids
TOC	Total organic carbon
VAHs	Benzene, toluene, ethylbenzene and total xylenes
VOCs	Volatile organic compounds

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TABLE 5.2
FIELD RINSE BLANK AND TRIP BLANK SAMPLE ANALYTICAL RESULTS-SOIL BORING PROGRAM
REMEDIAL INVESTIGATION REPORT
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	FB080101	TRIP BLANK	FB080201	FB080301	TRIP BLANK	FB080601	FB080701	TRIP BLANK	FB080801	TRIP BLANK	FB	TB
Laboratory ID Number	E96137-5	E96137-6	E96137-12	E96240-4	E96240-5	E96463-4	E96463-12	E96463-5	E96605-3	E96605-5	E98322-14	E98322-16
Sampling Date	8/1/01	8/2/01	8/2/01	8/3/01	8/3/01	8/6/01	8/7/01	8/7/01	8/8/01	8/8/01	9/7/01	9/7/01
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
BTEX												
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes
ND - Not detected
ug/l - micrograms per liter

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TABLE 5.3
FIELD RINSE BLANK AND TRIP BLANK SAMPLE ANALYTICAL RESULTS - GROUND WATER SAMPLING PROGRAM
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	FIELD BLANK	TRIP BLANK	FB-2	FIELD BLANK-4	TRIP BLANK	FB082001	TRIP BLANK	FB082101	TRIP BLANK
Laboratory Identification	E61993-5	E61993-6	E62072-1	E62159-13	E62159-13	E97210-11	E97210-4	E97329-1	E97329-2
Date Sample Collected	1/12/00	1/12/00	1/13/00	1/15/00	1/14/00	8/20/01	8/20/01	8/21/01	8/21/01
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOCs									
Acetone	--	--	--	--	--	--	--	--	--
Benzene	--	--	--	--	--	--	--	--	--
Bromodichloromethane	--	--	--	--	--	--	--	--	--
Bromoform	--	--	--	--	--	--	--	--	--
Bromomethane	--	--	--	--	--	--	--	--	--
2-Butanone (MEK)	--	--	--	--	--	--	--	--	--
Carbon disulfide	--	--	--	--	--	--	--	--	--
Carbon tetrachloride	--	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--	--
Chloroethane	--	--	--	--	--	--	--	--	--
Chloroform	--	--	--	--	--	--	--	--	--
Chloromethane	--	--	--	--	--	--	--	--	--
Dibromochloromethane	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	--	--	--	--	--	--	--	--	--
1,2-Dichloroethane	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--
cis-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--
1,2-Dichloropropane	--	--	--	--	--	--	--	--	--
cis-1,3-Dichloropropene	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	--	--	--	--	--	--	--	--	--
Ethylbenzene	--	--	--	--	--	--	--	--	--
2-Hexanone	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone(MIBK)	--	--	--	--	--	--	--	--	--
Methylene chloride	--	--	--	--	2.4	--	--	--	--
Styrene	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	--	--	--	--	--	--	--	--	--
Tetrachloroethene	--	--	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	--	--	--	--	--	--	--	--
1,1,2-Trichloroethane	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	--
Vinyl chloride	--	--	--	--	--	--	--	--	--
Xylene (total)	--	--	--	--	--	--	--	--	--
Total TIC, Volatile	0	0	0	0	0	0	0	0	0
SVOCs									
Benzo(a)anthracene	--	NA	--	--	NA	--	NA	--	NA
Benzo(a)pyrene	--	NA	--	--	NA	--	NA	--	NA
Benzo(b)fluoranthene	--	NA	--	--	NA	--	NA	--	NA
Benzo(g,h,i)perylene	--	NA	--	--	NA	--	NA	--	NA
Benzo(k)fluoranthene	--	NA	--	--	NA	--	NA	--	NA
4-Bromophenyl phenyl ether	--	NA	--	--	NA	--	NA	--	NA
Butyl benzyl phthalate	--	NA	--	--	NA	--	NA	--	NA
2-Chloronaphthalene	--	NA	--	--	NA	--	NA	--	NA
4-Chloroaniline	--	NA	--	--	NA	--	NA	--	NA
Carbazole	--	NA	--	--	NA	--	NA	--	NA
Chrysene	--	NA	--	--	NA	--	NA	--	NA
bis(2-Chloroethoxy)methane	--	NA	--	--	NA	--	NA	--	NA
bis(2-Chloroethyl)ether	--	NA	--	--	NA	--	NA	--	NA
bis(2-Chloroisopropyl)ether	--	NA	--	--	NA	--	NA	--	NA
4-Chlorophenyl phenyl ether	--	NA	--	--	NA	--	NA	--	NA
1,2-Dichlorobenzene	--	NA	--	--	NA	--	NA	--	NA
1,3-Dichlorobenzene	--	NA	--	--	NA	--	NA	--	NA
1,4-Dichlorobenzene	--	NA	--	--	NA	--	NA	--	NA
2,4-Dinitrotoluene	--	NA	--	--	NA	--	NA	--	NA
2,6-Dinitrotoluene	--	NA	--	--	NA	--	NA	--	NA
3,3'-Dichlorobenzidine	--	NA	--	--	NA	--	NA	--	NA
Dibenzo(a,h)anthracene	--	NA	--	--	NA	--	NA	--	NA
Dibenzofuran	--	NA	--	--	NA	--	NA	--	NA
Di-n-butyl phthalate	--	NA	--	--	NA	--	NA	--	NA
Di-n-octyl phthalate	--	NA	--	--	NA	--	NA	--	NA
Diethyl phthalate	--	NA	--	--	NA	--	NA	--	NA
Dimethyl phthalate	--	NA	--	--	NA	--	NA	--	NA
bis(2-Ethylhexyl)phthalate	--	NA	--	--	NA	--	NA	--	NA
Fluoranthene	--	NA	--	--	NA	--	NA	--	NA
Fluorene	--	NA	--	--	NA	--	NA	--	NA
Hexachlorobenzene	--	NA	--	--	NA	--	NA	--	NA

NOTES
NA Not Analyzed
-- Not detected

TABLE 5.3
FIELD RINSE BLANK AND TRIP BLANK SAMPLE ANALYTICAL RESULTS - GROUND WATER SAMPLING PROGRAM
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	FIELD BLANK	TRIP BLANK	FB-2	FIELD BLANK-4	TRIP BLANK	FB082001	TRIP BLANK	FB082101	TRIP BLANK
Laboratory Identification	E61993-5	E61993-6	E62072-1	E62159-13	E62159-13	E97210-11	E97210-4	E97329-1	E97329-2
Date Sample Collected	1/12/00	1/12/00	1/13/00	1/15/00	1/14/00	8/20/01	8/20/01	8/21/01	8/21/01
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SVOCs (Continued)									
Hexachlorobutadiene	--	NA	--	--	NA	--	NA	--	NA
Hexachlorocyclopentadiene	--	NA	--	--	NA	--	NA	--	NA
Hexachloroethane	--	NA	--	--	NA	--	NA	--	NA
Indeno(1,2,3-cd)pyrene	--	NA	--	--	NA	--	NA	--	NA
Isophorone	--	NA	--	--	NA	--	NA	--	NA
2-Methylnaphthalene	--	NA	--	--	NA	--	NA	--	NA
2-Nitroaniline	--	NA	--	--	NA	--	NA	--	NA
3-Nitroaniline	--	NA	--	--	NA	--	NA	--	NA
4-Nitroaniline	--	NA	--	--	NA	--	NA	--	NA
Naphthalene	--	NA	--	--	NA	--	NA	--	NA
Nitrobenzene	--	NA	--	--	NA	--	NA	--	NA
N-Nitroso-di-n-propylamine	--	NA	--	--	NA	--	NA	--	NA
N-Nitrosodiphenylamine	--	NA	--	--	NA	--	NA	--	NA
Phenanthrene	--	NA	--	--	NA	--	NA	--	NA
Pyrene	--	NA	--	--	NA	--	NA	--	NA
1,2,4-Trichlorobenzene	--	NA	--	--	NA	--	NA	--	NA
Total TIC, Semi-Volatile	0	NA	0	0	NA	0	NA	0	NA
INORGANICS									
Aluminum	NA	NA	NA	NA	NA	--	NA	--	NA
Antimony	--	NA	--	--	NA	--	NA	--	NA
Arsenic	--	NA	--	--	NA	--	NA	--	NA
Barium	NA	NA	NA	NA	NA	--	NA	--	NA
Beryllium	--	NA	--	--	NA	--	NA	--	NA
Cadmium	--	NA	--	--	NA	--	NA	--	NA
Calcium	NA	NA	NA	NA	NA	--	NA	--	NA
Chromium	--	NA	--	--	NA	--	NA	--	NA
Cobalt	NA	NA	NA	NA	NA	--	NA	--	NA
Copper	--	NA	--	--	NA	--	NA	--	NA
Iron (Total)	--	NA	--	--	NA	--	NA	--	NA
Lead	--	NA	--	--	NA	--	NA	--	NA
Magnesium	NA	NA	NA	NA	NA	--	NA	--	NA
Manganese	NA	NA	NA	NA	NA	--	NA	--	NA
Mercury	--	NA	--	--	NA	--	NA	--	NA
Nickel	--	NA	--	--	NA	--	NA	--	NA
Potassium	NA	NA	NA	NA	NA	--	NA	--	NA
Selenium	--	NA	--	--	NA	--	NA	--	NA
Silver	--	NA	--	--	NA	--	NA	--	NA
Sodium	NA	NA	NA	NA	NA	--	NA	--	NA
Thallium	--	NA	--	--	NA	--	NA	--	NA
Vanadium	NA	NA	NA	NA	NA	--	NA	--	NA
Zinc	42	NA	--	--	NA	--	NA	--	NA
Cyanide	--	NA	--	--	NA	--	NA	--	NA
POLYCHLORINATED BIPHENYLS									
Aroclor 1016	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1221	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1232	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1242	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1248	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1254	--	NA	--	--	NA	--	NA	--	NA
Aroclor 1260	--	NA	--	--	NA	--	NA	--	NA
GENERAL CHEMISTRY									
Alkalinity, Total	--	NA	--	--	NA	--	NA	--	NA
Chloride	--	NA	--	--	NA	--	NA	--	NA
Iron, Ferric	--	NA	--	--	NA	NA	NA	NA	NA
Iron, Ferrous	--	NA	--	--	NA	--	NA	--	NA
Nitrogen, Ammonia	--	NA	--	--	NA	--	NA	--	NA
Nitrogen, Nitrate	--	NA	--	--	NA	--	NA	--	NA
Nitrogen, Nitrate + Nitrite	--	NA	--	--	NA	--	NA	--	NA
Nitrogen, Nitrite	--	NA	--	--	NA	--	NA	--	NA
Solids, Total Dissolved	244,000	NA	--	--	NA	--	NA	--	NA
Sulfate	--	NA	--	--	NA	--	NA	--	NA
Sulfide	--	NA	--	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	--	NA	NA	NA	NA	NA
pH (standard units)	6.1	NA	4.7	NA	NA	NA	NA	NA	NA

NOTES:
NA Not Analyzed
-- Not detected

TABLE 5.4
FIELD RINSE BLANK AND TRIP BLANK SAMPLE ANALYTICAL RESULTS - RIVER BORING PROGRAM
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	FIELD BLANK	TRIP BLANK
Laboratory Identification Number	E95627-8	E95627-9
Sampling Date	7/24/01	7/24/01
Sample Depth	NA	NA
Units	mg/kg	mg/kg
VOLATILE ORGANIC COMPOUNDS		
Acetone	--	--
Benzene	--	--
Bromodichloromethane	--	--
Bromoform	--	--
Bromomethane	--	--
2-Butanone (MEK)	--	--
Carbon disulfide	--	--
Carbon tetrachloride	--	--
Chlorobenzene	--	--
Chloroethane	--	--
Chloroform	--	--
Chloromethane	--	--
Dibromochloromethane	--	--
1,1-Dichloroethane	--	--
1,2-Dichloroethane	--	--
1,1-Dichloroethene	--	--
cis-1,2-Dichloroethene	--	--
trans-1,2-Dichloroethene	--	--
1,2-Dichloropropane	--	--
cis-1,3-Dichloropropene	--	--
trans-1,3-Dichloropropene	--	--
Ethylbenzene	--	--
2-Hexanone	--	--
4-Methyl-2-pentanone(MIBK)	--	--
Methylene chloride	--	--
Styrene	--	--
1,1,2,2-Tetrachloroethane	--	--
Tetrachloroethene	--	--
Toluene	--	--
1,1,1-Trichloroethane	--	--
1,1,2-Trichloroethane	--	--
Trichloroethene	--	--
Vinyl chloride	--	--
Xylene (total)	--	--
Total Volatile TICs	0	0

NOTES:
-- Not detected

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
GB-01	Geotech	1A	72.0	13.0	22.0	9	NE	NE	NE
GB-02	Geotech	1A	72.0	NE	NE	NE	NE	NE	NE
MW-02B	SI	1A	28.0	NE	NE	NE	NE	NE	NE
MW-02C	SRI	1A	75.0	12 & 28	13 & 32	5.0	NE	NE	NE
SB-03A	SI	1A	16.0	4.0	5.5	1.5	NE	NE	NE
SB-03B	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-03C	SI	1A	8.0	4.0	5.8	1.75	NE	NE	NE
SB-03D	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-07-DP	SI	1A	18.0	NE	NE	NE	NE	NE	NE
SB-1 Deep	RI	1A	26.0	20.0	26.0	6	4.5	9.5	5
SB-13A	SI	1A	12.0	NE	NE	NE	5.3	9.5	4.25
SB-13B	SI	1A	6.0	NE	NE	NE	2.5	NE	>3.5
SB-13C	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-13D	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-15A	SI	1A	16.0	6.0	9.2	3.2	NE	NE	NE
SB-15B	SI	1A	8.0	NE	NE	NE	2.0	6.0	4
SB-15C	SI	1A	8.0	5.5	6.0	0.5	1.5	5.5	4
SB-15D	SI	1A	8.0	5.0	5.3	0.25	5.3	6.0	0.75
SB-16A	SI	1A	16.0	5.5	7.0	1.5	NE	NE	NE
SB-16B	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-16C	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-16D	SI	1A	8.0	NE	NE	NE	NE	NE	NE
SB-1A-01	RI	1A	4.0	NE	NE	NE	NE	NE	NE
SB-1A-02	RI	1A	3.0	NE	NE	NE	NE	NE	NE
SB-TS-01	RI	1A	12.0	NE	NE	NE	3.0	6.0	3
SB-TS-02	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-03	RI	1A	5.0	NE	NE	NE	3.0	5.0	2
SB-TS-04	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-05	RI	1A	12.0	NE	NE	NE	3.0	5.0	2
SB-TS-06	RI	1A	12.0	NE	NE	NE	3.0	5.0	2
SB-TS-07	RI	1A	12.0	NE	NE	NE	3.0	NE	>9
SB-TS-08	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-09	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-10	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-11	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-12	RI	1A	4.0	NE	NE	NE	2.0	NE	>2
SB-TS-13	RI	1A	8.0	NE	NE	NE	7.0	NE	>1
SB-TS-14	RI	1A	12.0	NE	NE	NE	3.0	9.0	6
SB-TS-15	RI	1A	12.0	NE	NE	NE	NE	NE	NE
TT-01	Geotech	1A	9.0	NE	NE	NE	NE	NE	NE
TT-017	SI	1A	5.0	2.0	NE	>3	NE	NE	NE
TT-017a	SI	1A	7.0	6.0	NE	>1	NE	NE	NE
TT-017b	SI	1A	4.0	NE	NE	NE	NE	NE	NE
TT-018	SI	1A	5.0	2.5	NE	>2.5	NE	NE	NE
TT-018a	SI	1A	5.5	NE	NE	NE	NE	NE	NE
TT-019	SI	1A	5.0	5.0	NE	>0	NE	NE	NE
TT-02	Geotech	1A	8.5	NE	NE	NE	NE	NE	NE
TT-020	SI	1A	5.0	NE	NE	NE	NE	NE	NE
TT-03	Geotech	1A	6.0	NE	NE	NE	NE	NE	NE

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
TT-04	Geotech	1A	4.0	NE	NE	NE	NE	NE	NE
TT-05	Geotech	1A	4.5	NE	NE	NE	NE	NE	NE
SB-1B-01	RI	1B	4.0	NE	NE	NE	NE	NE	NE
SB-1B-02	RI	1B	4.0	NE	NE	NE	NE	NE	NE
SB-1B-03	RI	1B	4.0	NE	NE	NE	NE	NE	NE
SB-1B-04	RI	1B	4.0	NE	NE	NE	NE	NE	NE
SB-1B-05	RI	1B	2.0	NE	NE	NE	NE	NE	NE
SB-1B-06	RI	1B	2.0	NE	NE	NE	NE	NE	NE
MW-10A	SRI	1C	12.0	8.0	10.0	2.0	NE	NE	NE
MW-10B	SRI	1C	28.0	NE	NE	NE	NE	NE	NE
SB-1C-01	RI	1C	4.0	NE	NE	NE	NE	NE	NE
SB-1C-01A	SRI	1C	8.0	NE	NE	NE	NE	NE	NE
SB-1C-02	RI	1C	4.0	NE	NE	NE	NE	NE	NE
SB-1C-03	RI	1C	8.0	4.0	NE	>4	NE	NE	NE
SB-1C-04	RI	1C	12.0	4.0	10.0	6	NE	NE	NE
SB-1C-05	RI	1C	12.0	4.0	11.0	7	NE	NE	NE
SB-1C-06	RI	1C	12.0	4.0	7.0	3	NE	NE	NE
SB-1C-07	SRI	1C	12.0	NE	NE	NE	NE	NE	NE
SB-1C-08	SRI	1C	12.0	NE	NE	NE	NE	NE	NE
SB-1C-09	SRI	1C	16.0	NE	NE	NE	NE	NE	NE
SB-1C-10	SRI	1C	12.0	NE	NE	NE	NE	NE	NE
SB-1C-11	SRI	1C	23.0	8.0	9.5	1.5	NE	NE	NE
SB-1C-12	SRI	1c	8.0	NE	NE	NE	NE	NE	NE
MW-9A	SRI	1D	12.0	4.1	10.0	5.9	NE	NE	NE
MW-9B	SRI	1D	28.0	10.0	12.0	2.0	NE	NE	NE
RB-01	SRI	1D	4.0	NE	NE	NE	NE	NE	NE
RB-02	SRI	1D	4.0	NE	NE	NE	NE	NE	NE
RB-03	SRI	1D	4.0	NE	NE	NE	NE	NE	NE
RB-04	SRI	1D	4.0	NE	NE	NE	0.0	0.5	0.5
RB-05	SRI	1D	4.0	NE	NE	NE	0.0	1.0	1.0
RB-06	SRI	1D	4.0	NE	NE	NE	NE	NE	NE
SB-1D-01[2]	SRI	1D	16.0	14.0	15.0	1.0	NE	NE	NE
SB-1D-03[2]	SRI	1D	15.8	13.0	15.8	2.8	NE	NE	NE
SB-1D-04[2]	SRI	1D	9.0	NE	NE	NE	NE	NE	NE
SB-1D-05	SRI	1D	14.5	NE	NE	NE	NE	NE	NE
SB-1D-06	SRI	1D	19.0	NE	NE	NE	8.0	9.5	4.0
SB-1D-07	SRI	1D	15.8	10.0	14.5	4.5	NE	NE	NE
MW-03B	SI	2A	28.0	4.0	4.5	0.5	NE	NE	NE
MW-03C	SRI	2A	87.0	8.8	12.0	3.2	NE	NE	NE
SB-17A	SI	2A	12.0	NE	NE	NE	NE	NE	NE
SB-17B	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-17C	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-17D	SI	2A	8.0	4.0	NE	>4	NE	NE	NE
SB-18A	SI	2A	12.0	4.0	10.0	6	NE	NE	NE
SB-18B	SI	2A	6.0	NE	NE	NE	NE	NE	NE
SB-18C	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-18D	SI	2A	4.0	NE	NE	NE	2.5	NE	>1.5
SB-19A	SI	2A	12.0	4.0	9.0	5	NE	NE	NE
SB-19B	SI	2A	4.0	NE	NE	NE	NE	NE	NE

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
SB-19C	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-19D	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-20A	SI	2A	12.0	9.8	10.0	0.25	NE	NE	NE
SB-20B	SI	2A	4.0	NE	NE	NE	2.5	NE	>1.5
SB-20C	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-20D	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-20-DP	SI	2A	22.0	6.0	8.3	2.3	NE	NE	NE
SB-21A	SI	2A	24.0	NE	NE	NE	NE	NE	NE
SB-21B	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-21C	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-21D	SI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-2A-01	RI	2A	6.0	NE	NE	NE	2.0	NE	>4
SB-2A-02	RI	2A	6.0	NE	NE	NE	NE	NE	NE
SB-2A-03	RI	2A	6.0	NE	NE	NE	NE	NE	NE
SB-2A-04	RI	2A	6.0	NE	NE	NE	NE	NE	NE
SB-2A-05	RI	2A	6.0	1.0	NE	>5	NE	NE	NE
SB-2A-06	RI	2A	11.0	7.0	10.5	3.5	NE	NE	NE
SB-2A-07	RI	2A	12.0	2.0	11.5	9.5	NE	NE	NE
SB-2A-08	RI	2A	11.0	4.0	8.0	4	NE	NE	NE
SB-2A-09	RI	2A	16.0	NE	NE	NE	7.0	8.0	1
SB-2A-10	RI	2A	12.0	5.0	10.0	5	NE	NE	NE
SB-2A-11	RI	2A	16.0	NE	NE	NE	NE	NE	NE
SB-2A-12	RI	2A	16.0	NE	NE	NE	NE	NE	NE
SB-2A-13	RI	2A	2.0	NE	NE	NE	NE	NE	NE
SB-2A-14	RI	2A	11.0	NE	NE	NE	NE	NE	NE
SB-2A-15	RI	2A	12.0	2.0	11.0	9	NE	NE	NE
SB-2A-16	RI	2A	12.0	4.0	11.0	7	NE	NE	NE
SB-2A-17	RI	2A	5.0	NE	NE	NE	NE	NE	NE
SB-2A-18	RI	2A	4.0	NE	NE	NE	NE	NE	NE
SB-2A-19	RI	2A	12.0	NE	NE	NE	NE	NE	NE
SB-2A-20	RI	2A	16.0	NE	NE	NE	NE	NE	NE
SB-2A-21	RI	2A	10.0	4.0	5.0	1	NE	NE	NE
SB-2A-22	RI	2A	12.0	2.0	11.0	9	NE	NE	NE
SB-2A-23	SRI	2A	12.0	NE	NE	NE	NE	NE	NE
SB-2A-24	SRI	2A	10.0	4.0	6.0	2.0	NE	NE	NE
TT-009	SI	2A	3.5	2.5	NE	>1	NE	NE	NE
TT-010	SI	2A	4.0	NE	NE	NE	NE	NE	NE
TT-011	SI	2A	2.5	NE	NE	NE	1.0	NE	>1.5
TT-012	SI	2A	3.5	NE	NE	NE	0.5	NE	>3
TT-013	SI	2A	2.0	1.7	NE	>0.3	NE	NE	NE
TT-014	SI	2A	3.5	NE	NE	NE	NE	NE	NE
SB-25A	SI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-25B	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-25C	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-25D	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-26A	SI	2B	24.0	NE	NE	NE	NE	NE	NE
SB-26B	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-26C	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-26D	SI	2B	8.0	NE	NE	NE	7.3	NE	>0.75

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
SB-2B-01	RI	2B	6.0	NE	NE	NE	NE	NE	NE
SB-2B-02	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-03	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-04	RI	2B	10.0	4.0	8.5	4.5	NE	NE	NE
SB-2B-05	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-06	RI	2B	12.0	7.0	10.0	3	1.5	1.6	0.1
SB-2B-07	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-08	RI	2B	12.0	8.0	10.0	2	NE	NE	NE
SB-2B-09	RI	2B	12.0	8.0	10.0	2	NE	NE	NE
SB-2B-11	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-12	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-13	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-14	RI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-2B-16	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-18	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-19	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-20	RI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-2B-21	SRI	2B	15.0	NE	NE	NE	NE	NE	NE
SB-2B-22	SRI	2B	16.0	NE	NE	NE	NE	NE	NE
SB-30A	SI	2B	24.0	NE	NE	NE	NE	NE	NE
SB-30B	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-30C	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-30D	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-31A	SI	2B	24.0	NE	NE	NE	NE	NE	NE
SB-31B	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-31C	SI	2B	12.0	NE	NE	NE	NE	NE	NE
SB-31D	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-34A	SI	2B	15.0	NE	NE	NE	NE	NE	NE
SB-34B	SI	2B	8.0	NE	NE	NE	NE	NE	NE
SB-34C	SI	2B	4.0	NE	NE	NE	NE	NE	NE
SB-34D	SI	2B	4.0	NE	NE	NE	NE	NE	NE
MW-07B	RI	2C	26.0	NE	NE	NE	NE	NE	NE
SB-2C-01	RI	2C	12.0	NE	NE	NE	NE	NE	NE
SB-2C-03	RI	2C	12.0	NE	NE	NE	NE	NE	NE
SB-33A	SI	2C	24.0	NE	NE	NE	NE	NE	NE
SB-33B	SI	2C	8.0	NE	NE	NE	NE	NE	NE
SB-33C	SI	2C	8.0	NE	NE	NE	NE	NE	NE
SB-33D	SI	2C	8.0	NE	NE	NE	NE	NE	NE
MW-04B	SI	2D	26.0	NE	NE	NE	NE	NE	NE
SB-22A	SI	2D	12.0	4.0	9.5	5.5	NE	NE	NE
SB-22B	SI	2D	4.0	NE	NE	NE	1.3	2.8	1.5
SB-22C	SI	2D	4.0	NE	NE	NE	NE	NE	NE
SB-22D	SI	2D	4.0	NE	NE	NE	NE	NE	NE
SB-22-DP	SI	2D	25.0	16.0	16.5	0.5	NE	NE	NE
SB-2D-01	RI	2D	6.0	2.0	NE	>4	NE	NE	NE
SB-2D-02	RI	2D	11.0	8.5	11.0	2.5	NE	NE	NE
SB-2D-03	RI	2D	12.0	NE	NE	NE	2.5	3.5	1
SB-2D-04	RI	2D	12.0	4.0	9.0	5	NE	NE	NE
SB-2D-05	RI	2D	11.0	0.5	10.5	10	NE	NE	NE

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
SB-2D-06	RI	2D	11.0	4.0	8.0	4	NE	NE	NE
SB-2D-07	RI	2D	6.5	3.0	6.0	3	6.0	6.5	0.5
SB-2D-08	RI	2D	12.0	4.0	6.0	2	NE	NE	NE
SB-2D-09	RI	2D	12.0	NE	NE	NE	NE	NE	NE
SB-2D-10	RI	2D	8.0	NE	NE	NE	NE	NE	NE
SB-2D-11	SRI	2D	30.0	NE	NE	NE	NE	NE	NE
TT-008	SI	2D	5.0	2.0	2.5	0.5	0.9	1.2	0.3
TT-015	SI	2D	3.0	1.5	NE	>1.5	NE	NE	NE
TT-016	SI	2D	3.0	1.0	NE	>2	NE	NE	NE
TT-016a	SI	2D	3.0	2.0	NE	>1	NE	NE	NE
SB-2E-01	RI	2E	7.0	NE	NE	NE	NE	NE	NE
SB-2E-02	RI	2E	12.0	NE	NE	NE	NE	NE	NE
SB-2E-03	RI	2E	12.0	NE	NE	NE	NE	NE	NE
SB-2E-04	RI	2E	12.0	NE	NE	NE	NE	NE	NE
SB-2E-05	RI	2E	4.0	NE	NE	NE	NE	NE	NE
SB-3A-01	RI	3A	2.0	1.0	NE	>1	NE	NE	NE
SB-3A-02	RI	3A	2.0	NE	NE	NE	NE	NE	NE
SB-3A-03	RI	3A	2.0	NE	NE	NE	NE	NE	NE
SB-3A-04	RI	3A	2.0	NE	NE	NE	NE	NE	NE
SB-3A-05	RI	3A	2.0	NE	NE	NE	NE	NE	NE
MW-05B	SI	3B	28.0	0.0	2.5	2.5	NE	NE	NE
SB-3B-01	RI	3B	5.0	NE	NE	NE	NE	NE	NE
SB-3B-02	RI	3B	6.0	NE	NE	NE	NE	NE	NE
SB-3B-03	RI	3B	6.0	NE	NE	NE	NE	NE	NE
SB-3B-04	RI	3B	8.0	NE	NE	NE	NE	NE	NE
SB-3B-05	RI	3B	6.0	NE	NE	NE	NE	NE	NE
SB-3B-06	RI	3B	6.0	NE	NE	NE	NE	NE	NE
SB-3B-07	RI	3B	4.0	2.0	NE	>2	NE	NE	NE
SB-3B-08	RI	3B	4.0	NE	NE	NE	NE	NE	NE
SB-3B-09	RI	3B	4.0	NE	NE	NE	NE	NE	NE
SB-46A	SI	3B	12.0	2.5	6.3	3.75	NE	NE	NE
SB-46B	SI	3B	4.0	2.6	NE	>1.4	NE	NE	NE
SB-46C	SI	3B	4.0	1.8	NE	>2.25	NE	NE	NE
SB-46D	SI	3B	4.0	NE	NE	NE	NE	NE	NE
SB-57A	SI	3B	12.0	4.0	9.0	5	NE	NE	NE
SB-57B	SI	3B	4.0	NE	NE	NE	NE	NE	NE
SB-57C	SI	3B	4.0	NE	NE	NE	NE	NE	NE
SB-57D	SI	3B	8.0	4.0	NE	>4	NE	NE	NE
SB-57DP	SI	3B	20.0	2.0	6.0	4	NE	NE	NE
TT-001	SI	3B	4.0	2.0	NE	>2	NE	NE	NE
TT-002	SI	3B	4.0	3.0	NE	>1	1.0	NE	>3
TT-003	SI	3B	2.0	NE	NE	NE	1.5	NE	>0.5
TT-003e	SI	3B	2.5	1.0	NE	>1.5	1.0	NE	>1.5
TT-003w	SI	3B	4.0	2.0	NE	>2	0.7	1.0	0.3
TT-004	SI	3B	2.5	2.2	NE	>0.3	NE	NE	NE
TT-005	SI	3B	3.0	2.6	NE	>0.4	0.6	NE	>2.4
TT-006	SI	3B	2.5	NE	NE	NE	2.4	NE	>0.1
TT-007	SI	3B	2.5	2.0	NE	>0.5	NE	NE	NE
TT-023	SI	3B	2.5	2.5	NE	>0	NE	NE	NE

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
TT-024	SI	3B	2.5	NE	NE	NE	NE	NE	NE
SB-3C-01	RI	3C	2.0	NE	NE	NE	NE	NE	NE
SB-3C-02	RI	3C	2.0	NE	NE	NE	NE	NE	NE
SB-3C-03	RI	3C	2.0	NE	NE	NE	NE	NE	NE
SB-3C-04	RI	3C	2.0	NE	NE	NE	NE	NE	NE
MW-06B	RI	3D	26.0	NE	NE	NE	NE	NE	NE
MW-08B	RI	3D	26.0	NE	NE	NE	NE	NE	NE
SB-39A	SI	3D	16.0	NE	NE	NE	NE	NE	NE
SB-39B	SI	3D	3.5	NE	NE	NE	NE	NE	NE
SB-39C	SI	3D	4.0	NE	NE	NE	NE	NE	NE
SB-39D	SI	3D	8.0	NE	NE	NE	NE	NE	NE
SB-3D-01	RI	3D	4.0	NE	NE	NE	NE	NE	NE
SB-3D-02	RI	3D	4.0	NE	NE	NE	NE	NE	NE
SB-3D-03	RI	3D	4.0	NE	NE	NE	NE	NE	NE
TT-021	SI	3D	8.0	5.0	NE	>3	NE	NE	NE
SB-3E-01	RI	3E	6.0	4.0	NE	>2	NE	NE	NE
SB-3E-02	RI	3E	5.5	NE	NE	NE	NE	NE	NE
SB-3E-03	RI	3E	6.0	NE	NE	NE	NE	NE	NE
SB-3E-04	RI	3E	4.0	NE	NE	NE	NE	NE	NE
SB-3F-01	RI	3F	5.0	NE	NE	NE	NE	NE	NE
SB-3F-02	RI	3F	5.0	NE	NE	NE	NE	NE	NE
SB-3F-03	RI	3F	4.0	3.0	3.5	0.5	NE	NE	NE
SB-3F-04	RI	3F	4.5	NE	NE	NE	NE	NE	NE
SB-3G-01	RI	3G	6.0	0.5	NE	>5.5	NE	NE	NE
SB-3G-02	RI	3G	6.0	NE	NE	NE	NE	NE	NE
SB-3G-03	SRI	3G	16.0	NE	NE	NE	NE	NE	NE
SB-50A	SI	3G	24.0	NE	NE	NE	NE	NE	NE
SB-50B	SI	3G	8.0	NE	NE	NE	NE	NE	NE
SB-50C	SI	3G	4.0	NE	NE	NE	NE	NE	NE
SB-50D	SI	3G	8.0	NE	NE	NE	NE	NE	NE
TT-022a	SI	3G	2.0	NE	NE	NE	NE	NE	NE
TT-022b	SI	3G	2.0	NE	NE	NE	NE	NE	NE
B1-1D	Model	Parcel 1	10.0	NE	NE	NE	NE	NE	NE
B1-2D	Model	Parcel 1	16.0	5.0	12.0	7.0	NE	NE	NE
B1-2E	Model	Parcel 1	16.0	5.5	6.0	0.5	NE	NE	NE
B1-3E	Model	Parcel 1	16.0	10.0	14.0	4.0	NE	NE	NE
B1-4C	Model	Parcel 1	12.0	NE	NE	NE	NE	NE	NE
B1-4D	Model	Parcel 1	12.0	3.0	10.0	7.0	NE	NE	NE
B1-5C	Model	Parcel 1	12.0	NE	NE	NE	NE	NE	NE
B1-5D	Model	Parcel 1	16.0	NE	NE	NE	NE	NE	NE
B1-6C	Model	Parcel 1	12.0	NE	NE	NE	NE	NE	NE
BIO-13A	Model	Parcel 1	30.0	5.0	5.2	0.2	NE	NE	NE
BIO-1-DEEP	Model	Parcel 1	30.0	8.0	11.2	3.2	NE	NE	NE
B2-11D	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE
B2-4A	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE
B2-5B	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE
B2-6E	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE
B2-7C	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE
B2-7E	Model	Parcel 2	12.0	NE	NE	NE	NE	NE	NE

TABLE 6.1
OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Materal			Tar-Like Material		
				Depth to Top	Depth to Bottom	Thickness	Depth to Top	Depth to Bottom	Thickness
BIO-25C	Model	Parcel 2	34.0	6.0	12.0	6.0	NE	NE	NE
BIO-2A-09	Model	Parcel 2	31.0	4.0	9.0	5.0	NE	NE	NE
BIO-2A-15	Model	Parcel 2	30.0	6.0	10.0	4.0	NE	NE	NE
BIO-2A-22	Model	Parcel 2	32.0	4.0	6.7	2.7	NE	NE	NE
B3-1A	Model	Parcel 3	11.0	NE	NE	NE	NE	NE	NE
B3-1C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-1D	Model	Parcel 3	8.0	6.0	7.5	1.5	NE	NE	NE
B3-2A	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-2B	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-2C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-2D	Model	Parcel 3	15.0	NE	NE	NE	NE	NE	NE
B3-3A	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-3B	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-3C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-3E	Model	Parcel 3	8.0	NE	NE	NE	NE	NE	NE
B3-4B	Model	Parcel 3	11.0	8.0	10.0	2.0	NE	NE	NE
B3-4C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-4E	Model	Parcel 3	12.0	9.0	10.0	1.0	NE	NE	NE
B3-5A	Model	Parcel 3	10.0	4.0	NE	>6	NE	NE	NE
B3-5B	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-5C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-6A	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-6B	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-6C	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-7A	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-7B	Model	Parcel 3	8.0	NE	NE	NE	NE	NE	NE
B3-8A	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
B3-8E	Model	Parcel 3	12.0	NE	NE	NE	NE	NE	NE
BIO-3 E-01	Model	Parcel 3	31.0	4.0	12.0	8.0	NE	NE	NE
BIO-50A	Model	Parcel 3	32.0	NE	NE	NE	NE	NE	NE
MW-01B	SI	Upgradient	30.0	NE	NE	NE	NE	NE	NE

Notes:

Soil borings conducted during the RI were surveyed; elevations for SI soil borings were estimated based on surface topography.

All depths in feet below grade.

NE: Not encountered

> Greater than

SI: Site Investigation and supplemental Site Investigation (HLA, 1999a and 1999b)

RI Remedial Investigation

Supp RIR Supplemental Remedial Investigation

Geotech: Geotechnical evaluation of relieving platform

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	570000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	352	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	258	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	171	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	1.5-2.0	E60358-2	12/8/99	ND	1020	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1B-01	3.5-4.0	E60358-3	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	1650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	ND	128 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1B-05	0.0-0.5	E60358-24	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-05	1.5-2.0	E60358-25	12/8/99	ND	447	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1B-06	0.0-0.5	E60358-23	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	4150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	326	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	91 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	104 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	661	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	1890	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	113 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	3.5-4.0	E60729-71	12/16/99	-	8280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	3560	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	7350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	5440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	10400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	0.0-0.5	E60450-18	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010176

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	670000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-18	12/10/99	-	5900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	16100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-04	0.0-0.5	E60450-20	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-04	1.5-2.0	E60450-21	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-04	5.5-6.0	E60450-22	12/10/99	-	4310	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	1120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	12990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	2540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	3970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	31200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	7100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	568	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	51190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	24500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	6480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-10	7.5-8.0	E60450-40	12/10/99	-	4990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	4420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	620	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	2790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	959	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	2320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	2630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	6200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	6280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	4500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	6980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	7810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	163	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	10400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	74100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	186	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	368	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	548	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

92101017 7

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	570000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	851	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	14600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	5950	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	3280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	0.0-0.5	E60588-50	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	5.5-6.0	E60588-54	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	146 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	0.0-0.5	E60588-12	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	5.5-6.0	E60588-14	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	947	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	153 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	508	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	129 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	408	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	1050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	949	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	62300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	4200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	1.5-2.0	E60729-46	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	91.3 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	191	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	0.0-0.5	E60588-17	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	1.0-1.5	E60588-18	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

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Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	570000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-18	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	157 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	7.5-8.0	E60588-21	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	6050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	160 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	8510	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	2000 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	2420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-16	4.5-5.0	E60729-67	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-16	11.5-12.0	E60729-68	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	108 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	28900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	3220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	1490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	75.7 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	114 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	48.5 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	4840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	8630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	6850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	494	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	205 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	2670	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	10.5-11.0	E60358-78	12/9/99	-	1060	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	341	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	6800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	2540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	3590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	3280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	10800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	9940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	2590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milgrams per kilogram

Shaded data exceed soil cleanup criteria

9210101179

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	570000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	4650	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	6590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	733	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	12800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	15000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-08	5.5-6.0	E60588-34	12/13/99	-	1620	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	6550	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	46100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	213000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	11800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	87400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	8060	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	2140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	739	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	23800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	11600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	10000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	197000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	82700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	85.6 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	6590	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	0.0-0.5	E60358-38	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	25200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	37800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	3760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	9070	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	2730	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	4.5-5.0	E60358-41	12/8/99	-	2220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	5.0-5.5	E60358-47	12/8/99	-	42900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

9210101180

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Acetone	Benzene	Bromodichloromethane	Bromoform	Bromomethane	2-Butanone (MEK)	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene
			RDCSCC	1000000	3000	11000	86000	79000	1000000	NS	2000	37000	NS	19000	520000	110000	570000	6000	8000	79000	1000000
			NRDCSCC	1000000	13000	46000	370000	1000000	1000000	NS	4000	680000	NS	28000	1000000	1000000	1000000	24000	150000	1000000	1000000
			IGWSCC	100000	1000	1000	1000	1000	50000	NS	1000	1000	NS	1000	10000	1000	10000	1000	10000	1000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	42300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	9110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	45700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	33400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	17000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	1790000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-01	1.0-1.5	E60358-65	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-02	1.5-2.0	E60358-66	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-03	1.5-2.0	E60358-64	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-04	1.1-1.6	E60358-67	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-01	3.0-3.5	E60358-72	12/9/99	-	9960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-108	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	1.5-2.0	E60358-58	12/8/99	-	2220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	4790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	1.5-2.0	E60358-16	12/9/99	-	140 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	4.0-4.5	E60358-17	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	0.0-0.5	E60729-74	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	2630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	2400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	-	728	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	3.0-3.5	E60358-19	12/9/99	-	41800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-04	1.5-2.0	E60358-14	12/9/99	-	1490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-04	3.0-3.5	E60358-15	12/9/99	-	109 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	198	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	6860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	5.0-5.5	E60358-13	12/9/99	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	ND	430000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	35700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

N:\project\s\s-priv\s99\s99227\b\supp rir\tables\[table 6.2 - soil summary table rir.xls]Summary Table

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010181

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	210000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			IGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	500000	50000	1000	1000	10000	67000	NS	10000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	ND	-	-	-	-	-	-	277	-	-	-	-	110 J	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	-	-	71.4 J	-	-	-	-	-	-	188	-	-	-	-	128 J	-	-
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	80 J	-	-	-	-	-	-	328	-	-	-	-	275 J	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	-	-	45.6 J	-	-	-	-	-	-	73.1 J	-	-	-	-	ND	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	1.5-2.0	E60358-2	12/8/99	ND	ND	ND	206	ND	ND	ND	ND	ND	ND	1560	ND	ND	ND	ND	811	0	-
SB-1B-01	3.5-4.0	E60358-3	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	-
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	-	-	412	-	-	-	-	-	-	612	-	-	-	-	350 J	-	-
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	ND	-	-	-	-	-	-	35.7 J	-	-	-	-	ND	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	ND	ND	ND	103 J	ND	ND	ND	57 J	ND	49.1 J	118 J	ND	ND	101 J	ND	143 J	0	-
SB-1B-05	0.0-0.5	E60358-24	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND
SB-1B-05	1.5-2.0	E60358-25	12/8/99	ND	ND	ND	252	ND	ND	ND	ND	ND	ND	447	ND	ND	ND	ND	266 J	1800	-
SB-1B-06	0.0-0.5	E60358-23	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	356	-	-	-	-	-	-	3440	-	-	-	-	1680	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	-	-	163 J	-	-	-	-	-	-	809	-	-	-	-	911	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	-	-	93.3 J	-	-	-	-	-	-	215	-	-	-	-	328 J	-	-
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	-	-	529	-	-	-	-	-	-	434	-	-	-	-	1200	-	-
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	67.9 J	-	-	-	-	-	-	152	-	-	-	-	273 J	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	-	-	109 J	-	-	-	-	-	-	152 J	-	-	-	-	322 J	-	-
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	-	-	1420	-	-	-	-	-	-	83.5 J	-	-	-	-	181 J	-	-
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	172	-	-	-	-	-	-	276	-	-	-	-	364 J	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	-	-	1010	-	-	-	-	-	-	229	-	-	-	-	920 J	-	-
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	-	-	66.7 J	-	-	-	-	-	-	92.4 J	-	-	-	-	177 J	-	-
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	84.7 J	-	-	-	-	-	-	187	-	-	-	-	369 J	-	-
SB-1C-06	3.5-4.0	E60729-71	12/15/99	-	-	-	86.2 J	-	-	-	-	-	-	50.9 J	-	-	-	-	118 J	-	-
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	-	-	674	-	-	-	-	-	-	562	-	-	-	-	592 J	-	-
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	-	-	1020	-	-	-	-	-	-	ND	-	-	-	-	1570 J	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	720	-	-	-	-	-	-	1110	-	-	-	-	1550	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	-	-	988	-	-	-	-	-	-	1220	-	-	-	-	1730	-	-
SB-2A-03	0.0-0.5	E60450-16	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	148	-	-	-	-	-	-	ND	-	-	-	-	163 J	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010182

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,2-Dichloropropane	cis-1,3-Dichloro propene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	210000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			IGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	500000	60000	1000	1000	10000	67000	NS	10000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-18	12/10/99	-	-	-	3510	-	-	-	-	-	-	1020	-	-	-	-	3200	-	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	-	-	63800	-	-	-	-	-	-	ND	-	-	-	-	7370	-	-
SB-2A-04	0.0-0.5	E60450-20	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-04	1.5-2.0	E60450-21	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-04	5.5-6.0	E60450-22	12/10/99	-	-	-	5800	-	-	-	-	-	-	1510	-	-	-	-	3090 J	-	-
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	1000	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	-	-	972	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	-	-	29100	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	861	-	-	-	-	-	-	2740	-	-	-	-	2500	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	-	-	208	-	-	-	-	-	-	744	-	-	-	-	292	-	-
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	-	-	152000	-	-	-	-	-	-	ND	-	-	-	-	19200	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	-	-	168000	-	-	-	-	-	-	2340	-	-	-	-	68100	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	-	-	ND	-	-	-	-	-	-	514	-	-	-	-	ND	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	-	-	356	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	-	-	465	-	-	-	-	-	-	672	-	-	-	-	384 J	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	-	-	3520	-	-	-	-	-	-	504	-	-	-	-	478 J	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	-	-	2890	-	-	-	-	-	-	2010	-	-	-	-	2570	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	-	-	17000	-	-	-	-	-	-	ND	-	-	-	-	2320	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-10	7.5-8.0	E60450-40	12/10/99	-	-	-	31200	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	-	-	14700	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	-	-	ND	-	-	-	-	-	-	715	-	-	-	-	437 J	-	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	-	-	158	-	-	-	-	-	-	ND	-	-	-	-	220 J	-	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	-	-	266	-	-	-	-	-	-	916	-	-	-	-	673 J	-	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	-	-	380	-	-	-	-	-	-	258	-	-	-	-	260 J	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	-	-	2980	-	-	-	-	-	-	1950	-	-	-	-	8680	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	-	-	4180	-	-	-	-	-	-	ND	-	-	-	-	1300 J	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	-	-	3150	-	-	-	-	-	-	333	-	-	-	-	2210	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	-	-	165 J	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	-	-	779	-	-	-	-	-	-	902	-	-	-	-	629 J	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	-	-	1150	-	-	-	-	-	-	1440	-	-	-	-	1590 J	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	-	-	4250	-	-	-	-	-	-	5500	-	-	-	-	5800	-	-
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	-	-	16400	-	-	-	-	-	-	868	-	-	-	-	2540	-	-
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	-	-	252	-	-	-	-	-	-	286	-	-	-	-	354 J	-	-
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	-	-	133 J	-	-	-	-	-	-	173	-	-	-	-	121 J	-	-
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	-	-	ND	-	-	-	-	-	-	74.4 J	-	-	-	-	ND	-	-
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	-	-	434	-	-	-	-	-	-	389	-	-	-	-	580 J	-	-
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	-	-	70300	-	-	-	-	-	-	2220	-	-	-	-	199000	-	-
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	-	-	740	-	-	-	-	-	-	499	-	-	-	-	1610	-	-
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	-	-	79.5 J	-	-	-	-	-	-	58.6 J	-	-	-	-	84.6 J	-	-
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	-	-	105 J	-	-	-	-	-	-	119 J	-	-	-	-	178 J	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010183

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	2,10000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			IGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	500000	50000	1000	1000	10000	67000	NS	10000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	-	-	ND	-	-	-	-	-	-	316	-	-	-	-	151 J	-	-
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	-	-	915	-	-	-	-	-	-	332	-	-	-	-	636 J	-	-
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	-	-	1070	-	-	-	-	-	-	690	-	-	-	-	758 J	-	-
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	-	-	ND	-	-	-	-	-	-	69.6 J	-	-	-	-	ND	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	-	-	784	-	-	-	-	-	-	842	-	-	-	-	862	-	-
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-03	0.0-0.5	E60588-50	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-03	5.5-6.0	E60588-54	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	-	-	ND	-	-	-	-	-	-	72.4 J	-	-	-	-	268 J	-	-
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-04	0.0-0.5	E60588-12	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	-	-	57.4 J	-	-	-	-	-	-	133 J	-	-	-	-	ND	-	-
SB-2B-04	5.5-6.0	E60588-14	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	-	-	370	-	-	-	-	-	-	349	-	-	-	-	498 J	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	-	-	15600	-	-	-	-	-	-	254	-	-	-	-	1120	-	-
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	-	-	ND	-	-	-	-	-	-	51.3 J	-	-	-	-	ND	-	-
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	272	-	-	-	-	-	-	241	-	-	-	-	765 J	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	-	-	77.2 J	-	-	-	-	-	-	ND	-	-	-	-	204 J	-	-
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	-	-	67.8 J	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	-	-	108 J	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	-	-	ND	-	-	-	-	-	-	389	-	-	-	-	466 J	-	-
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	-	-	449	-	-	-	-	-	-	1750	-	-	-	-	2380	-	-
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	-	-	92.3 J	-	-	-	-	-	-	300	-	-	-	-	438 J	-	-
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	-	-	378	-	-	-	-	-	-	868	-	-	-	-	2180	-	-
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	-	-	165 J	-	-	-	-	-	-	693	-	-	-	-	658 J	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	-	-	144 J	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	-	-	16300	-	-	-	-	-	-	ND	-	-	-	-	590 J	-	-
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	-	-	68800	-	-	-	-	-	-	ND	-	-	-	-	5880 J	-	-
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	-	-	100 J	-	-	-	-	-	-	708	-	-	-	-	512 J	-	-
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	-	-	1390000	-	-	-	-	-	-	694000	-	-	-	-	2550000	-	-
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	-	-	411000	-	-	-	-	-	-	150000	-	-	-	-	714000	-	-
SB-2B-11	1.5-2.0	E60729-46	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	-	-	43 J	-	-	-	-	-	-	582	-	-	-	-	786	-	-
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	-	-	ND	-	-	-	-	-	-	211	-	-	-	-	470 J	-	-
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	-	-	ND	-	-	-	-	-	-	274	-	-	-	-	438 J	-	-
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-12	0.0-0.5	E60588-17	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-12	1.0-1.5	E60588-18	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010184

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	210000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			KGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	600000	50000	1000	1000	10000	67000	NS	10000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-19	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	-	-	ND	-	-	-	-	-	-	95.4 J	-	-	-	-	ND	-	-
SB-2B-12	7.5-8.0	E60588-21	12/13/99	-	-	-	ND	-	-	-	-	-	-	79.1 J	-	-	-	-	ND	-	-
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	-	-	ND	-	-	-	-	-	-	1670	-	-	-	-	294 J	-	-
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	-	-	ND	-	-	-	-	-	-	42.2 J	-	-	-	-	ND	-	-
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	-	-	587	-	-	-	-	-	-	3180	-	-	-	-	2450	-	-
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	-	-	487	-	-	-	-	-	-	815	-	-	-	-	675 J	-	-
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	-	-	180	-	-	-	-	-	-	292	-	-	-	-	656 J	-	-
SB-2B-16	4.5-5.0	E60729-67	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-16	11.5-12.0	E60729-68	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	-	-	ND	-	-	-	-	-	-	63.4 J	-	-	-	-	ND	-	-
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	-	-	7200	-	-	-	-	-	-	17400	-	-	-	-	21800	-	-
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	-	-	440	-	-	-	-	-	-	1030	-	-	-	-	1270	-	-
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	-	-	5620	-	-	-	-	-	-	591 J	-	-	-	-	2040 J	-	-
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	-	-	390	-	-	-	-	-	-	32.5 J	-	-	-	-	127 J	-	-
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	-	-	ND	-	-	-	-	-	-	55.2 J	-	-	-	-	ND	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	-	-	ND	-	-	-	-	-	-	36.8 J	-	-	-	-	ND	-	-
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	462	-	-	-	-	-	-	ND	-	-	-	-	160 J	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	-	-	56800	-	-	-	-	-	-	7520	-	-	-	-	30000	-	-
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	2150	-	-	-	-	-	-	854	-	-	-	-	895	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	-	-	1050	-	-	-	-	-	-	165 J	-	-	-	-	378 J	-	-
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	-	-	258	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	-	-	4010	-	-	-	-	-	-	428	-	-	-	-	590 J	-	-
SB-2D-02	10.5-11.0	E60358-78	12/9/99	-	-	-	2050	-	-	-	-	-	-	128 J	-	-	-	-	293 J	-	-
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	16300	-	-	-	-	-	-	569	-	-	-	-	807	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	-	-	226	-	-	-	-	-	-	595	-	-	-	-	648 J	-	-
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	-	-	389	-	-	-	-	-	-	640	-	-	-	-	1660	-	-
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	-	-	161 J	-	-	-	-	-	-	257 J	-	-	-	-	380 J	-	-
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	-	-	8240	-	-	-	-	-	-	1410	-	-	-	-	2670	-	-
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	-	-	13000	-	-	-	-	-	-	2200	-	-	-	-	3090	-	-
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	89600	-	-	-	-	-	-	1760	-	-	-	-	42800	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	-	-	191	-	-	-	-	-	-	208	-	-	-	-	505 J	-	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-

\- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010185

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	210000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			IGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	500000	50000	1000	1000	10000	67000	NS	10000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	-	-	357	-	-	-	-	-	-	436	-	-	-	-	364 J	-	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	-	-	622	-	-	-	-	-	-	452	-	-	-	-	299 J	-	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	-	-	51700	-	-	-	-	-	-	4200	-	-	-	-	21600	-	-
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	-	-	13400	-	-	-	-	-	-	42100	-	-	-	-	149000	-	-
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	-	-	708	-	-	-	-	-	-	1080	-	-	-	-	6160	-	-
SB-2D-08	5.5-6.0	E60588-34	12/13/99	-	-	-	11100	-	-	-	-	-	-	881	-	-	-	-	19300	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	-	-	1910	-	-	-	-	-	-	764	-	-	-	-	560 J	-	-
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	-	-	6710	-	-	-	-	-	-	1050	-	-	-	-	4040	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	-	-	28600	-	-	-	-	-	-	1020	-	-	-	-	2030	-	-
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	-	-	277	-	-	-	-	-	-	3080	-	-	-	-	575 J	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	-	-	39900	-	-	-	-	-	-	1240 J	-	-	-	-	10700	-	-
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	-	-	230	-	-	-	-	-	-	4360	-	-	-	-	1830	-	-
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	-	-	ND	-	-	-	-	-	-	538	-	-	-	-	ND	-	-
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	-	-	1500	-	-	-	-	-	-	403	-	-	-	-	862	-	-
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	-	-	264	-	-	-	-	-	-	71.2 J	-	-	-	-	128 J	-	-
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	-	-	280	-	-	-	-	-	-	6100	-	-	-	-	2600	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	-	-	27400	-	-	-	-	-	-	7460	-	-	-	-	36400	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	-	-	16800	-	-	-	-	-	-	2650	-	-	-	-	8240	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	-	-	642	-	-	-	-	-	-	758	-	-	-	-	683 J	-	-
SB-3B-03	0.0-0.5	E60358-36	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	7070	-	-	-	-	-	-	6620	-	-	-	-	7240	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	-	-	832000	-	-	-	-	-	-	850	-	-	-	-	84600	-	-
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	248	-	-	-	-	-	-	1390	-	-	-	-	436 J	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	-	-	6700	-	-	-	-	-	-	1380	-	-	-	-	8130	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	2190	-	-	-	-	-	-	1380	-	-	-	-	1220	-	-
SB-3B-05	4.5-5.0	E60358-41	12/9/99	-	-	-	658	-	-	-	-	-	-	102 J	-	-	-	-	244 J	-	-
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	571	-	-	-	-	-	-	2220	-	-	-	-	3770	-	-
SB-3B-06	5.0-5.5	E60358-47	12/9/99	-	-	-	300000	-	-	-	-	-	-	ND	-	-	-	-	201000	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010186

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone(MIBK)	Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride	Xylene (total)	Total TIC, Volatile	2-Chlorophenol
			RDCSCC	10000	NS	NS	1000000	NS	1000000	49000	23000	34000	4000	1000000	210000	22000	23000	2000	410000	NS	280000
			NRDCSCC	43000	NS	NS	1000000	NS	1000000	210000	97000	70000	6000	1000000	1000000	420000	54000	7000	1000000	NS	5200000
			KGWSCC	NS	NS	NS	100000	NS	50000	1000	100000	1000	1000	500000	50000	1000	1000	10000	67000	NS	10000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	3630	-	-	-	ND	-	-	2200	-	-	-	-	3580	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	-	-	92700	-	-	-	ND	-	-	1220	-	-	-	-	92700	-	-
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	11800	-	-	-	ND	-	-	3970	-	-	-	-	6760	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	-	-	42500	-	-	-	ND	-	-	2750	-	-	-	-	25900	-	-
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	6760	-	-	-	1220	-	-	7730	-	-	-	-	7650	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	-	-	938000	-	-	-	400000	-	-	1580000	-	-	-	-	974000	-	-
SB-3C-01	1.0-1.5	E60358-65	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-02	1.5-2.0	E60358-66	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-03	1.5-2.0	E60358-64	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3C-04	1.1-1.6	E60358-67	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-01	3.0-3.5	E60358-72	12/9/99	-	-	-	4220	-	-	-	-	-	-	2930	-	-	-	-	4580	-	-
SB-3D-02	3.0-3.5	E60358-108	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3E-01	1.5-2.0	E60358-56	12/8/99	-	-	-	483	-	-	-	-	-	-	880	-	-	-	-	710 J	-	-
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	-	-	989	-	-	-	-	-	-	1240	-	-	-	-	646 J	-	-
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3F-01	1.5-2.0	E60358-16	12/9/99	-	-	-	ND	-	-	-	-	-	-	264	-	-	-	-	267 J	-	ND
SB-3F-01	4.0-4.5	E60358-17	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	182 J	-	ND
SB-3F-02	0.0-0.5	E60729-74	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	978	-	-	-	-	-	-	627	-	-	-	-	798 J	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	1470	-	-	-	-	-	-	2710	-	-	-	-	5520	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	-	-	-	880	-	-	-	-	-	-	243	-	-	-	-	157 J	-	ND
SB-3F-03	3.0-3.5	E60358-19	12/9/99	-	-	-	251000	-	-	-	-	-	-	7360	-	-	-	-	109000	-	ND
SB-3F-04	1.5-2.0	E60358-14	12/9/99	-	-	-	55.8 J	-	-	-	-	-	-	158 J	-	-	-	-	ND	-	ND
SB-3F-04	3.0-3.5	E60358-15	12/9/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	ND
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	ND	-	-	-	-	-	-	258	-	-	-	-	ND	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	-	-	814	-	-	-	-	-	-	1960	-	-	-	-	765	-	-
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	1.5-2.0	E60358-12	12/8/99	-	-	-	ND	-	-	-	-	-	-	ND	-	-	-	-	ND	-	-
SB-3G-02	5.0-5.5	E60358-13	12/9/99	-	-	-	402	-	-	-	-	-	-	443	-	-	-	-	661 J	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	ND	ND	ND	612000	ND	ND	ND	24000	ND	ND	278000	ND	ND	ND	ND	285000	666000	-
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	ND
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	218	ND	ND	ND	ND	ND	ND	290	ND	ND	ND	ND	121 J	0	ND

N:\project\s\s-prj\s99\s99227\b\supp rir\tables\[table 6

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010187

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	4-Chloro-3-methyl phenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			RDCSCC	10000000	170000	1100000	110000	NS	2800000	NS	NS	NS	6000	10000000	56000000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	321	3540	1960
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	313	4710	1710
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2560	7670	8500
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	8420	10600	14900
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	355	5910	5160
SB-1B-01	1.5-2.0	E60358-2	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	3.5-4.0	E60358-3	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	646	3270	3180
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	797	12700	10500
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	863	2530	2180
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	208 J	4470	1290
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	193	88 J
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	179	77.6 J
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	40.9 J	891	236
SB-1B-05	0.0-0.5	E60358-24	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	330	3260	2050
SB-1B-05	1.5-2.0	E60358-25	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-06	0.0-0.5	E60358-23	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	817	7360	3930
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	1820	788
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	302 J	2530	1400
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	48.6 J	387	295
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	449 J	380 J
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	48.7 J	340	212
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	7360	2340	6140
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	167	497	815
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	156	768	799
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	197	431	580
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	26.4 J
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1180	1740	3360
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	897	4980	3220
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	48.5 J	23.1 J
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	82.6 J	ND	76.5 J
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	3.5-4.0	E60729-71	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	64.1 J
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	873	ND	669
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	84.8	110	74.1 J
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	8760	ND	2690
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	33 J	21.5 J
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	6340	ND	1620
SB-2A-03	0.0-0.5	E60450-16	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	330 J	143 J
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010188

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	4-Chloro-3-methyl phenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			RDCSCC	10000000	170000	1100000	110000	NS	2800000	NS	NS	NS	6000	10000000	5600000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-18	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	11800	7860	12700
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	31100	ND	16000
SB-2A-04	0.0-0.5	E60450-20	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	4920	13000	21400
SB-2A-04	1.5-2.0	E60450-21	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-04	5.5-6.0	E60450-22	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	25900	ND	14800
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	65.2 J	146 J
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1330	ND	1780
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	15200	ND	5650
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	304000	23100	110000
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	658	339
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	240000	61600	138000
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	202000	23500	91800
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	2550	998
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1400	2710	3000
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2130	1270	2040
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	104 J	156	120
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	887	189	1950
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	387 J	1320	1130
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	12300	ND	12100
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	98200	ND	20300
SB-2A-10	3.5-4.0	E60450-39	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	4060	1510	2510
SB-2A-10	7.5-8.0	E60450-40	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	140000	ND	42700
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	221000	ND	47900
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	172	88.8 J
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	92.3 J	60.7 J	ND
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	2240	781
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1740	2580	19900
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	129	88.1 J	117
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	6150	ND	2420
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	86700	35200	44500
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	173000	17500	50600
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	520	2930	1480
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	83100	58900	83600
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	22000	5260	9530
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	275	205	136
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	3900	19900	8100
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	338	234	238
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	166 J	146 J	436
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	204 J
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	9870	5740	3430
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	41000	14400	104000
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	724	119 J	76 J
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	3950	975	7140

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Miligrams per kilogram

Shaded data exceed soil cleanup criteria

9210101189

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	4-Chloro-3-methylphenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			RDCSCC	10000000	170000	1100000	110000	NS	2800000	NS	NS	NS	6000	10000000	5600000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	8.7 J
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	22.3 J	18 J
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	116	649	1100
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1700	767	1670
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1600	1130	1720
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	58.1 J
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	255 J	137 J
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	1470	1620
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2650	3020	741 J
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	3830	3520	741
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-03	0.0-0.5	E60588-50	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	24.5 J	169	123
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	197 J
SB-2B-03	5.5-6.0	E60588-54	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	115	156
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	51.6 J	310
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-04	0.0-0.5	E60588-12	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	207 J
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	669	383
SB-2B-04	5.5-6.0	E60588-14	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	480	2510	3110
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	368	766	1550
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1820	928	3320
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2810	704	5070
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	167	155
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	5620	880
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	140 J	931	666
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	370 J
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1870	12500	15400
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2100	11000	2070
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	94.3	77.4 J	352
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1080	901	1560
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1110	1620	2510
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	31700	47000 J	5040
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1050	3770	431 J
SB-2B-11	1.5-2.0	E60729-46	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	226 J	635
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	271	1960	1600
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	28.2 J	27.2 J
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	103	55 J
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-12	0.0-0.5	E60588-17	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	415 J
SB-2B-12	1.0-1.5	E60588-18	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	162	3340	1850

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010190

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	4-Chloro-3-methyl phenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			RDCSCC	10000000	170000	1100000	110000	NS	2800000	NS	NS	NS	6000	10000000	5600000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-19	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	706	504	541
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	82.5 J	59.8 J
SB-2B-12	7.5-8.0	E60588-21	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	43.6 J	420	154
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	30.4 J	ND	21.5 J
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	146	34.2 J
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	261	134
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	498	8690	2660
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2390	4290	3990
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-16	4.5-5.0	E60729-67	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-16	11.5-12.0	E60729-68	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	75.9 J	52.8 J	232
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	539 J	6060	8620
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	184 J	3030	1530
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	840	328	562
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	79.5 J	ND	32.1 J
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	72.9 J
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	483	401 J	1070
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	342	1130	2320
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2150	33300	17800
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	17600	20200	12300
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	247 J	914	832
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1170	1200	968
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	444	142	217
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	5760	396	1890
SB-2D-02	10.5-11.0	E60358-78	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	5250	1280 J	2470
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	207	121
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	5340	39600	48600
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	536	1790	1200
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	63.4 J	169	119
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	26000	18400	16500
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	92400	ND	10900
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	181000	23000	95200
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	4750	ND	1160
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2380	ND	849
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	485	494	335
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	15.9 J

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010191

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	4-Chloro-3-methyl phenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			RDCSCC	10000000	170000	1100000	110000	NS	2800000	NS	NS	NS	6000	10000000	56000000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	631	ND	276
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1150	ND	329 J
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	301 J	421 J
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	203 J	697	276 J
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	19700	17700	22800
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	79.4 J	186	212
SB-2D-08	5.5-6.0	E60588-34	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	5920	9670	11700
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	977	2250	2120
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	65.4 J
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	373 J	3040	8520
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2440	8470	3490
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	64.9 J	75.4 J
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	29.6 J	570	221
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	56700	24200	9480
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	647	5780	7820
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2920	5330	1820
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	144 J	42.9 J
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	133	51.5 J	174
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	308	96.7	116
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	13 J
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	318	216
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	25200	56300	53000
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	17400	19100	26800
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	316	71.1 J	968
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1060	16700	2360
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1070	4940	656
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	253 J	96.7 J
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	788 J	1130	2710
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2660	4950	4960
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	205 J	ND
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	93.2 J	ND
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	113 J	1090	440
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	8380	8770	6890
SB-3B-03	0.0-0.5	E60358-36	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	32200	13000	107000
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	198000	49300	57100
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1220	15000	8110
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	66200	25200	31500
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	57.1 J	1770	609
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	4.5-5.0	E60358-41	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	519	55.6 J	23.9 J
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	12600	137000	103000
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	5.0-5.5	E60358-47	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1000000	158000	361000
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	10600	27300	63800

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010192

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	4-Chloro-3-methyl phenol	2,4-Dichlorophenol	2,4-Dimethylphenol	2,4-Dinitrophenol	4,6-Dinitro-o-cresol	2-Methylphenol	3&4-Methylphenol	2-Nitrophenol	4-Nitrophenol	Pentachlorophenol	Phenol	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	Acenaphthene	Acenaphthylene	Anthracene
			NJDEP Soil Cleanup Criteria																
			RDCSCC	10000000	170000	1100000	110000	NS	2600000	NS	NS	NS	6000	10000000	5600000	62000	3400000	NS	10000000
			NRDCSCC	10000000	3100000	10000000	2100000	NS	10000000	NS	NS	NS	24000	10000000	10000000	270000	10000000	NS	10000000
			IGWSCC	100000	10000	10000	10000	NS	NS	NS	NS	NS	100000	50000	50000	10000	100000	NS	100000
				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	91500	49100	60000
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	2300	24800	14200
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	39200	31300	30900
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	3040	73000	39800
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	272000	812000	425000
SB-3C-01	1.0-1.5	E60358-65	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	385 J	255 J
SB-3C-02	1.5-2.0	E60358-66	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	976	729	2260
SB-3C-03	1.5-2.0	E60358-64	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	24.8 J	68.7 J	85.5 J
SB-3C-04	1.1-1.6	E60358-67	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	1870	819
SB-3D-01	3.0-3.5	E60358-72	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	29100	ND	12300
SB-3D-02	3.0-3.5	E60358-108	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	20.5 J	66.1 J
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	448	391 J
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	1.5-2.0	E60358-56	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	144	63 J
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	1910	ND	676
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	ND
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	1.5-2.0	E60358-16	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2500	ND	144 J
SB-3F-01	4.0-4.5	E60358-17	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3260	ND	323 J
SB-3F-02	0.0-0.5	E60729-74	12/15/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	163	255	114
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3370	8300	1700
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	990	3460	2220
SB-3F-03	3.0-3.5	E60358-19	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	362000	321000	582000
SB-3F-04	1.5-2.0	E60358-14	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	288 J	602
SB-3F-04	3.0-3.5	E60358-15	12/8/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1740	377 J	3300
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	72.1 J	254 J	173 J
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	26.1 J	ND	ND
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	192 J	128 J
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	5.0-5.5	E60358-13	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	50.5 J	28.7 J
TS-15	7.5-8.0	E60729-78	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	112000	128000	126000
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	487	233	734
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

N:\project\s\s-priv\s99\s99227\b\supp rt\tables\(table 6

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010193

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	660	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	50000	100000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	5310	8060	4490	2600	4740	-	-	-	-	-	6370	-	-	-	-	-	-
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	2410	3360	3240	1850	4120	-	-	-	-	-	5550	-	-	-	-	-	-
SB-1A-02	0.0-0.5	E60358-9	12/8/99	27900	42000	33600	11000	ND	-	-	-	-	-	31000	-	-	-	-	-	-
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	33400	24700	29300	5010	ND	-	-	-	-	-	28600	-	-	-	-	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	11000	10400	8400	3900	5360	-	-	-	-	-	11100	-	-	-	-	-	-
SB-1B-01	1.5-2.0	E60358-2	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	3.5-4.0	E60358-3	12/8/99	7860	8070	4530	3340	5540	-	-	-	-	-	8050	-	-	-	-	-	-
SB-1B-02	0.0-0.5	E60358-4	12/8/99	33100	28000	27200	7910	16900	-	-	-	-	-	36000	-	-	-	-	-	-
SB-1B-02	2.5-3.0	E60358-5	12/8/99	2560	2580	2770	782	ND	-	-	-	-	-	2420	-	-	-	-	-	-
SB-1B-03	0.0-0.5	E60358-26	12/8/99	3670	3330	4460	1580	3910	-	-	-	-	-	4930	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60358-27	12/8/99	405	522	390	397	334	-	-	-	-	-	408	-	-	-	-	-	-
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	306	366	302	297	302	-	-	-	-	-	321	-	-	-	-	-	-
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	994	1400	981	1040	995	-	-	-	-	-	1100	-	-	-	-	-	-
SB-1B-05	0.0-0.5	E60358-24	12/8/99	8450	7700	7540	2020	6240	ND	ND	ND	ND	121 J	8380	ND	ND	ND	ND	ND	ND
SB-1B-05	1.5-2.0	E60358-25	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-06	0.0-0.5	E60358-23	12/8/99	10400	9060	8810	6520	6260	ND	ND	ND	ND	266	10700	ND	ND	ND	ND	ND	ND
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	3050	3600	3420	2160	2780	-	-	-	-	-	3640	-	-	-	-	-	-
SB-1C-02	0.0-0.5	E60729-11	12/14/99	4690	6090	3940	5120	5220	-	-	-	-	-	5830	-	-	-	-	-	-
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	1310	1460	1200	1170	865	-	-	-	-	-	1520	-	-	-	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	1520	1430	1730	1740	1050	-	-	-	-	-	2010	-	-	-	-	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	834	835	792	855	658	-	-	-	-	-	1060	-	-	-	-	-	-
SB-1C-03	7.0-7.5	E60729-82	12/15/99	8500	7970	5250	1750	4220	-	-	-	-	-	10300	-	-	-	-	-	-
SB-1C-04	0.0-0.5	E60729-5	12/14/99	3790	3600	2900	1540	2540	-	-	-	-	-	4080	-	-	-	-	-	-
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	3490	3730	3880	1620	2620	-	-	-	-	-	3790	-	-	-	-	-	-
SB-1C-04	7.5-8.0	E60729-8	12/14/99	3190	3600	3470	1570	2470	-	-	-	-	-	3500	-	-	-	-	-	-
SB-1C-04	11.0-11.5	E60729-9	12/14/99	49.6 J	49.6 J	40.6 J	35 J	50.7 J	-	-	-	-	-	55 J	-	-	-	-	-	-
SB-1C-05	0.0-0.5	E60729-12	12/14/99	6060	4710	3330	4260	2740	-	-	-	-	-	5970	-	-	-	-	-	-
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	6720	13200	6060	6570	4190	-	-	-	-	-	10600	-	-	-	-	-	-
SB-1C-05	7.5-8.0	E60729-15	12/14/99	91.4	97	64.4 J	57.8 J	64.7 J	-	-	-	-	-	114	-	-	-	-	-	-
SB-1C-05	11.0-11.5	E60729-16	12/14/99	574	608	326	418	225	-	-	-	-	-	617	-	-	-	-	-	-
SB-1C-06	0.0-0.5	E60729-69	12/15/99	27.5 J	28.3 J	30.7 J	ND	13.5 J	-	-	-	-	-	37 J	-	-	-	-	-	-
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	3.5-4.0	E60729-71	12/15/99	124 J	112 J	182	97.9 J	ND	-	-	-	-	-	176	-	-	-	-	-	-
SB-1C-06	7.5-8.0	E60729-72	12/15/99	427	304	357	136	ND	-	-	-	-	-	552	-	-	-	-	-	-
SB-1C-06	11.5-12.0	E60729-73	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-01	0.0-0.5	E60450-4	12/10/99	124	151	143	119	ND	-	-	-	-	-	139	-	-	-	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	2600	1920	1810	923	ND	-	-	-	-	-	2760	-	-	-	-	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	43.6 J	43.8 J	42.4 J	67.9 J	37 J	-	-	-	-	-	47.7 J	-	-	-	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	1550	1120	1260	690	ND	-	-	-	-	-	1800	-	-	-	-	-	-
SB-2A-03	0.0-0.5	E60450-16	12/10/99	481	619	416 J	423 J	402 J	-	-	-	-	-	546	-	-	-	-	-	-
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010194

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	660	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	60000	100000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-18	12/10/99	35000	31400	20400	5400	24000	-	-	-	-	-	35400	-	-	-	-	-	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	11300	9900	4900	2780	4680	-	-	-	-	-	11600	-	-	-	-	-	-
SB-2A-04	0.0-0.5	E60450-20	12/10/99	33400	23200	23100	6250	18700	-	-	-	-	-	33800	-	-	-	-	-	-
SB-2A-04	1.5-2.0	E60450-21	12/10/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-04	5.5-6.0	E60450-22	12/10/99	10100	8370	5970	1880	5050	-	-	-	-	-	11800	-	-	-	-	-	-
SB-2A-05	0.0-0.5	E60450-33	12/10/99	345 J	305 J	235 J	197 J	276 J	-	-	-	-	-	311 J	-	-	-	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	8150	8100	6910	3370	4900	-	-	-	-	-	10800	-	-	-	-	-	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	3480	3080	3390	1810	2420	-	-	-	-	-	6410	-	-	-	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	77000	60100	62100	11600	ND	-	-	-	-	-	83200	-	-	-	-	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	1610 J	1680	1080	870 J	1180	-	-	-	-	-	1820	-	-	-	-	-	-
SB-2A-07	4.5-5.0	E60450-25	12/10/99	ND	14.6 J	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	78000	69800	24000	13600	38900	-	-	-	-	-	72300	-	-	-	-	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	46400	42800	13200	11200	24900	-	-	-	-	-	37800	-	-	-	-	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	3230	2980	2490	2890	2520	-	-	-	-	-	4050	-	-	-	-	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	10600	12000	5560	5120	8760	-	-	-	-	-	12200	-	-	-	-	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	3980	4620	2300	1690	2180	-	-	-	-	-	4520	-	-	-	-	-	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	424	482	306	263	245	-	-	-	-	-	494	-	-	-	-	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	3450	3600	2490	1320	2900	-	-	-	-	-	3430	-	-	-	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	6370	6370	3190	3590	4170	-	-	-	-	-	7370	-	-	-	-	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	27600	15500	17000	3620	10900	-	-	-	-	-	20400	-	-	-	-	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	12200	6950	6010	1460	5550	-	-	-	-	-	13000	-	-	-	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	2170	1690	1280	946	1240	-	-	-	-	-	2280	-	-	-	-	-	-
SB-2A-10	7.5-8.0	E60450-40	12/10/99	18100	12600	22300	2460	22000	-	-	-	-	-	18100	-	-	-	-	-	-
SB-2A-10	9.5-10.0	E60450-41	12/10/99	27400	21900	12000	3100	13400	-	-	-	-	-	30900	-	-	-	-	-	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	501	568	467	522	431	-	-	-	-	-	539	-	-	-	-	-	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	162	133	142	86.2 J	ND	-	-	-	-	-	179	-	-	-	-	-	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	1970	1920	1120	1720	1720	-	-	-	-	-	2390	-	-	-	-	-	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	26100	21100	11100	7410	10600	-	-	-	-	-	25800	-	-	-	-	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	297	248	213	191	151	-	-	-	-	-	343	-	-	-	-	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	1910	1860	1650	1130	1270	-	-	-	-	-	2540	-	-	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	79200	58700	30500	4410	39400	-	-	-	-	-	116000	-	-	-	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	38700	30800	16400	3100	16300	-	-	-	-	-	28700	-	-	-	-	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	4420	8130	10300	4380	ND	-	-	-	-	-	5820	-	-	-	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	839000	1485000	213000	171000	102000	-	-	-	-	-	352000	-	-	-	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	25800	34200	23800	12800	14000	-	-	-	-	-	28100	-	-	-	-	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	213	171	164	33 J	121	-	-	-	-	-	307	-	-	-	-	-	-
SB-2A-16	5.5-6.0	E60588-36	12/13/99	8440	6200	7550	384 J	5880	-	-	-	-	-	8850	-	-	-	-	-	-
SB-2A-16	11.0-11.5	E60588-37	12/13/99	307	215	164	62.2 J	180	-	-	-	-	-	355	-	-	-	-	-	-
SB-2A-17	3.5-4.0	E60588-38	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-18	3.5-4.0	E60588-7	12/13/99	1420	1170	880	524	807	-	-	-	-	-	1620	-	-	-	-	-	-
SB-2A-19	3.5-4.0	E60588-1	12/13/99	852	995	1420	758	983	-	-	-	-	-	1270	-	-	-	-	-	-
SB-2A-19	7.5-8.0	E60588-2	12/13/99	13000	8930	17800	2240	ND	-	-	-	-	-	14600	-	-	-	-	-	-
SB-2A-19	10.5-11.0	E60588-3	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2A-20	3.0-3.5	E60588-8	12/13/99	120000	100000	116000	33100	ND	-	-	-	-	-	122000	-	-	-	-	-	-
SB-2A-20	6.5-7.0	E60588-9	12/13/99	147	118 J	143	79.5 J	72 J	-	-	-	-	-	156	-	-	-	-	-	-
SB-2A-20	14.5-15.0	E60588-10	12/13/99	8210	6540	4300	1970	3520	-	-	-	-	-	8670	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010195

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	660	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	50000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	18.7 J	ND	ND	ND	ND	-	-	-	-	-	17.4 J	-	-	-	-	-	-
SB-2A-21	6.0-6.5	E60588-40	12/13/99	58.1 J	59.8 J	54.9 J	71.6 J	47.9 J	-	-	-	-	-	46.7 J	-	-	-	-	-	-
SB-2A-22	3.5-4.0	E60588-41	12/13/99	3660	3300	2440	2300	1780	-	-	-	-	-	3980	-	-	-	-	-	-
SB-2A-22	7.5-8.0	E60588-42	12/13/99	1810	1140	927	542 J	800	-	-	-	-	-	2050	-	-	-	-	-	-
SB-2A-22	10.5-11.0	E60588-43	12/13/99	1730	1460	928	708	900	-	-	-	-	-	1860	-	-	-	-	-	-
SB-2B-01	0.0-0.5	E60729-25	12/14/99	125 J	226 J	159 J	ND	86.8 J	-	-	-	-	-	248 J	-	-	-	-	-	-
SB-2B-01	5.5-6.0	E60729-26	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-02	0.0-0.5	E60588-26	12/13/99	487	508	364 J	431	346 J	-	-	-	-	-	574	-	-	-	-	-	-
SB-2B-02	3.0-3.5	E60588-27	12/13/99	12200	14700	12800	3110	9760	-	-	-	-	-	14800	-	-	-	-	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	4210	6200	11900	737 J	6670	-	-	-	-	-	7210	-	-	-	-	-	-
SB-2B-02	7.0-7.5	E60588-29	12/13/99	1310	ND	3540	ND	2530	-	-	-	-	-	1680	-	-	-	-	-	-
SB-2B-02	11.0-11.5	E60588-30	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-03	0.0-0.5	E60588-50	12/13/99	495	617	475	102	624	-	-	-	-	-	548	-	-	-	-	-	-
SB-2B-03	3.0-3.5	E60588-51	12/13/99	1230	466 J	1080	214 J	690	-	-	-	-	-	3190	-	-	-	-	-	-
SB-2B-03	5.5-6.0	E60588-54	12/13/99	1620	1480	653	234	1030	-	-	-	-	-	1790	-	-	-	-	-	-
SB-2B-03	7.5-8.0	E60588-52	12/13/99	1010	766	446	158	459	-	-	-	-	-	1140	-	-	-	-	-	-
SB-2B-03	11.5-12.0	E60588-53	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-04	0.0-0.5	E60588-12	12/13/99	620	578	585	311 J	558	-	-	-	-	-	653	-	-	-	-	-	-
SB-2B-04	3.5-4.0	E60588-13	12/13/99	994	949	773	588	722	-	-	-	-	-	1120	-	-	-	-	-	-
SB-2B-04	5.5-6.0	E60588-14	12/13/99	6230	6670	6180	3480	3500	-	-	-	-	-	6480	-	-	-	-	-	-
SB-2B-04	7.5-8.0	E60588-15	12/13/99	4380	5180	4450	1940	2300	-	-	-	-	-	4140	-	-	-	-	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	5910	8100	4790	1600	3080	-	-	-	-	-	5490	-	-	-	-	-	-
SB-2B-05	1.5-2.0	E60729-18	12/14/99	5170	3890	2480	1480	2150	-	-	-	-	-	6030	-	-	-	-	-	-
SB-2B-05	3.5-4.0	E60729-19	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-05	5.5-6.0	E60729-20	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-05	7.5-8.0	E60729-21	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-05	11.5-12.0	E60729-22	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	1060	1390	1590	821	1490	-	-	-	-	-	1220	-	-	-	-	-	-
SB-2B-06	5.5-6.0	E60729-4	12/14/99	50.8 J	98.5 J	94.9 J	113	89.3 J	-	-	-	-	-	67.4 J	-	-	-	-	-	-
SB-2B-06	7.5-8.0	E60729-3	12/14/99	163	147	189	70 J	136	-	-	-	-	-	265	-	-	-	-	-	-
SB-2B-06	11.5-12.0	E60729-79	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-07	1.5-2.0	E60729-27	12/14/99	2180	2120	3790	887	3560	-	-	-	-	-	4450	-	-	-	-	-	-
SB-2B-07	2.5-3.0	E60729-28	12/14/99	2200	2480	2080	1650	2370	-	-	-	-	-	3000	-	-	-	-	-	-
SB-2B-07	4.0-4.5	E60729-29	12/14/99	794	523 J	1050	189 J	923	-	-	-	-	-	1280	-	-	-	-	-	-
SB-2B-08	1.5-2.0	E60729-76	12/15/99	20800	13600	8660	5750	11600	-	-	-	-	-	22800	-	-	-	-	-	-
SB-2B-08	3.5-4.0	E60729-77	12/15/99	2960	1340	2670	959	1040	-	-	-	-	-	3520	-	-	-	-	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	458	303	240	93	278	-	-	-	-	-	448	-	-	-	-	-	-
SB-2B-08	6.5-7.0	E60729-52	12/15/99	1340	962	897	172	322	-	-	-	-	-	1390	-	-	-	-	-	-
SB-2B-08	11.5-12.0	E60729-53	12/15/99	2090	1660	1310	314 J	1030	-	-	-	-	-	2400	-	-	-	-	-	-
SB-2B-09	0.0-0.5	E60588-57	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-09	2.5-3.0	E60588-58	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-09	5.0-5.5	E60588-59	12/13/99	3780	2870	2040	1760	2520	-	-	-	-	-	4170	-	-	-	-	-	-
SB-2B-09	10.0-10.5	E60588-63	12/13/99	529 J	490 J	369 J	416 J	463 J	-	-	-	-	-	547 J	-	-	-	-	-	-
SB-2B-11	1.5-2.0	E60729-46	12/15/99	1060	1110	997	332	1120	-	-	-	-	-	1060	-	-	-	-	-	-
SB-2B-11	3.5-4.0	E60729-47	12/15/99	8450	6930	5390	1530	3580	-	-	-	-	-	7020	-	-	-	-	-	-
SB-2B-11	5.5-6.0	E60729-48	12/15/99	187	304	200	173	194	-	-	-	-	-	252	-	-	-	-	-	-
SB-2B-11	7.5-8.0	E60729-49	12/15/99	268	374	196	200	268	-	-	-	-	-	325	-	-	-	-	-	-
SB-2B-11	11.5-12.0	E60729-50	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-12	0.0-0.5	E60588-17	12/13/99	577 J	ND	893 J	ND	ND	-	-	-	-	-	584 J	-	-	-	-	-	-
SB-2B-12	1.0-1.5	E60588-18	12/13/99	8650	7030	5430	3440	4750	-	-	-	-	-	9600	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010196

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	680	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	50000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-19	12/13/99	583	565	408	340	328	-	-	-	-	-	645	-	-	-	-	-	-
SB-2B-12	5.5-6.0	E60588-20	12/13/99	225	176	197	91.8 J	92.6 J	-	-	-	-	-	258	-	-	-	-	-	-
SB-2B-12	7.5-8.0	E60588-21	12/13/99	590	879	550	801	619	-	-	-	-	-	826	-	-	-	-	-	-
SB-2B-12	11.5-12.0	E60588-22	12/13/99	51.2 J	50.3 J	43 J	41.9 J	41.3 J	-	-	-	-	-	49.8 J	-	-	-	-	-	-
SB-2B-13	3.5-4.0	E60729-23	12/14/99	46.3 J	30.3 J	57.2 J	43.1 J	35.5 J	-	-	-	-	-	137	-	-	-	-	-	-
SB-2B-13	7.5-8.0	E60729-24	12/14/99	603	861	396	444	504	-	-	-	-	-	721	-	-	-	-	-	-
SB-2B-14	3.5-4.0	E60588-55	12/13/99	26700	34000	11600	2100	32200	-	-	-	-	-	24500	-	-	-	-	-	-
SB-2B-14	6.5-7.0	E60588-56	12/13/99	20300	20500	6100	1930	16400	-	-	-	-	-	20400	-	-	-	-	-	-
SB-2B-16	3.0-3.5	E60729-66	12/15/99	67.8 J	117	129	216	66 J	-	-	-	-	-	91.6	-	-	-	-	-	-
SB-2B-16	4.5-5.0	E60729-67	12/15/99	55.4 J	53.6 J	55.2 J	62.4 J	50.1 J	-	-	-	-	-	72.6 J	-	-	-	-	-	-
SB-2B-16	11.5-12.0	E60729-68	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-18	7.5-8.0	E60729-33	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-18	11.5-12.0	E60729-34	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-19	3.0-3.5	E60729-37	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-19	7.5-8.0	E60729-38	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-19	11.5-12.0	E60729-39	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-20	2.5-3.0	E60729-30	12/14/99	542	479	463	272	505	-	-	-	-	-	689	-	-	-	-	-	-
SB-2B-20	7.0-7.5	E60729-31	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2B-20	11.0-11.5	E60729-32	12/14/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2C-01	1.6-2.0	E60729-61	12/15/99	30200	28000	28200	7410	19700	-	-	-	-	-	41000	-	-	-	-	-	-
SB-2C-01	3.6-4.0	E60729-62	12/15/99	4260	6830	5760	3270	5150	-	-	-	-	-	5880	-	-	-	-	-	-
SB-2C-01	5.5-6.0	E60729-63	12/15/99	3280	3660	3060	4430	2980	-	-	-	-	-	3070	-	-	-	-	-	-
SB-2C-01	7.5-8.0	E60729-64	12/15/99	177	183	179	210	166	-	-	-	-	-	182	-	-	-	-	-	-
SB-2C-01	11.5-12.0	E60729-65	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2C-03	3.5-4.0	E60729-40	12/15/99	205 J	183 J	152 J	110 J	138 J	-	-	-	-	-	221 J	-	-	-	-	-	-
SB-2C-03	5.5-6.0	E60729-41	12/15/99	3480	3410	2690	2520	2560	-	-	-	-	-	3500	-	-	-	-	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	5720	5590	6160	1020	3250	-	-	-	-	-	4890	-	-	-	-	-	-
SB-2C-03	11.5-12.0	E60729-43	12/15/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2D-01	0.0-0.5	E60358-81	12/9/99	66200	64900	34500	27300	28900	-	-	-	-	-	65400	-	-	-	-	-	-
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	6220	6020	2320	3010	2610	-	-	-	-	-	5650	-	-	-	-	-	-
SB-2D-02	0.0-0.5	E60358-73	12/9/99	2950	2580	1860	2000	1770	-	-	-	-	-	3290	-	-	-	-	-	-
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	1910	1750	1050	1310	1150	-	-	-	-	-	2130	-	-	-	-	-	-
SB-2D-02	5.5-6.0	E60358-76	12/9/99	257	267	133 J	185	148	-	-	-	-	-	286	-	-	-	-	-	-
SB-2D-02	8.0-8.5	E60358-77	12/9/99	1330	1240	482	689	690	-	-	-	-	-	1340	-	-	-	-	-	-
SB-2D-02	10.5-11.0	E60358-78	12/9/99	2390	1980	1090	1320 J	1210	-	-	-	-	-	2620	-	-	-	-	-	-
SB-2D-03	0.0-0.5	E60358-88	12/9/99	416	394	319	370	301	-	-	-	-	-	470	-	-	-	-	-	-
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	129000	87300	31800	14000	25000	-	-	-	-	-	124000	-	-	-	-	-	-
SB-2D-03	5.5-6.0	E60358-89	12/9/99	3570	3040	2030	832	1830	-	-	-	-	-	3260	-	-	-	-	-	-
SB-2D-03	7.0-7.5	E60358-90	12/9/99	481	616	385	374	415	-	-	-	-	-	429	-	-	-	-	-	-
SB-2D-03	11.5-12.0	E60358-91	12/9/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2D-04	1.5-2.0	E60358-82	12/9/99	32700	23900	17300	12100	16400	-	-	-	-	-	42500	-	-	-	-	-	-
SB-2D-04	6.5-7.0	E60358-84	12/9/99	872 J	636 J	400 J	454 J	383 J	-	-	-	-	-	847 J	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	40100	37800	12500	14700	18800	-	-	-	-	-	34500	-	-	-	-	-	-
SB-2D-05	2.5-3.0	E60450-42	12/10/99	787	522	443 J	251 J	329 J	-	-	-	-	-	927	-	-	-	-	-	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	648	500	332	120	279	-	-	-	-	-	824	-	-	-	-	-	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	649	872	488	356	475	-	-	-	-	-	783	-	-	-	-	-	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	26.4 J	20.6 J	ND	ND	ND	-	-	-	-	-	36.8 J	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010197

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	660	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	50000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	245	166	106	55.4 J	107	-	-	-	-	-	285	-	-	-	-	-	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	418 J	333 J	326 J	261 J	246 J	-	-	-	-	-	497 J	-	-	-	-	-	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	2730	1590	3320	1880	2480	-	-	-	-	-	3230	-	-	-	-	-	-
SB-2D-07	5.0-5.5	E60358-93	12/9/99	854	472	829	1080	992	-	-	-	-	-	1370	-	-	-	-	-	-
SB-2D-07	6.0-6.5	E60358-94	12/9/99	60200	33400	47800	6640	21000	-	-	-	-	-	64800	-	-	-	-	-	-
SB-2D-08	3.5-4.0	E60588-33	12/13/99	397	459	341	219	238	-	-	-	-	-	539	-	-	-	-	-	-
SB-2D-08	5.5-6.0	E60588-34	12/13/99	10800	3790	7850	356 J	10300	-	-	-	-	-	18400	-	-	-	-	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	5880	8220	4580	2320	4020	-	-	-	-	-	6620	-	-	-	-	-	-
SB-2D-09	7.5-8.0	E60588-5	12/13/99	309	380	311	306	289	-	-	-	-	-	314	-	-	-	-	-	-
SB-2D-09	10.5-11.0	E60588-6	12/13/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-2D-10	3.5-4.0	E60588-11	12/13/99	34700	41400	33400	17400	20300	-	-	-	-	-	34500	-	-	-	-	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	6290	2960	4620	402 J	4500	-	-	-	-	-	9040	-	-	-	-	-	-
SB-2E-01	0.0-0.5	E60729-58	12/15/99	230 J	ND	ND	ND	ND	-	-	-	-	-	419	-	-	-	-	-	-
SB-2E-01	3.0-3.5	E60729-59	12/15/99	920	1470	1800 J	446	855	-	-	-	-	-	1010	-	-	-	-	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	6380	7830	6600	2140 J	5850	-	-	-	-	-	8790	-	-	-	-	-	-
SB-2E-02	0.0-0.5	E60729-54	12/15/99	313 J	ND	ND	ND	ND	-	-	-	-	-	618 J	-	-	-	-	-	-
SB-2E-02	3.0-3.5	E60729-55	12/15/99	82100	81200	24400	7020	9430	-	-	-	-	-	97400	-	-	-	-	-	-
SB-2E-02	7.0-7.5	E60729-56	12/15/99	4700	3670	3730	1350	1780	-	-	-	-	-	4580	-	-	-	-	-	-
SB-2E-03	0.0-0.5	E60588-45	12/13/99	98.5 J	66.5 J	ND	ND	ND	-	-	-	-	-	75 J	-	-	-	-	-	-
SB-2E-03	3.0-3.5	E60588-46	12/13/99	267 J	280 J	236 J	236 J	240 J	-	-	-	-	-	280 J	-	-	-	-	-	-
SB-2E-03	7.0-7.5	E60588-47	12/13/99	372	263	230	114	214	-	-	-	-	-	371	-	-	-	-	-	-
SB-2E-03	11.0-11.5	E60588-48	12/13/99	198	184	162	68.8 J	137	-	-	-	-	-	196	-	-	-	-	-	-
SB-2E-04	0.0-0.5	E60588-64	12/13/99	51.2 J	79.1	61.4 J	30.1 J	47.3 J	-	-	-	-	-	80	-	-	-	-	-	-
SB-2E-04	2.5-3.0	E60588-31	12/13/99	661	606	819	414	566	-	-	-	-	-	751	-	-	-	-	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	91300	44500	24000	2710	52300	-	-	-	-	-	82100	-	-	-	-	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	33800	25500	13800	4810	13500	-	-	-	-	-	34400	-	-	-	-	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	2080	2170	2160	305	1990	-	-	-	-	-	2080	-	-	-	-	-	-
SB-3A-01	1.5-2.0	E60358-32	12/8/99	10200	5280	10500	2250	10100	-	-	-	-	-	15700	-	-	-	-	-	-
SB-3A-02	1.5-2.0	E60358-31	12/8/99	557	1780	1250	1200	690	-	-	-	-	-	577	-	-	-	-	-	-
SB-3A-03	1.5-2.0	E60358-95	12/9/99	487	332 J	416	287 J	309 J	-	-	-	-	-	519	-	-	-	-	-	-
SB-3A-04	1.5-2.0	E60358-54	12/9/99	3820	3480	2380	2900	2370	-	-	-	-	-	4400	-	-	-	-	-	-
SB-3A-05	1.5-2.0	E60358-96	12/8/99	13300	9240	6030	4820	6900	-	-	-	-	-	14400	-	-	-	-	-	-
SB-3B-01	0.0-0.5	E60358-101	12/8/99	273 J	305 J	256 J	339 J	224 J	-	-	-	-	-	316 J	-	-	-	-	-	-
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	136 J	170 J	165 J	116 J	127 J	-	-	-	-	-	211 J	-	-	-	-	-	-
SB-3B-02	0.0-0.5	E60358-51	12/9/99	894	1120	851	1170	702	-	-	-	-	-	940	-	-	-	-	-	-
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	8840	5660	5420	2350	3950	-	-	-	-	-	8630	-	-	-	-	-	-
SB-3B-03	0.0-0.5	E60358-36	12/9/99	98400	83700	50000	44200	29600	-	-	-	-	-	93100	-	-	-	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	49200	38600	24000	16300	20900	-	-	-	-	-	31900	-	-	-	-	-	-
SB-3B-04	0.0-0.5	E60358-48	12/9/99	18800	22700	15300	20800	14100	-	-	-	-	-	18500	-	-	-	-	-	-
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	48300	38900	28400	16000	37200	-	-	-	-	-	43200	-	-	-	-	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	1420	1610	1410	1050	1040	-	-	-	-	-	1530	-	-	-	-	-	-
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	4.5-5.0	E60358-41	12/9/99	68.3 J	88.8	68.4 J	95.8	60.9 J	-	-	-	-	-	78.2 J	-	-	-	-	-	-
SB-3B-06	0.0-0.5	E60358-45	12/8/99	192000	223000	166000	139000	134000	-	-	-	-	-	226000	-	-	-	-	-	-
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	5.0-5.5	E60358-47	12/9/99	283000	237000	182000	52500	74800	-	-	-	-	-	313000	-	-	-	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	246000	289000	57600	64800	53400	-	-	-	-	-	284000	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010198

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	4-Bromophenyl phenyl ether	Butyl benzyl phthalate	2-Chloronaphthalene	4-Chloroaniline	Carbazole	Chrysene	bis(2-Chloroethoxy)methane	bis(2-Chloroethyl)ether	bis(2-Chloroisopropyl)ether	4-Chlorophenyl phenyl ether	1,2-Dichlorobenzene	1,3-Dichlorobenzene
			RDCSCC	900	660	900	NS	900	NS	1100000	NS	230000	NS	9000	NS	660	2300000	NS	5100000	5100000
			NRDCSCC	4000	660	4000	NS	4000	NS	10000000	NS	4200000	NS	40000	NS	3000	10000000	NS	10000000	10000000
			IGWSCC	500000	100000	50000	NS	500000	NS	100000	NS	NS	NS	500000	NS	10000	10000	NS	60000	100000
			Data / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	38400	38900	16100	28200	19500	-	-	-	-	-	35400	-	-	-	-	-	-
SB-3B-08	0.0-0.5	E60358-33	12/9/99	48900	68500	34800	41800	32400	-	-	-	-	-	41500	-	-	-	-	-	-
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	40400	57000	32000	33600	30100	-	-	-	-	-	40500	-	-	-	-	-	-
SB-3B-09	0.0-0.5	E60358-42	12/9/99	178000	207000	184000	61700	92700	-	-	-	-	-	183000	-	-	-	-	-	-
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	371000	357000	375000	87600 J	257000	-	-	-	-	-	386000	-	-	-	-	-	-
SB-3C-01	1.0-1.5	E60358-65	12/9/99	1080	1450	1880	547	693	-	-	-	-	-	1260	-	-	-	-	-	-
SB-3C-02	1.5-2.0	E60358-66	12/9/99	8630	13700	11400	2120	4870	-	-	-	-	-	10300	-	-	-	-	-	-
SB-3C-03	1.5-2.0	E60358-64	12/9/99	338	332	737	138	227	-	-	-	-	-	768	-	-	-	-	-	-
SB-3C-04	1.1-1.6	E60358-67	12/9/99	4380	4600	6210	1200	1900	-	-	-	-	-	5020	-	-	-	-	-	-
SB-3D-01	3.0-3.5	E60358-72	12/9/99	4420	2680 J	2100 J	1900 J	1750 J	-	-	-	-	-	5540	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-108	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	249	243	185	165	193	-	-	-	-	-	224	-	-	-	-	-	-
SB-3D-03	3.5-4.0	E60358-55	12/8/99	2470	2250	2120	811	2230	-	-	-	-	-	2160	-	-	-	-	-	-
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	1.5-2.0	E60358-56	12/8/99	248	286	252	330	244	-	-	-	-	-	256	-	-	-	-	-	-
SB-3E-01	5.5-6.0	E60358-57	12/8/99	710	670	524	687	474	-	-	-	-	-	776	-	-	-	-	-	-
SB-3E-02	1.5-2.0	E60358-98	12/8/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-3E-02	4.0-4.5	E60358-99	12/8/99	ND	ND	ND	ND	ND	-	-	-	-	-	ND	-	-	-	-	-	-
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	28.6 J	30.1 J	38.2 J	ND	18.5 J	-	-	-	-	-	29.9 J	-	-	-	-	-	-
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	1.5-2.0	E60358-16	12/9/99	289 J	475	331 J	167 J	335 J	ND	ND	ND	ND	ND	456 J	ND	ND	ND	ND	ND	ND
SB-3F-01	4.0-4.5	E60358-17	12/9/99	209 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	221 J	ND	ND	ND	ND	ND	ND
SB-3F-02	0.0-0.5	E60729-74	12/15/99	488	430	378	269	260	ND	ND	ND	ND	ND	600	ND	ND	ND	ND	ND	ND
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	9630	3940	3610	1750	6220	ND	ND	ND	ND	ND	10400	ND	ND	ND	ND	ND	ND
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	7860	8010	9050	2280	6650	ND	ND	ND	ND	ND	9770	ND	ND	ND	ND	ND	ND
SB-3F-03	3.0-3.5	E60358-19	12/9/99	368000	250000	208000	34100	125000	ND	ND	ND	ND	ND	327000	ND	ND	ND	ND	ND	ND
SB-3F-04	1.5-2.0	E60358-14	12/9/99	2100	2750	1210	1400	1620	ND	ND	ND	ND	ND	2230	ND	ND	ND	ND	ND	ND
SB-3F-04	3.0-3.5	E60358-15	12/9/99	4160	4220	1940	1010	2590	ND	ND	ND	ND	ND	4240	ND	ND	ND	ND	ND	ND
SB-3G-01	0.0-0.5	E60358-68	12/9/99	524	651	898	255 J	335 J	-	-	-	-	-	634	-	-	-	-	-	-
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	23.7 J	ND	ND	ND	ND	-	-	-	-	-	28.9 J	-	-	-	-	-	-
SB-3G-02	0.0-0.5	E60358-71	12/9/99	614	693	770	667	492	-	-	-	-	-	773	-	-	-	-	-	-
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	5.0-5.5	E60358-13	12/9/99	115	165	132	113	130	-	-	-	-	-	113	-	-	-	-	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	112000	99900	77100	35900	24500	-	-	-	-	-	105000	-	-	-	-	-	-
MW-6B	16.0-16.5	E61066-3	12/22/99	20.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.9 J	ND	ND	ND	ND	ND	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	581	423	338	240	330	ND	ND	ND	ND	269	472	ND	ND	ND	ND	ND	ND
MW-08B	17.0-17.6	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

N:\project\s\s-prh\s99\s99227\b\supp ri\tables\[table 6

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921010199

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	6700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	-	-	-	1070	-	-	-	-	-	-	5110	508	-	-	-
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	-	-	-	820	-	-	-	-	-	-	4820	633	-	-	-
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	-	-	-	5620	-	-	-	-	-	-	19600	3760	-	-	-
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	-	-	-	3160	-	-	-	-	-	-	28500	17400	-	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	-	-	-	1270	-	-	-	-	-	-	14800	3200	-	-	-
SB-1B-01	1.5-2.0	E60358-2	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	3.5-4.0	E60358-3	12/8/99	-	-	-	-	985	-	-	-	-	-	-	10600	2160	-	-	-
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	-	-	-	3520	-	-	-	-	-	-	50100	1970	-	-	-
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	-	-	-	252	-	-	-	-	-	-	4220	2500	-	-	-
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	-	-	-	810	-	-	-	-	-	-	3850	434	-	-	-
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	428	ND	-	-	-
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	426	ND	-	-	-
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	960	ND	-	-	-
SB-1B-05	0.0-0.5	E60358-24	12/8/99	ND	ND	ND	ND	837	ND	ND	ND	ND	ND	157 J	7820	683	ND	ND	ND
SB-1B-05	1.5-2.0	E60358-25	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-06	0.0-0.5	E60358-23	12/8/99	ND	ND	ND	ND	2480	264	ND	ND	ND	ND	151 J	9300	2050	ND	ND	ND
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	-	-	-	780	-	-	-	-	-	-	3180	160 J	-	-	-
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	-	-	-	1900	-	-	-	-	-	-	6180	308 J	-	-	-
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	-	-	-	316	-	-	-	-	-	-	2000	102	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	-	-	-	584	-	-	-	-	-	-	2570	ND	-	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	-	-	-	194	-	-	-	-	-	-	1350	89.9	-	-	-
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	-	-	-	770	-	-	-	-	-	-	17900	5990	-	-	-
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	-	-	-	594	-	-	-	-	-	-	4810	236	-	-	-
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	-	-	-	623	-	-	-	-	-	-	4570	123	-	-	-
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	-	-	-	599	-	-	-	-	-	-	3820	209	-	-	-
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	72.4 J	ND	-	-	-
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	-	-	-	1940	-	-	-	-	-	-	9370	3180	-	-	-
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	-	-	-	3710	-	-	-	-	-	-	9230	2870	-	-	-
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	-	-	-	38.6 J	-	-	-	-	-	-	90	ND	-	-	-
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	-	-	-	268	-	-	-	-	-	-	374	55.6 J	-	-	-
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	34.3 J	ND	-	-	-
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	3.5-4.0	E60729-71	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	198	ND	-	-	-
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	668	1300	-	-	-
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	-	-	-	28.8 J	-	-	-	-	-	-	144	81.5	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	3850	8530	-	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	58.1 J	ND	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	-	-	-	247 J	-	-	-	-	-	-	2220	4980	-	-	-
SB-2A-03	0.0-0.5	E60450-18	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	495	ND	-	-	-
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010200

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	5700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-16	12/10/99	-	-	-	-	2390	-	-	-	-	-	-	38400	17800	-	-	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	-	-	-	762	-	-	-	-	-	-	14800	21100	-	-	-
SB-2A-04	0.0-0.5	E60450-20	12/10/99	-	-	-	-	2590	-	-	-	-	-	-	53300	21900	-	-	-
SB-2A-04	1.5-2.0	E60450-21	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2A-04	5.5-6.0	E60450-22	12/10/99	-	-	-	-	712	-	-	-	-	-	-	12400	18000	-	-	-
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	660	ND	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	-	-	-	1210	-	-	-	-	-	-	8230	1470	-	-	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	-	-	-	476 J	-	-	-	-	-	-	8230	9670	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	-	-	-	8480	-	-	-	-	-	-	114000	131000	-	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	-	-	-	256	-	-	-	-	-	-	1450	227	-	-	-
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	25.4 J	ND	-	-	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	-	-	-	4870	-	-	-	-	-	-	180000	112000	-	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	-	-	-	3610	-	-	-	-	-	-	88700	85600	-	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	-	-	-	784	-	-	-	-	-	-	2800	ND	-	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	-	-	-	1870	-	-	-	-	-	-	14600	1970	-	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	-	-	-	877	-	-	-	-	-	-	4340	1760	-	-	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	-	-	-	85.9 J	-	-	-	-	-	-	499	108 J	-	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	-	-	-	511	-	-	-	-	-	-	7640	821	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	-	-	-	1030	-	-	-	-	-	-	7040	812	-	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	-	-	-	1500	-	-	-	-	-	-	60800	10400	-	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	-	-	-	755	-	-	-	-	-	-	18000	23800	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	-	-	-	-	255 J	-	-	-	-	-	-	4180	3970	-	-	-
SB-2A-10	7.5-8.0	E60450-40	12/10/99	-	-	-	-	1780	-	-	-	-	-	-	25400	60900	-	-	-
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	-	-	-	2000	-	-	-	-	-	-	42800	82400	-	-	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	-	-	-	164	-	-	-	-	-	-	542	ND	-	-	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	129	ND	-	-	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	21.7 J	ND	-	-	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	-	-	-	572	-	-	-	-	-	-	1950	425 J	-	-	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	-	-	-	3070	-	-	-	-	-	-	34600	2340	-	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	-	-	-	47.1 J	-	-	-	-	-	-	385	109 J	-	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	-	-	-	330 J	-	-	-	-	-	-	2320	4260	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	-	-	-	3720	-	-	-	-	-	-	113000	49900	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	-	-	-	2400	-	-	-	-	-	-	37800	61500	-	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	-	-	-	1730	-	-	-	-	-	-	3480	438 J	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	-	-	-	92900	-	-	-	-	-	-	460000	59300	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	-	-	-	6540	-	-	-	-	-	-	25600	12900	-	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	302	327	-	-	-
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	-	-	-	204 J	-	-	-	-	-	-	13300	12500	-	-	-
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	386	556	-	-	-
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	-	-	-	150 J	-	-	-	-	-	-	2440	231	-	-	-
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	-	-	-	214 J	-	-	-	-	-	-	1550	ND	-	-	-
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	-	-	-	1180	-	-	-	-	-	-	8940	13200	-	-	-
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	-	-	-	11700	-	-	-	-	-	-	233000	84500	-	-	-
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	315	64.9 J	-	-	-
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	-	-	-	661	-	-	-	-	-	-	12900	6160	-	-	-

\- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010201

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	5700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	26.3 J	ND	-	-	-
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	63.3 J	ND	-	-	-
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	-	-	-	543 J	-	-	-	-	-	-	3320	483	-	-	-
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	3130	2050	-	-	-
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	-	-	-	185 J	-	-	-	-	-	-	2540	2360	-	-	-
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	178 J	ND	-	-	-
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	589	ND	-	-	-
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	-	-	-	1420	-	-	-	-	-	-	12500	ND	-	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	7400	688 J	-	-	-
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	3850	1380	-	-	-
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-03	0.0-0.6	E60588-50	12/13/99	-	-	-	-	34.5 J	-	-	-	-	-	-	570	59.4 J	-	-	-
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	1310	ND	-	-	-
SB-2B-03	5.5-6.0	E60588-54	12/13/99	-	-	-	-	92 J	-	-	-	-	-	-	1630	46.4 J	-	-	-
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	-	-	-	60.9 J	-	-	-	-	-	-	1340	37 J	-	-	-
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-04	0.0-0.5	E60588-12	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	1430	ND	-	-	-
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	-	-	-	234	-	-	-	-	-	-	1580	358	-	-	-
SB-2B-04	5.5-6.0	E60588-14	12/13/99	-	-	-	-	1080	-	-	-	-	-	-	9630	2440	-	-	-
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	-	-	-	764	-	-	-	-	-	-	7280	859	-	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	-	-	-	725	-	-	-	-	-	-	9490	2110	-	-	-
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	-	-	-	608	-	-	-	-	-	-	8270	5000	-	-	-
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	-	-	-	304	-	-	-	-	-	-	1080	70.6 J	-	-	-
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	52.2 J	ND	-	-	-
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	335	ND	-	-	-
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	-	-	-	229 J	-	-	-	-	-	-	3640	ND	-	-	-
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	-	-	-	424 J	-	-	-	-	-	-	3390	329 J	-	-	-
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	1380	ND	-	-	-
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	-	-	-	2540	-	-	-	-	-	-	31100	12400	-	-	-
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	-	-	-	522 J	-	-	-	-	-	-	4520	4190	-	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	-	-	-	57.3 J	-	-	-	-	-	-	1310	235	-	-	-
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	-	-	-	104	-	-	-	-	-	-	2990	2510	-	-	-
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	3840	3220	-	-	-
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	-	-	-	660	-	-	-	-	-	-	5730	31700	-	-	-
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	-	-	-	130 J	-	-	-	-	-	-	853	1710	-	-	-
SB-2B-11	1.5-2.0	E60729-46	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	2090	ND	-	-	-
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	-	-	-	729	-	-	-	-	-	-	9290	484	-	-	-
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	-	-	-	114	-	-	-	-	-	-	140	ND	-	-	-
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	-	-	-	98.9	-	-	-	-	-	-	276	ND	-	-	-
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-12	0.0-0.5	E60588-17	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	1100 J	ND	-	-	-
SB-2B-12	1.0-1.5	E60588-18	12/13/99	-	-	-	-	1240	-	-	-	-	-	-	7810	307	-	-	-

- Not analyzed
ND Not detected
J *Estimated concentration*

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg *Milligrams per kilogram*

Shaded data exceed soil cleanup criteria

921010202

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	5700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-19	12/13/99	-	-	-	-	113	-	-	-	-	-	-	1040	1020	-	-	-
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	308	ND	-	-	-
SB-2B-12	7.5-8.0	E60588-21	12/13/99	-	-	-	-	245	-	-	-	-	-	-	469	50.1 J	-	-	-
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	96.2	ND	-	-	-
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	-	-	-	22.3 J	-	-	-	-	-	-	86.2 J	ND	-	-	-
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	-	-	-	158	-	-	-	-	-	-	471	82.1 J	-	-	-
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	-	-	-	1110	-	-	-	-	-	-	22000	903	-	-	-
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	-	-	-	728	-	-	-	-	-	-	24800	2910	-	-	-
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	-	-	-	117	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-16	4.5-5.0	E60729-67	12/15/99	-	-	-	-	35.9 J	-	-	-	-	-	-	31.2 J	ND	-	-	-
SB-2B-16	11.5-12.0	E60729-68	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	-	-	-	84 J	-	-	-	-	-	-	1200	82.7 J	-	-	-
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	-	-	-	3850	-	-	-	-	-	-	25800	805 J	-	-	-
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	-	-	-	1290	-	-	-	-	-	-	3270	ND	-	-	-
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	-	-	-	829	-	-	-	-	-	-	5340	626	-	-	-
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	-	-	-	64 J	-	-	-	-	-	-	324	40 J	-	-	-
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	308 J	ND	-	-	-
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	-	-	-	2743	-	-	-	-	-	-	5510	426 J	-	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	-	-	-	775	-	-	-	-	-	-	11200	1200	-	-	-
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	-	-	-	7110	-	-	-	-	-	-	103000	8050	-	-	-
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	-	-	-	634 J	-	-	-	-	-	-	10800	15900	-	-	-
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	-	-	-	491	-	-	-	-	-	-	3750	403	-	-	-
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	-	-	-	337 J	-	-	-	-	-	-	2480	948	-	-	-
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	-	-	-	43.8 J	-	-	-	-	-	-	402	208	-	-	-
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	-	-	-	181	-	-	-	-	-	-	2300	1860	-	-	-
SB-2D-02	10.5-11.0	E60358-78	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	3710	2510	-	-	-
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	-	-	-	120	-	-	-	-	-	-	574	ND	-	-	-
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	-	-	-	9230	-	-	-	-	-	-	160000	49000	-	-	-
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	-	-	-	522	-	-	-	-	-	-	4990	1000	-	-	-
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	-	-	-	146	-	-	-	-	-	-	677	97.1	-	-	-
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	-	-	-	4420	-	-	-	-	-	-	39000	20600	-	-	-
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	2610	35800	-	-	-
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	-	-	-	3700	-	-	-	-	-	-	83800	87800	-	-	-
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	1620	2380	-	-	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	-	-	-	62.2 J	-	-	-	-	-	-	1090	1070	-	-	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	-	-	-	123	-	-	-	-	-	-	740	304	-	-	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	22.6 J	ND	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010203

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Date / Units	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	5700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	-	-	-	23.7 J	-	-	-	-	-	-	332	461	-	-	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	-	-	-	ND	-	-	-	-	-	-	631	398 J	-	-	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	-	-	-	581	-	-	-	-	-	-	2950	ND	-	-	-
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	-	-	-	422 J	-	-	-	-	-	-	813	113 J	-	-	-
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	-	-	-	5220	-	-	-	-	-	-	102000	43000	-	-	-
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	-	-	-	83.8 J	-	-	-	-	-	-	498	169	-	-	-
SB-2D-08	6.5-8.0	E60588-34	12/13/99	-	-	-	-	262 J	-	-	-	-	-	-	21000	14400	-	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	-	-	-	792	-	-	-	-	-	-	7970	1430	-	-	-
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	-	-	-	113	-	-	-	-	-	-	461	ND	-	-	-
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	-	-	-	6100	-	-	-	-	-	-	37800	2500	-	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	-	-	-	256 J	-	-	-	-	-	-	11200	7880	-	-	-
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	360 J	ND	-	-	-
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	-	-	-	281	-	-	-	-	-	-	868	25.6 J	-	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	12500	19600	-	-	-
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	-	-	-	ND	-	-	-	-	-	-	475 J	ND	-	-	-
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	-	-	-	3380	-	-	-	-	-	-	61300	3260	-	-	-
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	-	-	-	551	-	-	-	-	-	-	7580	1460	-	-	-
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	137 J	ND	-	-	-
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	288 J	ND	-	-	-
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	-	-	-	31 J	-	-	-	-	-	-	804	107	-	-	-
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	284	113	-	-	-
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	-	-	-	ND	-	-	-	-	-	-	70.4 J	ND	-	-	-
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	-	-	-	149	-	-	-	-	-	-	996	79.7 J	-	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	-	-	-	1070 J	-	-	-	-	-	-	57200	32200	-	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	-	-	-	1770 J	-	-	-	-	-	-	53000	22200	-	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	-	-	-	152	-	-	-	-	-	-	5540	255	-	-	-
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	-	-	-	2670	-	-	-	-	-	-	8420	1080	-	-	-
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	-	-	-	514	-	-	-	-	-	-	755	455	-	-	-
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	385	ND	-	-	-
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	-	-	-	1040	-	-	-	-	-	-	6370	2230	-	-	-
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	-	-	-	2660	-	-	-	-	-	-	19600	7140	-	-	-
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	189 J	ND	-	-	-
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	251 J	ND	-	-	-
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	967	ND	-	-	-
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	-	-	-	1150	-	-	-	-	-	-	19000	8270	-	-	-
SB-3B-03	0.0-0.5	E60358-36	12/9/99	-	-	-	-	13400	-	-	-	-	-	-	180000	61100	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	-	-	-	6310	-	-	-	-	-	-	87500	80700	-	-	-
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	-	-	-	5490	-	-	-	-	-	-	29700	3870	-	-	-
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	-	-	-	6380	-	-	-	-	-	-	68200	37900	-	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	461	-	-	-	-	-	-	1990	63.4 J	-	-	-
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	4.5-5.0	E60358-41	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	110	19.2 J	-	-	-
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	-	-	-	61200	-	-	-	-	-	-	250000	41500	-	-	-
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	5.0-5.5	E60358-47	12/9/99	-	-	-	-	41700	-	-	-	-	-	-	429000	1492000	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	18000	-	-	-	-	-	-	387000	81000	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010204

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria RDCSCC NRDCSCC IGWSCC Date / Units	1,4-Dichlorobenzene	2,4-Dinitrotoluene	2,6-Dinitrotoluene	3,3'-Dichlorobenzidine	Dibenzo(a,h)anthracene	Dibenzofuran	Di-n-butyl phthalate	Di-n-octyl phthalate	Diethyl phthalate	Dimethyl phthalate	Bis(2-Ethylhexyl) phthalate	Fluoranthene	Fluorene	Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
			RDCSCC	570000	NS	NS	2000	660	NS	5700000	1100000	10000000	10000000	49000	2300000	2300000	660	1000	400000
			NRDCSCC	10000000	NS	NS	6000	660	NS	10000000	10000000	10000000	10000000	210000	10000000	10000000	2000	21000	7300000
			IGWSCC	100000	NS	NS	100000	100000	NS	100000	100000	50000	50000	100000	100000	100000	100000	100000	100000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	-	-	-	5290	-	-	-	-	-	-	69700	53600	-	-	-
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	-	-	-	10100	-	-	-	-	-	-	51800	9980	-	-	-
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	53000	25500	-	-	-
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	-	-	-	29300	-	-	-	-	-	-	175000	11900	-	-	-
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	-	-	-	59600	-	-	-	-	-	-	678000	669000	-	-	-
SB-3C-01	1.0-1.5	E60358-65	12/9/99	-	-	-	-	223 J	-	-	-	-	-	-	1840	ND	-	-	-
SB-3C-02	1.5-2.0	E60358-66	12/9/99	-	-	-	-	1790	-	-	-	-	-	-	4780	465	-	-	-
SB-3C-03	1.5-2.0	E60358-64	12/9/99	-	-	-	-	73.3 J	-	-	-	-	-	-	469	28.4 J	-	-	-
SB-3C-04	1.1-1.6	E60358-67	12/9/99	-	-	-	-	784	-	-	-	-	-	-	3740	208 J	-	-	-
SB-3D-01	3.0-3.5	E60358-72	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	8440	25100	-	-	-
SB-3D-02	3.0-3.5	E60358-108	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	-	-	-	77.4	-	-	-	-	-	-	415	18.1 J	-	-	-
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	-	-	-	450	-	-	-	-	-	-	5830	ND	-	-	-
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	1.5-2.0	E60358-56	12/8/99	-	-	-	-	146	-	-	-	-	-	-	219	ND	-	-	-
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	765	1310	-	-	-
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	-	-	-	ND	-	-	-	-	-	-	ND	ND	-	-	-
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	48.6 J	ND	-	-	-
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	1.5-2.0	E60358-16	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	429 J	554	ND	ND	ND
SB-3F-01	4.0-4.5	E60358-17	12/9/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	642	1490	ND	ND	ND
SB-3F-02	0.0-0.5	E60729-74	12/15/99	ND	ND	ND	ND	113	ND	ND	ND	ND	ND	74 J	552	107	ND	ND	ND
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	ND	ND	ND	ND	969	791	ND	ND	ND	ND	ND	14000	6990	ND	ND	ND
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	ND	ND	ND	ND	1190	462 J	ND	ND	ND	ND	ND	9630	1290	ND	ND	ND
SB-3F-03	3.0-3.5	E60358-19	12/9/99	ND	ND	ND	ND	25400	74400	ND	ND	ND	ND	ND	631000	818000	ND	ND	ND
SB-3F-04	1.5-2.0	E60358-14	12/9/99	ND	ND	ND	ND	440 J	ND	ND	ND	ND	ND	ND	2020	233 J	ND	ND	ND
SB-3F-04	3.0-3.5	E60358-15	12/9/99	ND	ND	ND	ND	ND	404 J	ND	ND	ND	ND	ND	8170	2750	ND	ND	ND
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	961	ND	-	-	-
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	63.3 J	25.9 J	-	-	-
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	-	-	-	198 J	-	-	-	-	-	-	1000	ND	-	-	-
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	5.0-5.5	E60358-13	12/9/99	-	-	-	-	ND	-	-	-	-	-	-	82.8 J	28.7 J	-	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	-	-	-	-	12700	-	-	-	-	-	-	165000	63200	-	-	-
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	42.7 J	ND	ND	ND	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	ND	ND	ND	78.9 J	580	ND	ND	ND	ND	125	1800	766	ND	ND	ND
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	171	ND	ND	ND	ND	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

N:\project\s\s-priv\s99\s99227\b\supp rir\tables\table 6

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010205

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Hexachloroethane	Indeno(1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	68000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	660	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	2610	-	-	-	-	-	843	-	-	-	3430	9720	-	-	-	-
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	1760	-	-	-	-	-	632	-	-	-	3300	8610	-	-	-	-
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	10500	-	-	-	-	-	3540	-	-	-	23300	43900	-	-	-	-
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	4480	-	-	-	-	-	16800	-	-	-	44100	30900	-	-	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	3500	-	-	-	-	-	2000	-	-	-	15300	23900	-	-	-	-
SB-1B-01	1.5-2.0	E60358-2	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-01	3.5-4.0	E60358-3	12/8/99	-	2700	-	-	-	-	-	2000	-	-	-	9880	21600	-	-	-	-
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	8580	-	-	-	-	-	4120	-	-	-	24200	88500	-	-	-	-
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	690	-	-	-	-	-	680	-	-	-	10400	8660	-	-	-	-
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	1780	-	-	-	-	-	2350	-	-	-	2140	7390	-	-	-	-
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	307	-	-	-	-	-	54.9 J	-	-	-	187	594	-	-	-	-
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	224	-	-	-	-	-	50.1 J	-	-	-	160	618	-	-	-	-
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-04	3.5-4.0	E60358-30	12/8/99	-	826	-	-	-	-	-	128	-	-	-	285	1380	-	-	-	-
SB-1B-05	0.0-0.5	E60358-24	12/8/99	ND	2050	ND	863	ND	ND	ND	1460	ND	ND	ND	5060	15500	ND	331200	ND	ND
SB-1B-05	1.5-2.0	E60358-25	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1B-06	0.0-0.5	E60358-23	12/8/99	ND	5500	ND	1700	ND	ND	ND	2930	ND	ND	ND	8680	16700	ND	42660	ND	ND
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	2050	-	-	-	-	-	544	-	-	-	1810	4250	-	-	-	-
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	4010	-	-	-	-	-	577	-	-	-	4170	9860	-	-	-	-
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	942	-	-	-	-	-	658	-	-	-	1340	2430	-	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	1250	-	-	-	-	-	714	-	-	-	1860	3050	-	-	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	620	-	-	-	-	-	168	-	-	-	896	1800	-	-	-	-
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	1820	-	-	-	-	-	11200	-	-	-	23700	25900	-	-	-	-
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	1470	-	-	-	-	-	274	-	-	-	4050	5930	-	-	-	-
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	1570	-	-	-	-	-	405	-	-	-	3570	5280	-	-	-	-
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	1530	-	-	-	-	-	244	-	-	-	1580	4340	-	-	-	-
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	26.6 J	-	-	-	-	-	ND	-	-	-	43.5 J	73.9 J	-	-	-	-
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	3540	-	-	-	-	-	1170	-	-	-	16900	15600	-	-	-	-
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	5770	-	-	-	-	-	1410	-	-	-	9080	15200	-	-	-	-
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	50.6 J	-	-	-	-	-	21.8 J	-	-	-	57.7 J	129	-	-	-	-
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	244	-	-	-	-	-	ND	-	-	-	152	590	-	-	-	-
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	29.7 J	67.4 J	-	-	-	-
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-06	3.5-4.0	E60729-71	12/15/99	-	51.8 J	-	-	-	-	-	ND	-	-	-	238	255	-	-	-	-
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	95.8	-	-	-	-	-	2630	-	-	-	3130	1450	-	-	-	-
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	75.1 J	-	-	-	-	-	20.8 J	-	-	-	204	308	-	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	759	-	-	-	-	-	ND	-	-	-	14100	8540	-	-	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	41.6 J	-	-	-	-	-	44.8 J	-	-	-	37.1 J	87.2	-	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	562	-	-	-	-	-	ND	-	-	-	6710	5000	-	-	-	-
SB-2A-03	0.0-0.5	E60450-16	12/10/99	-	321 J	-	-	-	-	-	181 J	-	-	-	438 J	1050	-	-	ND	ND
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010206

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (foot)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Hexachloroethane	Indeno(1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichloro benzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	68000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	660	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
Soil Boring	Depth Interval (foot)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-03	3.0-3.5	E60450-18	12/10/99	-	8440	-	-	-	-	-	4860	-	-	-	60000	69400	-	-	ND	ND
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	2080	-	-	-	-	-	90300	-	-	-	72800	29800	-	-	ND	ND
SB-2A-04	0.0-0.5	E60450-20	12/10/99	-	5550	-	-	-	-	-	3530	-	-	-	125000	93300	-	-	ND	ND
SB-2A-04	1.5-2.0	E60450-21	12/10/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	ND	ND
SB-2A-04	5.5-6.0	E60450-22	12/10/99	-	1720	-	-	-	-	-	8060	-	-	-	57300	31500	-	-	ND	ND
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	168 J	-	-	-	-	-	ND	-	-	-	464	700	-	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	2890	-	-	-	-	-	1530	-	-	-	4320	16200	-	-	-	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	1340	-	-	-	-	-	3550	-	-	-	25700	12900	-	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	12100	-	-	-	-	-	263000	-	-	-	433000	155000	-	-	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	691	-	-	-	-	-	274 J	-	-	-	956	3280 J	-	-	-	- J
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	29.2 J	-	-	-	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	12000	-	-	-	-	-	1100000	-	-	-	767000	355000	-	-	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	8720	-	-	-	-	-	1020000	-	-	-	390000	192000	-	-	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	2120	-	-	-	-	-	586	-	-	-	2440	6320	-	-	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	4360	-	-	-	-	-	638	-	-	-	10300	27700	-	-	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	1390	-	-	-	-	-	1200	-	-	-	7530	8590	-	-	-	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	201	-	-	-	-	-	263	-	-	-	372	1060	-	-	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	1400	-	-	-	-	-	483	-	-	-	8910	9360	-	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	2780	-	-	-	-	-	422 J	-	-	-	4560	14800	-	-	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	9740	-	-	-	-	-	9380	-	-	-	58200	56900	-	-	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	1440	-	-	-	-	-	208000	-	-	-	128000	29800	-	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	-	777	-	-	-	-	-	102000	-	-	-	16700	7670	-	-	ND	ND
SB-2A-10	7.5-8.0	E60450-40	12/10/99	-	3010	-	-	-	-	-	125000	-	-	-	171000	44800	-	-	ND	ND
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	3490	-	-	-	-	-	115000	-	-	-	244000	75800	-	-	-	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	424	-	-	-	-	-	75.3 J	-	-	-	245	786	-	-	-	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	67 J	-	-	-	-	-	ND	-	-	-	ND	259	-	-	-	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	27.2 J	-	-	-	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	1300	-	-	-	-	-	352 J	-	-	-	2040	3890	-	-	-	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	6880	-	-	-	-	-	1200	-	-	-	11600	88300	-	-	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	136	-	-	-	-	-	115	-	-	-	324	767	-	-	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	844	-	-	-	-	-	ND	-	-	-	7320	4930	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	6780	-	-	-	-	-	28900	-	-	-	166000	185000	-	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	3820	-	-	-	-	-	398000	-	-	-	213000	61700	-	-	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	2510	-	-	-	-	-	2920	-	-	-	2970	5470	-	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	148000	-	-	-	-	-	34500	-	-	-	164000	586000	-	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	10600	-	-	-	-	-	15500	-	-	-	31400	35700	-	-	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	28 J	-	-	-	-	-	36500	-	-	-	668	261	-	-	-	-
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	444	-	-	-	-	-	151000	-	-	-	23200	17000	-	-	-	-
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	61 J	-	-	-	-	-	49500	-	-	-	1220	639	-	-	-	-
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	ND	-	-	-	-	-	105	-	-	-	ND	ND	-	-	-	-
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	420	-	-	-	-	-	320	-	-	-	1980	2730	-	-	-	-
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	703	-	-	-	-	-	2470	-	-	-	796	1500	-	-	-	-
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	2330	-	-	-	-	-	832000	-	-	-	14900	10400	-	-	-	-
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	ND	-	-	-	-	-	118	-	-	-	ND	ND	-	-	-	-
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	24500	-	-	-	-	-	54200	-	-	-	515000	354000	-	-	-	-
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	69.2 J	-	-	-	-	-	484	-	-	-	296	279	-	-	-	-
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	1630	-	-	-	-	-	4020	-	-	-	29900	19500	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010207

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Hexachloroethane	Indeno(1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	68000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	660	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	ND	-	-	-	-	-	19.1 J	-	-	-	20.2 J	38.9 J	-	-	-	-
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	49.9 J	-	-	-	-	-	42.4 J	-	-	-	71.1 J	138	-	-	-	-
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	1630	-	-	-	-	-	879	-	-	-	6690	7050	-	-	-	-
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	555 J	-	-	-	-	-	1130	-	-	-	8300	4670	-	-	-	-
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	557	-	-	-	-	-	1600	-	-	-	8730	4180	-	-	-	-
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	180 J	222 J	-	-	-	-
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	298 J	-	-	-	-	-	1380	-	-	-	512	916	-	-	-	-
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	3840	-	-	-	-	-	3180	-	-	-	5390	15100	-	-	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	640 J	-	-	-	-	-	1750	-	-	-	1880	10700	-	-	-	-
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	ND	-	-	-	-	-	13000	-	-	-	1170	4000	-	-	-	-
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	ND	-	-	-	-	-	43.3 J	-	-	-	ND	ND	-	-	-	-
SB-2B-03	0.0-0.5	E60588-50	12/13/99	-	107	-	-	-	-	-	88.3	-	-	-	405	756	-	-	ND	ND
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	152 J	-	-	-	-	-	ND	-	-	-	2080	2200	-	-	-	-
SB-2B-03	5.5-6.0	E60588-54	12/13/99	-	218	-	-	-	-	-	ND	-	-	-	395	3510	-	-	ND	ND
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	154	-	-	-	-	-	ND	-	-	-	681	3030	-	-	-	-
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-04	0.0-0.5	E60588-12	12/13/99	-	258 J	-	-	-	-	-	ND	-	-	-	740	991	-	-	ND	ND
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	554	-	-	-	-	-	612	-	-	-	2690	1930	-	-	-	-
SB-2B-04	5.5-6.0	E60588-14	12/13/99	-	2940	-	-	-	-	-	4120	-	-	-	13900	11200	-	-	ND	ND
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	1940	-	-	-	-	-	1960	-	-	-	3650	5260	-	-	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	1640	-	-	-	-	-	23200	-	-	-	8550	7460	-	-	-	-
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	1300	-	-	-	-	-	4830	-	-	-	20500	11100	-	-	-	-
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	788	-	-	-	-	-	140	-	-	-	387	1030	-	-	-	-
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	83.8 J	-	-	-	-	-	ND	-	-	-	ND	52.1 J	-	-	-	-
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	62.5 J	-	-	-	-	-	ND	-	-	-	ND	328	-	-	-	-
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	775	-	-	-	-	-	21900	-	-	-	2400	4080	-	-	-	-
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	1270	-	-	-	-	-	7060	-	-	-	2720	4140	-	-	-	-
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	226 J	-	-	-	-	-	28000	-	-	-	842	1540	-	-	-	-
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	4780	-	-	-	-	-	55000	-	-	-	65700	50600	-	-	-	-
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	806	-	-	-	-	-	297000	-	-	-	12500	7690	-	-	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	110	-	-	-	-	-	540	-	-	-	1160	1150	-	-	-	-
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	187	-	-	-	-	-	34300	-	-	-	6690	3660	-	-	-	-
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	345 J	-	-	-	-	-	85000	-	-	-	8790	5040	-	-	-	-
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	ND	-	-	-	-	-	822	-	-	-	ND	ND	-	-	-	-
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	1460	-	-	-	-	-	8870000	-	-	-	22400	7880	-	-	-	-
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	359 J	-	-	-	-	-	852000	-	-	-	1840	1000	-	-	-	-
SB-2B-11	1.5-2.0	E60729-46	12/15/99	-	449	-	-	-	-	-	271 J	-	-	-	1480	1860	-	-	ND	ND
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	1800	-	-	-	-	-	1190	-	-	-	6290	11200	-	-	-	-
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	192	-	-	-	-	-	281	-	-	-	111	192	-	-	-	-
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	183	-	-	-	-	-	472	-	-	-	178	382	-	-	-	-
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-12	0.0-0.5	E60588-17	12/13/99	-	ND	-	-	-	-	-	1190 J	-	-	-	821 J	786 J	-	-	ND	ND
SB-2B-12	1.0-1.5	E60588-18	12/13/99	-	2900	-	-	-	-	-	1600	-	-	-	6030	11400	-	-	ND	ND

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010208

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Hexachlorobenzene	Indeno(1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	88000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	660	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2B-12	3.5-4.0	E60588-19	12/13/99	-	268	-	-	-	-	-	4940	-	-	-	3420	1450	-	-	ND	ND
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	74.2 J	-	-	-	-	-	63 J	-	-	-	224	342	-	-	-	-
SB-2B-12	7.5-8.0	E60588-21	12/13/99	-	608	-	-	-	-	-	366	-	-	-	516	899	-	-	ND	ND
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	36 J	-	-	-	-	-	127	-	-	-	74.1 J	97.3	-	-	-	-
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	38.7 J	-	-	-	-	-	1250	-	-	-	122	74.6 J	-	-	-	-
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	355	-	-	-	-	-	246	-	-	-	340	925	-	-	-	-
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	3090	-	-	-	-	-	2070	-	-	-	6140	23800	-	-	-	-
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	2310	-	-	-	-	-	1860	-	-	-	3980	31000	-	-	-	-
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	140	-	-	-	-	-	ND	-	-	-	ND	42.2 J	-	-	-	-
SB-2B-16	4.5-5.0	E60729-67	12/15/99	-	48.1 J	-	-	-	-	-	ND	-	-	-	ND	47.7 J	-	-	-	-
SB-2B-16	11.5-12.0	E60729-68	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	ND	-	-	-	-	-	32.7 J	-	-	-	ND	ND	-	-	-	-
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	ND	-	-	-	-	-	64 J	-	-	-	ND	ND	-	-	-	-
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	239	-	-	-	-	-	184	-	-	-	966	1260	-	-	-	-
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	7170	-	-	-	-	-	18100	-	-	-	16700	45800	-	-	-	-
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	3020	-	-	-	-	-	4000	-	-	-	1870	5280	-	-	-	-
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	3170	-	-	-	-	-	1730	-	-	-	923	6530	-	-	-	-
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	146	-	-	-	-	-	87	-	-	-	64.3 J	410	-	-	-	-
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	102 J	-	-	-	-	-	88.6 J	-	-	-	252 J	369 J	-	-	-	-
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	2080	-	-	-	-	-	829	-	-	-	4270	8450	-	-	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	1500	-	-	-	-	-	788	-	-	-	7830	10800	-	-	-	-
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	20900	-	-	-	-	-	2240	-	-	-	70600	290000	-	-	-	-
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	2180	-	-	-	-	-	173000	-	-	-	58500	27200	-	-	-	-
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	1370	-	-	-	-	-	255 J	-	-	-	2910	6700	-	-	-	-
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	900	-	-	-	-	-	2760	-	-	-	4580	5760	-	-	-	-
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	130 J	-	-	-	-	-	932	-	-	-	866	790	-	-	-	-
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	484	-	-	-	-	-	10400	-	-	-	9080	4780	-	-	-	-
SB-2D-02	10.6-11.0	E60358-78	12/9/99	-	935 J	-	-	-	-	-	14000	-	-	-	9920	8430	-	-	-	-
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	250	-	-	-	-	-	54 J	-	-	-	390	1440	-	-	-	-
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	15300	-	-	-	-	-	70000	-	-	-	256000	211000	-	-	-	-
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	894	-	-	-	-	-	3950	-	-	-	792	8240	-	-	-	-
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	315	-	-	-	-	-	335	-	-	-	330	817	-	-	-	-
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	9470	-	-	-	-	-	22300	-	-	-	71100	66500	-	-	-	-
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	289 J	-	-	-	-	-	171000	-	-	-	68200	4690	-	-	-	-
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	10700	-	-	-	-	-	588000	-	-	-	271000	192000	-	-	-	-
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	191 J	-	-	-	-	-	ND	-	-	-	2060	2610	-	-	-	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	111	-	-	-	-	-	ND	-	-	-	304	1830	-	-	-	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	299	-	-	-	-	-	1010	-	-	-	1030	1140	-	-	-	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	ND	-	-	-	-	-	ND	-	-	-	30 J	39.5 J	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010209

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria RDCSCC NRDCSCC IGWSCC Date / Units	Hexachloroethane	Indeno(1,2,3-cd) pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	68000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	860	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	50.2 J	-	-	-	-	-	2680	-	-	-	105	701	-	-	-	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	209 J	-	-	-	-	-	6990	-	-	-	737	798	-	-	-	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	1510	-	-	-	-	-	ND	-	-	-	830	3710	-	-	-	-
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	669	-	-	-	-	-	6540	-	-	-	536	1960	-	-	-	-
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	8030	-	-	-	-	-	5050000	-	-	-	182000	177000	-	-	-	-
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	192	-	-	-	-	-	454	-	-	-	660	748	-	-	-	-
SB-2D-08	5.5-6.0	E60588-34	12/13/99	-	543	-	-	-	-	-	43400	-	-	-	34600	30500	-	-	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	1860	-	-	-	-	-	1420	-	-	-	5580	10000	-	-	-	-
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	286	-	-	-	-	-	96.4	-	-	-	256	402	-	-	-	-
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	13900	-	-	-	-	-	4680	-	-	-	29900	51800	-	-	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	565	-	-	-	-	-	506000	-	-	-	14300	18100	-	-	-	-
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	ND	-	-	-	-	-	59.8 J	-	-	-	185 J	612	-	-	-	-
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	546	-	-	-	-	-	487	-	-	-	340	1010	-	-	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	2070 J	-	-	-	-	-	342000	-	-	-	27600	14600	-	-	-	-
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	ND	-	-	-	-	-	810 J	-	-	-	ND	715 J	-	-	-	-
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	7810	-	-	-	-	-	2870	-	-	-	57000	81200	-	-	-	-
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	1180	-	-	-	-	-	1600	-	-	-	5430	9010	-	-	-	-
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	146 J	-	-	-	-
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	243 J	-	-	-	-	-	ND	-	-	-	129 J	387 J	-	-	-	-
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	103	-	-	-	-	-	81.4	-	-	-	898	839	-	-	-	-
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	58.9 J	-	-	-	-	-	148	-	-	-	363	296	-	-	-	-
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	22.2 J	-	-	-	-	-	25.6 J	-	-	-	42.1 J	82.3	-	-	-	-
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	423	-	-	-	-	-	1270	-	-	-	989	851	-	-	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	8100	-	-	-	-	-	45900	-	-	-	77800	100000	-	-	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	3970	-	-	-	-	-	7650	-	-	-	105000	75400	-	-	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	384	-	-	-	-	-	71 J	-	-	-	4050	4340	-	-	-	-
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	3140	-	-	-	-	-	4800	-	-	-	4520	15900	-	-	-	-
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	1110	-	-	-	-	-	8190	-	-	-	882	1610	-	-	-	-
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	231 J	-	-	-	-	-	ND	-	-	-	233 J	778	-	-	-	-
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	2180	-	-	-	-	-	45000	-	-	-	9520	12100	-	-	-	-
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	4270	-	-	-	-	-	90200	-	-	-	17000	28200	-	-	-	-
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	152 J	-	-	-	-	-	ND	-	-	-	88 J	524	-	-	-	-
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	103 J	-	-	-	-	-	101 J	-	-	-	235 J	355 J	-	-	-	-
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	786	-	-	-	-	-	ND	-	-	-	654	1700	-	-	-	-
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	2200	-	-	-	-	-	1130	-	-	-	1550	38800	-	-	-	-
SB-3B-03	0.0-0.5	E60358-36	12/9/99	-	26500	-	-	-	-	-	4740	-	-	-	392000	506000	-	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	14000	-	-	-	-	-	1130000	-	-	-	149000	153000	-	-	-	-
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	13000	-	-	-	-	-	9100	-	-	-	34500	58500	-	-	-	-
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	16700	-	-	-	-	-	36300	-	-	-	65400	138000	-	-	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	905	-	-	-	-	-	352	-	-	-	774	2720	-	-	-	-
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-05	4.5-5.0	E60358-41	12/9/99	-	71.2 J	-	-	-	-	-	1110	-	-	-	63.6 J	151	-	-	-	-
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	111000	-	-	-	-	-	66200	-	-	-	216000	474000	-	-	-	-
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-06	5.0-5.5	E60358-47	12/9/99	-	58900	-	-	-	-	-	2000000	-	-	-	1140000	611000	-	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	41400	-	-	-	-	-	17400	-	-	-	542000	798000	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010210

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Hexachloroethane	Indeno(1,2,3-cd) Pyrene	Isophorone	2-Methylnaphthalene	2-Nitroaniline	3-Nitroaniline	4-Nitroaniline	Naphthalene	Nitrobenzene	N-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Phenanthrene	Pyrene	1,2,4-Trichlorobenzene	Total TIC, Semi-Volatile	Aroclor 1016	Aroclor 1221
			RDCSCC	6000	900	1100000	NS	NS	NS	NS	230000	28000	660	140000	NS	1700000	68000	NS	490	490
			NRDCSCC	100000	4000	10000000	NS	NS	NS	NS	4200000	520000	660	600000	NS	10000000	1200000	NS	2000	2000
			IGWSCC	100000	500000	50000	NS	NS	NS	NS	100000	10000	10000	100000	NS	100000	100000	NS	50000	50000
Soil Boring	Depth Interval (feet)	Laboratory Sample No.	Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	16800	-	-	-	-	-	1000000	-	-	-	369000	135000	-	-	-	-
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	27500	-	-	-	-	-	12600	-	-	-	34500	140000	-	-	-	-
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	30400	-	-	-	-	-	145000	-	-	-	73700	105000	-	-	-	-
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	59100	-	-	-	-	-	13300	-	-	-	95300	354000	-	-	-	-
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	88800 J	-	-	-	-	-	6390000	-	-	-	1710000	1050000	-	-	-	-
SB-3C-01	1.0-1.5	E60358-65	12/9/99	-	513	-	-	-	-	-	250 J	-	-	-	953	2590	-	-	ND	ND
SB-3C-02	1.5-2.0	E60358-66	12/9/99	-	2230	-	-	-	-	-	786	-	-	-	4880	9870	-	-	ND	ND
SB-3C-03	1.5-2.0	E60358-64	12/9/99	-	145	-	-	-	-	-	83.8 J	-	-	-	254	565	-	-	ND	ND
SB-3C-04	1.1-1.6	E60358-67	12/9/99	-	1140	-	-	-	-	-	144 J	-	-	-	1070	7480	-	-	ND	ND
SB-3D-01	3.0-3.5	E60358-72	12/9/99	-	1150 J	-	-	-	-	-	22300	-	-	-	55700	19100	-	-	-	-
SB-3D-02	3.0-3.5	E60358-108	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	142	-	-	-	-	-	ND	-	-	-	204	560	-	-	-	-
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	1050	-	-	-	-	-	ND	-	-	-	1370	3960	-	-	-	-
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-01	1.5-2.0	E60358-56	12/8/99	-	251	-	-	-	-	-	115	-	-	-	91.7	363	-	-	-	-
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	460	-	-	-	-	-	881	-	-	-	779	1670	-	-	-	-
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	ND	-	-	-	-	-	ND	-	-	-	ND	ND	-	-	-	-
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	ND	-	-	-	-	-	33.3 J	-	-	-	43.9 J	56.3 J	-	-	-	-
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-01	1.5-2.0	E60358-18	12/9/99	ND	137 J	ND	572	ND	ND	ND	1110	ND	ND	ND	306 J	543	ND	12960	-	-
SB-3F-01	4.0-4.5	E60358-17	12/9/99	ND	ND	ND	990	ND	ND	ND	4730	ND	ND	ND	505 J	919	ND	20030	-	-
SB-3F-02	0.0-0.5	E60729-74	12/15/99	ND	216	ND	144	ND	ND	ND	367	ND	ND	ND	196	968	ND	36420	-	-
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-02	3.0-3.5	E60729-75	12/15/99	ND	1820	ND	52600	ND	ND	ND	69100	ND	ND	ND	14600	21100	ND	748700	-	-
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3F-03	1.5-2.0	E60358-18	12/9/99	ND	2380	ND	1990	ND	ND	ND	4370	ND	ND	ND	6290	17400	ND	176700	-	-
SB-3F-03	3.0-3.5	E60358-19	12/9/99	ND	43300	ND	1430000	ND	ND	ND	4920000	ND	ND	ND	1790000	1100000	ND	8958000	-	-
SB-3F-04	1.5-2.0	E60358-14	12/9/99	ND	1140	ND	ND	ND	ND	ND	222 J	ND	ND	ND	2150	3760	ND	12100	-	-
SB-3F-04	3.0-3.5	E60358-15	12/9/99	ND	801	ND	1600	ND	ND	ND	364 J	ND	ND	ND	15200	17000	ND	68800	-	-
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	232 J	-	-	-	-	-	171 J	-	-	-	718	1240	-	-	-	-
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	ND	-	-	-	-	-	423	-	-	-	ND	80.1 J	-	-	-	-
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	504	-	-	-	-	-	178 J	-	-	-	560	1200	-	-	-	-
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3G-02	5.0-5.5	E60358-13	12/0/99	-	90.4 J	-	-	-	-	-	750	-	-	-	56.1 J	119	-	-	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	-	27800	-	-	-	-	-	487000	-	-	-	438000	324000	-	-	-	-
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	54.2 J	38.2 J	ND	0	ND	ND
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	203	ND	634	ND	ND	ND	1940	ND	ND	ND	2780	1250	ND	3400 JN	ND	ND
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	ND	ND
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	ND	ND	ND	ND	112	ND	ND	ND	27.6 J	ND	ND	200 J	ND	ND

N \project\s\s-priv\s99\s99227\b\supp rl\tables\(table 6

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010211

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-1A-01	0.0-0.5	E60358-6	12/8/99	-	-	-	-	-	-	8.4	<0.56	<0.56	-	-	158	0.42	-	-	-	-	-	2.6	89.9
SB-1A-01	1.5-2.0	E60358-7	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.4
SB-1A-01	2.5-3.0	E60358-8	12/8/99	-	-	-	-	-	-	11.4	<0.59	<0.59	-	-	406	0.71	-	-	-	-	-	4.9	84.4
SB-1A-02	0.0-0.5	E60358-9	12/8/99	-	-	-	-	-	-	8.9	<0.56	<0.56	-	-	109	0.29	-	-	-	-	-	1.1	88.5
SB-1A-02	1.5-2.0	E60358-10	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.5
SB-1A-02	2.5-3.0	E60358-11	12/8/99	-	-	-	-	-	-	9.3	<0.61	<0.61	-	-	108	0.55	-	-	-	-	-	<1.2	81.7
SB-1B-01	0.0-0.5	E60358-1	12/8/99	-	-	-	-	-	<7.2	15.8	<0.6	0.69	132	74.5	243	1.2	60.2	<12.0	<1.2	<1.2	258	2.5	83.3
SB-1B-01	1.5-2.0	E60358-2	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.7
SB-1B-01	3.5-4.0	E60358-3	12/8/99	-	-	-	-	-	<21.0	25.9	<1.7	<1.7	596	139	2510	1.4	81.4	<34.0	<3.4	<3.4	242	<3.4	29.1
SB-1B-02	0.0-0.5	E60358-4	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.1
SB-1B-02	2.5-3.0	E60358-5	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.8
SB-1B-03	0.0-0.5	E60358-26	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.5
SB-1B-03	3.5-4.0	E60358-27	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79.9
SB-1B-03	3.5-4.0	E60588-60	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.1
SB-1B-04	0.0-0.5	E60358-28	12/8/99	-	-	-	-	-	<7.5	1.7	<0.62	1.6	3320	20	45.1	0.78	445	<12.0	<1.2	<6.2	217	5.5	80.4
SB-1B-04	1.5-2.0	E60588-61	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.7
SB-1B-04	3.5-4.0	E60358-30	12/8/99	-	-	-	-	-	<8.6	19.1	<0.71	<0.71	752	165	250	1.9	32.8	<14.0	<1.4	<1.4	255	<1.4	70.1
SB-1B-05	0.0-0.5	E60358-24	12/8/99	ND	ND	ND	ND	ND	<7.2	11.4	<0.6	<0.6	22.1	51.6	154	0.2	16.8	<12.0	<1.2	<1.2	68.9	4.1	83
SB-1B-05	1.5-2.0	E60358-25	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.7
SB-1B-06	0.0-0.5	E60358-23	12/8/99	ND	ND	ND	ND	ND	<7.3	11.6	<0.61	0.65	54.8	47.8	218	1.1	26.4	<12.0	<1.2	<1.2	173	2	82.3
SB-1B-06	1.5-2.0	E60588-62	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83.1
SB-1C-01	0.0-0.5	E60729-17	12/14/99	-	-	-	-	-	<7.5	12.3	<0.62	<0.62	27.8	51.3	154	1	23.5	<12.0	<1.2	<1.2	146	4.2	79.9
SB-1C-02	0.0-0.5	E60729-11	12/14/99	-	-	-	-	-	<7.2	9.7	0.66	<0.6	17.6	54.3	170	0.56	16.8	<12.0	<1.2	<1.2	95.4	<1.2	83.8
SB-1C-02	1.5-2.0	E60729-10	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-1C-03	0.0-0.5	E60729-80	12/15/99	-	-	-	-	-	<7.2	5.6	<0.6	<0.6	17.1	98.1	118	8.8	16.4	<12.0	<1.2	<1.2	104	<1.2	83.8
SB-1C-03	1.5-2.0	E60729-83	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.4
SB-1C-03	3.5-4.0	E60729-81	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.5
SB-1C-03	7.0-7.5	E60729-82	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62.8
SB-1C-04	0.0-0.5	E60729-5	12/14/99	-	-	-	-	-	<7.5	9.8	0.68	<0.62	18.9	40.7	118	0.98	20.4	<12.0	<1.2	<1.2	284	4.5	80
SB-1C-04	1.5-2.0	E60729-6	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.5
SB-1C-04	3.5-4.0	E60729-7	12/14/99	-	-	-	-	-	-	12.9	<0.64	<0.64	-	-	201	4	-	-	-	-	-	5.1	78
SB-1C-04	7.5-8.0	E60729-8	12/14/99	-	-	-	-	-	-	11.3	<0.7	<0.7	-	-	200	1.3	-	-	-	-	-	7.3	71.3
SB-1C-04	11.0-11.5	E60729-9	12/14/99	-	-	-	-	-	-	1.8	<0.59	<0.59	-	-	<12.0	<0.046	-	-	-	-	-	<1.2	84.7
SB-1C-05	0.0-0.5	E60729-12	12/14/99	-	-	-	-	-	<7.2	10.1	<0.6	<0.6	18.7	52.6	220	0.97	20.4	<12.0	<1.2	<1.2	178	2.1	83.2
SB-1C-05	1.5-2.0	E60729-13	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.1
SB-1C-05	3.5-4.0	E60729-14	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.4
SB-1C-05	7.5-8.0	E60729-15	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.3
SB-1C-05	11.0-11.5	E60729-16	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.6
SB-1C-06	0.0-0.5	E60729-69	12/15/99	-	-	-	-	-	<6.4	2.1	<0.54	<0.54	4.2	131	<11.0	<0.039	13	<11.0	<1.1	1.2	66	<1.1	93
SB-1C-06	1.5-2.0	E60729-70	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.8
SB-1C-06	3.5-4.0	E60729-71	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88
SB-1C-06	7.5-8.0	E60729-72	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.9
SB-1C-06	11.5-12.0	E60729-73	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.5
SB-2A-01	0.0-0.5	E60450-4	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	1.5-2.0	E60450-5	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-01	5.5-6.0	E60450-6	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	0.0-0.5	E60450-1	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	1.5-2.0	E60450-2	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	0.0-0.5	E60450-16	12/10/99	ND	ND	1270	442	ND		4.5	<0.57	<0.57	-	-	153	0.54	-	-	-	-	-	6	-
SB-2A-03	1.5-2.0	E60450-17	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010212

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-2A-03	3.0-3.5	E60450-18	12/10/99	ND	ND	ND	ND	ND		9.4	<0.65	<0.65	-	-	290	0.56	-	-	-	-	-	3.7	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	ND	ND	ND	ND	ND		5.7	0.67	<0.65	-	-	38.8	0.3	-	-	-	-	-	5.1	-
SB-2A-04	0.0-0.5	E60450-20	12/10/99	ND	ND	ND	ND	ND		2	<0.57	<0.57	-	-	56.7	0.16	-	-	-	-	-	<1.1	-
SB-2A-04	1.5-2.0	E60450-21	12/10/99	ND	ND	ND	ND	ND		1.3	0.69	<0.54	-	-	<11	<0.040	-	-	-	-	-	1.2	-
SB-2A-04	5.5-6.0	E60450-22	12/10/99	ND	ND	ND	ND	ND		8.1	<0.68	<0.68	-	-	182	0.12	-	-	-	-	-	8.2	-
SB-2A-05	0.0-0.5	E60450-33	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	1.5-2.0	E60450-34	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-05	5.5-6.0	E60450-35	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	1.5-2.0	E60450-48	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	3.5-4.0	E60450-49	12/10/99	-	-	-	-	-	-	48.2	<0.69	<0.69	-	-	201	0.29	-	-	-	-	-	2.2	-
SB-2A-06	5.5-6.0	E60450-50	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	1.5-2.0	E60450-23	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-07	2.5-3.0	E60450-24	12/10/99	-	-	-	-	-	-	7.6	0.78	1	-	-	95.5	0.37	-	-	-	-	-	2.9	-
SB-2A-07	4.5-5.0	E60450-25	12/10/99	-	-	-	-	-	-	4.2	<0.60	<0.60	-	-	54.9	0.13	-	-	-	-	-	1.2	-
SB-2A-07	6.5-7.0	E60450-26	12/10/99	-	-	-	-	-	-	16.4	<0.64	<0.64	-	-	24.9	0.15	-	-	-	-	-	<1.3	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	-	-	-	-	-	-	7.1	<0.59	<0.59	-	-	<12	0.057	-	-	-	-	-	1.2	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	-	-	-	-	-	-	9.8	<0.62	<0.62	-	-	129	0.36	-	-	-	-	-	10.4	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	5.5-6.0	E60450-30	12/10/99	-	-	-	-	-	-	13	<0.65	<0.65	-	-	14.1	0.057	-	-	-	-	-	1.4	-
SB-2A-08	6.5-7.0	E60450-31	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-08	10.0-10.5	E60450-32	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	6.5-7.0	E60450-14	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-09	14.5-15.0	E60450-15	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	ND	ND	635	261	ND		1.4	<0.56	<0.56	-	-	94.8	0.097	-	-	-	-	-	<1.1	-
SB-2A-10	7.5-8.0	E60450-40	12/10/99	ND	ND	ND	ND	ND		21.2	<0.61	1.1	-	-	1050	0.1	-	-	-	-	-	2.3	-
SB-2A-10	9.5-10.0	E60450-41	12/10/99	-	-	-	-	-	-	9.1	<0.96	<0.96	-	-	432	<0.072	-	-	-	-	-	<1.9	-
SB-2A-11	1.5-2.0	E60450-7	12/10/99	-	-	-	-	-	-	6.1	0.67	<0.65	-	-	27.6	0.43	-	-	-	-	-	2.2	-
SB-2A-11	5.5-6.0	E60450-8	12/10/99	-	-	-	-	-	-	2.4	<0.62	<0.62	-	-	15.6	0.13	-	-	-	-	-	1.2	-
SB-2A-11	12.5-13.0	E60450-9	12/10/99	-	-	-	-	-	-	16.8	<0.58	<0.58	-	-	113	<0.041	-	-	-	-	-	<1.2	-
SB-2A-12	2.5-3.0	E60450-10	12/10/99	-	-	-	-	-	-	14.8	<0.72 <	<0.72	-	-	115	0.82	-	-	-	-	-	8.1	-
SB-2A-12	5.5-6.0	E60450-11	12/10/99	-	-	-	-	-	-	11.5	<0.64	<0.64	-	-	62.5	0.086	-	-	-	-	-	1.4	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	-	-	-	-	-	4.2	<0.78	<0.78	-	-	68.2	0.085	-	-	-	-	-	<1.6	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	3.5-4.0	E60450-52	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-16	3.5-4.0	E60588-35	12/13/99	-	-	-	-	-	-	6.3	<0.72	<0.72	-	-	18.5	0.12	-	-	-	-	-	<1.4	69.7
SB-2A-16	5.5-6.0	E60588-36	12/13/99	-	-	-	-	-	-	22.5	<0.74	<0.74	-	-	23.9	0.12	-	-	-	-	-	<1.5	67.4
SB-2A-16	11.0-11.5	E60588-37	12/13/99	-	-	-	-	-	-	5.1	<0.72	<0.72	-	-	14.4	<0.049	-	-	-	-	-	8.5	69.2
SB-2A-17	3.5-4.0	E60588-38	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.7
SB-2A-18	3.5-4.0	E60588-7	12/13/99	-	-	-	-	-	-	4.6	0.67	<0.58	-	-	125	0.66	-	-	-	-	-	<1.2	85.7
SB-2A-19	3.5-4.0	E60588-1	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.9
SB-2A-19	7.5-8.0	E60588-2	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.6
SB-2A-19	10.5-11.0	E60588-3	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.2
SB-2A-20	3.0-3.5	E60588-8	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83.3
SB-2A-20	6.5-7.0	E60588-9	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57.8
SB-2A-20	14.5-15.0	E60588-10	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.7

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010213

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-2A-21	3.5-4.0	E60588-39	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87.1
SB-2A-21	6.0-6.5	E60588-40	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79.4
SB-2A-22	3.5-4.0	E60588-41	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.9
SB-2A-22	7.5-8.0	E60588-42	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.9
SB-2A-22	10.5-11.0	E60588-43	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81.6
SB-2B-01	0.0-0.5	E60729-25	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.5
SB-2B-01	5.5-6.0	E60729-26	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92.4
SB-2B-02	0.0-0.5	E60588-26	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92.8
SB-2B-02	3.0-3.5	E60588-27	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.2
SB-2B-02	5.5-6.0	E60588-28	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
SB-2B-02	7.0-7.5	E60588-29	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78
SB-2B-02	11.0-11.5	E60588-30	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.5
SB-2B-03	0.0-0.5	E60588-50	12/13/99	ND	ND	ND	ND	ND	-	5.7	<0.57	0.59	-	-	607	0.66	-	-	-	-	-	1.3	87.7
SB-2B-03	3.0-3.5	E60588-51	12/13/99	-	-	-	-	-	-	5.3	<0.67	<0.67	-	-	332	0.2	-	-	-	-	-	2.6	74.3
SB-2B-03	5.5-6.0	E60588-54	12/13/99	ND	ND	ND	ND	ND	-	8	<0.78	0.9	-	-	145	0.24	-	-	-	-	-	3.6	64.5
SB-2B-03	7.5-8.0	E60588-52	12/13/99	-	-	-	-	-	-	11.7	<0.82	0.9	-	-	308	0.47	-	-	-	-	-	5.7	61.1
SB-2B-03	11.5-12.0	E60588-53	12/13/99	-	-	-	-	-	-	1.6	<0.61	<0.61	-	-	<12.0	<0.047	-	-	-	-	-	<1.2	82.3
SB-2B-04	0.0-0.5	E60588-12	12/13/99	ND	ND	ND	ND	ND	-	2.9	<0.54	<0.54	-	-	79.2	0.16	-	-	-	-	-	1.9	91.7
SB-2B-04	3.5-4.0	E60588-13	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81.2
SB-2B-04	5.5-6.0	E60588-14	12/13/99	ND	ND	ND	ND	ND	-	19.5	<0.67	0.67	-	-	157	0.43	-	-	-	-	-	7.3	74.5
SB-2B-04	7.5-8.0	E60588-15	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.7
SB-2B-04	9.0-9.5	E60588-16	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.2
SB-2B-05	1.5-2.0	E60729-18	12/14/99	-	-	-	-	-	-	3.3	<0.58	<0.58	-	-	88.9	0.4	-	-	-	-	-	<1.2	85.4
SB-2B-05	3.5-4.0	E60729-19	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.9
SB-2B-05	5.5-6.0	E60729-20	12/14/99	-	-	-	-	-	-	2.7	<0.58	<0.58	-	-	<12.0	<0.04	-	-	-	-	-	<1.2	85.9
SB-2B-05	7.5-8.0	E60729-21	12/14/99	-	-	-	-	-	-	1.9	<0.62	<0.62	-	-	<12.0	<0.045	-	-	-	-	-	<1.2	80.7
SB-2B-05	11.5-12.0	E60729-22	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.8
SB-2B-06	1.5-2.0	E60729-1	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.2
SB-2B-06	3.5-4.0	E60729-2	12/14/99	-	-	-	-	-	-	18.1	<0.63	0.74	-	-	1670	17.6	-	-	-	-	-	1.9	79.5
SB-2B-06	5.5-6.0	E60729-4	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69.5
SB-2B-06	7.5-8.0	E60729-3	12/14/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70.8
SB-2B-06	11.5-12.0	E60729-79	12/15/99	-	-	-	-	-	<7.0	4.3	0.62	<0.59	21.8	6	<12.0	<0.043	9	<12.0	<1.2	<1.2	43	-	85
SB-2B-07	1.5-2.0	E60729-27	12/14/99	-	-	-	-	-	-	14.4	<0.69	<0.69	-	-	354	1.1	-	-	-	-	-	25.1	72.2
SB-2B-07	2.5-3.0	E60729-28	12/14/99	-	-	-	-	-	-	11.9	<0.65	<0.65	-	-	463	0.9	-	-	-	-	-	33.8	77
SB-2B-07	4.0-4.5	E60729-29	12/14/99	-	-	-	-	-	-	116	<0.98	<0.98	-	-	3530	2.2	-	-	-	-	-	153	52
SB-2B-08	1.5-2.0	E60729-76	12/15/99	-	-	-	-	-	-	57.3	<0.72	<0.72	-	-	1100	0.85	-	-	-	-	-	72.8	68.9
SB-2B-08	3.5-4.0	E60729-77	12/15/99	-	-	-	-	-	-	34.5	<0.84	<0.84	-	-	80.3	0.36	-	-	-	-	-	87.5	59.8
SB-2B-08	5.5-6.0	E60729-51	12/15/99	-	-	-	-	-	-	6.9	<0.59	2.8	-	-	106	0.49	-	-	-	-	-	<1.2	84.2
SB-2B-08	6.5-7.0	E60729-52	12/15/99	-	-	-	-	-	-	1.8	<0.61	1	-	-	30.8	0.4	-	-	-	-	-	<1.2	81.6
SB-2B-08	11.5-12.0	E60729-53	12/15/99	-	-	-	-	-	-	1.8	0.88	<0.68	-	-	45.8	0.094	-	-	-	-	-	<1.4	73.3
SB-2B-09	0.0-0.5	E60588-57	12/13/99	-	-	-	-	-	<6.6	1.3	<0.55	<0.55	8.2	11.6	16.8	<0.039	6.9	<11.0	<1.1	<1.1	16.5	<1.1	91.4
SB-2B-09	2.5-3.0	E60588-58	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.7
SB-2B-09	5.0-5.5	E60588-59	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70.4
SB-2B-09	10.0-10.5	E60588-63	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54.8
SB-2B-11	1.5-2.0	E60729-46	12/15/99	ND	ND	ND	ND	ND	-	3.3	<0.55	<0.55	-	-	246	0.38	-	-	-	-	-	1.7	91
SB-2B-11	3.5-4.0	E60729-47	12/15/99	-	-	-	-	-	-	6.2	<0.59	<0.59	-	-	219	0.41	-	-	-	-	-	1.3	85
SB-2B-11	5.5-6.0	E60729-48	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72.2
SB-2B-11	7.5-8.0	E60729-49	12/15/99	-	-	-	-	-	-	3.1	<0.65	<0.65	-	-	71.2	0.18	-	-	-	-	-	<1.3	76.5
SB-2B-11	11.5-12.0	E60729-50	12/15/99	-	-	-	-	-	-	3.7	0.64	<0.59	-	-	<12.0	<0.043	-	-	-	-	-	<1.2	84.7
SB-2B-12	0.0-0.5	E60588-17	12/13/99	ND	ND	ND	ND	ND	<6.4	2.7	0.59	<0.53	10.6	26.4	35.3	0.13	9	<11.0	<1.1	<1.1	71.5	1.1	94.1
SB-2B-12	1.0-1.5	E60588-18	12/13/99	ND	ND	ND	ND	ND	-	9.8	<0.56	<0.56	-	-	631	0.4	-	-	-	-	-	2	89.1

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010214

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-2B-12	3.5-4.0	E60588-19	12/13/99	ND	ND	ND	ND	ND	-	5.1	<0.59	1	-	-	16.8	0.045	-	-	-	-	-	<1.2	84.7
SB-2B-12	5.5-6.0	E60588-20	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.4
SB-2B-12	7.5-8.0	E60588-21	12/13/99	ND	ND	ND	ND	ND	-	8.1	<0.68	0.74	-	-	30.4	0.17	-	-	-	-	-	1.8	73.5
SB-2B-12	11.5-12.0	E60588-22	12/13/99	-	-	-	-	-	-	2.7	<0.58	<0.58	-	-	<12.0	0.071	-	-	-	-	-	<1.2	85.4
SB-2B-13	3.5-4.0	E60729-23	12/14/99	-	-	-	-	-	-	29.8	<0.61	<0.61	-	-	225	0.25	-	-	-	-	-	3.1	82.1
SB-2B-13	7.5-8.0	E60729-24	12/14/99	-	-	-	-	-	-	8.7	<0.71	<0.71	-	-	71.7	0.074	-	-	-	-	-	2.3	70
SB-2B-14	3.5-4.0	E60588-55	12/13/99	-	-	-	-	-	-	10.3	<0.67	<0.67	-	-	277	0.4	-	-	-	-	-	2.7	74.6
SB-2B-14	6.5-7.0	E60588-56	12/13/99	-	-	-	-	-	-	7.6	<0.72	<0.72	-	-	67.8	0.13	-	-	-	-	-	2.3	69.6
SB-2B-16	3.0-3.5	E60729-66	12/15/99	-	-	-	-	-	-	2	<0.62	<0.62	-	-	34	0.17	-	-	-	-	-	<1.2	80.6
SD-2B-16	4.5-5.0	E60729-67	12/15/99	-	-	-	-	-	-	1.4	<0.58	<0.58	-	-	16.6	0.068	-	-	-	-	-	<1.2	85.5
SD-2B-16	11.5-12.0	E60729-68	12/15/99	-	-	-	-	-	-	1.2	<0.61	<0.61	-	-	<12.0	<0.044	-	-	-	-	-	<1.2	82.1
SB-2B-18	7.5-8.0	E60729-33	12/14/99	-	-	-	-	-	-	1.6	<0.62	<0.62	-	-	<12.0	<0.044	-	-	-	-	-	<1.2	80.9
SB-2B-18	11.5-12.0	E60729-34	12/14/99	-	-	-	-	-	-	1.4	<0.62	<0.62	-	-	<12.0	<0.048	-	-	-	-	-	<1.2	80.5
SB-2B-19	3.0-3.5	E60729-37	12/15/99	-	-	-	-	-	-	1.6	<0.57	<0.57	-	-	<11.0	0.047	-	-	-	-	-	<1.1	87.1
SB-2B-19	7.5-8.0	E60729-38	12/15/99	-	-	-	-	-	-	1.5	<0.6	<0.6	-	-	<12.0	0.057	-	-	-	-	-	<1.2	83.4
SB-2B-19	11.5-12.0	E60729-39	12/15/99	-	-	-	-	-	-	2	<0.59	<0.59	-	-	<12.0	<0.048	-	-	-	-	-	<1.2	84.9
SB-2B-20	2.5-3.0	E60729-30	12/14/99	-	-	-	-	-	-	11.5	0.65	<0.6	-	-	455	1	-	-	-	-	-	1.4	83.9
SB-2B-20	7.0-7.5	E60729-31	12/14/99	-	-	-	-	-	-	1.5	<0.56	<0.56	-	-	<11.0	<0.041	-	-	-	-	-	<1.1	88.5
SB-2B-20	11.0-11.5	E60729-32	12/14/99	-	-	-	-	-	-	1.8	<0.61	<0.61	-	-	<12.0	<0.049	-	-	-	-	-	<1.2	81.4
SB-2C-01	1.5-2.0	E60729-61	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.8
SB-2C-01	3.5-4.0	E60729-62	12/15/99	-	-	-	-	-	-	17.9	<0.6	<0.6	-	-	277	1.1	-	-	-	-	-	<1.2	83.9
SB-2C-01	5.5-6.0	E60729-63	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79.2
SB-2C-01	7.5-8.0	E60729-64	12/15/99	-	-	-	-	-	-	2.7	<0.62	<0.62	-	-	22	0.042	-	-	-	-	-	<1.2	80.5
SB-2C-01	11.5-12.0	E60729-65	12/15/99	-	-	-	-	-	-	4.1	<0.6	<0.6	-	-	20.4	<0.044	-	-	-	-	-	<1.2	84
SB-2C-03	3.5-4.0	E60729-40	12/15/99	-	-	-	-	-	-	4.4	<0.6	0.66	-	-	15.4	0.33	-	-	-	-	-	<1.2	84
SB-2C-03	5.5-6.0	E60729-41	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83.6
SB-2C-03	7.5-8.0	E60729-42	12/15/99	-	-	-	-	-	-	5.1	<0.62	<0.62	-	-	87.9	0.91	-	-	-	-	-	3.4	81.3
SB-2C-03	11.5-12.0	E60729-43	12/15/99	-	-	-	-	-	-	2.6	<0.58	<0.58	-	-	<12.0	<0.039	-	-	-	-	-	<1.2	86
SB-2D-01	0.0-0.5	E60358-81	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.3
SB-2D-01	1.5-2.0	E60358-79	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.2
SB-2D-01	5.5-6.0	E60358-80	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.2
SB-2D-02	0.0-0.5	E60358-73	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.5
SB-2D-02	1.5-2.0	E60358-74	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81.5
SB-2D-02	4.0-4.5	E60358-75	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.7
SB-2D-02	5.5-6.0	E60358-76	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.7
SB-2D-02	8.0-8.5	E60358-77	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.8
SB-2D-02	10.5-11.0	E60358-78	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.9
SB-2D-03	0.0-0.5	E60358-88	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92.7
SB-2D-03	1.5-2.0	E60358-86	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.5
SB-2D-03	3.5-4.0	E60358-87	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.1
SB-2D-03	5.5-6.0	E60358-89	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61.4
SB-2D-03	7.0-7.5	E60358-90	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69.8
SB-2D-03	11.5-12.0	E60358-91	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65.4
SB-2D-04	1.5-2.0	E60358-82	12/9/99	-	-	-	-	-	-	11.9	<0.73	<0.73	-	-	183	0.29	-	-	-	-	-	39	68.3
SB-2D-04	6.5-7.0	E60358-84	12/9/99	-	-	-	-	-	-	15.3	<0.89	<0.89	-	-	<14.0	<0.051	-	-	-	-	-	<1.4	72.8
SB-2D-04	10.5-11.0	E60358-85	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57.5
SB-2D-04	10.5-11.0	E60358-83	12/9/99	-	-	-	-	-	-	12.1	<0.88	<0.88	-	-	121	0.88	-	-	-	-	-	<1.8	56.9
SB-2D-05	2.5-3.0	E60450-42	12/10/99	-	-	-	-	-	-	6	<0.70	<0.70	-	-	<14	<0.055	-	-	-	-	-	<1.4	-
SB-2D-05	6.5-7.0	E60450-43	12/10/99	-	-	-	-	-	-	1.8	<0.69	<0.69	-	-	<14	0.054	-	-	-	-	-	<1.4	-
SB-2D-05	10.0-10.5	E60450-44	12/10/99	-	-	-	-	-	-	2.7	<0.65	<0.65	-	-	<13	<0.046	-	-	-	-	-	2.3	-
SB-2D-06	3.5-4.0	E60450-45	12/10/99	-	-	-	-	-	-	43.8	<0.84	<0.84	-	-	23.2	0.11	-	-	-	-	-	2	-

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010215

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-2D-06	6.5-7.0	E60450-46	12/10/99	-	-	-	-	-	-	6.7	<0.69	<0.69	-	-	15.6	0.33	-	-	-	-	-	1.8	-
SB-2D-06	9.5-10.0	E60450-47	12/10/99	-	-	-	-	-	-	6.3	0.82	<0.75	-	-	49.7	0.16	-	-	-	-	-	3.2	-
SB-2D-07	3.5-4.0	E60358-92	12/9/99	-	-	-	-	-	-	9.2	<0.63	1.4	-	-	254	3.4	-	-	-	-	-	<1.3	79.3
SB-2D-07	5.0-5.5	E60358-93	12/9/99	-	-	-	-	-	-	8.9	<0.63	<0.63	-	-	46	0.13	-	-	-	-	-	5.8	78.8
SB-2D-07	6.0-6.5	E60358-94	12/9/99	-	-	-	-	-	-	23.8	<0.61	<0.61	-	-	19.8	0.25	-	-	-	-	-	87.1	81.9
SB-2D-08	3.5-4.0	E60588-33	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79.2
SB-2D-08	5.5-6.0	E60588-34	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	59.9
SB-2D-09	3.5-4.0	E60588-4	12/13/99	-	-	-	-	-	-	6.2	<0.62	<0.62	-	-	95.9	0.23	-	-	-	-	-	6.1	80.3
SB-2D-09	7.5-8.0	E60588-5	12/13/99	-	-	-	-	-	-	7.4	0.61	<0.61	-	-	178	0.47	-	-	-	-	-	<1.2	81.5
SB-2D-09	10.5-11.0	E60588-6	12/13/99	-	-	-	-	-	-	2.1	<0.56	<0.56	-	-	<11.0	<0.04	-	-	-	-	-	<1.1	88.4
SB-2D-10	3.5-4.0	E60588-11	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72.4
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72
SB-2E-01	0.0-0.5	E60729-58	12/15/99	-	-	-	-	-	<6.5	1.9	<0.54	<0.54	16.7	53.3	32.8	0.1	18.6	<11.0	<1.1	<1.1	62.9	<1.1	82.6
SB-2E-01	3.0-3.5	E60729-59	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.2
SB-2E-01	6.5-7.0	E60729-60	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.1
SB-2E-02	0.0-0.5	E60729-54	12/15/99	-	-	-	-	-	<6.6	1.8	<0.56	<0.56	8.8	73.1	<11.0	0.059	22.5	<11.0	<1.1	1.4	45	<1.1	88.8
SB-2E-02	3.0-3.5	E60729-55	12/15/99	-	-	-	-	-	-	5.5	<0.61	<0.61	-	-	361	1.1	-	-	-	-	-	6.3	82.5
SB-2E-02	7.0-7.5	E60729-56	12/15/99	-	-	-	-	-	-	5.1	<0.64	0.71	-	-	75400	4.7	-	-	-	-	-	2.3	78.3
SB-2E-03	0.0-0.5	E60588-45	12/13/99	-	-	-	-	-	<6.7	2.4	<0.56	<0.56	12.5	117	61.4	0.36	24.1	<11.0	<1.1	<5.6	83.1	<1.1	89.6
SB-2E-03	3.0-3.5	E60588-46	12/13/99	-	-	-	-	-	-	4.7	<0.58	<0.58	-	-	780	1	-	-	-	-	-	6.7	86
SB-2E-03	7.0-7.5	E60588-47	12/13/99	-	-	-	-	-	-	5	<0.6	<0.6	-	-	129	0.33	-	-	-	-	-	2	83.1
SB-2E-03	11.0-11.5	E60588-48	12/13/99	-	-	-	-	-	-	4.6	<0.64	<0.64	-	-	85.5	0.32	-	-	-	-	-	2.1	78.4
SB-2E-04	0.0-0.5	E60588-64	12/13/99	-	-	-	-	-	<6.5	1.6	<0.54	<0.54	15.4	72.1	13.6	<0.036	18.4	<11.0	<1.1	<1.1	44.8	<1.1	92.2
SB-2E-04	2.5-3.0	E60588-31	12/13/99	-	-	-	-	-	-	11	<0.66	<0.66	-	-	1500	1.4	-	-	-	-	-	<1.3	75.5
SB-2E-04	6.5-7.0	E60588-32	12/13/99	-	-	-	-	-	-	10.1	<0.81	0.88	-	-	106	0.73	-	-	-	-	-	4.8	61.6
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	-	-	-	-	-	14.1	<0.67	<0.67	-	-	76.6	0.52	-	-	-	-	-	2.6	57.7
SB-2E-05	3.0-3.5	E60588-49	12/13/99	-	-	-	-	-	-	4.2	<0.58	<0.58	-	-	184	3.7	-	-	-	-	-	1.5	85.4
SB-3A-01	1.5-2.0	E60358-32	12/8/99	-	-	-	-	-	<8.4	53.3	<0.7	1.2	28.5	169	215	0.55	29.2	<14.0	<1.4	<1.4	93.8	38.2	71.2
SB-3A-02	1.5-2.0	E60358-31	12/8/99	-	-	-	-	-	<7.8	7.5	<0.65	<0.65	10.7	27.2	56.7	<0.047	20.2	<13.0	<1.3	<1.3	32.7	5.1	76.9
SB-3A-03	1.5-2.0	E60358-95	12/9/99	-	-	-	-	-	<6.7	<1.1	<0.56	<0.56	5.5	6	15.3	0.094	<4.5	<11.0	<1.1	<1.1	8.2	5.2	89.3
SB-3A-04	1.5-2.0	E60358-54	12/9/99	-	-	-	-	-	<7.4	7.7	<0.62	<0.62	11.9	45.9	127	5	17.6	<12.0	<1.2	<1.2	136	2.1	80.9
SB-3A-05	1.5-2.0	E60358-96	12/8/99	-	-	-	-	-	<8.1	21.4	<0.68	<0.68	28.6	68.7	196	0.36	25.9	<14.0	<1.4	<1.4	99.5	11.8	73.8
SB-3B-01	0.0-0.5	E60358-101	12/8/99	-	-	-	-	-	-	2.3	<0.57	<0.57	-	-	150	0.61	-	-	-	-	-	<1.1	87.9
SB-3B-01	1.5-2.0	E60358-102	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.9
SB-3B-01	4.5-5.0	E60358-103	12/8/99	-	-	-	-	-	-	1.4	<0.59	<0.59	-	-	<12.0	<0.045	-	-	-	-	-	<1.2	85
SB-3B-02	0.0-0.5	E60358-51	12/9/99	-	-	-	-	-	-	12.2	<0.6	<0.6	-	-	335	0.84	-	-	-	-	-	53.1	83.6
SB-3B-02	1.5-2.0	E60358-52	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	86.4
SB-3B-02	5.5-6.0	E60358-53	12/9/99	-	-	-	-	-	-	7.2	<0.65	<0.65	-	-	19.5	0.1	-	-	-	-	-	1.3	76.4
SB-3B-03	0.0-0.5	E60358-36	12/9/99	-	-	-	-	-	-	7.3	<0.52	<0.52	-	-	94.9	0.19	-	-	-	-	-	4.3	95.5
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.3
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	-	-	-	-	-	4.9	<0.67	<0.67	-	-	117	0.095	-	-	-	-	-	1.6	74.9
SB-3B-04	0.0-0.5	E60358-48	12/9/99	-	-	-	-	-	-	16.4	<0.61	1.1	-	-	1410	0.53	-	-	-	-	-	10.6	82
SB-3B-04	1.5-2.0	E60358-49	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.8
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	-	-	-	-	-	9.2	<0.72	<0.72	-	-	882	0.3	-	-	-	-	-	3.7	69.6
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	-	-	10.6	<0.62	0.8	-	-	197	0.3	-	-	-	-	-	2	79.9
SB-3B-05	1.5-2.0	E60358-40	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79
SB-3B-05	4.5-5.0	E60358-41	12/9/99	-	-	-	-	-	-	3	<0.62	<0.62	-	-	68.5	0.13	-	-	-	-	-	<1.2	80.4
SB-3B-06	0.0-0.5	E60358-45	12/9/99	-	-	-	-	-	-	13.5	<0.62	0.82	-	-	893	0.32	-	-	-	-	-	1.2	80
SB-3B-06	1.5-2.0	E60358-46	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.1
SB-3B-06	5.0-5.5	E60358-47	12/9/99	-	-	-	-	-	-	6.5	<0.76	<0.76	-	-	129	0.069	-	-	-	-	-	<1.5	65.9
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	-	-	8	<0.57	0.97	-	-	1640	0.37	-	-	-	-	-	2.5	87.2

- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010216

Table 6-2.
Soil Sample Analytical Results - Remedial Investigation
Former West End Manufactured Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Ammonia	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Cyanide	Solids, Percent (%)
			RDCSCC	490	490	490	490	490	14	20	2	39	NS	600	400	14	250	63	110	2	1500	1100	NS
			NRDCSCC	2000	2000	2000	2000	2000	340	20	2	100	NS	600	600	270	2400	3100	4100	2	1500	21000	NS
			IGWSCC	50000	50000	50000	50000	50000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			Date / Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
SB-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.1
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	-	-	-	-	-	8.8	<0.64	<0.64	-	-	446	0.49	-	-	-	-	-	<1.3	78.6
SB-3B-08	0.0-0.5	E60358-33	12/9/99	-	-	-	-	-	-	15.2	<0.58	0.83	-	-	239	0.78	-	-	-	-	-	2.7	89.7
SB-3B-08	1.5-2.0	E60358-34	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76
SB-3B-08	3.0-3.5	E60358-35	12/9/99	-	-	-	-	-	-	9.1	<0.68	<0.68	-	-	75.9	0.3	-	-	-	-	-	2.2	73.8
SB-3B-09	0.0-0.5	E60358-42	12/9/99	-	-	-	-	-	-	30.2	<0.6	0.76	-	-	634	0.52	-	-	-	-	-	4.8	82.8
SB-3B-09	1.5-2.0	E60358-43	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76.6
SB-3B-09	2.5-3.0	E60358-44	12/9/99	-	-	-	-	-	-	5.2	<0.65	<0.65	-	-	124	0.062	-	-	-	-	-	<1.3	78.6
SB-3C-01	1.0-1.5	E60358-65	12/9/99	ND	ND	ND	ND	ND	<6.9	11.4	<0.58	1.4	38.7	203	207	0.38	22.8	<12.0	<1.2	<1.2	1060	5.4	86.5
SB-3C-02	1.5-2.0	E60358-66	12/9/99	ND	ND	ND	ND	ND	<7.8	20.6	0.76	<0.65	11.1	45.2	71.2	0.75	18.4	<13.0	<1.3	<1.3	46.4	2.9	76.8
SB-3C-03	1.5-2.0	E60358-64	12/9/99	ND	ND	ND	ND	ND	<8.4	19.4	<0.7	<0.7	51.2	211	83.4	0.42	32.4	<14.0	<1.4	<1.4	22.5	6.4	71.2
SB-3C-04	1.1-1.6	E60358-67	12/9/99	ND	ND	ND	ND	ND	<7.0	8.1	0.6	<0.59	15.8	60.4	112	0.45	12	<12.0	<1.2	<1.2	12.4	3.4	85.2
SB-3D-01	3.0-3.5	E60358-72	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.9
SB-3D-02	3.0-3.5	E60358-108	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3D-02	3.0-3.5	E60358-97	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.8
SB-3D-03	3.5-4.0	E60358-55	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.7
SB-3D-03	3.5-4.0	E60729-45	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80.3
SB-3E-01	1.5-2.0	E60358-56	12/8/99	-	-	-	-	-	<6.6	2.5	<0.55	<0.55	5.3	17.6	20.8	0.18	<4.4	<11.0	<1.1	<1.1	15.8	<1.1	90.7
SB-3E-01	5.5-6.0	E60358-57	12/8/99	-	-	-	-	-	<7.5	14	0.78	<0.63	20.6	56.5	138	3.1	21.6	<12.0	<1.2	<1.2	72.2	2.1	79.5
SB-3E-02	1.5-2.0	E60358-98	12/8/99	-	-	-	-	-	<7.4	1.6	<0.62	<0.62	10.2	47	19.2	27.9	8	<12.0	<1.2	<1.2	83.4	3.3	81.1
SB-3E-02	4.0-4.5	E60358-99	12/8/99	-	-	-	-	-	<7.4	1.6	<0.61	4.4	10.3	84.9	31.2	3.9	5.8	<12.0	<1.2	<1.2	186	<1.2	81.6
SB-3E-03	1.0-1.5	E60358-100	12/8/99	-	-	-	-	-	<7.2	4.4	0.73	<0.6	12.4	55.3	317	0.38	20.7	<12.0	<1.2	<1.2	166	<1.2	82.9
SB-3E-03	5.5-6.0	E60358-61	12/9/99	-	-	-	-	-	<8.0	3.3	0.83	<0.67	16.2	109	31.3	0.14	12.4	<13.0	<1.3	<1.3	108	<1.3	74.6
SB-3E-04	1.0-1.5	E60358-62	12/9/99	-	-	-	-	-	<7.3	15	<0.61	2.5	83.5	487	1340	7.6	46.9	<12.0	<1.2	<1.2	805	1.4	82.1
SB-3E-04	3.5-4.0	E60358-63	12/9/99	-	-	-	-	-	<6.8	<1.1	0.94	<0.57	5.4	12.3	<11.0	0.14	<4.6	<11.0	<1.1	<1.1	8.4	<1.1	87.5
SB-3F-01	1.5-2.0	E60358-16	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.1
SB-3F-01	4.0-4.5	E60358-17	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	78.8
SB-3F-02	0.0-0.5	E60729-74	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84.5
SB-3F-02	1.5-2.0	E60358-20	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77.5
SB-3F-02	3.0-3.5	E60729-75	12/15/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58.8
SB-3F-02	4.0-4.5	E60358-21	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63.2
SB-3F-03	1.5-2.0	E60358-18	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74.5
SB-3F-03	3.0-3.5	E60358-19	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43.1
SB-3F-04	1.5-2.0	E60358-14	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81.1
SB-3F-04	3.0-3.5	E60358-15	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72
SB-3G-01	0.0-0.5	E60358-68	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89.8
SB-3G-01	1.5-2.0	E60358-69	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80
SB-3G-01	5.0-5.5	E60358-70	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81
SB-3G-02	0.0-0.5	E60358-71	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82.4
SB-3G-02	1.5-2.0	E60358-12	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90.3
SB-3G-02	5.0-5.5	E60358-13	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74
TS-15	7.5-8.0	E60729-78	12/15/99	-	-	-	-	-	<8.1	7.6	<0.67	<0.67	8.1	22.3	53.8	0.5	29.3	<13.0	<1.3	<1.3	56.8	<1.3	74.1
MW-6B	16.0-16.5	E61066-3	12/22/99	ND	ND	ND	ND	ND	<7.2	<1.2	<0.60	<0.60	7.2	3.4	<12	<0.046	<4.8	<12	<1.2	<1.2	17.9	<1.2	82.9
MW-7B	17.0-17.5	E61066-7	12/22/99	ND	ND	ND	ND	ND	<7.6	13.2	<0.64	1.8	55.9	166	323	<0.047	49.9	<13	<1.3	<1.3	295	8.4	78.7
MW-08B	17.0-17.5	E61066-2	12/22/99	ND	ND	ND	ND	ND	<7.5	3	0.68	<0.62	9	3.4	<12	<0.044	6.4	<12	<1.2	<1.2	18.3	<1.2	80.2
SB-1 Deep	25.5-26.0	E61066-4	12/22/99	ND	ND	ND	ND	ND	<7.7	10	0.74	<0.64	14.9	15.6	<13	<0.046	17.4	<13	<1.3	<1.3	43.7	<1.3	77.6

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- Not analyzed
ND Not detected
J Estimated concentration

NS No soil cleanup criterion
ug/kg Micrograms per kilogram
mg/kg Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921010217

TABLE 6.3
SOIL SAMPLE ANALYTICAL RESULTS - SUPPLEMENTAL REMEDIAL INVESTIGATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Residential Direct Contact Soil Cleanup Criteria	Non-Residential Direct Contact Soil Cleanup Criteria	Impact to Groundwater Soil Cleanup Criteria	SB-1C-01	SB-1C-01	SB-1C-07	SB-1C-07	SB-1C-08	SB-1C-08	SB-1C-09	SB-1C-09	SB-1C-10	SB-1C-10	SB-1C-11	SB-1C-11	SB-1C-12	SB-1C-12
Laboratory ID Number				E95820-9	E95820-10	E98322-1	E98322-2	E98322-3	E98322-4	E95820-1	E95820-2	E95820-3	E95820-4	E95820-5	E95820-6	E95820-7	E95820-8
Sampling Date				7/26/01	7/26/01	9/7/01	9/7/01	9/7/01	9/7/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/28/01	7/26/01	7/26/01
Sample Depth				3.5-4.0'	7.5-8.0'	6.0-6.5'	8.0-9.0'	4.5-5.0'	11.0-11.5'	9.0-9.5'	13.0-13.5'	5.0-5.5'	10.5-11.0'	8.0-9.0'	16.0-16.5'	3.5-4.0'	7.5-8.0'
Units				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
BTEX																	
Benzene	3	13	1	0.302 J	ND	ND	0.857	ND	ND	4.42	ND	1.07	0.232 J	ND	ND	1.43	ND
Toluene	1000	1000	500	0.363 J	0.264 J	ND	ND	ND	ND	0.646 J	ND	0.486 J	ND	ND	ND	0.529 J	ND
Ethylbenzene	1000	1000	100	ND	0.229 J	ND	ND	ND	ND	1.02	ND	0.312 J	ND	ND	ND	0.824	ND
Xylene (total)	410	1000	67	0.851 J	ND	ND	ND	ND	ND	0.885	ND	0.392 J	ND	ND	ND	0.573 J	0.32 J
PAH																	
Acenaphthene	3400	10000	100	NA	NA	0.888	0.674	0.0338 J	0.212	3.09	ND	55.1	8.66	ND	ND	0.148	0.108 J
Acenaphthylene	NS	NS	NS	NA	NA	ND	ND	ND	0.0327 J	ND	ND	29.2	2.28	0.439	ND	1.05	0.572
Anthracene	10000	10000	100	NA	NA	ND	0.372	0.0928 J	0.49	3.14	ND	121	4.44	1.13	ND	0.715	0.31 J
Benzo(a)anthracene	0.9	4	500	NA	NA	0.149 J	0.563	0.245	0.961	3.3	ND	209	5.72	3.68	ND	1.51	0.93
Benzo(a)pyrene	0.66	0.66	100	NA	NA	0.131 J	0.671	0.256	0.907	3	ND	212	4.5	3.37	ND	1.96	1.35
Benzo(b)fluoranthene	0.9	4	50	NA	NA	0.177	0.633	0.326	1.1	2.43	ND	170	3.2	5.19	ND	2.24	1.38
Benzo(g,h,i)perylene	NS	NS	NS	NA	NA	0.073 J	0.309	0.134 J	0.365	1.19	ND	84.3	0.95	1.52	ND	1.68	0.689
Benzo(k)fluoranthene	0.9	4	500	NA	NA	0.0684 J	0.23	0.123 J	0.404	0.793	ND	64	2.02	2.19	ND	0.918	0.59
Chrysene	9	40	500	NA	NA	0.171	0.594	0.247	0.859	4.41	ND	223	5.8	3.25	ND	1.96	1.1
Dibenzo(a,h)anthracene	0.66	0.66	100	NA	NA	ND	0.117	ND	0.134	0.36 J	ND	20.6 J	0.406	0.309	ND	0.376	0.178 J
Fluoranthene	2300	10000	100	NA	NA	0.326	0.684	0.478	1.94	4.66	ND	320	7.43	9.31	0.0259 J	1.51	1.32
Fluorene	2300	10000	100	NA	NA	ND	0.419	0.0388 J	0.249	3.87	ND	85	5.81	0.328	ND	0.333	0.158 J
Indeno(1,2,3-cd)pyrene	0.9	4	500	NA	NA	ND	0.278	0.142 J	0.422	1.05	ND	80	1.04	1.9	ND	1.37	0.683
Naphthalene	230	4200	100	NA	NA	0.584	0.295	ND	0.0494 J	ND	ND	44	0.587	0.154	ND	0.276	0.165 J
Phenanthrene	NS	NS	NS	NA	NA	ND	0.284	0.392	1.62	6.62	ND	373	14.2	4.52	ND	1.36	0.895
Pyrene	1700	10000	100	NA	NA	0.526	1.27	0.485	1.84	7.81	ND	538	12.9	8.22	0.0376 J	6.06	1.9
Metals																	
Aluminum	NS	NS	NS	NA	NA	552	5870	30100	11000	3100	19100	4400	2010	4660	13800	9520	9420
Antimony	14	340	NS	NA	NA	14	<1.6	<2.5	<1.7	<1.6	<1.8	<1.4	<1.3	<1.5	<1.2	<1.2	<1.2
Arsenic	20	20	NS	NA	NA	22.7	9.2	36.9	22.2	6.6	7.4	15.4	6.3	17.9	2.2	9.4	8.6
Barium	700	47000	NS	NA	NA	<40.0	52.6	186	258	47.6	44.6	30	<26.0	230	51	102	81.7
Beryllium	2	2	NS	NA	NA	<1.0	<0.8	1.5	<0.87	<0.78	<0.94	<0.68	0.82	<0.73	0.82	0.61	0.64
Cadmium	39	100	NS	NA	NA	<1.0	1.9	<1.3	<0.87	<0.78	<0.94	1.6	<0.68	<0.73	<0.62	<0.61	2.3
Calcium	NS	NS	NS	NA	NA	<1000.0	4500	4310	20900	1540	2440	<680.0	<660.0	2420	<620.0	1100	4140
Chromium	NS	NS	NS	NA	NA	122	12.9	50.9	21.9	6.3	30.6	9.6	4.8	51.3	12.1	18.7	20.9
Cobalt	NS	NS	NS	NA	NA	14.3	<8.0	24.5	14.1	<7.8	11.4	35.8	13.7	<7.3	8.4	<6.1	17
Copper	600	600	NS	NA	NA	487	50.2	95	60.9	26.3	15.1	49.5	33.4	46.8	8.4	46.1	97.8
Iron	NS	NS	NS	NA	NA	142000	18100	71000	46500	7750	31200	12600	9710	14400	9170	16200	21700
Lead	400	600	NS	NA	NA	374	147	96.2	967	67.3	10.7	167	28.6	38.4	8.1	284	114
Magnesium	NS	NS	NS	NA	NA	<1000.0	1940	12200	4080	<780.0	6620	762	<660.0	910	2180	2220	3310
Manganese	NS	NS	NS	NA	NA	388	118	4370	558	41.7	303	45.8	39.2	337	83	101	181
Mercury	14	270	NS	NA	NA	1	0.67	0.33	1.8	0.065	<0.055	0.13	<0.036	0.18	<0.04	0.42	0.76
Nickel	250	2400	NS	NA	NA	149	13.9	59.7	23.2	15.2	24.6	68	31.6	18.1	12.8	12.2	32.1
Potassium	NS	NS	NS	NA	NA	<1000.0	1090	5060	2150	<780.0	3520	<680.0	<660.0	<730.0	816	1230	1290
Selenium	63	3100	NS	NA	NA	6.3	<1.6	3	<1.7	2	<1.9	4.6	<1.3	<1.5	<1.2	<1.2	<1.2
Silver	110	4100	NS	NA	NA	2	<1.6	<2.5	<1.7	<1.6	<1.9	<1.4	<1.3	<1.5	<1.2	<1.2	<1.2
Sodium	NS	NS	NS	NA	NA	<1000.0	<800.0	4440	3080	<780.0	<940.0	<680.0	<660.0	2600	1090	<810.0	<620.0
Thallium	2	2	NS	NA	NA	<2.0	<1.6	<2.5	<1.7	<1.6	<1.9	<1.4	<1.3	<1.5	<1.2	<1.2	<1.2
Vanadium	370	7100	NS	NA	NA	32.8	22.2	80.3	105	14.8	40.1	24.2	11.7	25.8	20.9	32.9	40.5
Zinc	1500	1500	NS	NA	NA	391	518	321	329	70.3	76.5	258	23.3	40	32	57.2	2160
Cyanide				NA	NA	<1.9	<1.5	<2.8	<1.7	<1.4	<1.8	<1.4	<1.2	<1.4	<1.3	<1.2	<1.2
Percent solids				NA	NA	50.2	62.8	39.4	57.2	69.9	57.1	73.1	80.2	67.8	78.7	84	79.6

Qualifiers

1.3	Sample exceeding the RDSCC, NRDDSCC or IGWSCCC
J	Indicates an estimated value
ND	Not Detected
NA	Not Analyzed

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TABLE 6.3
SOIL SAMPLE ANALYTICAL RESULTS - SUPPLEMENTAL REMEDIAL INVESTIGATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Residential Direct Contact Soil Cleanup Criteria	Non Residential Direct Contact Soil Cleanup Criteria	Impact to Groundwater Soil Cleanup Criteria	SB-2A-23		SB-2A-23		SB-2A-24		SB-2A-24		SB-2B-21		SB-2B-21		SB-2B-22		SB-2B-22		SB-2D-11		SB-2D-11		SB-2D-11		SB-3G-03		SB-3G-03	
Laboratory ID Number				E98322-5		E98322-6		E98322-7		E98322-8		E98322-10		E98322-11		E98322-12		E98322-13		E96137-1		E96137-2		E96137-3		E95276-1		E95276-2	
Sampling Date				9/7/01		9/7/01		9/7/01		9/7/01		9/7/01		9/7/01		9/7/01		9/7/01		8/1/01		8/1/01		8/1/01		7/18/01		7/18/01	
Sample Depth				5.0-5.5'		10.0-10.5'		6.5-7.0'		9.0-9.5'		6.0-6.5'		13.5-14.0'		10.0-10.5'		13.5-14.0'		5.5-6.0'		8.5-9'		20.0-20.5'		3.0-4.0'		12.0-13.0'	
Units				mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
BTEX																													
Benzene	3	13	1	1.7		1.93		0.655	J	ND	0	ND		ND		ND		ND		0.106	J	7.42		ND		4.78		23.2	
Toluene	1000	1000	500	1.04	J	ND		ND		ND	0	ND		ND		ND		ND		ND		1.75		ND		0.501	J	29.8	
Ethylbenzene	1000	1000	100	1.75	J	ND		ND		ND	0	ND		ND		ND		ND		ND		26.7		ND		0.45	J	30.9	
Xylene (total)	410	1000	67	2.73	J	ND		ND		ND	0	ND		ND		ND		ND		ND		4.14		ND		0.857		44.6	
PAH																													
Acenaphthene	3400	10000	100	4.62		2.88		18.2		132		0.68	J	0.0267	J	ND		ND		0.279	J	118		0.157		ND		0.0758	J
Acenaphthylene	NS	NS	NS	ND		ND		ND		8.24		1.5		0.0564	J	ND		ND		0.096	J	11.8		ND		ND		0.0795	J
Anthracene	10000	10000	100	0.945		0.526		13		79.1		ND		0.0888		ND		0.0127	J	0.107	J	60.8		0.0765	J	ND		0.067	J
Benzo(a)anthracene	0.9	4	500	0.31		0.181		17.3		55.5		0.993	J	0.0832	J	ND		0.039	J	0.455	J	42.9		0.066	J	ND		0.162	
Benzo(a)pyrene	0.66	0.66	100	0.223		0.122		14.6		38.7		0.885	J	0.0646	J	ND		0.0304	J	1.68		44.8		0.081	J	ND		0.15	
Benzo(b)fluoranthene	0.9	4	50	0.263		0.147		18.2		32.8		1.28		0.0513	J	ND		0.0324	J	2		32.2		0.042	J	ND		0.143	
Benzo(g,h,i)perylene	NS	NS	NS	0.118		0.0593	J	7.2		9.72		ND		0.0348	J	ND		0.0262	J	0.714	J	16.3		0.0238	J	ND		0.0613	J
Benzo(k)fluoranthene	0.9	4	500	0.0962		0.046	J	6.3		9.21		0.566	J	0.0222	J	ND		0.0115	J	0.733	J	9.75		0.0156	J	ND		0.065	J
Chrysene	9	40	500	0.374		0.231		19.8		58.3		1.48		0.0788	J	ND		0.045	J	0.558	J	37.4		0.0581	J	ND		0.157	
Dibenzo(a,h)anthracene	0.66	0.66	100	ND		ND		2.33		4.29		ND		ND		ND		ND		ND		3.45		ND		ND		ND	
Fluoranthene	2300	10000	100	0.864		0.465		21.3		80.3		2.15		0.15		ND		0.0494	J	0.688	J	68.6		0.107		0.0198	J	0.24	
Fluorene	2300	10000	100	ND		ND		14.4		56.5		0.902	J	0.111		ND		ND		0.186	J	48.7		0.0624	J	ND		0.106	
Indeno(1,2,3-cd)pyrene	0.9	4	500	0.102		0.0437	J	7.11		9.78		ND		0.033	J	ND		0.0222	J	0.859		14.8		ND		ND		0.0727	J
Naphthalene	230	4200	100	0.492		0.351		8.38		5.16		5720		0.423		ND		1.37		0.0772	J	227		0.135		0.0782		1.04	
Phenanthrene	NS	NS	NS	1.72		0.874		51		234		3.1		0.36		ND		0.0684	J	1.27		190		0.295		0.0226	J	0.205	
Pyrene	1700	10000	100	1.59		0.874		51.3		152		4.68		0.198		ND		0.0794		1.38		131		0.209		0.0338	J	0.268	
Metals																													
Aluminum	NS	NS	NS	3150		3330		3950		1640		6930		10500		9750		4930		2510		3800		11400		13400		7490	
Antimony	14	340	NS	<1.4		<1.5		<1.4		<1.2		<1.8		<1.3		<1.1		<1.1		<1.2		<1.6		<1.3		<1.2		<1.4	
Arsenic	20	20	NS	11.2		7.9		36.5		5.7		9.5		1.5		3		1.7		2.7		8.4		7.9		3.1		4	
Barium	700	47000	NS	77.1		55.5		384		<24.0		124		65.5		38.6		39		<24.0		38.9		154		68		55.8	
Beryllium	2	2	NS	0.7		<0.74		<0.71		<0.6		<0.89		<0.65		<0.57		<0.55		<0.59		<0.79		0.77		<0.6		<0.69	
Cadmium	39	100	NS	<0.69		<0.74		<0.71		<0.6		<0.89		<0.65		<0.57		<0.55		<0.59		<0.79		0.66		<0.6		<0.69	
Calcium	NS	NS	NS	2020		1730		28900		<600.0		4110		1520		783		672		<590.0		1030		6570		11900		4500	
Chromium	NS	NS	NS	9.8		6.7		11.6		5.5		8.8		10.3		13.6		11.1		7.8		10.8		21.5		41.1		21	
Cobalt	NS	NS	NS	7		<7.4		8.6		7.6		<8.9		<6.5		8.1		5.7		<5.9		<7.9		10.1		14.9		8.9	
Copper	600	600	NS	206		65.4		74.2		25.7		32.2		5.7		9.2		13.4		6.6		38.5		15		34.1		25.9	
Iron	NS	NS	NS	17800		15100		40900		9100		14200		8480		12700		9800		6820		11200		21300		29600		21200	
Lead	400	600	NS	103		51.9		2070		39.6		13.6		8.7		6.4		10.8		11.5		75.8		9.3		8.7		276	
Magnesium	NS	NS	NS	<690.0		<740.0		2640		<600.0		<890.0		1410		2760		2020		<590.0		<790.0		5330		7300		2940	
Manganese	NS	NS	NS	106		85		780		145		43		302		147		108		16.2		44		367		528		339	
Mercury	14	270	NS	0.49		0.09		0.17		<0.037		0.14		0.066		<0.038		<0.037		<0.037		0.21		<0.034		0.1		0.11	
Nickel	250	2400	NS	19.5		15.9		23.3		23.3		18.2		7.3		20.5		16.3		<4.7		17.3		18.5		23.6		14.5	
Potassium	NS	NS	NS	<690.0		<740.0		<710.0		<600.0		920		<650.0		1000		562		<590.0		<790.0		2550		1870		788	
Selenium	63	3100	NS	2.4		<1.5		4		1.7		2.2		<1.3		<1.1		<1.1		<1.2		<1.6		<1.3		<1.2		<1.4	
Silver	110	4100	NS	<1.4		<1.5		<1.4		<1.2		<1.8		<1.3		<1.1		<1.1		<1.2		<1.6		<1.3		<1.2		<1.4	
Sodium	NS	NS	NS	<690.0		<740.0		<710.0		<600.0		<890.0		<650.0		<570.0		<550.0		<590.0		<790.0		<640.0		<600.0		<890.0	
Thallium	2	2	NS	<1.4		<1.5		<1.4		<1.2		<1.8		<1.3		<1.1		<1.1		<1.2		<1.6		<1.3		<1.2		<1.4	
Vanadium	370	7100	NS	15.2		12.5		18.8		9.8		20.8		13.6		22.5		16		12.8		19.6		28.6		47.5		36.2	
Zinc	1500	1500	NS	152		34		621		23.5		18.8		41.6		106		50.8		7		53.9		46.3		48.5		74.3	
Cyanide				<1.4		<1.4		<1.4		<1.2		81.1		<1.3		<1.1		<1.1		1.2		<1.6		<1.2		1.3		<1.3	
Percent solids				71.7		67.9		70.1		83.6		56.2		76.9		86.1		90.1		84.4		61.1		83.6		83.9		73.5	

Qualifiers

1.3	Sample exceeding the RDSCC, NRDDSCC or IGWSCCC
J	Indicates an estimated value
ND	Not Detected
NA	Not Analyzed

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TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
GB-01	Geotech	1A	72.0	6.0	17.0	20.0	3.0	-11.0
GB-02	Geotech	1A	72.0	6.0	10.6	17.0	6.4	-4.6
B1-1D	Model	Parcel 1	10.0	8.4	9.0	NE	NE	-0.6
B1-2D	Model	Parcel 1	16.0	8.0	13.0	15.0	2.0	-5.0
B1-2E	Model	Parcel 1	16.0	8.6	12.5	13.5	1.0	-3.9
B1-3E	Model	Parcel 1	16.0	8.4	13.5	15.0	1.5	-5.1
B1-4C	Model	Parcel 1	12.0	7.7	11.0	NE	NE	-3.3
B1-4D	Model	Parcel 1	12.0	8.0	9.0	11.0	2.0	-1.0
B1-5C	Model	Parcel 1	12.0	7.0	10.0	12.0	2.0	-3.0
B1-5D	Model	Parcel 1	16.0	7.8	13.0	15.0	2.0	-5.2
B1-6C	Model	Parcel 1	12.0	6.7	11.5	12.0	0.5	-4.8
B2-11D	Model	Parcel 2	12.0	16	NE	NE	NE	NE
B2-4A	Model	Parcel 2	12.0	9.4	10.0	11.5	1.5	-0.6
B2-5B	Model	Parcel 2	12.0	9.2	10.5	11.0	0.5	-1.3
B2-6E	Model	Parcel 2	12.0	9.2	10.5	12.0	1.5	-1.3
B2-7C	Model	Parcel 2	12.0	10.2	10.5	11.5	1.0	-0.3
B2-7E	Model	Parcel 2	12.0	10	11.5	NE	NE	-1.5
B3-1A	Model	Parcel 3	11.0	8.9	9.5	11.0	1.5	-0.6
B3-1C	Model	Parcel 3	12.0	9.3	10.0	12.0	2.0	-0.7
B3-1D	Model	Parcel 3	8.0	8.6	6.0	7.0	1.0	2.6
B3-2A	Model	Parcel 3	12.0	8.7	10.5	11.0	0.5	-1.8
B3-2B	Model	Parcel 3	12.0	8.4	9.0	10.0	1.0	-0.6
B3-2C	Model	Parcel 3	12.0	8.4	9.5	10.0	0.5	-1.1
B3-2D	Model	Parcel 3	15.0	8.4	NE	NE	NE	NE
B3-3A	Model	Parcel 3	12.0	8.2	10.5	12.0	1.5	-2.3
B3-3B	Model	Parcel 3	12.0	8.2	10.5	11.5	1.0	-2.3
B3-3C	Model	Parcel 3	12.0	8.2	8.5	12.0	3.5	-0.3
B3-3E	Model	Parcel 3	8.0	8.3	6.0	7.0	1.0	2.3
B3-4B	Model	Parcel 3	11.0	8.3	9.0	11.0	2.0	-0.7
B3-4C	Model	Parcel 3	12.0	8.2	9.5	12.0	2.5	-1.3
B3-4E	Model	Parcel 3	12.0	8.8	10.0	11.0	1.0	-1.2
B3-5A	Model	Parcel 3	10.0	8.9	9.0	10.0	1.0	-0.1
B3-5B	Model	Parcel 3	12.0	8.4	9.0	12.0	3.0	-0.6
B3-5C	Model	Parcel 3	12.0	8.3	9.0	12.0	3.0	-0.7
B3-6A	Model	Parcel 3	12.0	9.0	11.0	12.0	1.0	-2.0
B3-6B	Model	Parcel 3	12.0	9.0	10.5	12.0	1.5	-1.5
B3-6C	Model	Parcel 3	12.0	9.0	10.5	12.0	1.5	-1.5
B3-7A	Model	Parcel 3	12.0	10.4	11.0	12.0	1.0	-0.6
B3-7B	Model	Parcel 3	8.0	9.5	6.5	NE	NE	3.0
B3-8A	Model	Parcel 3	12.0	10.5	11.0	NE	NE	-0.5
B3-8E	Model	Parcel 3	12.0	9.1	7.5	8.0	0.5	1.6
BIO-13A	Model	Parcel 1	30.0	9.0	9.0	9.3	0.3	0.0
BIO-1-DEEP	Model	Parcel 1	30.0	7.9	11.4	12.0	0.6	-3.5
BIO-25C	Model	Parcel 2	34.0	13.0	11.9	12.0	0.1	1.1
BIO-2A-09	Model	Parcel 2	31.0	9.1	9.0	NE	NE	0.1
BIO-2A-15	Model	Parcel 2	30.0	9.5	10.0	11.0	1.0	-0.5
BIO-2A-22	Model	Parcel 2	32.0	10.1	9.5	14.5	5.0	0.6
BIO-3 E-01	Model	Parcel 3	31.0	8.7	13.5	14.0	0.5	-4.8
BIO-50A	Model	Parcel 3	32.0	9.7	10.5	13.5	3.0	-0.8
MW-06B	RI	3D	26.0	8.2	11.0	16.0	5.0	-2.8
MW-07B	RI	2C	26.0	14.5	NE	NE	NE	NE
MW-08B	RI	3D	26.0	8.6	10.0	17.0	7.0	-1.4

TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
SB-1 Deep	RI	1A	26.0	7.8	12.0	16.0	4.0	-4.2
SB-1A-01	RI	1A	4.0	8.7	NE	NE	NE	NE
SB-1A-02	RI	1A	3.0	7.6	NE	NE	NE	NE
SB-1B-01	RI	1B	4.0	6.3	NE	NE	NE	NE
SB-1B-02	RI	1B	4.0	7.9	NE	NE	NE	NE
SB-1B-03	RI	1B	4.0	7.9	NE	NE	NE	NE
SB-1B-04	RI	1B	4.0	7.7	NE	NE	NE	NE
SB-1B-05	RI	1B	2.0	7.9	NE	NE	NE	NE
SB-1B-06	RI	1B	2.0	6.7	NE	NE	NE	NE
SB-1C-01	RI	1C	4.0	8.3	NE	NE	NE	NE
SB-1C-02	RI	1C	4.0	8.5	NE	NE	NE	NE
SB-1C-03	RI	1C	8.0	9.4	NE	NE	NE	NE
SB-1C-04	RI	1C	12.0	8.6	11.5	NE	>0.5	-2.9
SB-1C-05	RI	1C	12.0	8.7	11.5	NE	>0.5	-2.8
SB-1C-06	RI	1C	12.0	9.0	12.0	NE	>0	-3.0
SB-2A-01	RI	2A	6.0	9.1	NE	NE	NE	NE
SB-2A-02	RI	2A	6.0	9.1	NE	NE	NE	NE
SB-2A-03	RI	2A	6.0	9.2	NE	NE	NE	NE
SB-2A-04	RI	2A	6.0	9.5	NE	NE	NE	NE
SB-2A-05	RI	2A	6.0	8.8	NE	NE	NE	NE
SB-2A-06	RI	2A	11.0	9.5	10.5	NE	>0.5	-1.0
SB-2A-07	RI	2A	12.0	9.8	11.5	NE	>0.5	-1.7
SB-2A-08	RI	2A	11.0	9.1	10.5	NE	>0.5	-1.4
SB-2A-09	RI	2A	16.0	9.1	15.0	NE	>1	-5.9
SB-2A-10	RI	2A	12.0	9.3	10.0	NE	>2	-0.7
SB-2A-11	RI	2A	16.0	9.6	13.0	NE	>3	-3.4
SB-2A-12	RI	2A	16.0	9.2	15.0	NE	>1	-5.8
SB-2A-13	RI	2A	2.0	8.9	NE	NE	NE	NE
SB-2A-14	RI	2A	11.0	8.9	9.0	NE	>2	-0.1
SB-2A-15	RI	2A	12.0	9.5	NE	NE	NE	NE
SB-2A-16	RI	2A	12.0	9.1	11.5	NE	>0.5	-2.4
SB-2A-17	RI	2A	5.0	9.1	NE	NE	NE	NE
SB-2A-18	RI	2A	4.0	9.3	NE	NE	NE	NE
SB-2A-19	RI	2A	12.0	9.3	11.0	NE	>1	-1.7
SB-2A-20	RI	2A	16.0	9.2	15.0	NE	>1	-5.8
SB-2A-21	RI	2A	10.0	10.2	8.0	NE	>2	2.2
SB-2A-22	RI	2A	12.0	10.1	11.0	NE	>1	-0.9
SB-2B-01	RI	2B	6.0	13.7	NE	NE	NE	NE
SB-2B-02	RI	2B	12.0	11.3	11.5	NE	>0.5	-0.2
SB-2B-03	RI	2B	12.0	11.7	NE	NE	NE	NE
SB-2B-04	RI	2B	10.0	11.6	9.5	NE	>0.5	2.1
SB-2B-05	RI	2B	12.0	16.2	NE	NE	NE	NE
SB-2B-06	RI	2B	12.0	14.5	NE	NE	NE	NE
SB-2B-07	RI	2B	12.0	17.4	4.5	8.0	3.5	12.9
SB-2B-08	RI	2B	12.0	17.3	NE	NE	NE	NE
SB-2B-09	RI	2B	12.0	13.5	10.0	NE	>2	3.5
SB-2B-11	RI	2B	12.0	12.8	NE	NE	NE	NE
SB-2B-12	RI	2B	12.0	13.0	12.0	NE	>0	1.0
SB-2B-13	RI	2B	12.0	13.7	NE	NE	NE	NE
SB-2B-14	RI	2B	8.0	12.3	7.0	NE	>1	5.3
SB-2B-16	RI	2B	12.0	13.8	NE	NE	NE	NE
SB-2B-18	RI	2B	12.0	15.8	NE	NE	NE	NE

TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
SB-2B-19	RI	2B	12.0	15.4	NE	NE	NE	NE
SB-2B-20	RI	2B	12.0	17.6	NE	NE	NE	NE
SB-2C-01	RI	2C	12.0	14.1	NE	NE	NE	NE
SB-2C-03	RI	2C	12.0	14.0	NE	NE	NE	NE
SB-2D-01	RI	2D	6.0	10.2	NE	NE	NE	NE
SB-2D-02	RI	2D	11.0	8.9	11.0	NE	>0	-2.1
SB-2D-03	RI	2D	12.0	9.3	NE	NE	NE	NE
SB-2D-04	RI	2D	12.0	9.2	10.5	NE	>1.5	-1.3
SB-2D-05	RI	2D	11.0	9.5	10.5	NE	>0.5	-1.0
SB-2D-06	RI	2D	11.0	9.4	10.0	NE	>1	-0.6
SB-2D-07	RI	2D	6.5	9.4	6.5	NE	>0	2.9
SB-2D-08	RI	2D	12.0	9.3	6.0	NE	>6	3.3
SB-2D-09	RI	2D	12.0	9.0	11.0	NE	>1	-2.0
SB-2D-10	RI	2D	8.0	9.7	5.5	NE	>2.5	4.2
SB-2E-01	RI	2E	7.0	13.0	NE	NE	NE	NE
SB-2E-02	RI	2E	12.0	13.4	7.5	NE	>4.5	5.9
SB-2E-03	RI	2E	12.0	12.9	NE	NE	NE	NE
SB-2E-04	RI	2E	12.0	11.9	NE	NE	NE	NE
SB-2E-05	RI	2E	4.0	14.7	NE	NE	NE	NE
SB-3A-01	RI	3A	2.0	8.2	NE	NE	NE	NE
SB-3A-02	RI	3A	2.0	8.9	NE	NE	NE	NE
SB-3A-03	RI	3A	2.0	8.2	NE	NE	NE	NE
SB-3A-04	RI	3A	2.0	8.4	NE	NE	NE	NE
SB-3A-05	RI	3A	2.0	8.3	NE	NE	NE	NE
SB-3B-01	RI	3B	5.0	8.6	NE	NE	NE	NE
SB-3B-02	RI	3B	6.0	8.3	NE	NE	NE	NE
SB-3B-03	RI	3B	6.0	8.8	NE	NE	NE	NE
SB-3B-04	RI	3B	8.0	8.0	NE	NE	NE	NE
SB-3B-05	RI	3B	6.0	8.2	NE	NE	NE	NE
SB-3B-06	RI	3B	6.0	8.3	5.5	NE	>0.5	2.8
SB-3B-07	RI	3B	4.0	8.7	NE	NE	NE	NE
SB-3B-08	RI	3B	4.0	8.3	NE	NE	NE	NE
SB-3B-09	RI	3B	4.0	8.2	NE	NE	NE	NE
SB-3C-01	RI	3C	2.0	10.4	NE	NE	NE	NE
SB-3C-02	RI	3C	2.0	10.1	NE	NE	NE	NE
SB-3C-03	RI	3C	2.0	9.3	NE	NE	NE	NE
SB-3C-04	RI	3C	2.0	10.5	NE	NE	NE	NE
SB-3D-01	RI	3D	4.0	7.9	NE	NE	NE	NE
SB-3D-02	RI	3D	4.0	8.2	NE	NE	NE	NE
SB-3D-03	RI	3D	4.0	8.9	NE	NE	NE	NE
SB-3E-01	RI	3E	6.0	8.7	NE	NE	NE	NE
SB-3E-02	RI	3E	5.5	9.2	NE	NE	NE	NE
SB-3E-03	RI	3E	6.0	8.7	NE	NE	NE	NE
SB-3E-04	RI	3E	4.0	9.3	NE	NE	NE	NE
SB-3F-01	RI	3F	5.0	8.9	NE	NE	NE	NE
SB-3F-02	RI	3F	5.0	8.2	4.5	NE	>0.5	3.7
SB-3F-03	RI	3F	4.0	7.6	3.5	NE	>0.5	4.1
SB-3F-04	RI	3F	4.5	8.5	3.5	NE	>1	5.0
SB-3G-01	RI	3G	6.0	9.7	NE	NE	NE	NE
SB-3G-02	RI	3G	6.0	9.1	NE	NE	NE	NE
SB-TS-01	RI	1A	12.0	7.9	NE	NE	NE	NE
SB-TS-02	RI	1A	12.0	7.5	NE	NE	NE	NE

TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
SB-TS-03	RI	1A	5.0	7.9	NE	NE	NE	NE
SB-TS-04	RI	1A	12.0	7.5	NE	NE	NE	NE
SB-TS-05	RI	1A	12.0	8.0	11.5	NE	>0.5	-3.5
SB-TS-06	RI	1A	12.0	8.5	11.5	NE	>0.5	-3.0
SB-TS-07	RI	1A	12.0	7.7	11.0	NE	>1	-3.3
SB-TS-08	RI	1A	12.0	7.5	NE	NE	NE	NE
SB-TS-09	RI	1A	12.0	8.4	NE	NE	NE	NE
SB-TS-10	RI	1A	12.0	8.5	NE	NE	NE	NE
SB-TS-11	RI	1A	12.0	8.5	NE	NE	NE	NE
SB-TS-12	RI	1A	4.0	7.5	NE	NE	NE	NE
SB-TS-13	RI	1A	8.0	7.5	NE	NE	NE	NE
SB-TS-14	RI	1A	12.0	7.3	9.0	NE	>3	-1.7
SB-TS-15	RI	1A	12.0	8.6	12.0	NE	>0	-3.4
MW-01B	SI	Upgradient	30.0	16.5	NE	NE	NE	NE
MW-02B	SI	1A	28.0	8.1	10.9	16.6	5.7	-2.8
MW-03B	SI	2A	28.0	9.3	8.5	16.0	7.5	0.8
MW-04B	SI	2D	26.0	9.1	8.0	16.0	8.0	1.1
MW-05B	SI	3B	28.0	8.5	8.4	17.9	9.5	0.1
SB-03A	SI	1A	16.0	8.7	12.3	NE	>3.75	-3.6
SB-03B	SI	1A	8.0	8.7	NE	NE	NE	NE
SB-03C	SI	1A	8.0	8.7	NE	NE	NE	NE
SB-03D	SI	1A	8.0	8.7	NE	NE	NE	NE
SB-07-DP	SI	1A	18.0	7.9	11.0	15.1	4.1	-3.1
SB-13A	SI	1A	12.0	9.0	9.5	NE	>2.5	-0.5
SB-13B	SI	1A	6.0	9.0	NE	NE	NE	NE
SB-13C	SI	1A	8.0	9.0	NE	NE	NE	NE
SB-13D	SI	1A	8.0	9.0	NE	NE	NE	NE
SB-15A	SI	1A	16.0	8.0	10.0	NE	>6	-2.0
SB-15B	SI	1A	8.0	8.0	NE	NE	NE	NE
SB-15C	SI	1A	8.0	8.0	NE	NE	NE	NE
SB-15D	SI	1A	8.0	8.0	NE	NE	NE	NE
SB-16A	SI	1A	16.0	8.6	12.0	NE	>4	-3.4
SB-16B	SI	1A	8.0	8.6	NE	NE	NE	NE
SB-16C	SI	1A	8.0	8.6	NE	NE	NE	NE
SB-16D	SI	1A	8.0	8.6	NE	NE	NE	NE
SB-17A	SI	2A	12.0	9.1	11.0	NE	>1	-1.9
SB-17B	SI	2A	4.0	9.1	NE	NE	NE	NE
SB-17C	SI	2A	4.0	9.1	NE	NE	NE	NE
SB-17D	SI	2A	8.0	9.1	NE	NE	NE	NE
SB-18A	SI	2A	12.0	9.2	10.0	NE	>2	-0.8
SB-18B	SI	2A	6.0	9.2	NE	NE	NE	NE
SB-18C	SI	2A	4.0	9.2	NE	NE	NE	NE
SB-18D	SI	2A	4.0	9.3	NE	NE	NE	NE
SB-19A	SI	2A	12.0	9.5	9.0	NE	>3	0.5
SB-19B	SI	2A	4.0	9.5	NE	NE	NE	NE
SB-19C	SI	2A	4.0	9.5	NE	NE	NE	NE
SB-19D	SI	2A	4.0	9.2	NE	NE	NE	NE
SB-20A	SI	2A	12.0	9.3	10.0	NE	>2	-0.7
SB-20B	SI	2A	4.0	9.3	NE	NE	NE	NE
SB-20C	SI	2A	4.0	9.3	NE	NE	NE	NE
SB-20D	SI	2A	4.0	9.3	NE	NE	NE	NE
SB-20-DP	SI	2A	22.0	9.3	10.0	14.4	4.4	-0.7

TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
SB-21A	SI	2A	24.0	9.4	NE	NE	NE	NE
SB-21B	SI	2A	4.0	9.4	NE	NE	NE	NE
SB-21C	SI	2A	4.0	9.4	NE	NE	NE	NE
SB-21D	SI	2A	4.0	9.4	NE	NE	NE	NE
SB-22A	SI	2D	12.0	9.4	10.0	NE	>2	-0.6
SB-22B	SI	2D	4.0	9.4	NE	NE	NE	NE
SB-22C	SI	2D	4.0	9.4	NE	NE	NE	NE
SB-22D	SI	2D	4.0	9.4	NE	NE	NE	NE
SB-22-DP	SI	2D	25.0	9.4	10.0	16.5	6.5	-0.6
SB-25A	SI	2B	12.0	12.3	9.5	NE	>2.5	2.8
SB-25B	SI	2B	8.0	12.3	5.5	NE	>2.5	6.8
SB-25C	SI	2B	8.0	12.3	NE	NE	NE	NE
SB-25D	SI	2B	8.0	12.3	NE	NE	NE	NE
SB-26A	SI	2B	24.0	12.9	12.3	17.0	4.8	0.7
SB-26B	SI	2B	8.0	12.9	NE	NE	NE	NE
SB-26C	SI	2B	8.0	12.9	NE	NE	NE	NE
SB-26D	SI	2B	8.0	12.9	NE	NE	NE	NE
SB-30A	SI	2B	24.0	14.5	NE	NE	NE	NE
SB-30B	SI	2B	8.0	14.5	NE	NE	NE	NE
SB-30C	SI	2B	8.0	14.5	NE	NE	NE	NE
SB-30D	SI	2B	8.0	14.5	NE	NE	NE	NE
SB-31A	SI	2B	24.0	17.5	NE	NE	NE	NE
SB-31B	SI	2B	8.0	17.5	NE	NE	NE	NE
SB-31C	SI	2B	12.0	17.4	NE	NE	NE	NE
SB-31D	SI	2B	8.0	17.4	NE	NE	NE	NE
SB-33A	SI	2C	24.0	16.6	NE	NE	NE	NE
SB-33B	SI	2C	8.0	16.6	NE	NE	NE	NE
SB-33C	SI	2C	8.0	16.6	NE	NE	NE	NE
SB-33D	SI	2C	8.0	16.6	NE	NE	NE	NE
SB-34A	SI	2B	15.0	15.4	NE	NE	NE	NE
SB-34B	SI	2B	8.0	15.4	NE	NE	NE	NE
SB-34C	SI	2B	4.0	15.4	NE	NE	NE	NE
SB-34D	SI	2B	4.0	15.4	NE	NE	NE	NE
SB-39A	SI	3D	16.0	8.6	10.0	NE	>6	-1.4
SB-39B	SI	3D	3.5	8.6	NE	NE	NE	NE
SB-39C	SI	3D	4.0	8.2	NE	NE	NE	NE
SB-39D	SI	3D	8.0	8.2	NE	NE	NE	NE
SB-46A	SI	3B	12.0	8.2	9.0	NE	>3	-0.8
SB-46B	SI	3B	4.0	8.2	NE	NE	NE	NE
SB-46C	SI	3B	4.0	8.4	NE	NE	NE	NE
SB-46D	SI	3B	4.0	8.4	NE	NE	NE	NE
SB-50A	SI	3G	24.0	9.7	9.5	10.3	0.8	0.2
SB-50B	SI	3G	8.0	9.7	NE	NE	NE	NE
SB-50C	SI	3G	4.0	9.7	NE	NE	NE	NE
SB-50D	SI	3G	8.0	9.7	NE	NE	NE	NE
SB-57A	SI	3B	12.0	8.2	9.0	NE	>3	-0.8
SB-57B	SI	3B	4.0	8.7	NE	NE	NE	NE
SB-57C	SI	3B	4.0	8.8	NE	NE	NE	NE
SB-57D	SI	3B	8.0	8.8	NE	NE	NE	NE
SB-57DP	SI	3B	20.0	8.8	6.5	16.9	10.4	2.3
MW-10A	SRI	1C	12.0	8.78	10.0	12.0	2.0	-1.2
SB-3G-03	SRI	3G	16.0	8.5	NE	NE	NE	NE

TABLE 6.4
PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

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Location	Phase	AOC	Total Depth	Surface Elevation	Depth to Peat		Thickness of Peat Layer	Elevation of Top of Peat Layer
					Top	Bottom		
MW-10B	SRI	1C	28.0	8.83	10.0	16.5	6.5	-1.2
MW-2C	SRI	1A	75.0	8.45	10.9	16.6	5.7	-2.5
MW-3C	SRI	2A	87.0	9.22	8.8	17.4	8.6	0.4
MW-9A	SRI	1D	12.0	6.29	10.0	12.0	2.0	-3.7
MW-9B	SRI	1D	28.0	6.1	10.0	16.0	6.0	-3.9
RB-01	SRI	1D	4.0	-43.0	NE	NE	NE	NE
RB-02	SRI	1D	4.0	-39.0	NE	NE	NE	NE
RB-03	SRI	1D	4.0	-39.0	NE	NE	NE	NE
RB-04	SRI	1D	4.0	-39.0	NE	NE	NE	NE
RB-05	SRI	1D	4.0	-39.0	NE	NE	NE	NE
RB-06	SRI	1D	4.0	-37.0	NE	NE	NE	NE
SB-1C-01A	SRI	1C	10.0	7.9	NE	NE	NE	NE
SB-1C-07	SRI	1C	12.0	9	9.0	11.0	2.0	0.0
SB-1C-08	SRI	1C	12.0	9	11.5	NE	NE	-2.5
SB-1C-09	SRI	1C	16.0	9.4	13.5	14.5	1.0	-4.1
SB-1C-10	SRI	1C	12.0	9.0	11.0	12.0	1.0	-2.0
SB-1C-11	SRI	1C	24.0	7.3	NE	NE	NE	NE
SB-1C-12	SRI	1C	8.0	8.7	NE	NE	NE	NE
SB-1D-01[2]	SRI	1D	15.0	7.9	NE	NE	NE	NE
SB-1D-03[2]	SRI	1D	15.8	8.0	NE	NE	NE	NE
SB-1D-04[2]	SRI	1D	9.0	8.0	NE	NE	NE	NE
SB-1D-05	SRI	1D	14.5	7.5	NE	NE	NE	NE
SB-1D-06	SRI	1D	19.0	6.7	NE	NE	NE	NE
SB-1D-07	SRI	1D	15.8	6.7	NE	NE	NE	NE
SB-2A-23	SRI	2A	12.0	9	10.5	11.0	0.5	-1.5
SB-2A-24	SRI	2A	12.0	9	9.5	10.0	0.5	-0.5
SB-2B-21	SRI	2B	16.0	17	14.0	16.0	2.0	3.0
SB-2B-22	SRI	2B	16.0	17	NE	NE	NE	NE
SB-2D-11	SRI	2D	30.0	8.9	9.0	10.0	1.0	-0.1

Notes:

Soil borings conducted during the RI were surveyed; elevations for SI soil borings were estimated based on surface topography.

All depths in feet below grade.

NE:	Not encountered
>:	Greater than
SI:	Site Investigation and supplemental Site Investigation (HLA, 1999a and 1999b)
RI	Remedial Investigation
Geotech.	Geotechnical evaluation of relieving platform
Supp RIR	Supplemental Remedial Investigation

N:\project\s\s-pnv\s99\s99227\b\supp rir\tables\[table 6.4 - peat.xls]summary with biogenie borings

TABLE 6-5. VERTICAL HYDRAULIC CONDUCTIVITIES
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Depth	Description	K_V
Remedial Investigation Samples			
MW-6B	14-16	Peat	5.3×10^{-7}
MW-8B	14-16	Peat	1.0×10^{-6}
SB-1 DEEP	14-16	Peat	2.0×10^{-6}
MW-6B	20-22	Silty sand	1.0×10^{-3}
MW-8B	20-22	Silty sand	1.0×10^{-4}
Site Investigation Samples			
MW-2B	12-14	Peat	4.5×10^{-7}
MW-3B	10-12	Peat	3.8×10^{-7}
MW-4B	11-13	Peat	1.4×10^{-6}
MW-5B	12-14	Peat	9.1×10^{-7}

Notes
Depths in feet below grade
K_V: Vertical hydraulic conductivity in centimeters per second

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TABLE 6.6
MONITORING WELLS CONSTRUCTION DETAILS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Well	Date Installed	Surveyed Location		Surveyed Elevation			Soil Boring Depth	Total Well Depth	Screen Interval Depth	Screen Elevation (feet above MSL)
		Latitude	Longitude	Base	TOC	TIC				
MW-1A	6/11/99	40° 44' 28.22"	74° 4' 16.29"	16.38	16.38	16.18	10	9.6	2.00 to 9.80	6.58 to 14.38
MW-1B	5/25/99	40° 44' 28.15"	74° 4' 16.33"	16.5	16.5	16.2	31	29.9	20.00 to 30.20	-13.70 to -3.50
MW-2A	5/25/99	40° 44' 29.62"	74° 4' 37.92"	7.93	10.14	9.74	10	11.90	2.00 to 10.02	-2.09 to 5.93
MW-2B	5/27/99	40° 44' 29.55"	74° 4' 37.96"	8.09	10.26	9.96	28	29.50	18.00 to 27.62	-19.53 to -9.91
MW-2C	7/19/01	40° 44' 29.43"	74° 4' 37.981"	8.45	10.2	9.94	75	71.00	66.00 to 71.00	-62.55 to -57.55
MW-3A	5/21/99	40° 44' 32.18"	74° 4' 29.39"	9.37	11.39	11.04	9	10.80	2.00 to 8.88	0.49 to 7.37
MW-3B	5/27/99	40° 44' 32.10"	74° 4' 29.43"	9.27	11.64	11.39	28	30.10	18.00 to 27.85	-18.58 to -8.73
MW-3C	7/27/01	40° 44' 32.25"	74° 4' 29.289"	9.22	11.43	11.15	87	86.00	81.00 to 86.00	-76.78 to -71.78
MW-4A	5/21/99	40° 44' 30.02"	74° 4' 30.50"	9.16	11.08	10.61	8	10.00	2.00 to 6.94	2.22 to 7.16
MW-4B	5/26/99	40° 44' 29.92"	74° 4' 30.54"	9.06	11.50	10.91	26	28.30	16.00 to 26.11	-17.05 to -6.94
MW-5A	5/20/99	40° 44' 24.45"	74° 4' 33.22"	8.42	10.50	10.00	8	9.60	2.00 to 7.89	0.53 to 6.42
MW-5B	5/26/99	40° 44' 24.38"	74° 4' 33.25"	8.48	10.88	10.24	29	30.20	18.00 to 28.25	-19.77 to -9.52
MW-6A	12/21/99	40° 44' 27.72"	74° 4' 29.85"	8.92	11.92	11.52	12	11.95	2.00 to 11.95	-3.03 to 6.92
MW-6B	12/21/99	40° 44' 27.58"	74° 4' 29.93"	8.20	9.36	8.83	26	25.95	16.00 to 25.95	-17.75 to -7.80
MW-7A	12/22/99	40° 44' 26.39"	74° 4' 19.96"	14.22	14.22	13.82	12	11.45	1.50 to 11.45	2.77 to 12.72
MW-7B	12/22/99	40° 44' 26.43"	74° 4' 20.04"	14.47	14.47	13.75	28	27.95	18.00 to 27.95	-13.48 to -3.53
MW-8A	12/21/99	40° 44' 27.88"	74° 4' 30.28"	8.90	11.54	11.24	12	11.95	2.00 to 11.95	-3.05 to 6.90
MW-8B	12/21/99	40° 44' 27.75"	74° 4' 30.35"	8.58	9.97	9.29	28	27.00	17.00 to 27.95	-19.37 to -8.42
MW-9A	7/19/01	40° 44' 28.77"	74° 4' 40.219"	6.29	8.46	8.22	12	10.00	2.00 to 10.00	-3.71 to 4.29
MW-9B	7/31/01	40° 44' 28.66"	74° 4' 40.331"	6.1	7.7	7.35	28	25.00	15.00 to 25.00	-18.90 to -8.90
MW-10A	7/26/01	40° 44' 32.84"	74° 4' 33.224"	8.78	8.78	7.97	12	10.00	2.00 to 10.00	-1.22 to 6.78
MW-10B	7/30/01	40° 44' 32.76"	74° 4' 33.184"	8.83	8.83	8.5	28	28.00	18.00 to 28.00	-19.17 to -9.17

Notes:

TOC:	Top of outer well casing
TIC:	Top of inner well casing
MSL:	Mean sea level
Horizontal Datum:	Geographic, NAD83
Vertical Datum:	NGVD29
Vertical Units:	U.S. Survey Feet

Survey data for monitoring wells MW-1A and MW-1B from *Remedial Investigation Work Plan*, dated October 1999, prepared by Harding Lawson Associates. Remaining monitoring wells surveyed by Schoor DePalma.
Depths measured in feet below grade.

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TABLE 6-7.
GROUND WATER ELEVATIONS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Monitoring Well	Reference Elevation[2]	January 12, 2000		March 15, 2000		August 20, 2001 High Tide		August 20, 2001 High Tide	
		Depth to Water	Groundwater Elevation[1]	Depth to Water	Groundwater Elevation[1]	Depth to Water	Groundwater Elevation[1]	Depth to Water	Groundwater Elevation[1]
MW-1A	16.18	6.01	10.17	6.09	10.09	N/A	N/A	5.83	10.35
MW-2A	9.74	6.25	3.49	Product	--	5.04	4.70	5.50	4.24
MW-3A	11.04	2.81	8.23	3.01	8.03	3.40	7.64	3.49	7.55
MW-4A	10.61	2.20	8.41	2.43	8.18	2.81	7.80	2.87	7.74
MW-5A	10.00	3.23	6.77	6.13	3.87	2.78	7.22	2.97	7.03
MW-6A	11.52	6.54	4.98	6.71	4.81	5.80	5.72	5.94	5.58
MW-7A	13.82	4.88	8.94	4.94	8.88	4.43	9.39	4.54	9.28
MW-8A	11.24	6.54	4.70	6.90	4.34	5.88	5.36	5.88	5.36
MW-9A	8.22	--	--	--	--	4.31	3.91	6.39	1.83
MW-10A	7.97	--	--	--	--	4.39	3.58	4.69	3.28
MW-1B	16.20	6.02	10.18	6.10	10.10	N/A	N/A	5.82	10.38
MW-2B	9.96	5.89	4.07	3.71	6.25	6.18	3.78	6.26	3.70
MW-3B	11.39	4.41	6.98	4.50	6.89	4.29	7.10	4.60	6.79
MW-4B	10.91	4.12	6.79	4.32	6.59	3.83	7.08	3.86	7.05
MW-5B	10.24	3.40	6.84	2.67	7.57	2.97	7.27	2.99	7.25
MW-6B	8.83	2.28	6.55	2.45	6.38	1.77	7.06	1.82	7.01
MW-7B	13.75	5.71	8.04	4.79	8.96	4.32	9.43	4.39	9.36
MW-8B	9.29	2.80	6.49	3.00	6.29	2.24	7.05	2.33	6.96
MW-9B	7.35	--	--	--	--	3.46	3.89	4.69	2.66
MW-10B	8.50	--	--	--	--	4.45	4.05	1.99	6.51
MW-2C	9.94	--	--	--	--	2.21	7.73	2.86	7.08
MW-3C	11.15	--	--	--	--	3.46	7.69	3.60	7.55

Notes:
All measurements in feet
1. Groundwater elevation measured with respect to Mean Sea Level
2. Reference is top of inner casing
N/A Not accessible - Wells covered by roll-off container
– Well not installed
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TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-1A					MW-1B					MW-2A				
Laboratory Identification				E62159-1			E97329-3		E62159-2			E97329-4		E62072-4			E97210-17	
Date Sample Collected				1/14/00			8/21/01		1/14/00			8/21/01		1/13/00			8/20/01	
Units	SWQC SE-2[1]	Criterion	Type[1]	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																					
Acetone	NA	700	GWQS	5.0	-		5.0	12.8		5.0	-		5.0	-		120	-			NA	
Benzene	71	1	GWQS	1.0	-		1.0	-		1.0	1.2		1.0	-		25	8840			NA	
Bromodichloromethane	22	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Bromoform	360	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		100	-			NA	
Bromomethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
2-Butanone (MEK)	NA	300	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Carbon disulfide	NA	800	IS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Carbon tetrachloride	8.31	2	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Chlorobenzene	21000	4	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		50	-			NA	
Chloroethane	NA	100	IQNC	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Chloroform	470	6	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Chloromethane	1800	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Dibromochloromethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
1,1-Dichloroethane	NA	50	ISM	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
1,2-Dichloroethane	99	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		50	-			NA	
1,1-Dichloroethene	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		50	-			NA	
cis-1,2-Dichloroethene	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
trans-1,2-Dichloroethene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
1,2-Dichloropropane	NA	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
cis-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
trans-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Ethylbenzene	27900	700	GWQS	1.0	-		1.0	-		1.0	0.45	J	1.0	-		25	3430			NA	
2-Hexanone	NA	100	IQNC	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
Methylene chloride	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		50	-			NA	
Styrene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	483			NA	
1,1,2,2-Tetrachloroethane	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		50	-			NA	
Tetrachloroethene	4.29	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Toluene	200000	1000	GWQS	1.0	-		1.0	-		1.0	0.67	J	1.0	-		25	4310			NA	
1,1,1-Trichloroethane	NA	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		120	-			NA	
1,1,2-Trichloroethane	NA	3	GWQS	3.0	-		3.0	-		3.0	-		3.0	-		75	-			NA	
Trichloroethene	81	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Vinyl chloride	525	5	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		25	-			NA	
Xylene (total)	NA	1000	GWQS	1.0	-		5.0	-		1.0	-		5.0	-		25	1990			NA	
Total TIC, Volatile	NA	-	-	NA	0		NA	0		NA	0		NA	0		NA	3580			NA	
SEMI-VOLATILE ORGANIC COMPOUNDS																					
2-Chlorophenol	402	40	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
4-Chloro-3-methyl phenol	NA	100	IQNC	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2,4-Dichlorophenol	794	20	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2,4-Dimethylphenol	NA	100	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2,4-Dinitrophenol	14000	40	GWQS	21	-		21	-		20	-		20	-		20	-			NA	
4,6-Dinitro-o-cresol	765	100	IQNC	21	-		21	-		20	-		20	-		20	-			NA	
2-Methylphenol	NA	-	-	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
3&4-Methylphenol	NA	-	-	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2-Nitrophenol	NA	100	IQNC	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
4-Nitrophenol	NA	100	IQNC	21	-		21	-		20	-		20	-		20	-			NA	
Pentachlorophenol	7.9	1	GWQS	21	-		21	-		20	-		20	-		20	-			NA	
Phenol	4600000	4000	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2,4,5-Trichlorophenol	9780	700	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
2,4,6-Trichlorophenol	6.53	20	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
Acenaphthene	NA	400	GWQS	2.1	-		2.1	-		2	-		2	-		800	327	JD		NA	
Acenaphthylene	NA	-	-	2.1	-		2.1	-		2	-		2	-		2.0	111			NA	
Anthracene	108000	2000	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	11			NA	
Benzo(a)anthracene	0.031	0.2	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Benzo(a)pyrene	0.031	0.2	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Benzo(b)fluoranthene	0.031	10	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Benzo(g,h,i)perylene	NA	100	IQNC	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Benzo(k)fluoranthene	0.031	1	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
4-Bromophenyl phenyl ether	NA	-	-	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Butyl benzyl phthalate	416	100	GWQS	5.2	-		2.1	-		5	-		2	1.5	J	5.0	-			NA	
2-Chloronaphthalene	NA	800	IS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
4-Chloroaniline	NA	30	IS	2.1	-		5.3	-		2	-		5	-		2.0	-			NA	
Carbazole	NA	-	-	2.1	-		2.1	-		2	-		2	-		2.0	1.7	J		NA	
Chrysene	0.031	5	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
bis(2-Chloroethoxy)methane	NA	100	IQNC	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
bis(2-Chloroethyl)ether	1.4	10	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
bis(2-Chloroisopropyl)ether	170000	300	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
4-Chlorophenyl phenyl ether	NA	100	IQNC	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
1,2-Dichlorobenzene	18500	600	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
1,3-Dichlorobenzene	22000	600	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
1,4-Dichlorobenzene	3150	75	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
2,4-Dinitrotoluene	9.1	10	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
2,6-Dinitrotoluene	NA	-	-	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
3,3'-Dichlorobenzidine	0.0767	60	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
Dibenzo(a,h)anthracene	0.031	0.5	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Dibenzofuran	NA	100	IQNC	5.2	-		5.3	-		5	-		5	-		5.0	2	J		NA	
Di-n-butyl phthalate	NA	900	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Di-n-octyl phthalate	NA	100	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Diethyl phthalate	111000	5000	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Dimethyl phthalate	2900000	-	-	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS	2.1	-		2.1	-		2	-		2	1.2	J	2.0	-			NA	
Fluoranthene	383	300	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	3			NA	
Fluorene	NA	300	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	46.8			NA	

NOTES
(1)
NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997
(2) Surface water quality criteria for reference only
bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed or Not Applicable
- Not detected
D Result from diluted analysis
J Estimated concentration
- No Standard

921010229

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-1A						MW-1B						MW-2A					
Laboratory Identification				E82159-1			E97329-3			E82159-2			E97329-4			E82072-4			E97210-17		
Date Sample Collected				1/14/00			8/21/01			1/14/00			8/21/01			1/13/00			8/20/01		
Units	GWQC SE-2*	Criterion	Type*	ug/L MDL	ug/L CONC	O	ug/L MDL	ug/L CONC	O	ug/L MDL	ug/L CONC	O	ug/L MDL	ug/L CONC	O	ug/L MDL	ug/L CONC	O	ug/L MDL	ug/L CONC	O
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																					
Hexachlorobenzene	0.000775	10	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Hexachlorobutadiene	NA	1	GWQS	5.2	-		2.1	-		2	-		5	-		5.0	-			NA	
Hexachlorocyclopentadiene	17000	50	GWQS	21	-		21	-		20	-		20	-		20	-			NA	
Hexachloroethane	12.4	10	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
Indeno(1,2,3-cd)pyrene	0.031	10	IS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Isophorone	NA	100	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
2-Methylnaphthalene	NA	100	IGNC	2.1	-		2.1	-		2	-		2	-		800	680	D		NA	
2-Nitroaniline	NA	-	-	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
3-Nitroaniline	NA	-	-	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
4-Nitroaniline	NA	-	-	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
Naphthalene	NA	300	ISN	2.1	-		2.1	-		2	-		2	-		800	8540	D		NA	
Nitrobenzene	1900	10	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
N-Nitroso-di-n-propylamine	NA	20	GWQS	5.2	-		2.1	-		5	-		2	-		5.0	-			NA	
N-Nitrosodiphenylamine	16.2	20	GWQS	5.2	-		5.3	-		5	-		5	-		5.0	-			NA	
Phenanthrene	NA	100	IGNC	2.1	-		2.1	-		2	-		2	-		2.0	59.5			NA	
Pyrene	8870	200	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	5.7			NA	
1,2,4-Trichlorobenzene	113	9	GWQS	2.1	-		2.1	-		2	-		2	-		2.0	-			NA	
Total TIC, Semi-Volatile	NA	-	-	NA	0		NA	88.1		NA	0		NA	20.8		NA	5232			NA	
INORGANICS																					
Aluminum	NA	200	GWQS	NA	NA		200	298		NA	NA		200	3980		NA	NA			NA	
Antimony	4300	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-			NA	
Arsenic	0.134	8	GWQS	5.0	21.8		5.0	11.8		5.0	-		5.0	-		5.0	-			NA	
Barium	NA	2000	GWQS	NA	NA		200	353		NA	NA		200	-		NA	NA			NA	
Beryllium	NA	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-			NA	
Cadmium	NA	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-			NA	
Calcium	NA	-	GWQS	NA	NA		5000	47400		NA	NA		5000	101000		NA	NA			NA	
Chromium	0.0058	100	GWQS	10	-		10	-		10	89.2		10	13.5		10	-			NA	
Cobalt	NA	100	IGNC	NA	NA		50	-		NA	NA		50	-		NA	NA			NA	
Copper	5.6	1000	GWQS	25	-		25	-		25	-		25	42.1		25	-			NA	
Iron (Total)	NA	300	GWQS	100	18400		100	32200		100	3430		100	8270		100	35200			NA	
Lead	NA	10	GWQS	3.0	5.4		3.0	18.8		3.0	10.8		3.0	34.9		3.0	-			NA	
Magnesium	NA	-	GWQS	NA	NA		5000	8520		NA	NA		5000	22800		NA	NA			NA	
Manganese	100	50	GWQS	NA	NA		15	8470		NA	NA		15	281		NA	NA			NA	
Mercury	0.146	2	GWQS	0.20	-		0.20	0.21		0.20	-		0.20	-		0.20	-			NA	
Nickel	3900	100	GWQS	40	-		40	-		40	64.1		40	-		40	-			NA	
Potassium	NA	-	GWQS	NA	NA		5000	9440		NA	NA		5000	7620		NA	NA			NA	
Selenium	NA	50	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-			NA	
Silver	NA	30	IS	10	-		10	-		10	-		10	-		10	-			NA	
Sodium	NA	50000	GWQS	NA	NA		5000	41800		NA	NA		5000	96800		NA	NA			NA	
Thallium	6.22	10	GWQS	5.0	-		10	-		5.0	-		10	-		5.0	-			NA	
Vanadium	NA	-	GWQS	NA	NA		50	-		NA	NA		50	-		NA	NA			NA	
Zinc	NA	5000	GWQS	20	182		20	221		20	46		20	196		20	-			NA	
Cyanide	1	200	GWQS	0.010	-		0.010	-		0.010	-		0.010	-		0.010	-			NA	
POLYCHLORINATED BIPHENYLS																					
Aroclor 1016	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1221	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1232	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1242	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1248	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1254	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-			NA	
Aroclor 1260	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	1.8		0.50	-		0.50	-			NA	
PETROLEUM FINGERPRINT																					
Gasoline (C4-C12) ()		-	-		NA			NA			NA			NA			NA			PARTIAL MATCH	
Turpentine (C8-C11) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Mineral Spirits (C9-C12) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Kerosene (C9-C18) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Diesel Fuel/Fuel oil #2 (C9-C22) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Fuel Oil #4 (C11-C24) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Fuel Oil #6 (C11-C28) ()		-	-		NA			NA			NA			NA			NA			NO MATCH	
Other Patterns ()		-	-		NA			NA			NA			NA			NA			UNKNOWN HYDROCARBON C14-C28	
GENERAL CHEMISTRY																					
Alkalinity, Total	NA	-	-	5,000	202,000		5,000	143,000		5,000	192,000		5,000	240,000		5,000	243,000			NA	
Chloride	NA	250,000	GWQS	20,000	144,000		40,000	-		20,000	78,700		40,000	56,300		20,000	-			NA	
Iron, Ferric	NA	-	-	10,000	-		NA	NA		10,000	5,300		NA	NA		1,100	-			NA	
Iron, Ferrous	NA	-	-	19,000	15,100		100	17,800		10,000	140		100	-		1,000	34,800			NA	
Nitrogen, Ammonia	NA	500	GWQS	100	608		100	2,100		100	110		100	-		100	1,300			NA	
Nitrogen, Nitrate	NA	10,000	GWQS	110	1,800		110	-		110	10,940		510	10,300		110	-			NA	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS	100	1,800		100	-		100	11,500		500	10,300		100	-			NA	
Nitrogen, Nitrite	NA	1,000	GWQS	10	-		10	-		10	-		10	-		10	-			NA	
Solids, Total Dissolved	NA	500,000	GWQS	10,000	706,000		10,000	254,000		10,000	471,000		10,000	825,000		10,000	318,000			NA	
Sulfate	250000	250,000	GWQS	20,000	82,300		20,000	28,300		20,000	89,800		20,000	89,000		20,000	29,800			NA	
Sulfide	NA	-		2,000	-		2,000	-		2,000	-		2,000	-		2,000	-			NA	
Total Organic Carbon	NA	-	-	1,000	6,300		1,000	NA		1,000	2,000		NA	NA		NA	NA			NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS	NA	8.2		NA	NA		NA	8.4		NA	NA		NA	6.5			NA	

NOTES

(*) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

O Data qualifier

NA Not Analyzed

- Not detected

D Result from diluted reanalysis

J Estimated concentration

- No Standard

921010230

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-2B						MW-2C			MW-3A						MW-3B					
Laboratory Identification				E62072-5			E87210-12			E87210-13			E62072-2			E87210-10			E62072-3			E87210-16		
Date Sample Collected				1/14/00			8/20/01			8/20/01			1/13/00			8/20/01			1/13/00			8/20/01		
Units	SWQC SE-2*	Criterion	Type*	ug/L			ug/L			ug/L			ug/L			ug/L			ug/L			ug/L		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																								
Acetone	NA	700	GWQS		NA		250	-		5	4.5	J	5.0	-		5.0	7		5.0	-		5.0	-	
Benzene	71	1	GWQS		NA		50	5030		1	3.9		1.0	2.4		1.0	1.8		1.0	18.9		1.0	0.86	J
Bromodichloromethane	22	1	GWQS		NA		50	-		1	4.3		1.0	-		1.0	-		1.0	-		1.0	-	
Bromoform	360	4	GWQS		NA		200	-		4	-		4.0	-		4.0	-		4.0	-		4.0	-	
Bromomethane	NA	10	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Butanone (MEK)	NA	300	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon disulfide	NA	800	IS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon tetrachloride	6.31	2	GWQS		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
Chlorobenzene	21000	4	GWQS		NA		100	-		2	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chloroethane	NA	100	IGNC		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloroform	470	6	GWQS		NA		250	-		5	28		5.0	-		5.0	-		5.0	-		5.0	-	
Chloromethane	1800	30	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibromochloromethane	NA	10	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1-Dichloroethane	NA	50	ISM		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloroethane	99	2	GWQS		NA		100	-		2	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,1-Dichloroethene	NA	2	GWQS		NA		100	-		2	-		2.0	-		2.0	-		2.0	-		2.0	-	
cis-1,2-Dichloroethene	NA	70	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
trans-1,2-Dichloroethene	NA	100	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloropropane	NA	1	GWQS		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
cis-1,3-Dichloropropene	1700	-	-		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
trans-1,3-Dichloropropene	1700	-	-		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
Ethylbenzene	27900	700	GWQS		NA		50	2580		1	1.4		1.0	-		1.0	-		1.0	1.4		1.0	-	
2-Hexanone	NA	100	IGNC		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Methylene chloride	NA	2	GWQS		NA		100	-		2	-		2.0	-		2.0	-		2.0	-		2.0	-	
Styrene	NA	100	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2,2-Tetrachloroethane	NA	2	GWQS		NA		100	-		2	-		2.0	-		2.0	-		2.0	-		2.0	-	
Tetrachloroethene	4.29	1	GWQS		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
Toluene	200000	1000	GWQS		NA		50	420		1	3.3		1.0	-		1.0	-		1.0	-		1.0	-	
1,1,1-Trichloroethane	NA	30	GWQS		NA		250	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2-Trichloroethane	NA	3	GWQS		NA		150	-		3	-		3.0	-		3.0	-		3.0	-		3.0	-	
Trichloroethene	81	1	GWQS		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
Vinyl chloride	525	5	GWQS		NA		50	-		1	-		1.0	-		1.0	-		1.0	-		1.0	-	
Xylene (total)	NA	1000	GWQS		NA		250	884		5	3.6	J	1.0	-		5.0	-		1.0	1.3		5.0	-	
Total TIC, Volatile	NA	-	-		NA		NA	5220		NA	0		NA	65.7		NA	455		NA	0		NA	0	
SEMI-VOLATILE ORGANIC COMPOUNDS																								
2-Chlorophenol	402	40	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloro-3-methyl phenol	NA	100	IGNC		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dichlorophenol	794	20	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dimethylphenol	NA	100	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	15.8		5.0	-	
2,4-Dinitrophenol	14000	40	GWQS		NA		20	-		20	-		20	-		20	-		20	-		20	-	
4,6-Dinitro-o-cresol	765	100	IGNC		NA		20	-		20	-		20	-		20	-		20	-		20	-	
2-Methylphenol	NA	-	-		NA		5.0	1.7	J	5.0	-		5.0	-		5.0	-		5.0	1.1	J	5.0	-	
3&4-Methylphenol	NA	-	-		NA		5.0	3.9	J	5.0	-		5.0	-		5.0	-		5.0	1.1	J	5.0	-	
2-Nitrophenol	NA	100	IGNC		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitrophenol	NA	100	IGNC		NA		20	-		20	-		20	-		20	-		20	-		20	-	
Pentachlorophenol	7.9	1	GWQS		NA		20	-		20	-		20	-		20	-		20	-		20	-	
Phenol	4600000	4000	GWQS		NA		5.0	7.8		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,5-Trichlorophenol	9790	700	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,6-Trichlorophenol	6.53	20	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Acenaphthene	NA	400	GWQS		NA		200	212		200	-		2.0	22.2		2.0	35.8		2.0	-		2.0	-	
Acenaphthylene	NA	-	-		NA		20.0	23.8		20.0	1.4	J	2.0	0.81	J	2.0	-		2.0	-		2.0	-	
Anthracene	108000	2000	GWQS		NA		20.0	19.6		20.0	-		2.0	1	J	2.0	3.3		2.0	-		2.0	-	
Benzo(a)anthracene	0.031	0.2	IS		NA		20.0	2.3		20.0	-		2.0	-		2.0	4.0		2.0	-		2.0	-	
Benzo(a)pyrene	0.031	0.2	IS		NA		2.0	1.8	J	2.0	-		2.0	-		2.0	2.3		2.0	-		2.0	-	
Benzo(b)fluoranthene	0.031	10	IS		NA		2.0	1.5	J	2.0	-		2.0	-		2.0	2.1		2.0	-		2.0	-	
Benzo(g,h,i)perylene	NA	100	IGNC		NA		2.0	0.8	J	2.0	-		2.0	-		2.0	0.69	J	2.0	-		2.0	-	
Benzo(k)fluoranthene	0.031	1	IS		NA		2.0	0.56	J	2.0	-		2.0	-		2.0	0.78	J	2.0	-		2.0	-	
4-Bromophenyl phenyl ether	NA	-	-		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Butyl benzyl phthalate	416	100	GWQS		NA		2.0	-		2.0	-		3.0	-		2.0	-		5.0	-		2.0	-	
2-Chloronaphthalene	NA	800	IS		NA		5.0	-		3.0	-		3.0	-		8.0	-		5.0	-		5.0	-	
4-Chloroaniline	NA	30	IS		NA		5.0	-		3.0	-		2.0	-		5.0	-		2.0	-		5.0	-	
Carbazole	NA	-	-		NA		2.0	2.7		2.0	-		2.0	-		2.0	-		2.0	0.97	J	2.0	-	
Chrysene	0.031	5	IS		NA		2.0	2.1		2.0	-		2.0	-		2.0	4.2		2.0	-		2.0	-	
bis(2-Chloroethoxy)methane	NA	100	IGNC		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroethyl)ether	1.4	10	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroisopropyl)ether	170000	300	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
4-Chlorophenyl phenyl ether	NA	100	IGNC		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,2-Dichlorobenzene	18500	600	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,3-Dichlorobenzene	22000	600	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,4-Dichlorobenzene	3159	75	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,4-Dinitrotoluene	9.1	10	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,6-Dinitrotoluene	NA	-	-		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
3,3'-Dichlorobenzidine	0.0787	60	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibenz(a,h)anthracene	0.031	0.5	IS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dibenzofuran	NA	100	IGNC		NA		5.0	3.9	J	5.0	-		5.0	1.4	J	5.0	4.2	J	5.0	-		5.0	-	
Di-n-butyl phthalate	NA	800	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Di-n-octyl phthalate	NA	100	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Diethyl phthalate	111000	5000	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dimethyl phthalate	2900000	-	-		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS		NA		2.0	1	J	2.0	4		2.0	-		2.0	6		2.0	-		2.0	-	
Fluoranthene	393	300	GWQS		NA		2.0	9.7		2.0	-		2.0	-		2.0	4.3		2.0	-		2.0	-	
Fluorene	NA	300	GWQS		NA		2.0	53.5		2.0	0.59	J	2.0	5		2.0	12.8		2.0	-		2.0	-	

NOTES
(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and interim Specific Criteria based on NJDEP Memorandum of February 5, 1997
(2) Surface water quality criteria for reference only
bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed or Not Applicable
\- Not detected
D Result from diluted reanalysis
J Estimated concentration
\- No Standard

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-2B						MW-2C			MW-3A						MW-3B					
Laboratory Identification				E62072-5			E97210-12			E97210-13			E62072-2			E97210-16			E62072-3			E97210-18		
Date Sample Collected				1/14/00			8/20/01			8/20/01			1/13/00			8/20/01			1/13/00			8/20/01		
Units	SWQC SE-2*	Criterion	Type[1]	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
								ug/L			ug/L			ug/L			ug/L			ug/L			ug/L	
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																								
Hexachlorobenzene	0.000775	10	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Hexachlorobutadiene	NA	1	GWQS		NA		2.0	-		2.0	-		5.0	-		5.0	-		2.0	-		2.0	-	
Hexachlorocyclopentadiene	17000	50	GWQS		NA		20	-		20	-		20	-		20	-		20	-		20	-	
Hexachloroethane	12.4	10	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Indeno(1,2,3-cd)pyrene	0.031	10	IS		NA		2.0	0.76	J	2.0	-		2.0	-		2.0	0.82	J	2.0	-		2.0	-	
Isophorone	NA	100	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2-Methylnaphthalene	NA	100	IQNC		NA		200	316		200	2.1		2.0	-		2.0	-		2.0	1.2	J	2.0	-	
2-Nitroaniline	NA	-	-		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
3-Nitroaniline	NA	-	-		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitroaniline	NA	-	-		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Naphthalene	NA	300	ISM		NA		200	4080		200	7.7		2.0	-		2.0	-		2.0	54.9		2.0	-	
Nitrobenzene	1900	10	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
N-Nitroso-di-n-propylamine	NA	20	GWQS		NA		2.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.0	-	
N-Nitrosodiphenylamine	16.2	20	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Phenanthrene	NA	100	IQNC		NA		2.0	69.8		2.0	1.2	J	2.0	3.5		2.0	12.9		2.0	-		2.0	-	
Pyrene	8670	200	GWQS		NA		2.0	17.8		2.0	0.89	J	2.0	-		2.0	11.5		2.0	-		2.0	-	
1,2,4-Trichlorobenzene	113	9	GWQS		NA		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Total TIC, Semi-Volatile	NA	-	-		NA		NA	1068		NA	289.2		NA	474		NA	1025		NA	31.2		NA	24	
INORGANICS																								
Aluminum	NA	200	GWQS		NA		200	17100		200	1860		NA	NA		200	6620		NA	NA		200	204	
Antimony	4300	20	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Arsenic	0.136	8	GWQS		NA		5.0	8.3		5.0	-		5.0	-		5.0	24.8		5.0	-		5.0	-	
Barium	NA	2000	GWQS		NA		200	431		200	-		NA			200	482		NA	NA		200	-	
Beryllium	NA	20	GWQS		NA		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Cadmium	NA	4	GWQS		NA		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-	
Calcium	NA	-	GWQS		NA		5000	88000		5000	49400		NA	NA		5000	88700		NA	NA		5000	88500	
Chromium	0.0058	100	GWQS		NA		10	30.4		10	13.8		10	-		10	33.7		10	-		10	-	
Cobalt	NA	100	IQNC		NA		50	-		50	-		NA	NA		50	-		NA	NA		50	-	
Copper	5.6	1000	GWQS		NA		25	71.2		25	-		25	-		25	95.9		25	-		25	-	
Iron (Total)	NA	300	GWQS		NA		100	65100		100	2580		100	31200		100	82700		100	-		100	626	
Lead	NA	10	GWQS		NA		3	129		3	7.8		3.0	3		3.0	284		3.0	-		3.0	-	
Magnesium	NA	-	GWQS		NA		5000	14400		5000	6000		NA	NA		5000	14300		NA	NA		5000	19800	
Manganese	100	50	GWQS		NA		15	1780		15	129		NA	NA		15	1670		NA	NA		15	81.8	
Mercury	0.146	2	GWQS		NA		0.2	0.55		0.2	-		0.20	-		0.20	1.2		0.20	-		0.20	-	
Nickel	3900	100	GWQS		NA		40	41.8		40	-		40	-		40	86.3		40	-		40	-	
Potassium	NA	-	GWQS		NA		5000	9860		5000	7800		NA	NA		5000	10700		NA	NA		5000	-	
Selenium	NA	50	GWQS		NA		5	-		5	-		5.0	-		5.0	-		5.0	-		5.0	-	
Silver	NA	30	IS		NA		10	-		10	-		10	-		10	-		10	-		10	-	
Sodium	NA	50000	GWQS		NA		5000	22300		5000	41400		NA	NA		5000	48000		NA	NA		5000	24500	
Thallium	6.22	10	GWQS		NA		10	-		10	-		5.0	-		10	-		5.0	-		10	-	
Vanadium	NA	-	GWQS		NA		50	50.4		50	-		NA	NA		50	74.2		NA	NA		50	-	
Zinc	NA	5000	GWQS		NA		20	895		20	105		20	-		20	400		20	20.8		20	102	
Cyanide	1	200	GWQS		NA		10	16		10	-		0.010	0.1		10	170		0.010	-		10	-	
POLYCHLORINATED BIPHENYLS																								
Aroclor 1016	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1221	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1232	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1242	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1248	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1254	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1260	0.000247	0.5	GWQS		NA		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
PETROLEUM FINGERPRINT																								
Gasoline (C4-C12) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Turpentine (C9-C11) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Mineral Spirits (C9-C12) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Kerosene (C9-C18) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Diesel Fuel/Fuel oil #2 (C9-C22) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Fuel Oil #4 (C11-C24) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Fuel Oil #6 (C11-C28) ()		-	-		NO MATCH		NA	NA			NA			NA			NA			NA			NA	
Other Patterns ()		-	-		INCLUDES C9-C40 HC RANGE		NA	NA			NA			NA			NA			NA			NA	
GENERAL CHEMISTRY																								
Alkalinity, Total	NA	-	-		NA		5,000	300,000		5,000	88,400		10,000	364,000		5,000	368,000		5,000	223,000		5,000	200,000	
Chloride	NA	250,000	GWQS		NA		20,000	28,800		40,000	56,000		20,000	71,300		20,000	81,300		20,000	58,500		40,000	42,100	
Iron, Ferric	NA	-	-		NA		NA	NA		NA	NA		1,100	1,800		NA	NA		200	-		NA	NA	
Iron, Ferrous	NA	-	-		NA		1,000	34,000		100	-		1,000	29,600		1,000	16,500		100	-		100	-	
Nitrogen, Ammonia	NA	500	GWQS		NA		100	2,200		100	-		500	5,100		500	6,500		100	310		100	200	
Nitrogen, Nitrate	NA	10,000	GWQS		NA		110	-		110	-		110	-		110	-		110	2,600		110	4,300	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS		NA		100	-		100	-		100	-		100	-		100	2,700		100	4,400	
Nitrogen, Nitrite	NA	1,000	GWQS		NA		10	-		10	24		10	-		10	-		10	140		10	80	
Solids, Total Dissolved	NA	500,000	GWQS		NA		32,000	318,000		10,000	310,000		10,000	496,000		10,000	481,000		10,000	478,000		10,000	420,000	
Sulfate	250000	250,000	GWQS		NA		20,000	-		20,000	66,100		20,000	-		20,000	-		20,000	66,600		20,000	65,400	
Sulfide	NA	-			NA		NA	NA		NA	NA		2,000	-		NA	NA		2,000	-		NA	NA	
Total Organic Carbon	NA	-	-		NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS		NA		NA	NA		NA	NA		NA	6.5		NA	NA		NA	7		NA	NA	

NOTES

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

- Not detected

D Result from diluted reanalysis

J Estimated concentration

No Standard

921010232

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-3C			MW-4A						MW-4B						MW-5A					
Laboratory Identification				E97210-15			E82072-6			E97329-5			E82072-7			E97329-6			E82158-5			E97210-2		
Date Sample Collected				8/20/01			1/13/00			8/21/01			1/13/00			8/21/01			1/14/00			8/20/01		
Units	SWQC SE-2[1]	Criterion	Type[1]	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q
VOLATILE ORGANIC COMPOUNDS																								
Acetone	NA	700	GWQS	5.0	8.5		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Benzene	71	1	GWQS	1.0	–		10	2740		2	254		1.0	1.7		1.0	–		10	3080		5.0	781	
Bromodichloromethane	22	1	GWQS	1.0	7.8		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Bromoform	360	4	GWQS	4.0	–		40	–		8	–		4.0	–		4.0	–		40	–		20.0	–	
Bromomethane	NA	10	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
2-Butanone (MEK)	NA	300	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Carbon disulfide	NA	600	IS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Carbon tetrachloride	6.31	2	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Chlorobenzene	21000	4	GWQS	2.0	–		20	–		4	–		2.0	–		2.0	–		20	–		10.0	–	
Chloroethane	NA	100	IGNC	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Chloroform	470	6	GWQS	5.0	41.8		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Chloromethane	1600	30	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Dibromochloromethane	NA	10	GWQS	5.0	1.1	J	50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
1,1-Dichloroethane	NA	50	ISM	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
1,2-Dichloroethane	99	2	GWQS	2.0	–		20	–		4	–		2.0	–		2.0	–		20	–		10.0	–	
1,1-Dichloroethene	NA	2	GWQS	2.0	–		20	–		4	–		2.0	–		2.0	–		20	–		10.0	–	
cis-1,2-Dichloroethene	NA	10	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
trans-1,2-Dichloroethene	NA	100	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
1,2-Dichloropropane	NA	1	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
cis-1,3-Dichloropropene	1700	-	-	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
trans-1,3-Dichloropropene	1700	-	-	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Ethylbenzene	27900	700	GWQS	1.0	–		10	1940		2	21.5		1.0	–		1.0	–		10	257		5.0	42.2	
2-Hexanone	NA	100	IGNC	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
Methylene chloride	NA	2	GWQS	2.0	–		30	–		4	–		2.0	–		2.0	–		20	–		10.0	–	
Styrene	NA	100	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
1,1,2,2-Tetrachloroethane	NA	2	GWQS	2.0	–		20	–		4	–		2.0	–		2.0	–		20	–		10.0	–	
Tetrachloroethene	4.29	1	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Toluene	200000	1000	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	15.1		5.0	4.2	J
1,1,1-Trichloroethane	NA	30	GWQS	5.0	–		50	–		10	–		5.0	–		5.0	–		50	–		25.0	–	
1,1,2-Trichloroethane	NA	3	GWQS	3.0	–		30	–		6	–		3.0	–		3.0	–		30	–		15.0	–	
Trichloroethene	81	1	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Vinyl chloride	525	5	GWQS	1.0	–		10	–		2	–		1.0	–		1.0	–		10	–		5.0	–	
Xylene (total)	NA	1000	GWQS	5.0	–		10	297		10	8.7	J	1.0	–		5.0	–		10	117		25.0	18.6	J
Total TIC, Volatile	NA	-	-	NA	0		NA	1430		NA	1790		NA	0		NA	0		NA	775		NA	809	
SEMI-VOLATILE ORGANIC COMPOUNDS																								
2-Chlorophenol	402	40	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
4-Chloro-3-methyl phenol	NA	100	IGNC	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
2,4-Dichlorophenol	794	20	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
2,4-Dimethylphenol	NA	100	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
2,4-Dinitrophenol	14000	40	GWQS	20	–		20	–		20	–		20	–		20	–		20	–		21	–	
4,6-Dinitro-o-cresol	765	100	IGNC	20	–		20	–		20	–		20	–		20	–		20	–		21	–	
2-Methylphenol	NA	-	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
3&4-Methylphenol	NA	-	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
2-Nitrophenol	NA	100	IGNC	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
4-Nitrophenol	NA	100	IGNC	20	–		20	–		20	–		20	–		20	–		20	–		21	–	
Pentachlorophenol	7.9	1	GWQS	20	–		20	–		20	–		20	–		20	–		20	–		21	–	
Phenol	4800000	4000	GWQS	5.0	–		5.0	–		5.0	1.9	J	5.0	–		5.0	–		5.0	5.3		5.2	2.4	
2,4,5-Trichlorophenol	9780	700	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
2,4,6-Trichlorophenol	6.53	20	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
Acenaphthene	NA	400	GWQS	2.0	–		100	78.6	JD	2.0	75.6		2.0	–		2.0	–		2.0	40.6		2.1	51.3	
Acenaphthylene	NA	-	-	2.0	–		2.0	1.6	J	2.0	4.7		2.0	–		2.0	–		2.0	–		2.1	14	
Anthracene	108000	2000	GWQS	2.0	–		2.0	0.81	J	2.0	2.6		2.0	–		2.0	–		2.0	5.8		2.1	21.6	
Benzo(a)anthracene	0.031	0.2	IS	2.0	–		2.0	–		2.0	4.7		2.0	–		2.0	–		2.0	2.2		2.1	30.7	
Benzo(a)pyrene	0.031	0.2	IS	2.0	–		2.0	–		2.0	6.8		2.0	–		2.0	–		2.0	1.8	J	2.1	30.1	
Benzo(b)fluoranthene	0.031	10	IS	2.0	–		2.0	–		2.0	6.9		2.0	–		2.0	–		2.0	1.5	J	2.1	25.8	
Benzo(g,h,i)perylene	NA	100	IGNC	2.0	–		2.0	–		2.0	2.5		2.0	–		2.0	–		2.0	–		2.1	8	
Benzo(k)fluoranthene	0.031	1	IS	2.0	–		2.0	–		2.0	2.7		2.0	–		2.0	–		2.0	0.64	J	2.1	11.4	
4-Bromophenyl phenyl ether	NA	-	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
Butyl benzyl phthalate	416	100	GWQS	2.0	–		5.0	–		2.0	–		5.0	–		2.0	–		5.0	–		2.1	–	
2-Chloronaphthalene	NA	800	IS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
4-Chloroaniline	NA	30	IS	5.0	–		2.0	–		5.0	–		2.0	–		5.0	–		2.0	–		5.2	–	
Carbazole	NA	-	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
Chrysene	0.031	5	IS	2.0	–		2.0	–		2.0	8.8		2.0	–		2.0	–		2.0	2.4		2.1	33.9	
bis(2-Chloroethoxy)methane	NA	100	IGNC	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
bis(2-Chloroethyl)ether	1.4	10	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
bis(2-Chloroisopropyl)ether	170000	300	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
4-Chlorophenyl phenyl ether	NA	100	IGNC	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
1,2-Dichlorobenzene	16500	600	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
1,3-Dichlorobenzene	22000	600	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
1,4-Dichlorobenzene	3150	75	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
2,4-Dinitrotoluene	9.1	10	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
2,6-Dinitrotoluene	NA	-	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
3,3'-Dichlorobenzidine	0.0757	60	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.2	–	
Dibenz(a,h)anthracene	0.031	0.5	IS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	2.1	
Dibenzofuran	NA	100	IGNC	5.0	–		5.0	0.98	J	5.0	0.90	J	5.0	–		5.0	–		5.0	1.8	J	5.2	4.7	J
Di-n-butyl phthalate	NA	800	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
Di-n-octyl phthalate	NA	100	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
Diethyl phthalate	111000	5000	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
Dimethyl phthalate	2900000	-	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.1	–	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS	2.0	8		2.0	–		2.0	1.6	J	2.0	–		2.0	–		2.0	–		2.1	–	
Fluoranthene	383	300	GWQS	2.0	–		2.0	–		2.0	4.9		2.0	–		2.0	–		2.0	7.6		2.1	51.1	
Fluorene	NA	300	GWQS	2.0	–		2.0	11.7		2.0	11.8		2.0	–		2.0	–		2.0	24.2		2.1	48.8	

NOTES
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(2) Surface water quality criteria for reference only
bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed or Not Applicable
– Not detected
D Result from diluted reanalysis
J Estimated concentration
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Date Sample Collected				8/20/01			1/13/00			8/21/01			1/13/00			8/21/01			1/14/00			8/20/01		
Units	SWQC SE-2[1]	Criterion	Type[1]	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																								
Hexachlorobenzene	0.000775	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.1	-	
Hexachlorobutadiene	NA	1	GWQS	2.0	-		5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.1	-	
Hexachlorocyclopentadiene	17000	50	GWQS	20	-		20	-		20.0	-		20	-		20.0	-		20	-		21	-	
Hexachloroethane	12.4	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.2	-	
Indeno(1,2,3-cd)pyrene	0.031	10	IS	2.0	-		2.0	-		2.0	2.3		2.0	-		2.0	-		2.0	-		2.1	6.7	
Isophorone	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.1	-	
2-Methylnaphthalene	NA	100	IGWC	2.0	-		100	147	D	2.0	97.8		2.0	-		2.0	-		2.0	47.3		2.1	18.8	
2-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.2	-	
3-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.2	-	
4-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.2	-	
Naphthalene	NA	300	ISM	2.0	0.94	J	100	2119	D	20.0	768		2.0	0.77	J	20.0	-		10	883	D	6	127	
Nitrobenzene	1900	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.1	-	
N-Nitroso-di-n-propylamine	NA	20	GWQS	2.0	-		5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.1	-	
N-Nitrosodiphenylamine	16.2	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.2	-	
Phenanthrene	NA	100	IGWC	2.0	-		2.0	4.3		2.0	10.1		2.0	-		2.0	-		2.0	43.7		4	113	
Pyrene	8870	200	GWQS	2.0	-		2.0	0.83	J	2.0	11.4		2.0	-		2.0	-		2.0	11.1		2.1	88.8	
1,2,4-Trichlorobenzene	113	9	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.1	-	
Total TIC Semi-Volatile	NA	-	-	NA	65.9		NA	2450		NA	870		NA	0		NA	15.4		NA	847.1		NA	764	
INORGANICS																								
Aluminum	NA	200	GWQS	200	818		NA	NA		200	34600		NA	NA		200	3060		NA	NA		200	21900	
Antimony	4300	20	GWQS	5.0	-		5.0	-		5.0	18		5.0	-		5.0	-		5.0	-		5.0	8.5	
Arsenic	0.136	8	GWQS	5.0	-		5.0	5.4		5.0	230		5.0	10.7		5.0	12.9		5.0	-		5.0	76.2	
Barium	NA	2000	GWQS	200	-		NA	NA		200	1710		NA	NA		200	383		NA	NA		200	490	
Beryllium	NA	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Cadmium	NA	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-	
Calcium	NA	-	GWQS	5000	31400		NA	NA		5000	86100		NA	NA		5000	82900		NA	NA		5000	48100	
Chromium	0.0058	100	GWQS	10	39.4		10	-		10	188		10	-		10	-		10	-		10	82.2	
Cobalt	NA	100	IGWC	50	-		NA	NA		50	81.4		NA	NA		50	-		NA	NA		50	-	
Copper	5.6	1000	GWQS	25	-		25	-		25	450		25	-		25	-		25	-		25	200	
Iron (Total)	NA	300	GWQS	100	887		100	30700		100	172000		100	15400		100	12700		100	43700		100	120000	
Lead	NA	10	GWQS	3.0	4.8		3.0	-		3.0	888		3.0	-		3.0	4.8		3.0	-		3.0	700	
Magnesium	NA	-	GWQS	5000	5750		NA	NA		5000	6800		NA	NA		5000	26200		NA	NA		5000	13800	
Manganese	100	50	GWQS	15	31.6		NA	NA		15	1020		NA	NA		15	801		NA	NA		15	1940	
Mercury	0.146	2	GWQS	0.20	-		0.20	-		0.80	4.4		0.20	-		0.20	-		0.20	-		0.20	0.74	
Nickel	3900	100	GWQS	40	-		40	-		40	230		40	-		40	-		40	-		40	118	
Potassium	NA	-	GWQS	5000	12900		NA	NA		5000	20300		NA	NA		5000	6870		NA	NA		5000	7540	
Selenium	NA	50	GWQS	5.0	-		5.0	-		5.0	36.1		5.0	-		5.0	-		5.0	-		5.0	7.0	
Silver	NA	30	IS	10	-		10	-		10	-		10	-		10	-		10	-		10	-	
Sodium	NA	50000	GWQS	5000	52100		NA	NA		5000	24800		NA	NA		5000	89000		NA	NA		5000	13200	
Thallium	6.22	10	GWQS	10	-		5.0	-		10	-		5.0	-		10	-		5.0	-		10	-	
Vanadium	NA	-	GWQS	50	-		NA	NA		50	388		NA	NA		50	-		NA	NA		50	61.2	
Zinc	NA	5000	GWQS	20	79.2		20	-		20	798		20	-		20	32.2		20	-		20	702	
Cyanide	1	200	GWQS	10	-		0.010	0.16		10	210		0.010	-		10	-		0.010	0.08		10	21	
POLYCHLORINATED BIPHENYLS																								
Aroclor 1016	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1221	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1232	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1242	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1248	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1254	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1260	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
PETROLEUM FINGERPRINT																								
Gasoline (C4-C12) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Turpentine (C8-C11) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Mineral Spirits (C8-C12) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Kerosene (C8-C18) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Diesel Fuel/Fuel oil #2 (C9-C22) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Fuel Oil #4 (C11-C24) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Fuel Oil #6 (C11-C28) ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
Other Patterns ( )		-	-		NA			NA			NA			NA			NA			NA			NA	
GENERAL CHEMISTRY																								
Alkalinity, Total	NA	-	-	5,000	71,200		10,000	291,000		5,000	252,000		10,000	380,000		5,000	304,000		5,000	180,000		5,000	201,000	
Chloride	NA	250,000	GWQS	20,000	49,400		20,000	42,000		40,000	-		20,000	140,000		100,000	172,000		20,000	21,700		20,000	-	
Iron, Ferric	NA	-	-	NA	NA		1,100	1,200		NA	NA		1,100	1,300		NA	NA		10,000	13,200		NA	NA	
Iron, Ferrous	NA	-	-	10	-		1,000	19,500		100	570		1,000	14,100		100	1,800		10,000	80,300		500	8,200	
Nitrogen, Ammonia	NA	500	GWQS	100	-		100	2,100		100	2,100		100	2,000		200	3,200		100	1,800		100	3,300	
Nitrogen, Nitrate	NA	10,000	GWQS	110	-		110	-		110	-		110	-		110	-		110	-		110	-	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS	100	-		100	-		100	-		100	-		100	-		100	-		100	-	
Nitrogen, Nitrite	NA	1,000	GWQS	10	57		10	-		10	-		10	-		10	-		10	-		10	-	
Solids, Total Dissolved	NA	500,000	GWQS	10,000	244,000		10,000	332,000		10,000	285,000		10,000	828,000		10,000	884,000		10,000	247,000		10,000	186,000	
Sulfate	250000	250,000	GWQS	20,000	30,900		20,000	-		20,000	-		20,000	-		20,000	-		20,000	-		20,000	22,500	
Sulfide	NA	-		NA	NA		2,000	-		2,000	-		2,000	-		2,000	-		2,000	NA		NA	NA	
Total Organic Carbon	NA	-	-	NA	NA		NA	NA		NA	NA		NA	NA		NA	NA		1,000	10,300		NA	NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS	NA	NA		NA	6.7		NA	NA		NA	6.8		NA	NA		NA	6.8		NA	NA	

NOTES

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

POL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

- Not detected

D Result from diluted reanalysis

J Estimated concentration

- No Standard

921010234

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-5B						MW-6A						MW-6B					
Laboratory Identification				E82159-8			E97210-1			E81963-1 E82159-8			E97210-3			E81963-2 E82159-9			E97210-4		
Date Sample Collected				1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01		
Unit	SWQC SE-2[2]	Criterion	Type[1]	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q	ug/L MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																					
Acetone	NA	700	GWQS	5.0	-		5.0	-		5.0	-		5.0	6.5		5.0	-		5.0	-	
Benzene	71	1	GWQS	1.0	-		1.0	-		1.0	73		1.0	6.1		1.0	-		1.0	-	
Bromodichloromethane	22	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Bromoform	360	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-	
Bromomethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Butanone (MEK)	NA	300	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon disulfide	NA	800	IS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon tetrachloride	6.31	2	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Chlorobenzene	21000	4	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chloroethane	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloroform	470	6	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloromethane	1600	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibromochloromethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1-Dichloroethane	NA	50	ISM	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloroethane	98	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,1-Dichloroethene	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
cis-1,2-Dichloroethene	NA	10	GWQS	5.0	1.4	J	5.0	1.9	J	5.0	-		5.0	-		5.0	-		5.0	-	
trans-1,2-Dichloroethene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloropropane	NA	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
cis-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
trans-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Ethylbenzene	27900	700	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
2-Hexanone	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Methylene chloride	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Styrene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2,2-Tetrachloroethane	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Tetrachloroethene	4.29	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Toluene	200000	1000	GWQS	1.0	-		1.0	-		1.0	1.1		1.0	-		1.0	-		1.0	-	
1,1,1-Trichloroethane	NA	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2-Trichloroethane	NA	3	GWQS	3.0	-		3.0	-		3.0	-		3.0	-		3.0	-		3.0	-	
Trichloroethene	81	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Vinyl chloride	525	5	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Xylene (total)	NA	1000	GWQS	1.0	-		5.0	-		1.0	-		5.0	-		1.0	-		5.0	-	
Total TIC, Volatile	NA	-	-	NA	0		NA	0		NA	25		NA	13.9		NA	0		NA	0	
SEMI-VOLATILE ORGANIC COMPOUNDS																					
2-Chlorophenol	402	40	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloro-3-methyl phenol	NA	100	IGNC	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dichlorophenol	794	20	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dimethylphenol	NA	100	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dinitrophenol	14000	40	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
4,6-Dinitro-o-cresol	765	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
2-Methylphenol	NA	-	-	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
3&4-Methylphenol	NA	-	-	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Nitrophenol	NA	100	IGNC	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitrophenol	NA	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
Pentachlorophenol	7.9	1	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
Phenol	4600000	4000	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,5-Trichlorophenol	9790	700	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,6-Trichlorophenol	6.53	20	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
Acenaphthene	NA	400	GWQS	2.0	-		2.0	-		2.0	3.6		2.0	-		2.0	-		2.0	-	
Acenaphthylene	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Anthracene	108000	2000	GWQS	2.0	0.32	J	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Benzo(a)anthracene	0.031	0.2	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Benzo(a)pyrene	0.031	0.2	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Benzo(b)fluoranthene	0.031	10	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Benzo(g,h,i)perylene	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Benzo(k)fluoranthene	0.031	1	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
4-Bromophenyl phenyl ether	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Butyl benzyl phthalate	415	100	GWQS	5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.0	-	
2-Chloronaphthalene	NA	800	IS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloroaniline	NA	30	IS	2.0	-		5.1	-		2.0	-		5.0	-		2.0	-		5.0	-	
Carbazole	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chrysene	0.031	5	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroethoxy)methane	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroethyl)ether	1.4	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroisopropyl)ether	170000	300	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
4-Chlorophenyl phenyl ether	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,2-Dichlorobenzene	18500	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,3-Dichlorobenzene	22000	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,4-Dichlorobenzene	3158	75	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,4-Dinitrotoluene	8.1	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,6-Dinitrotoluene	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
3,3'-Dichlorobenzidine	0.0767	60	GWQS	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibenzo(a,h)anthracene	0.031	0.5	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dibenzofuran	NA	100	IGNC	5.0	-		5.1	-		5.0	-		5.0	-		5.0	-		5.0	-	
Di-n-butyl phthalate	NA	800	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Di-n-octyl phthalate	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Diethyl phthalate	111000	5000	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dimethyl phthalate	2900000	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS	2.0	-		2.0	-		2.0	-		2.0	1.2	J	2.0	0.73	J	2.0	1.3	J
Fluoranthene	383	300	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Fluorene	NA	300	GWQS	2.0	-		2.0	-		2.0	1.2	J	2.0	-		2.0	-		2.0	-	

NOTES
(1)
NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997.
(2) Surface water quality criteria for reference only.
bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed or Not Applicable
- Not detected
D Result from diluted results/dilution
J Estimated concentration
No Standard

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-5B						MW-6A						MW-6B					
Laboratory Identification				E82159-6			E97210-1			E81993-1 E82159-8			E97210-3			E81993-2 E82159-9			E97210-6		
Date Sample Collected				1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01		
Units	SWQC SE-2*	Criterion	Type[1]	ug/L			ug/L			ug/L			ug/L			ug/L			ug/L		
				MDL	CONC	O	MDL	CONC	O	MDL	CONC	O	MDL	CONC	O	MDL	CONC	O	MDL	CONC	O
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																					
Hexachlorobenzene	0.000775	10	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Hexachlorobutadiene	NA	1	GWQS	5.0	–		2.0	–		5.0	–		2.0	–		5.0	–		2.0	–	
Hexachlorocyclopentadiene	17000	50	GWQS	20	–		20	–		20	–		20	–		20	–		20	–	
Hexachloroethane	12.4	10	GWQS	5.0	–		5.1	–		5.0	–		5.0	–		5.0	–		5.0	–	
Indeno(1,2,3-cd)pyrene	0.031	10	IS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Isophorone	NA	100	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2-Methylnaphthalene	NA	100	IGNC	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2-Nitroaniline	NA	-	-	5.0	–		5.1	–		5.0	–		5.0	–		5.0	–		5.0	–	
3-Nitroaniline	NA	-	-	5.0	–		5.1	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Nitroaniline	NA	-	-	5.0	–		5.1	–		5.0	–		5.0	–		5.0	–		5.0	–	
Naphthalene	NA	300	ISM	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Nitrobenzene	1900	10	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
N-Nitroso-di-n-propylamine	NA	20	GWQS	5.0	–		2.0	–		5.0	–		2.0	–		5.0	–		2.0	–	
N-Nitrosodiphenylamine	16.2	20	GWQS	5.0	–		5.1	–		5.0	–		5.0	–		5.0	–		5.0	–	
Phenanthrene	NA	100	IGNC	2.0	1.8	J	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Pyrene	8970	200	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,2,4-Trichlorobenzene	113	9	GWQS	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Total TIC, Semi-Volatile	NA	-	-	NA	0		NA	0		NA	90.7		NA	32.3		NA	0		NA	8.9	
INORGANICS																					
Aluminum	NA	200	GWQS	NA	NA		200	386		NA	NA		200	10300		NA	NA		200	1610	
Antimony	4300	20	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Arsenic	0.138	8	GWQS	5.0	–		5.0	–		5.0	–		5.0	8.1		5.0	–		5.0	–	
Barium	NA	2000	GWQS	NA	NA		200	–		NA	NA		200	243		NA	NA		200	–	
Beryllium	NA	20	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Cadmium	NA	4	GWQS	4.0	–		4.0	–		4.0	–		4.0	–		4.0	–		4.0	–	
Calcium	NA	-	GWQS	NA	NA		5000	110000		NA	NA		5000	76800		NA	NA		5000	130000	
Chromium	0.0056	100	GWQS	10	–		10	–		10	–		10	35.8		10	–		10	–	
Cobalt	NA	100	IGNC	NA	NA		10	–		NA	NA		50	–		NA	NA		50	–	
Copper	5.8	1000	GWQS	25	–		25	–		25	–		25	121		25	–		25	–	
Iron (Total)	NA	300	GWQS	100	137		100	285		100	6870		100	27300		100	–		100	1940	
Lead	NA	10	GWQS	3.0	–		3.0	–		3.0	–		3.0	171		3.0	–		3.0	3.7	
Magnesium	NA	-	GWQS	NA	NA		5000	19800		NA	NA		5000	12000		NA	NA		5000	23000	
Manganese	100	50	GWQS	NA	NA		15	272		NA	NA		15	299		NA	NA		15.0	481	
Mercury	0.146	2	GWQS	0.20	–		0.20	–		0.20	–		0.20	1.8		0.20	–		0.20	–	
Nickel	3900	100	GWQS	40	–		40	–		40	–		40	–		40	–		40	–	
Potassium	NA	-	GWQS	NA	NA		5000	–		NA	NA		5000	7200		NA	NA		5000	–	
Selenium	NA	50	GWQS	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Silver	NA	30	IS	10	–		10	–		10	–		10	–		10	–		10	–	
Sodium	NA	50000	GWQS	NA	NA		5000	25800		NA	NA		5000	16200		NA	NA		5000	34400	
Thallium	5.22	10	GWQS	5.0	–		10	–		5.0	–		10	–		5.0	8.3		10	–	
Vanadium	NA	-	GWQS	NA	NA		50	–		NA	NA		50	–		NA	NA		50	–	
Zinc	NA	5000	GWQS	20	–		20	–		20	55		20	308		20	22.4		20	27.5	
Cyanide	1	200	GWQS	0.010	–		10	–		0.020	0.98		20	1000		0.020	–		10	–	
POLYCHLORINATED BIPHENYLS																					
Aroclor 1016	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1221	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1232	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1242	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1248	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1254	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1260	0.000247	0.5	GWQS	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
PETROLEUM FINGERPRINT																					
Gasoline (C4-C17) ( )		-	-		NA			NA			NA			NA			NA			NA	
Turpentine (C9-C11) ( )		-	-		NA			NA			NA			NA			NA			NA	
Mineral Spirits (C9-C12) ( )		-	-		NA			NA			NA			NA			NA			NA	
Kerosene (C9-C16) ( )		-	-		NA			NA			NA			NA			NA			NA	
Diesel Fuel/Fuel oil #2 (C9-C22) ( )		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #4 (C11-C24) ( )		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #6 (C11-C26) ( )		-	-		NA			NA			NA			NA			NA			NA	
Other Patterns ( )		-	-		NA			NA			NA			NA			NA			NA	
GENERAL CHEMISTRY																					
Alkalinity, Total	NA	-	-	5,000	233,000		5,000	208,000		5,000	190,000		5,000	146,000		5,000	247,000		5,000	246,000	
Chloride	NA	250,000	GWQS	20,000	46,100		40,000	40,300		20,000	25,100		20,000	–		20,000	55,300		40,000	46,300	
Iron, Ferric	NA	-	-	200	<200		NA	NA		200	1,100		NA	NA		1,100	–		NA	NA	
Iron, Ferrous	NA	-	-	100	–		100	–		100	6,800		100	210		1,000	–		100	–	
Nitrogen, Ammonia	NA	500	GWQS	100	–		100	–		100	1,800		100	640		100	–		100	–	
Nitrogen, Nitrate	NA	10,000	GWQS	110	6,100		210	6,800		110	–		110	–		210	6,000		110	4,200	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS	100	6,800		200	6,800		100	–		100	–		200	6,000		100	4,200	
Nitrogen, Nitrite	NA	1,000	GWQS	10	77		10	35		10	–		10	18		10	37		10	16	
Solids, Total Dissolved	NA	500,000	GWQS	10,000	815,000		10,000	437,000		10,000	379,000		10,000	331,000		10,000	573,000		10,000	562,000	
Sulfate	250000	250,000	GWQS	20,000	66,900		20,000	66,200		20,000	46,300		20,000	160,000		20,000	156,000		20,000	158,000	
Sulfide	NA	-		2,000	–		NA	NA		2,000	–		NA	NA		2,000	–		NA	NA	
Total Organic Carbon	NA	-	-	1,000	–		NA	NA		1,000	4,600		NA	NA		1,000	1,000		NA	NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS	NA	7.3		NA	NA		NA	6.4		NA	NA		NA	7.2		NA	NA	

NOTES

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

O Data qualifier

NA Not Analyzed

– Not detected

D Result from diluted reanalysis

J Estimated concentration

. No Standard

921010236

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-7A						MW-7B						MW-8A					
Laboratory Identification				E82158-3			E97210-8			E82159-4			E97210-7			E81993-3 E82159-10			E97210-9		
Date Sample Collected				1/14/00			8/20/01			1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01		
Units	SWQC SE-2[2]	Criterion	Type[1]	MDL	ug/L CONC	Q	MDL	ug/L CONC	Q	MDL	ug/L CONC	Q	MDL	ug/L CONC	Q	MDL	ug/L CONC	Q	MDL	ug/L CONC	Q
VOLATILE ORGANIC COMPOUNDS																					
Acetone	NA	700	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	14.1	
Benzene	71	1	GWQS	1.0	73		1.0	49.1		1.0	-		1.0	-		1.0	-		1.0	19.8	
Bromodichloromethane	22	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Bromoform	390	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-	
Bromomethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Butanone (MEK)	NA	300	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon disulfide	NA	800	IS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon tetrachloride	6.31	2	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Chlorobenzene	21000	4	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chloroethane	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloroform	470	6	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloromethane	1600	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibromochloromethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1-Dichloroethane	NA	50	ISM	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloroethane	99	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,1-Dichloroethene	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
cis-1,2-Dichloroethene	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
trans-1,2-Dichloroethene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloropropane	NA	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
cis-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
trans-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Ethylbenzene	27900	700	GWQS	1.0	10.8		1.0	11.2		1.0	-		1.0	-		1.0	-		1.0	81.4	
2-Hexanone	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Methylene chloride	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Styrene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2,2-Tetrachloroethane	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Tetrachloroethene	4.29	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Toluene	200000	1000	GWQS	1.0	49.3		1.0	23.2		1.0	-		1.0	-		1.0	-		1.0	2.5	
1,1,1-Trichloroethane	NA	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2-Trichloroethane	NA	3	GWQS	3.0	-		3.0	-		3.0	-		3.0	-		3.0	-		3.0	-	
Trichloroethene	81	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Vinyl chloride	525	5	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Xylene (total)	NA	1000	GWQS	1.0	73.7		5.0	87.4		1.0	-		5.0	-		1.0	-		5.0	182	
Total TIC, Volatile	NA	-	-	NA	418		NA	939		NA	0		NA	0		NA	0		NA	423	
SEMI-VOLATILE ORGANIC COMPOUNDS																					
2-Chlorophenol	402	40	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloro-3-methyl phenol	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dichlorophenol	794	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dimethylphenol	NA	100	GWQS	5.0	7.8		5.0	5.1		5.0	-		5.0	-		5.0	7.8		5.0	5.1	
2,4-Dinitrophenol	14000	40	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
4,6-Dinitro-o-cresol	765	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
2-Methylphenol	NA	-	-	5.0	8.4		5.0	2.2	J	5.0	-		5.0	-		5.0	-		5.0	-	
3&4-Methylphenol	NA	-	-	5.0	1.8	J	5.0	-		5.0	-		5.0	-		5.0	-		5.0	7.8	
2-Nitrophenol	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitrophenol	NA	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
Pentachlorophenol	7.9	1	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
Phenol	4600000	4000	GWQS	5.0	3.2	J	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,5-Trichlorophenol	9790	700	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,6-Trichlorophenol	6.53	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Acenaphthene	NA	400	GWQS	2.0	128		2.0	108		2.0	5.3		2.0	-		2.0	7.3		2.0	10.7	
Acenaphthylene	NA	-	-	2.0	4.6		2.0	10		2.0	0.77	J	2.0	-		2.0	-		2.0	2.4	
Anthracene	108000	2000	GWQS	2.0	22.4		2.0	33.8		2.0	3.2		2.0	-		2.0	1.4	J	2.0	10.4	
Benzo(a)anthracene	0.031	0.2	IS	2.0	3.6		2.0	17		2.0	-		2.0	-		2.0	-		2.0	11.2	
Benzo(a)pyrene	0.031	0.2	IS	2.0	2.2		2.0	13		2.0	-		2.0	-		2.0	-		2.0	8.8	
Benzo(b)fluoranthene	0.031	10	IS	2.0	-		2.0	13.1		2.0	-		2.0	-		2.0	-		2.0	8.8	
Benzo(g,h,i)perylene	NA	100	IGNC	2.0	-		2.0	2.5		2.0	-		2.0	-		2.0	-		2.0	2.1	
Benzo(k)fluoranthene	0.031	1	IS	2.0	3.2		2.0	8.2		2.0	-		2.0	-		2.0	-		2.0	4	
4-Bromophenyl phenyl ether	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Butyl benzyl phthalate	416	100	GWQS	5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.0	-	
2-Chloronaphthalene	NA	600	IS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloroaniline	NA	30	IS	2.0	-		5.0	-		2.0	-		5.0	-		2.0	-		5.0	-	
Carbazole	NA	-	-	2.0	31.1		2.0	45		2.0	2		2.0	-		2.0	2.8		2.0	3.8	
Chrysene	0.031	5	IS	2.0	3.1		2.0	13.8		2.0	-		2.0	-		2.0	-		2.0	10.8	
bis(2-Chloroethoxy)methane	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroethyl)ether	1.4	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroisopropyl)ether	170000	300	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
4-Chlorophenyl phenyl ether	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,2-Dichlorobenzene	16500	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,3-Dichlorobenzene	22000	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,4-Dichlorobenzene	3150	75	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,4-Dinitrotoluene	9.1	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,6-Dinitrotoluene	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
3,3'-Dichlorobenzidine	0.0787	60	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibenzo(a,h)anthracene	0.031	0.5	IS	2.0	-		2.0	0.81	J	2.0	-		2.0	-		2.0	-		2.0	0.79	J
Dibenzofuran	NA	100	IGNC	5.0	115		10.0	120		5.0	5.7		5.0	-		5.0	2.6	J	5.0	7.3	
Di-n-butyl phthalate	NA	900	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Di-n-octyl phthalate	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Diethyl phthalate	111000	5000	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dimethyl phthalate	2900000	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS	2.0	-		2.0	1.3	J	2.0	-		2.0	2.8		2.0	-		2.0	3.2	
Fluoranthene	393	300	GWQS	2.0	34.7		2.0	53.7		2.0	2.9		2.0	0.72	J	2.0	1.2	J	2.0	23.1	
Fluorene	NA	300	GWQS	2.0	121		4.0	100		2.0	7.2		2.0	-		2.0	4.2		2.0	8.6	

NOTES

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997.

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting level

CONC Concentration

Q Data qualifier

NA Not Analyzed or Not Applicable

– Not detected

D Result from diluted reanalyses

J Estimated concentration

· No Standard

921010237

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-7A						MW-7B						MW-8A					
Laboratory Identification				E82158-3			E97210-8			E82158-4			E97210-7			E81993-3 E82159-10			E97210-9		
Date Sample Collected				1/14/00			8/20/01			1/14/00			8/20/01			1/12/00 - 1/14/00			8/20/01		
Units	SWQC SE-2[2]	Criterion	Type[1]	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q	ug/L MDL	ug/L CONC	Q
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																					
Hexachlorobenzene	0.000775	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Hexachlorobutadiene	NA	1	GWQS	5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.0	-	
Hexachlorocyclopentadiene	17000	50	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
Hexachloroethane	12.4	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Indeno(1,2,3-cd)pyrene	0.031	10	IS	2.0	-		2.0	3.0		2.0	-		2.0	-		2.0	-		2.0	3.3	
Isophorone	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2-Methylnaphthalene	NA	100	IGNC	2.0	70.8		2.0	81.8		2.0	4.9		2.0	-		2.0	10.4		2.0	12.9	
2-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
3-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitroaniline	NA	-	-	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Naphthalene	NA	300	IGM	10	318	D	2.0	36.3		2.0	12.7		2.0	-		2.0	69.4		2.0	65	
Nitrobenzene	1900	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
N-Nitroso-di-n-propylamine	NA	20	GWQS	5.0	-		2.0	-		5.0	-		2.0	-		5.0	-		2.0	-	
N-Nitrosodiphenylamine	16.2	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Phenanthrene	NA	100	IGNC	2.0	134		2.0	138		4.0	14.5		2.0	-		2.0	5.8		2.0	24	
Pyrene	8870	200	GWQS	2.0	18.6		2.0	38.8		2.0	1.8	J	2.0	0.54	J	2.0	1.5	J	2.0	21.4	
1,2,4-Trichlorobenzene	113	9	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Total TIC, Semi-Volatile	NA	-	-	NA	292.2		NA	856		NA	0		NA	112.5		NA	2391		NA	1139	
INORGANICS																					
Aluminum	NA	200	GWQS	NA	NA		200	27800		NA	NA		200	732		NA	NA		400	14000	
Antimony	4300	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		10	-	
Arsenic	0.136	8	GWQS	5.0	5.0		5.0	19.8		5.0	-		5.0	-		5.0	-		10	47.5	
Barium	NA	2000	GWQS	NA	NA		200	464		NA	NA		200	-		NA	NA		400	612	
Beryllium	NA	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		10	-	
Cadmium	NA	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		8.0	-	
Calcium	NA	-	GWQS	NA	NA		5000	79000		NA	NA		5000	122000		NA	NA		10000	98800	
Chromium	0.0056	100	GWQS	10	-		10	61.9		10	-		10	-		10	-		20	80.1	
Cobalt	NA	100	IGNC	NA	NA		50	-		NA	NA		50	-		NA	NA		100	-	
Copper	5.8	1000	GWQS	25	-		25	54		25	-		25	-		25	-		50	156	
Iron (Total)	NA	300	GWQS	100	14200		100	64800		100	123		100	1430		100	12800		200	82200	
Lead	NA	10	GWQS	3.0	-		3.0	80.2		3.0	-		3.0	8.4		3.0	4.4		6	782	
Magnesium	NA	-	GWQS	NA	NA		5000	13800		NA	NA		5000	17700		NA	NA		10000	20000	
Manganese	100	50	GWQS	NA	NA		15.0	10800		NA	NA		15	172		NA	NA		30	1500	
Mercury	0.146	2	GWQS	0.20	-		0.20	0.80		0.20	-		0.20	-		0.20	-		0.2	2.2	
Nickel	3800	100	GWQS	40	-		40	40.2		40	-		40	-		40	-		80	-	
Potassium	NA	-	GWQS	NA	NA		5000	11200		NA	NA		5000	5710		NA	NA		10000	11000	
Selenium	NA	50	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		10	-	
Silver	NA	30	IS	10	-		10	-		10	-		10	-		10	-		20	-	
Sodium	NA	50000	GWQS	NA	NA		5000	121000		NA	NA		5000	42800		NA	NA		10000	46100	
Thallium	6.22	10	GWQS	5.0	-		10	-		5.0	-		10	-		5.0	-		20	-	
Vanadium	NA	-	GWQS	NA	NA		50	76.9		NA	NA		50	-		NA	NA		100	-	
Zinc	NA	5000	GWQS	20	-		20	181		20	-		20	386		20	35.1		40	626	
Cyanide	1	200	GWQS	0.010	0.093		40	2890		0.010	-		10	-		0.010	0.65		80	800	
POLYCHLORINATED BIPHENYLS																					
Aroclor 1016	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1221	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1232	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1242	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1248	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1254	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1260	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
PETROLEUM FINGERPRINT																					
Gasoline (C4-C12) ()		-	-		NA			NA			NA			NA			NA			NA	
Turpentine (C9-C11) ()		-	-		NA			NA			NA			NA			NA			NA	
Mineral Spirits (C9-C12) ()		-	-		NA			NA			NA			NA			NA			NA	
Kerosene (C9-C18) ()		-	-		NA			NA			NA			NA			NA			NA	
Diesel Fuel/Fuel oil #2 (C9-C22) ()		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #4 (C11-C24) ()		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #6 (C11-C28) ()		-	-		NA			NA			NA			NA			NA			NA	
Other Patterns ()		-	-		NA			NA			NA			NA			NA			NA	
GENERAL CHEMISTRY																					
Alkalinity, Total	NA	-	-	5,000	229,000		5,000	189,000		5,000	268,000		5,000	265,000		10,000	373,000		5,000	368,000	
Chloride	NA	250,000	GWQS	20,000	180,000		100,000	224,000		20,000	63,000		40,000	46,800		20,000	40,000		20,000	33,800	
Iron, Ferric	NA	-	-	10,000	-		NA	NA		200	-		NA	NA		1,100	1,700		NA	NA	
Iron, Ferrous	NA	-	-	10,000	13,200		100	1,500		100	-		100	-		1,000	10,800		100	880	
Nitrogen, Ammonia	NA	500	GWQS	100	1,400		100	1,700		100	620		100	340		200	4,300		200	3,800	
Nitrogen, Nitrate	NA	10,000	GWQS	110	-		110	-		110	8,800		210	7,100		110	-		110	-	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS	100	-		100	-		100	9,700		200	7,100		100	-		100	-	
Nitrogen, Nitrite	NA	1,000	GWQS	10	-		10	-		10	30		10	-		10	10		10	-	
Solids, Total Dissolved	NA	500,000	GWQS	10,000	853,000		10,000	857,000		10,000	853,000		10,000	810,000		10,000	832,000		10,000	590,000	
Sulfate	250000	250,000	GWQS	20,000	-		20,000	21,400		20,000	104,000		20,000	89,800		20,000	51,100		20,000	23,800	
Sulfide	NA	-		2,000	-		NA	NA		2,000	-		NA	NA		2,000	-		NA	NA	
Total Organic Carbon	NA	-	-	1,000	7,100		NA	NA		1,000	1,300		NA	NA		1,000	10,800		NA	NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS	NA	6.8		NA	NA		NA	7.2		NA	NA		NA	6.6		NA	NA	

NOTES:

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 3, 1997

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method Detection Limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

\- Not detected

D Result from diluted analysis

J Estimated concentration

\- No Standard

921010238

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-6B						MW-8A			MW-8B			MW-10A			MW-10B		
Laboratory Identification				E81993-4 E82159-11			E97210-8			E97329-7			E97329-8			E97329-9			E97329-10		
Date Sample Collected				1/12/00 - 1/14/00			8/20/01			8/21/01			8/21/01			8/21/01			8/21/01		
Units	SWQC SE-2 [2]	Criterion	Type [1]	ug/L			ug/L			ug/L			ug/L			ug/L			ug/L		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																					
Acetone	NA	700	GWQS	5.0	-		5.0	-		5.0	-		5.0	10.1		5.0	5.8		5.0	-	
Benzene	71	1	GWQS	1.0	34.3		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Bromodichloromethane	22	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Bromoform	360	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	-		4.0	-	
Bromomethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Butanone (MEK)	NA	300	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon disulfide	NA	800	IS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbon tetrachloride	6.31	2	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Chlorobenzene	21000	4	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chloroethane	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Chloroform	470	6	GWQS	5.0	-		5.0	-		5.0	-		5.0	1.7	J	5.0	1.3	J	5.0	-	
Chloromethane	1600	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibromochloromethane	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1-Dichloroethane	NA	50	ISM	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloroethane	99	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,1-Dichloroethene	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
cis-1,2-Dichloroethene	NA	10	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
trans-1,2-Dichloroethene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,2-Dichloropropane	NA	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
cis-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
trans-1,3-Dichloropropene	1700	-	-	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Ethylbenzene	27900	700	GWQS	1.0	130		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
2-Hexanone	NA	100	IGNC	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Methyl-2-pentanone(MIBK)	NA	400	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Methylene chloride	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Styrene	NA	100	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2,2-Tetrachloroethane	NA	2	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Tetrachloroethene	4.29	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Toluene	200000	1000	GWQS	1.0	8.6		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
1,1,1-Trichloroethane	NA	30	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
1,1,2-Trichloroethane	NA	3	GWQS	3.0	-		3.0	-		3.0	-		3.0	-		3.0	-		3.0	-	
Trichloroethene	81	1	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Vinyl chloride	525	5	GWQS	1.0	-		1.0	-		1.0	-		1.0	-		1.0	-		1.0	-	
Xylene (total)	NA	1000	GWQS	1.0	893		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Total TIC, Volatile	NA	-	-	NA	1059		NA	0		NA	0		NA	0		NA	11		NA	0	
SEMI-VOLATILE ORGANIC COMPOUNDS																					
2-Chlorophenol	402	40	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloro-3-methyl phenol	NA	100	IGNC	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dichlorophenol	794	20	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dimethylphenol	NA	100	GWQS	5.1	2	J	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4-Dinitrophenol	14000	40	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
4,6-Dinitro-o-cresol	765	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
2-Methylphenol	NA	-	-	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
3&4-Methylphenol	NA	-	-	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2-Nitrophenol	NA	100	IGNC	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitrophenol	NA	100	IGNC	20	-		20	-		20	-		20	-		20	-		20	-	
Pentachlorophenol	7.5	1	GWQS	20	-		20	-		20	-		20	-		20	-		20	-	
Phenol	4600000	4000	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,5-Trichlorophenol	8790	700	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
2,4,6-Trichlorophenol	6.53	20	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Acenaphthene	NA	400	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	4.2		2.0	-	
Acenaphthylene	NA	-	-	2.0	-		2.0	-		2.0	1.8	J	2.0	-		2.0	1.4	J	2.0	-	
Anthracene	108000	2000	GWQS	2.0	-		2.0	-		2.0	0.9	J	2.0	-		2.0	1.3	J	2.0	-	
Benzo(a)anthracene	0.031	0.2	IS	2.0	-		2.0	-		2.0	2.1		2.0	-		2.0	3.4		2.0	-	
Benzo(a)pyrene	0.031	0.2	IS	2.0	-		2.0	-		2.0	3.5		2.0	-		2.0	4.1		2.0	-	
Benzo(b)fluoranthene	0.031	10	IS	2.0	-		2.0	-		2.0	2.5		2.0	-		2.0	2.9		2.0	-	
Benzo(g,h,i)perylene	NA	100	IGNC	2.0	-		2.0	-		2.0	1.3	J	2.0	-		2.0	1.5	J	2.0	-	
Benzo(k)fluoranthene	0.031	1	IS	2.0	-		2.0	-		2.0	1.1	J	2.0	-		2.0	1.1	J	2.0	-	
4-Bromophenyl phenyl ether	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Butyl benzyl phthalate	416	100	GWQS	5.1	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2-Chloronaphthalene	NA	600	IS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Chloroaniline	NA	30	IS	2.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Carbazole	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Chrysene	0.031	5	IS	2.0	-		2.0	-		2.0	2.8		2.0	-		2.0	4		2.0	-	
bis(2-Chloroethoxy)methane	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroethyl)ether	1.4	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Chloroisopropyl)ether	170000	300	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
4-Chlorophenyl phenyl ether	NA	100	IGNC	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,2-Dichlorobenzene	18500	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,3-Dichlorobenzene	22000	600	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
1,4-Dichlorobenzene	3150	75	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,4-Dinitrotoluene	9.1	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2,6-Dinitrotoluene	NA	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
3,3'-Dichlorobenzidine	0.0787	60	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Dibenzo(a,h)anthracene	0.031	0.5	IS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dibenzofuran	NA	100	IGNC	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Di-n-butyl phthalate	NA	900	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Di-n-octyl phthalate	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Diethyl phthalate	111000	5000	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Dimethyl phthalate	2900000	-	-	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
bis(2-Ethylhexyl)phthalate	5.92	30	GWQS	2.0	1.8	J	2.0	5.7		2.0	1.8	J	2.0	2.5		2.0	2.2		2.0	2.7	
Fluoranthene	380	300	GWQS	2.0	-		2.0	0.81	J	2.0	2.3		2.0	-		2.0	4.6		2.0	-	
Fluorene	NA	300	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	0.57	J	2.0	-	

NOTES

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997
(2) Surface water quality criteria for reference only
bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed or Not Applicable
- Not detected
D Result from diluted reanalysis
J Estimated concentration
. No Standard

TABLE 6.8
GROUND WATER SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location				MW-8B						MW-9A			MW-9B			MW-10A			MW-10B		
Laboratory Identification				E61983-4 E62159-11			E97210-8			E97329-7			E97329-8			E97329-9			E97329-10		
Date Sample Collected				1/12/00 - 1/14/00			8/20/01			8/21/01			8/21/01			8/21/01			8/21/01		
Units				ug/L			ug/L			ug/L			ug/L			ug/L			ug/L		
	SWQC SE-2[2]	Criterion	Type[1]	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																					
Hexachlorobenzene	0.000775	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Hexachlorobutadiene	NA	1	GWQS	5.1	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Hexachlorocyclopentadiene	17000	50	GWQS	20	-		20	-		20.0	-		20.0	-		20.0	-		20.0	-	
Hexachloroethane	12.4	10	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Indeno(1,2,3-cd)pyrene	0.031	10	IS	2.0	-		2.0	-		2.0	1.1	J	2.0	-		2.0	1.8	J	2.0	-	
Isophorone	NA	100	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
2-Methylnaphthalene	NA	100	IGWC	2.0	-		2.0	-		2.0	0.82	J	2.0	-		2.0	-		2.0	-	
2-Nitroaniline	NA	-	-	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
3-Nitroaniline	NA	-	-	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
4-Nitroaniline	NA	-	-	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Naphthalene	NA	300	ISM	2.0	6.8		2.0	0.58	J	2.0	1.3	J	2.0	-		2.0	0.75	J	2.0	-	
Nitrobenzene	1900	10	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
N-Nitroso-di-n-propylamine	NA	20	GWQS	5.1	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
N-Nitrosodiphenylamine	16.2	20	GWQS	5.1	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Phenanthrene	NA	100	IGWC	2.0	-		2.0	0.68	J	2.0	2.2		2.0	-		2.0	2.8		2.0	-	
Pyrene	8870	200	GWQS	2.0	-		2.0	0.5	J	2.0	6.3		2.0	-		2.0	7.5		2.0	-	
1,2,4-Trichlorobenzene	113	9	GWQS	2.0	-		2.0	-		2.0	-		2.0	-		2.0	-		2.0	-	
Total TIC, Semi-Volatile	NA	-	-	NA	8.8		NA	57.8		NA	25		NA	5.4		NA	43.3		NA	22.2	
INORGANICS																					
Aluminum	NA	200	GWQS	NA	NA		200	1420		200	17200		200	53000		200	80400		200	16400	
Antimony	4300	20	GWQS	5.0	-		5.0	-		5.0	7.9		5.0	-		5.0	6		5.0	-	
Arsenic	0.136	8	GWQS	5.0	-		5.0	12.7		5.0	80		5.0	38.7		5.0	82.7		5.0	14	
Barium	NA	2000	GWQS	NA	NA		200	249		200	373		200	584		200	1250		200	333	
Beryllium	NA	20	GWQS	5.0	-		5.0	-		5.0	-		5.0	-		5.0	-		5.0	-	
Cadmium	NA	4	GWQS	4.0	-		4.0	-		4.0	-		4.0	-		4.0	6.2		4.0	-	
Calcium	NA	-	GWQS	NA	NA		5000	120000		5000	231000		5000	53500		5000	186000		5000	80800	
Chromium	0.0058	100	GWQS	10	13.8		10	-		10	434		10	90.2		10	182		10	23.2	
Cobalt	NA	100	IGWC	NA	NA		50	-		50	-		50	50		50	82.1		50	-	
Copper	5.6	1000	GWQS	25	-		25	-		25	270		25	123		25	355		25	-	
Iron (Total)	NA	300	GWQS	100	3220		100	3730		100	79100		100	80200		100	128000		100	19200	
Lead	NA	10	GWQS	3.0	3.8		3.0	4.8		3.0	408		3.0	87.2		3.0	1320		3.0	12	
Magnesium	NA	-	GWQS	NA	NA		5000	22200		5000	658000		5000	129000		5000	120000		5000	27800	
Manganese	100	50	GWQS	NA	NA		15	1280		15	624		15	2310		15	3880		15	800	
Mercury	0.146	2	GWQS	0.20	-		0.20	-		0.80	3.3		0.80	-		0.80	3.9		0.80	-	
Nickel	3900	100	GWQS	40	-		40	-		40	82.2		40	102		40	209		40	-	
Potassium	NA	-	GWQS	NA	NA		5000	-		5000	281000		5000	50600		5000	51200		5000	8110	
Selenium	NA	50	GWQS	5.0	-		5.0	-		5.0	12.3		5.0	-		5.0	7.0		5.0	-	
Silver	NA	30	IS	10	-		10	-		10	-		10	-		10	-		10	-	
Sodium	NA	50000	GWQS	NA	NA		5000	27500		5000	3010000		5000	942000		5000	850000		5000	23800	
Thallium	6.22	10	GWQS	5.0	-		10	-		10	-		10	-		10	-		10	-	
Vanadium	NA	-	GWQS	NA	NA		50	-		50	170		50	107		50	148		50	-	
Zinc	NA	5000	GWQS	20	60.7		20	77.7		20	779		20	293		20	3180		20	87.7	
Cyanide	1	200	GWQS	0.010	-		10	-		10	-		10	-		10	67		10	-	
POLYCHLORINATED BIPHENYLS																					
Aroclor 1016	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1221	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1232	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1242	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1248	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1254	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
Aroclor 1260	0.000247	0.5	GWQS	0.50	-		0.50	-		0.50	-		0.50	-		0.50	-		0.50	-	
PETROLEUM FINGERPRINT																					
Gasoline (C4-C12) ( )		-	-		NA			NA			NA			NA			NA			NA	
Turpentine (C9-C11) ( )		-	-		NA			NA			NA			NA			NA			NA	
Mineral Spirits (C9-C12) ( )		-	-		NA			NA			NA			NA			NA			NA	
Kerosene (C9-C18) ( )		-	-		NA			NA			NA			NA			NA			NA	
Diesel Fuel/Fuel oil #2 (C9-C22) ( )		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #4 (C11-C24) ( )		-	-		NA			NA			NA			NA			NA			NA	
Fuel Oil #6 (C11-C28) ( )		-	-		NA			NA			NA			NA			NA			NA	
Other Patterns ( )		-	-		NA			NA			NA			NA			NA			NA	
GENERAL CHEMISTRY																					
Alkalinity, Total	NA	-	-	10,000	304,000		5,000	284,000		5,000	147,000		5,000	806,000		5,000	314,000		5,000	173,000	
Chloride	NA	250,000	GWQS	20,000	47,800		40,000	43,000		4,000,000	10,300,000		2,000,000	2,880,000		40,000	1,830,000		1,000,000	-	
Iron, Ferric	NA	-	-	200	3,100		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	
Iron, Ferrous	NA	-	-	100	140		100	-		100	120		100	-		100	1,800		100	-	
Nitrogen, Ammonia	NA	500	GWQS	100	-		100	-		100	120		500	8,000		100	1,800		100	140	
Nitrogen, Nitrate	NA	10,000	GWQS	110	240		110	500		110	-		110	-		110	-		110	4,200	
Nitrogen, Nitrate + Nitrite	NA	10,000	GWQS	100	250		100	500		100	-		100	-		100	-		100	4,400	
Nitrogen, Nitrite	NA	1,000	GWQS	10	15		10	-		10	-		10	-		10	-		10	170	
Solids, Total Dissolved	NA	500,000	GWQS	10,000	451,000		10,000	484,000		10,000	18,000,000		10,000	5,300,000		10,000	3,310,000		10,000	381,000	
Sulfate	250000	250,000	GWQS	20,000	52,500		20,000	88,800		1,000,000	1,400,000		20,000	120,000		20,000	244,000		100,000	85,700	
Sulfide	NA	-		2,000	-		NA	NA		2,000	-		2,000	-		2,000	-		2,000	-	
Total Organic Carbon	NA	-	-	1,000	-		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	
pH (standard units)	6.5-8.5	6.5-8.5	GWQS	NA	7.2		NA	NA		NA	NA		NA	NA		NA	NA		NA	NA	

NOTES:

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997.

(2) Surface water quality criteria for reference only

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

\- Not detected

D Result from diluted reanalysis

J Estimated concentration

· No Standard

921010240

TABLE 6.9
GROUND WATER SAMPLE ANALYTICAL RESULTS ABOVE CRITERIA
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location			MW-1A			MW-1B			MW-2A			MW-2B			MW-2C	MW-3A		
Laboratory Identification			3410-001[1]	E62159-1	E97329-3	3410-002	E62159-2	E97329-4	3432-007	E62072-4	E97210-17[3]	3432-008	E62072-5[2]	E97210-12	E97210-13	3410-005	E62072-2	E97210-16
Date Sample Collected			6/16/99	1/14/00	8/21/01	6/16/99	1/14/00	8/21/01	6/17/99	1/13/00	8/20/01	6/17/99	1/13/00	8/21/01	8/20/01	6/16/99	1/13/00	8/20/01
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Criterion	Type[1]	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC
VOLATILE ORGANIC COMPOUNDS																		
Benzene	1	GWQS	--	--	--	--	1.2	--	4520	8860	NA	76400	NA	5030	3.9	1.02	2.4	1.6
Bromodichloromethane	1	GWQS	--	--	--	--	--	--	--	--	NA	--	NA	--	4.3	--	--	--
Chloroform	6	GWQS	10.3	--	--	--	--	--	--	--	NA	--	NA	--	28	--	--	--
Ethylbenzene	700	GWQS	--	--	--	--	<	--	2960	3430	NA	1930	NA	2580	<	--	--	--
Styrene	100	GWQS	--	--	--	--	--	--	143	483	NA	5140	NA	--	--	--	--	--
Toluene	1000	GWQS	--	--	--	--	<	--	1710	4310	NA	27200	NA	<	<	--	--	--
Xylene (total)	1000	GWQS	--	--	--	--	--	--	1560	1990	NA	3220	NA	<	<	--	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS																		
Benzo(a)anthracene	0.2	IS	1.5	--	--	--	--	--	--	--	NA	--	NA	2.3	--	6.52	--	4
Benzo(a)pyrene	0.2	IS	--	--	--	--	--	--	--	--	NA	--	NA	1.8	--	4.46 J	--	2.3
Benzo(b)fluoranthene	10	IS	--	--	--	--	--	--	--	--	NA	--	NA	<	--	4.05 J	--	<
Benzo(k)fluoranthene	1	IS	--	--	--	--	--	--	--	--	NA	--	NA	<	--	--	--	<
Chrysene	5	IS	<	--	--	--	--	--	--	--	NA	--	NA	<	--	5.91	--	<
Dibenzo(a,h)anthracene	0.5	IS	--	--	--	--	--	--	--	--	NA	--	NA	--	--	--	--	--
Dibenzofuran	100	IGNC	NA	--	--	NA	--	--	NA	<	NA	NA	NA	<	--	NA	<	<
2-Methylnaphthalene	100	IGNC	NA	--	--	NA	--	--	NA	889	NA	NA	NA	318	<	NA	--	--
Naphthalene	300	ISM	--	--	--	--	--	--	1830	9580	NA	3490	NA	4090	<	<	--	--
Phenanthrene	100	IGNC	--	--	--	--	--	--	<	<	NA	--	NA	<	<	<	<	<
INORGANICS																		
Aluminum	200	GWQS	NA	NA	298	NA	NA	2890	NA	NA	NA	NA	NA	17100	1860	NA	NA	6620
Antimony	20	GWQS	--	--	--	--	--	--	--	--	NA	--	NA	--	--	--	--	--
Arsenic	8	GWQS	19.5	21.8	11.8	--	--	--	<	--	NA	11	NA	9.3	--	13.3	--	24.6
Cadmium	4	GWQS	<	--	--	<	--	--	--	--	NA	--	NA	--	--	<	--	--
Chromium	100	GWQS	--	--	--	--	<	<	--	--	NA	--	NA	<	<	<	--	<
Iron (Total)	300	GWQS	5700	18400	32200	<	5430	8270	51400	35200	NA	19200	NA	65100	2590	52400	31200	62700
Lead	10	GWQS	3230	<	16.8	--	10.6	34.9	139	--	NA	139	NA	128	<	245	<	288
Manganese	50	GWQS	NA	NA	5470	NA	NA	261	NA	NA	NA	NA	NA	1750	129	NA	NA	1670
Mercury	2	GWQS	--	--	<	--	--	--	--	--	NA	--	NA	<	--	--	--	<
Nickel	100	GWQS	<	--	--	--	<	--	--	--	NA	--	NA	<	--	<	--	<
Sodium	50000	GWQS	NA	NA	<	NA	NA	56600	NA	NA	NA	NA	NA	<	<	NA	NA	<
Thallium	10	GWQS	--	--	--	--	--	--	--	--	NA	--	NA	--	--	--	--	--
Cyanide	200	GWQS	NA	--	--	NA	--	--	NA	--	NA	NA	NA	<	--	NA	<	<
POLYCHLORINATED BIPHENYLS																		
Aroclor 1260	0.5	GWQS	NA	--	--	NA	1.8	--		--	NA	NA	NA	--	--	NA	--	--
GENERAL CHEMISTRY																		
Chloride	250000	GWQS	<	<	--	<	<	<	<	--	NA	<	NA	<	<	<	<	<
Nitrogen, Ammonia	500	GWQS	<	600	2,100	<	<	--	1700	1,200	NA	5,400	NA	2,200	--	4,600	6,100	5,500
Nitrogen, Nitrate	10000	GWQS	NA	<	--	NA	10,600	10,300	NA	--	NA	NA	NA	--	--	NA	--	--
Nitrogen, Nitrate + Nitrite	10000	GWQS	<	<	--	<	11,500	10,300	--	--	NA	--	NA	--	--	<	--	--
Solids, Total Dissolved	500000	GWQS	513,000	709,000	<	539,000	<	525,000	<	<	NA	47,000,000	NA	<	<	536,000	<	<
Sulfate	250000	GWQS	<	<	<	<	<	<	<	<	NA	<	NA	--	<	<	--	--

Notes:

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Due to dilution, the detection limits for samples analyzed in 8/99 were elevated beyond the Interim Specific Criteria

(3) DHAPL sampled

bold Concentration exceeds Ground Water Quality Standard

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

-- Not detected

< Detected but below criteria

D Result from diluted reanalysis

J Estimated concentration

- No Standard

92101024 1

TABLE 6.9
GROUND WATER SAMPLE ANALYTICAL RESULTS ABOVE CRITERIA
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location			MW-3B			MW-3C	MW-4A			MW-4B			MW-5A			MW-5B		
Laboratory Identification			3410-006	E62072-3	E97210-16	E97210-15	3432-001	E62072-6	E97329-5	3432-002	E62072-7	E97329-6	3432-003	E62159-5	E97210-2	3432-004	E62159-6	E97210-1
Date Sample Collected			6/16/99	1/13/00	8/20/01	8/20/01	6/17/99	1/13/00	8/21/01	6/17/99	1/13/00	8/21/01	6/17/99	1/14/00	8/20/01	6/17/99	1/14/00	8/20/01
Units	Criterion	Type[1]	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC	ug/L CONC
VOLATILE ORGANIC COMPOUNDS																		
Benzene	1	GWQS	1820	18.9	<	--	459	2740	254	--	1.7	--	3900	2050	781	20.3	--	--
Bromodichloromethane	1	GWQS	--	--	--	7.6	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	6	GWQS	--	--	--	41.8	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	700	GWQS	<	<	--	--	<	1940	<	--	--	--	<	<	<	<	--	--
Styrene	100	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	1000	GWQS	<	--	--	--	--	--	--	--	--	--	<	<	<	<	--	--
Xylene (total)	1000	GWQS	<	<	--	--	<	<	<	--	--	--	<	<	<	<	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS																		
Benzo(a)anthracene	0.2	IS	--	--	--	--	--	--	4.7	--	--	--	--	2.2	30.7	--	--	--
Benzo(a)pyrene	0.2	IS	--	--	--	--	--	--	6.6	--	--	--	--	1.9	30.1	--	--	--
Benzo(b)fluoranthene	10	IS	--	--	--	--	--	--	<	--	--	--	--	<	28.6	--	--	--
Benzo(k)fluoranthene	1	IS	--	--	--	--	--	--	2.7	--	--	--	--	<	11.4	--	--	--
Chrysene	5	IS	--	--	--	--	--	--	5.6	--	--	--	--	<	33.9	--	--	--
Dibenzo(a,h)anthracene	0.5	IS	--	--	--	--	--	--	--	--	--	--	--	--	2.1	--	--	--
Dibenzofuran	100	IGNC	NA	--	--	--	NA	<	<	NA	--	--	NA	<	<	NA	--	--
2-Methylnaphthalene	100	IGNC	NA	<	--	--	NA	147	<	NA	--	--	NA	<	<	NA	--	--
Naphthalene	300	ISM	377	<	--	<	399	2110	758	<	<	--	725	663	<	<	--	--
Phenanthrene	100	IGNC	<	--	--	--	<	<	<	--	--	--	<	<	113	<	<	--
INORGANICS																		
Aluminum	200	GWQS	NA	NA	204	818	NA	NA	36500	NA	NA	3080	NA	NA	21000	NA	NA	266
Antimony	20	GWQS	--	--	--	--	--	--	<	--	--	--	--	--	<	--	--	--
Arsenic	8	GWQS	64.4	--	--	--	37	<	280	9	10.7	12.9	10	--	79.2	--	--	--
Cadmium	4	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	100	GWQS	--	--	--	<	--	--	188	--	--	--	--	--	<	--	--	--
Iron (Total)	300	GWQS	5840	--	626	987	17400	20700	172000	17200	15400	12700	38300	43700	120000	<	<	<
Lead	10	GWQS	--	--	--	<	41	--	966	--	--	<	108	--	700	--	--	--
Manganese	50	GWQS	NA	NA	81.6	<	NA	NA	1020	NA	NA	901	NA	NA	1940	NA	NA	272
Mercury	2	GWQS	--	--	--	--	--	--	4.4	--	--	--	--	--	<	--	--	--
Nickel	100	GWQS	--	--	--	--	<	--	230	--	--	--	--	--	118	--	--	--
Sodium	50000	GWQS	NA	NA	<	52100	NA	NA	<	NA	NA	89000	NA	NA	<	NA	NA	<
Thallium	10	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyanide	200	GWQS	NA	--	--	--	NA	<	210	NA	--	--	NA	<	<	NA	--	--
POLYCHLORINATED BIPHENYLS																		
Aroclor 1260	0.5	GWQS	NA	--	--	--	NA	--	--	NA	--	--	NA	--	--	NA	--	--
GENERAL CHEMISTRY																		
Chloride	250000	GWQS	<	<	<	<	<	<	--	<	<	<	<	<	--	<	<	<
Nitrogen, Ammonia	500	GWQS	<	<	<	--	1,700	2,100	2,100	1,100	2,000	3,200	2,200	1,800	2,300	<	--	--
Nitrogen, Nitrate	10000	GWQS	NA	<	<	--	NA	--	--	NA	--	--	NA	--	--	NA	<	<
Nitrogen, Nitrate + Nitrite	10000	GWQS	<	<	<	--	--	--	--	--	--	--	--	--	--	<	<	<
Solids, Total Dissolved	500000	GWQS	622,000	<	<	<	<	<	<	611,000	628,000	556,000	<	<	<	<	515,000	<
Sulfate	250000	GWQS	<	<	<	<	<	--	--	<	--	--	<	--	<	<	<	<

Notes:

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1987

(2) Due to dilution, the detection limits for samples analyzed in 6/99 were elevated beyond the Interim Specific Criteria

(3) DNAPL sampled

bold Concentration exceeds Ground Water Quality Standard

POL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

-- Not detected

< Detected but below criteria

D Result from diluted reanalysis

J Estimated concentration

- No Standard

92101024 2

TABLE 6.9
GROUND WATER SAMPLE ANALYTICAL RESULTS ABOVE CRITERIA
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location			MW-6A		MW-6B		MW-7A		MW-7B		MW-8A		MW-8B		MW-9A	MW-9B	MW-10A	MW-10B
Laboratory Identification			E61993-1 E62159-8	E97210-3	E61993-2 E62159-9	E97210-6	E62159-3	E97210-8	E62159-4	E97210-7	E61993-3 E62159-10	E97210-9	E61993-4 E62159-11	E97210-8	E97329-7	E97329-8	E97329-9	E97329-10
Date Sample Collected			1/12/00	8/20/01	1/12/00	8/20/01	1/14/00	8/20/01	1/14/00	8/20/01	1/12/00	8/20/01	1/12/00	8/20/01	8/21/01	8/21/01	8/21/01	8/21/01
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
	Criterion	Type[1]	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC	CONC
VOLATILE ORGANIC COMPOUNDS																		
Benzene	1	GWQS	73	8.1	--	--	73	49.1	--	--	--	15.8	24.3	--	--	--	--	--
Bromodichloromethane	1	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroform	6	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	<	<	--
Ethylbenzene	700	GWQS	--	--	--	--	<	<	--	--	--	<	<	--	--	--	--	--
Styrene	100	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	1000	GWQS	<	--	--	--	<	<	--	--	--	<	<	--	--	--	--	--
Xylene (total)	1000	GWQS	--	--	--	--	<	<	--	--	--	<	<	--	--	--	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS																		
Benzo(a)anthracene	0.2	IS	--	--	--	--	3.6	17	--	--	--	11.2	--	--	2.1	--	3.4	--
Benzo(a)pyrene	0.2	IS	--	--	--	--	2.2	13	--	--	--	8.6	--	--	3.5	--	4.1	--
Benzo(b)fluoranthene	10	IS	--	--	--	--	--	13.1	--	--	--	<	--	--	<	--	<	--
Benzo(k)fluoranthene	1	IS	--	--	--	--	3.2	6.2	--	--	--	4	--	--	1.1	--	1.1	--
Chrysene	5	IS	--	--	--	--	<	13.8	--	--	--	10.9	--	--	<	--	<	--
Dibenzo(a,h)anthracene	0.5	IS	--	--	--	--	--	0.91	--	--	--	0.75	--	--	--	--	--	--
Dibenzofuran	100	IGNC	--	--	--	--	115	120	<	--	<	<	--	--	--	--	--	--
2-Methylnaphthalene	100	IGNC	--	--	--	--	<	<	<	--	<	<	--	--	<	--	--	--
Naphthalene	300	ISM	--	--	--	--	316	<	<	--	<	<	<	<	<	--	<	--
Phenanthrene	100	IGNC	--	--	--	--	134	136	<	--	<	<	--	<	<	--	<	--
INORGANICS																		
Aluminum	200	GWQS	NA	10200	NA	1610	NA	27600	NA	732	NA	18000	NA	1420	17200	53000	50400	16400
Antimony	20	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	<	<	<	--
Arsenic	8	GWQS	--	9.1	--	--	<	19.8	--	--	--	47.5	--	12.7	80	38.7	82.7	16
Cadmium	4	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	<	6.2	--
Chromium	100	GWQS	--	<	--	--	--	<	--	--	--	<	<	--	434	<	182	<
Iron (Total)	300	GWQS	6670	27300	--	1940	14200	54800	<	1420	12600	52200	3220	3730	<	90200	128000	19200
Lead	10	GWQS	--	171	--	<	--	80.2	--	<	<	762	<	<	405	57.2	1320	12
Manganese	50	GWQS	NA	299	NA	481	NA	10800	NA	172	NA	1500	NA	1280	624	2310	3680	600
Mercury	2	GWQS	--	<	--	--	--	<	--	--	--	2.2	--	--	3.3	<	3.9	--
Nickel	100	GWQS	--	--	--	--	--	<	--	--	--	--	--	--	<	102	209	--
Sodium	50000	GWQS	NA	<	NA	<	NA	121000	NA	<	NA	<	NA	<	3010000	842000	850000	<
Thallium	10	GWQS	--	--	<	--	--	--	--	--	--	--	--	--	--	<	--	--
Cyanide	200	GWQS	<	1000	--	--	<	2800	--	--	<	600	--	--	--	<	<	--
POLYCHLORINATED BIPHENYLS																		
Aroclor 1260	0.5	GWQS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
GENERAL CHEMISTRY																		
Chloride	250000	GWQS	<	--	<	<	<	<	<	<	<	<	<	<	10,300,000	2,890,000	1,820,000	--
Nitrogen, Ammonia	500	GWQS	1,800	540	--	--	1,400	1,700	620	<	4,300	3,600	--	--	<	8,000	1,500	<
Nitrogen, Nitrate	10000	GWQS	--	--	<	<	--	--	<	<	--	--	<	<	--	--	--	<
Nitrogen, Nitrate + Nitrite	10000	GWQS	--	--	<	<	--	--	<	<	--	--	<	<	--	--	--	<
Solids, Total Dissolved	500000	GWQS	<	<	573,000	552,000	553,000	657,000	553,000	510,000	532,000	<	<	<	16,000,000	5,300,000	3,310,000	<
Sulfate	250000	GWQS	<	<	<	<	--	<	<	<	<	<	<	<	1,420,000	<	<	<

Notes:

(1) NJDEP Water Technical Programs Ground Water Quality Standards adopted January 7, 1993 (N.J.A.C. 7:9-6) and Interim Specific Criteria based on NJDEP Memorandum of February 5, 1997

(2) Due to dilution, the detection limits for samples analyzed in 6/99 were elevated beyond the Interim Specific Criteria

(3) DNAPL sampled

bold Concentration exceeds Ground Water Quality Standard

POL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

-- Not detected

< Detected but below criteria

D Result from diluted reanalysis

J Estimated concentration

. No Standard

92101024 3

TABLE 6.10
NAPL SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID Laboratory ID Date Collected Matrix Units	Higher of the PQLs and Ground Water Quality Criteria	MW-2B E62072-5 1/13/00 AQ ug/L	MW-2A E97210-17 8/20/01 AQ ug/L
Petroleum Fingerprint			
Gasoline (C4-C12) ( )	NS	NO MATCH	PARTIAL MATCH
Turpentine (C9-C11) ( )	NS	NO MATCH	NO MATCH
Mineral Spirits (C9-C12) ( )	NS	NO MATCH	NO MATCH
Kerosene (C9-C18) ( )	NS	NO MATCH	NO MATCH
Diesel Fuel/Fuel oil #2 (C9-C22) ( )	NS	NO MATCH	NO MATCH
Fuel Oil #4 (C11-C24) ( )	NS	NO MATCH	NO MATCH
Fuel Oil #6 (C11-C26) ( )	NS	NO MATCH	NO MATCH
Other Patterns ( )	NS	INCLUDES C8-C40 HYDROCARBON RANGE	UNKNOWN HYDROCARBON C14-C28.

Notes:
NS - No Standard

TABLE 6-11
NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	MW-1A			MW-1B			MW-2A			MW-2B			MW-2C	MW-3A		
Laboratory Identification	3410-001	E62159-1	E97329-3	3410-002	E62159-2	E97329-4	3432-007	E62072-4	E97210-17	3432-008	E62072-5	E97210-12	E97210-13	3410-005	E62072-2	E97210-16
Date Sample Collected	6/16/99	1/14/00	8/21/01	6/16/99	1/14/00	8/21/01	6/16/99	1/13/00	8/20/01	6/17/99	1/13/00	8/20/01	8/20/01	6/16/99	1/13/00	8/20/01
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
FIELD ANALYSES																
pH (standard units)	6.5	6.5	6.08	6.55	6.8	6.61	6.59	6.44	NA	6.93	7.2	6.49	8.04	6.51	6.47	6.73
Temperature (°C)	18.7	14	22.24	18.83	16	17.5	18.7	11.1	NA	18.74	15	22.8	19.44	15.4	10.6	20.23
Redox (mV)	-81	NA	NA	91	NA	NA	-85	-64	NA	-169	NA	NA	NA	-259	-88	NA
Dissolved Oxygen (mg/L)	--	1.8	1.55	0.18	1.3	0.06	1.59	1.08	NA	--	0.3	0.31	3.65	--	1.18	0.6
LABORATORY ANALYSES																
Alkalinity (mg/L)	237	202	143	249	192	240	276	243	NA	1,346	NA	300	88.4	423	384	368
Iron, Ferric[1] (ug/L)	5,700	--	14,400	116	5,300	6,270	22,800	--	NA	17,520	NA	41,100	2,590	46,220	1,600	46,200
Iron, Ferrous (ug/L)	--	15,100	17,800	-	140	--	28,600	34,600	NA	1,680	NA	24,000	--	6,180	29,600	16,500
Nitrogen, Nitrate (mg/L)	NA	1.6	--	NA	10.6	10.3	NA	--	NA	NA	NA	--	--	NA	--	--
Sulfate (mg/L)	24	82.3	28.3	72	68.6	89	15	29.8	NA	14	NA	--	68.1	24	--	--
FAVORABLE ATTENUATION CONDITIONS																
pH between 6 and 8 standard units	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	No	Yes	Yes	Yes
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Redox Potential	Low	NA	NA	Moderate	NA	NA	Low	Low	NA	Low	NA	NA	NA	Low	Low	NA
Dissolved Oxygen	Low	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Moderate	NA	Low	Moderate	Moderate	High	Low	Moderate	Moderate
Alkalinity	High	High	High	High	High	High	High	High	NA	High	High	High	High	High	High	High
Nitrate	NA	Moderate	Low	NA	High	High	NA	Low	NA	NA	NA	Low	Low	NA	Low	Low
Sulfate	High	High	High	High	High	High	High	High	NA	High	NA	Low	High	High	Low	Low
Ferrous Iron production	No	Yes	Yes	No	No	No	Yes	Yes	NA	No	NA	No	No	No	Yes	No

NOTES:
-- Below detection limit
°C Degrees Celsius
mg/L milligrams per liter
ug/L micrograms per liter
mV millivolts
NA Not analyzed
[1] For 6/99 and 8/01 sampling, ferric iron = total iron less ferrous iron

92101024 5

TABLE 6-11
NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	MW-3B			MW-3C	MW-4A			MW-4B			MW-5A			MW-5B		
Laboratory Identification	3410 006	E62072-3	E97210-16	E97210-15	3432-001	E62072-6	E97329-5	3432-002	E62072-7	E97329-6	3432-003	E62159-5	E97210 2	3432-004	E62159-6	E97210-1
Date Sample Collected	6/16/99	1/13/00	8/20/01	8/20/01	6/17/99	1/13/00	8/21/01	6/17/99	1/13/00	8/21/01	6/17/99	1/14/00	8/20/01	6/17/99	1/14/00	8/20/01
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
FIELD ANALYSES																
pH (standard units)	7.09	7.21	7.35	8.49	6.86	6.9	NA	6.71	6.9	6.76	6.52	6.7	6.19	7.39	7.6	6.9
Temperature (°C)	15.2	14.8	16.57	16.6	16.4	9	NA	15.65	14	16.01	21.4	10	25	15.26	16	16.3
Redox (mV)	-70	11	NA	NA	-223	NA	NA	-147	NA	NA	-89	NA	NA	127	NA	NA
Dissolved Oxygen (mg/L)	--	1.01	2.48	1.14	--	1.1	NA	--	1.6	1.92	1.01	1.2	8.56	--	1.8	1.17
LABORATORY ANALYSES																
Alkalinity (mg/L)	380	223	200	71.2	354	291	262	446	380	304	191	180	201	274	233	208
Iron, Ferric[1] (ug/L)	5,840	--	626	987	12,880	1,200	171,430	6,700	1,300	10,900	17,700	13,200	110,800	178	--	285
Iron, Ferrous (ug/L)	--	--	--	--	4,520	19,500	570	10,500	14,100	1,800	20,600	30,500	9,200	--	--	--
Nitrogen, Nitrate (mg/L)	NA	3.6	4.3	--	NA	--	--	NA	--	--	NA	--	--	NA	6.1	8.8
Sulfate (mg/L)	75	66.6	65.4	50.8	25	--	--	26	--	--	14	--	22.5	84	86.9	96.2
FAVORABLE ATTENUATION CONDITIONS																
pH between 6 and 8 standard units	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Redox Potential	Low	Moderate	NA	NA	Low	NA	NA	Low	NA	NA	Low	NA	NA	Moderate	NA	NA
Dissolved Oxygen	Low	Moderate	High	Moderate	Low	Moderate	High	Low	Moderate	Moderate	Moderate	Moderate	High	Low	Moderate	Moderate
Alkalinity	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Nitrate	NA	Moderate	Moderate	Low	NA	Low	Low	NA	Low	Low	NA	Low	Low	NA	Moderate	Moderate
Sulfate	High	High	High	High	High	Low	Low	High	Low	Low	High	Low	High	High	High	High
Ferrous iron production	No	No	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No

NOTES:

-- Below detection limit
°C Degrees Celsius
mg/L milligrams per liter
ug/L micrograms per liter
mV millivolts
NA Not analyzed
[1] For 6/99 and 8/01 sampling, ferric iron = total iron less ferrous iron

92010246

TABLE 6-11
NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	MW-6A		MW-6B		MW-7A		MW-7B		MW-8A		MW-8B		MW-9A	MW-9B	MW-10A	MW-10B
Laboratory Identification	E61993-1 E62159-8	E97210-3	E61993-2 E62159-9	E97210-6	E62159-3	E97210-8	E62159-4	E97210-7	E61993-3 E62159-10	E97210-9	E61993-4 E62159-11	E97210-8	E97329-7	E97329-8	E97329-9	E97329-10
Date Sample Collected	1/12/00	8/20/01	1/12/00	8/20/01	1/14/00	8/20/01	1/14/00	8/20/01	1/12/00	8/20/01	1/12/00	8/20/01	8/21/01	8/21/01	8/21/01	8/21/01
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
FIELD ANALYSES																
pH (standard units)	5.97	6.26	6.77	7.21	6.9	6.21	7.4	7.35	4.02	6.83	4.08	7.18	7.13	7.32	NA	7.45
Temperature (°C)	11.1	24.1	15	16.14	15	21.49	16	18.4	16.1	21.4	16.8	15.82	26.69	19.5	NA	16.18
Redox (mV)	NA	NA	NA	NA	NA	NA	NA	NA	148	NA	144	NA	NA	NA	NA	NA
Dissolved Oxygen (mg/L)	1.72	0.57	0.81	12.99	1.4	1.67	0.94	0.35	0.91	0	0.93	2.32	0.59	5.55	NA	2.05
LABORATORY ANALYSES																
Alkalinity (mg/L)	190	146	247	246	229	199	256	265	373	368	304	284	147	898	314	173
Iron, Ferric[1] (ug/L)	1,100	27,090	--	1,940	--	53,300	--	1,420	1,700	51,310	3,100	3,730	78,980	90,200	126,400	19,200
Iron, Ferrous (ug/L)	5,600	210	--	--	13,200	1,500	--	--	10,900	890	140	--	120	--	1,600	--
Nitrogen, Nitrate (mg/L)	--	--	6	4.2	--	--	6.8	7.1	--	--	0.24	0.5	--	--	--	4.2
Sulfate (mg/L)	48.3	100	158	159	--	21.4	104	89.8	51.1	23.6	52.5	86.8	1,420	120	244	85.7
FAVORABLE ATTENUATION CONDITIONS																
pH between 6 and 8 standard units	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	Yes
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Redox Potential	NA	NA	NA	NA	NA	NA	NA	NA	Moderate	NA	Moderate	NA	NA	NA	NA	NA
Dissolved Oxygen	Moderate	Moderate	Moderate	High	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Moderate	High	Moderate	High	High	High
Alkalinity	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Nitrate	Low	Low	Moderate	Moderate	Low	Low	Moderate	Moderate	Low	Low	Low	Low	Low	Low	Low	Moderate
Sulfate	High	High	High	High	Low	High	High	High	High	High	High	High	High	High	High	High
Ferrous iron production	Yes	No	No	No	Yes	No	No	No	Yes	No	No	No	No	No	No	No

NOTES:

-- Below detection limit
°C Degrees Celsius
mg/L milligrams per liter
ug/L micrograms per liter
mV millivolts
NA Not analyzed
[1] For 8/99 and 8/01 sampling, ferric iron = total iron less ferrous iron

921010247

TABLE 6.12
SEDIMENT SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Sediment Screening Guidelines			RB-01			RB-02			RB-03			RB-04			RB-05			RB-06		
Laboratory Identification Number	Chronic Value[1]	Lowest	Severe	E95627-1			E95627-2			E95627-3			E95627-4			E95627-5			E95627-6		
Sampling Date		Effects	Effects	7/24/01			7/24/01			7/24/01			7/24/01			7/24/01			7/24/01		
Sample Depth[3]		Level[2]	Level[2]	0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'		
Units	mg/kg	mg/kg	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																					
Acetone	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Benzene	0.34	-	-	0.3	--		0.34	--		0.36	--		0.38	0.367		0.35	0.284	J	0.33	--	
Bromodichloromethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Bromoform	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Bromomethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
2-Butanone (MEK)	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Carbon disulfide	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Carbon tetrachloride	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Chlorobenzene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Chloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Chloroform	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Chloromethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Dibromochloromethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,1-Dichloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,2-Dichloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,1-Dichloroethene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
cis-1,2-Dichloroethene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
trans-1,2-Dichloroethene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,2-Dichloropropane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
cis-1,3-Dichloropropene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
trans-1,3-Dichloropropene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Ethylbenzene	1.4	-	-	0.76	--		0.85	--		0.9	--		0.9	1.75		0.88	6.04		0.82	--	
2-Hexanone	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
4-Methyl-2-pentanone(MIBK)	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Methylene chloride	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Styrene	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,1,2,2-Tetrachloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Tetrachloroethene	0.45	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Toluene	2.5	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,1,1-Trichloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
1,1,2-Trichloroethane	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Trichloroethene	1.6	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Vinyl chloride	-	-	-	0.76	--		0.85	--		0.9	--		0.9	--		0.88	--		0.82	--	
Xylene (total)	0.12	-	-	0.76	--		0.85	--		0.9	--		0.9	0.499	J	0.88	3.43		0.82	--	
Total Volatile Organic TIC's	-	-	-	NA	0.00		NA	0.00		NA	0.00		NA	14.59		NA	92.1		NA	0.00	

NOTES:

1 NJDEP Volatile Organic Sediment Screening Guidelines, last revised 6/11/99

2 NJDEP Freshwater and Marine/Estuarine Sediment Screening Guidelines, last revised 6/11/100

3 Sample for VOC analysis taken from 1.5 to 2.0 feet. Remaining parameters collected from upper 0 to 1.5 feet of material recovered

bold Concentration exceeds Sediment Screening Guidelines

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

-- Not detected

J Estimated concentration

- No Standard

921010248

TABLE 6.12
SEDIMENT SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Sediment Screening Guidelines			RB-01			RB-02			RB-03			RB-04			RB-05			RB-06		
Laboratory Identification Number	Chronic Value[1]	Lowest	Severe	E95627-1			E95627-2			E95627-3			E95627-4			E95627-5			E95627-6		
Sampling Date		Effects	Effects	7/24/01			7/24/01			7/24/01			7/24/01			7/24/01			7/24/01		
Sample Depth[3]		Level[2]	Level[2]	0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'		
Units	mg/kg	mg/kg	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
SEMI-VOLATILE ORGANIC COMPOUNDS																					
2-Chlorophenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
4-Chloro-3-methyl phenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2,4-Dichlorophenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2,4-Dimethylphenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2,4-Dinitrophenol	-	-	-	0.91	--		1	--		1	--		0.97	--		5.2	--		0.96	--	
4,6-Dinitro-o-cresol	-	-	-	0.91	--		1	--		1	--		0.97	--		5.2	--		0.96	--	
2 Methylphenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
3&4-Methylphenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2-Nitrophenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
4-Nitrophenol	-	-	-	0.91	--		1	--		1	--		0.97	--		5.2	--		0.96	--	
Pentachlorophenol	-	-	-	0.91	--		1	--		1	--		0.97	--		5.2	--		0.96	--	
Phenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2,4,5-Trichlorophenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
2,4,6-Trichlorophenol	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Acenaphthene	-	0.016	0.5	0.091	--		0.1	--		0.1	**0.178**		0.097	**0.186**		10	**50**		0.096	**0.0213**	J
Acenaphthylene	-	0.044	0.64	0.091	--		0.1	--		0.1	**0.115**		0.097	**0.478**		0.52	**6.34**		0.096	--	
Anthracene	-	0.22	370	0.091	--		0.1	0.0243	J	0.1	0.17		0.097	**0.439**		10	**22.7**		0.096	--	
Benzo(a)anthracene	-	0.32	1480	0.091	0.0522	J	0.1	0.0304	J	0.1	**0.261**		0.097	0.32		0.52	**18**		0.096	--	
Benzo(a)pyrene	-	0.37	1440	0.091	0.0384	J	0.1	--		0.1	**0.213**		0.097	**0.283**		0.52	**13.4**		0.096	--	
Benzo(b)fluoranthene	-	-	-	0.091	0.039	J	0.1	--		0.1	**0.171**		0.097	**0.156**		0.52	**8.22**		0.096	--	
Benzo(g,h,i)perylene	-	0.17	320	0.091	0.0174	J	0.1	--		0.1	0.107		0.097	0.118		0.52	**5.5**		0.096	--	
Benzo(k)fluoranthene	-	0.24	1340	0.091	0.0196	J	0.1	--		0.1	0.0838	J	0.097	0.0546	J	0.52	**3.02**		0.096	--	
4-Bromophenyl phenyl ether	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Butyl benzyl phthalate	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
2-Chloronaphthalene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
4 Chloroaniline	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Carbazole	-	-	-	0.091	--		0.1	--		0.1	0.0308	J	0.097	--		0.52	--		0.096	--	
Chrysene	-	0.34	460	0.091	0.0629	J	0.1	0.0306	J	0.1	0.222		0.097	0.285		0.52	**17.3**		0.096	--	
bis(2-Chloroethoxy)methane	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
bis(2-Chloroethyl)ether	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
bis(2-Chloroisopropyl)ether	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
4-Chlorophenyl phenyl ether	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
1,2-Dichlorobenzene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
1,3-Dichlorobenzene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
1,4-Dichlorobenzene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	

NOTES:

1 NJDEP Volatile Organic Sediment Screening Guidelines, last revised 6/11/99

2 NJDEP Freshwater and Marine/Estuarine Sediment Screening Guidelines, last revised 6/11/100

3 Sample for VOC analysis taken from 1.5 to 2.0 feet. Remaining parameters collected from upper 0 to 1.5 feet of material recovered

bold Concentration exceeds Sediment Screening Guidelines

PQL Practical Quantitation Level

MDL Method detection limit/reporting limit

CONC Concentration

Q Data qualifier

NA Not Analyzed

-- Not detected

J Estimated concentration

- No Standard

921010249

TABLE 6.12
SEDIMENT SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Sediment Screening Guidelines			RB-01			RB-02			RB-03			RB-04			RB-05			RB-06		
Laboratory Identification Number	Chronic Value[1]	Lowest Effects Level[2]	Severe Effects Level[2]	E95627-1			E95627-2			E95627-3			E95627-4			E95627-5			E95627-6		
Sampling Date				7/24/01			7/24/01			7/24/01			7/24/01			7/24/01			7/24/01		
Sample Depth[3]				0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'		
Units	mg/kg	mg/kg	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																					
2,4-Dinitrotoluene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
2,6-Dinitrotoluene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
3,3'-Dichlorobenzidine	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Dibenzo(a,h)anthracene	-	0.06	130	0.091	--		0.1	--		0.1	--		0.097	0.0262	J	0.52	**1.8**		0.096	--	
Dibenzofuran	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	**3.62**		0.096	--	
Di-n-butyl phthalate	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Di-n-octyl phthalate	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Diethyl phthalate	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Dimethyl phthalate	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
bis(2-Ethylhexyl)phthalate	-	-	-	0.091	0.224		0.1	0.0595	J	0.1	0.165		0.097	0.142		0.52	--		0.096	0.128	
Fluoranthene	-	0.75	1020	0.091	0.0338	J	0.1	0.0375	J	0.1	0.57		0.097	0.473		10	**36.5**		0.096	0.0234	J
Fluorene	-	0.19	160	0.091	--		0.1	--		0.1	0.104		0.097	0.124		10	**26.6**		0.096	--	
Hexachlorobenzene	-	0.02	24	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Hexachlorobutadiene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Hexachlorocyclopentadiene	-	-	-	0.91	--		1	--		1	--		0.97	--		5.2	--		0.96	--	
Hexachloroethane	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Indeno(1,2,3-cd)pyrene	-	0.2	320	0.091	**0.0212**	J	0.1	--		0.1	0.109		0.097	0.107		0.52	**5.71**		0.096	--	
Isophorone	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
2-Methylnaphthalene	-	0.07	0.67	0.091	--		0.1	0.0378	J	0.1	**0.18**		0.097	0.0285	J	10	**95.9**		0.096	--	
2-Nitroaniline	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
3-Nitroaniline	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
4-Nitroaniline	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Naphthalene	-	0.16	2.1	0.091	--		0.1	0.0482	J	0.1	**0.475**		0.097	0.0647	J	10	**169**		0.096	--	
Nitrobenzene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
N-Nitroso-di-n-propylamine	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
N-Nitrosodiphenylamine	-	-	-	0.23	--		0.25	--		0.26	--		0.24	--		1.3	--		0.24	--	
Phenanthrene	-	0.56	950	0.091	--		0.1	0.0934	J	0.1	**0.681**		0.097	**1.74**		10	**86.7**		0.096	--	
Pyrene	-	0.49	850	0.091	0.0436	J	0.1	0.0668	J	0.1	**0.675**		0.097	**1.1**		0.52	**40.9**		0.096	0.0423	J
1,2,4-Trichlorobenzene	-	-	-	0.091	--		0.1	--		0.1	--		0.097	--		0.52	--		0.096	--	
Total Semi-Volatile TICs	-	-	-	NA	0		NA	0		NA	0.24		NA	2.82		NA	184.1		NA	0	
GENERAL CHEMISTRY																					
pH (su)	-	-	-	NA	8.6		NA	8.1		NA	7.8		NA	8		NA	7.8		NA	7.9	
Total Organic Carbon	-	-	-	1400	<1400		1500	2870		1500	2570		1500	2440		1500	18600		1400	2140	
Solids, Percent (%)	-	-	-	NA	73.2		NA	68.2		NA	65.7		NA	67.1		NA	67.4		NA	70.9	

NOTES:

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3 Sample for VOC analysis taken from 1.5 to 2.0 feet. Remaining parameters collected from upper 0 to 1.5 feet of material recovered.

bold Concentration exceeds Sediment Screening Guidelines
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed
-- Not detected
J Estimated concentration
- No Standard

921010250

TABLE 6.12
SEDIMENT SAMPLE ANALYTICAL RESULTS
FORMER WEST END MANUFACTURED GAS WORKS
JERSEY CITY, NEW JERSEY

Sample ID	Sediment Screening Guidelines			RB-01			RB-02			RB-03			RB-04			RB-05			RB-06		
Laboratory Identification Number	Chronic Value[1]	Lowest	Severe	E95627-1			E95627-2			E95627-3			E95627-4			E95627-5			E95627-6		
Sampling Date		Effects	Effects	7/24/01			7/24/01			7/24/01			7/24/01			7/24/01			7/24/01		
Sample Depth[3]		Level[2]	Level[2]	0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'			0.0-2.0'		
Units	mg/kg	mg/kg	mg/kg	mg/kg			mg/kg			mg/kg			mg/kg			mg/kg			mg/kg		
				MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
POLYCHLORINATED BIPHENYLS																					
Aroclor 1016	-	0.007	53	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1221	-	-	-	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1232	-	-	-	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1242	-	-	-	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1248	-	0.03	150	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1254	-	0.06	34	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
Aroclor 1260	-	0.005	24	0.023	--		0.025	--		0.13	--		0.025	--		0.024	--		0.024	--	
INORGANICS																					
Aluminum	-	-	-	27	14600		30	19400		31	21200		30	21600		29	14800		28	19400	
Antimony	-	-	-	1.3	<1.3		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.4	<1.4	
Arsenic	-	6	33	1.3	3.8		1.5	6.6		1.5	6.7		1.5	6.8		1.5	17.5		1.4	8.7	
Barium	-	-	-	27	122		30	119		31	128		30	167		29	114		28	120	
Beryllium	-	-	-	0.67	0.82		0.74	0.91		0.77	1		0.74	1		0.73	0.91		0.69	0.85	
Cadmium	-	0.6	10	0.67	<0.67		0.74	<0.74		0.77	<0.77		0.74	<0.74		0.73	<0.73		0.69	<0.69	
Calcium	-	-	-	670	14300		740	5730		770	8260		740	9190		730	6440		690	10600	
Chromium	-	26	110	1.3	21.2		1.5	25.4		1.5	29.7		1.5	29.6		1.5	43.5		1.4	27.1	
Cobalt	-	-	-	6.7	10.7		7.4	13.9		7.7	15.1		7.4	15.6		7.3	11.7		6.9	14.4	
Copper	-	16	110	3.3	19.3		3.7	30.3		3.8	34.3		3.7	33.4		3.7	243		3.4	28.7	
Iron	-	-	-	13	25700		15	33800		15	36300		15	36400		15	31300		14	33900	
Lead	-	31	250	1.3	10.8		1.5	13.2		1.5	17.2		1.5	15.4		1.5	**544**		1.4	34.1	
Magnesium	-	-	-	670	7500		740	9000		770	10200		740	10300		730	6820		690	9660	
Manganese	-	-	-	2	537		2.2	663		2.3	665		2.2	702		2.2	463		2.1	647	
Mercury	-	0.2	2	0.04	<0.04		0.042	<0.042		0.05	<0.05		0.044	<0.044		0.048	0.34		0.042	<0.042	
Nickel	-	16	75	5.4	21.6		5.9	29		6.1	31.2		5.9	32.6		5.9	29.6		5.5	30.6	
Potassium	-	-	-	670	3480		740	3530		770	4060		740	3880		730	2830		690	3380	
Selenium	-	-	-	1.3	<1.3		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.5	2		1.4	<1.4	
Silver	-	1	3.7	1.3	<1.3		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.4	<1.4	
Sodium	-	-	-	6.7	692		740	1210		770	1960		740	1770		730	1650		690	1300	
Thallium	-	-	-	1.3	<1.3		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.5	<1.5		1.4	<1.4	
Vanadium	-	-	-	6.7	29.7		7.4	35.4		7.7	39.6		7.4	42.4		7.3	34.8		6.9	36.7	
Zinc	-	120	820	2.7	53.5		3	71.2		3.1	89.8		3	76.3		2.9	179		2.8	72	
Cyanide	-	-	-	1.3	<1.3		1.5	<1.5		1.5	<1.5		1.6	<1.6		1.5	<1.5		NA	<1.4	

NOTES:

1 NJDEP Volatile Organic Sediment Screening Guidelines, last revised 6/11/99

2 NJDEP Freshwater and Marine/Estuarine Sediment Screening Guidelines, last revised 6/11/100

3 Sample for VOC analysis taken from 1.5 to 2.0 feet. Remaining parameters collected from upper 0 to 1.5 feet of material recovered.

bold Concentration exceeds Sediment Screening Guidelines
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MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
NA Not Analyzed
-- Not detected
J Estimated concentration
- No Standard

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WEST END GAS PLANT

PRELIMINARY SITE ASSESSMENT

November 25, 1985

BJC000047

921010253

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INTRODUCTION

To determine the possible presence of wastes and by-products at gas plant sites, a program has been undertaken to identify plant site areas which may be contaminated by past gas plant operations. This phase of the site assessment program is focused on Company owned facilities and includes:

- determining waste characteristics: the types and amounts on site through site inspections, records review, and interviews with present and former employees.

- determining site characteristics: soil type and properties, and site geology and hydrology.

The details of the background investigation for the West End Gas Plant are outlined in this report. In view of the geologic and hydrologic factors associated with this site, and pending the results of the Harrison Gas Plant site investigation, a proposed site investigation and monitoring plan has not been developed at this time.

1.0 Site Background

1.1 Location

The West End Gas Plant is located on the eastern side of the Hackensack River between the Wittpenn Bridge and Conrail Bridge in Jersey City, as shown on the U.S.G.S. quadrangle map (Exhibit 1.1).

1.2 Site Description

The Aerial Photograph (Exhibit 1.2-1) and Property Plan (Exhibit 1.2-2) delineate the location of existing site structures.

1.3 History of Ownership and Use

The site of the present facility was leased as a gas manufacturing plant by Public Service Corporation in 1903. Its origin goes back through four different owners to 1868. After lease, it continued as a carbureted water gas producing plant, using coal, and then coke, as feedstock, Bunker "C" oil for Btu enrichment, and making tar as a by-product. In 1926 gas production was discontinued and the facility was placed on a standby status.

In 1946 the plant was re-activated as a carbureted water gas plant. Liquid petroleum gas-air facilities were added to the facility in 1949. With the advent of natural gas in 1950, the gas producing equipment was modified to permit fuel bed reforming of natural gas, air jet gas facilities were added, and enrichment was carried out with natural gas. A cyclic catalytic reforming set using natural gas and kerosene as feedstock was added to the plant in 1954.

Upon completion, in 1964, of the conversion of the gas distribution system, served by the plant to straight natural gas, the production of fuel bed and catalytic reforming of natural gas and kerosene was discontinued along with the use of air jet and enrichment gas. High Btu oil gas producing equipment using kerosene as a feedstock was installed in 1964. Since 1965 the West End Gas Plant has been primarily a metering and distribution point for pipeline natural gas. From 1965 through the winter of 1984-85, the facility also operated as a peak shaving plant. During high load periods, plant produced high Btu oil gas and/or liquid petroleum air gas was added in controlled amounts to the pipeline natural gas.

During the last ten years, the plant has operated an average of 25 days/year.

The peak shaving facilities were retired from service as of July 1, 1985.

1.4 Process Descriptions, By-Products and Waste Handling

1.4.1 Carbureted Water Gas

Carbureted water gas was the water gas process enriched with a thermally cracked oil. Water gas was manufactured by passing steam over and through an incandescent bed of coke and consisted essentially of hydrogen and carbon monoxide which was formed in the following chemical reaction:

$$H_2O+C \rightarrow H_2+CO$$

The thermal value of water gas was approximately 380 Btu/cu.ft. The manufacturing equipment consisted of a generator, carburetor, superheater, waste heat boiler and wash box. The generator contained the coke bed used for generating the water gas and providing heat to the carburetor and superheater. The carburetor was where the hydrocarbon was added, usually vaporizing and being thermally cracked on checker brick installed in the carburetor. The superheater, also filled with checker brick, was where the thermally cracked hydrocarbon was reformed into methane, ethane and other gaseous hydrocarbons. The thermal value of carbureted water gas was approximately 525 Btu/cu.ft. The by-products and wastes from the carbureted water gas process were clinker, tar, pitch, and light oil.

1.4.2 Reformed Natural Gas

Reformed natural gas was the same as the carbureted water gas process except natural gas was used in place of oil. The waste associated with this process was clinkers.

1.4.3 Air Jet Gas

Air jet gas was manufactured by using the natural gas pressure to inject air into it to modify the heating value of the natural gas. No wastes were associated with this process.

1.4.4 Catalytically Cracked Reformed Natural Gas.

Catalytically cracked reformed natural gas was manufactured by passing natural gas and steam over a nickel catalyst. The methane was cracked into hydrogen and carbon which reacted with the steam to produce carbon monoxide. The thermal value of this gas was approximately 400 Btu/cu.ft. The waste associated with the process was spent catalyst.

1.4.5 Liquefied Petroleum Gas-Air

Liquefied petroleum gas-air mixtures were manufactured by vaporizing the liquid and mixing it with air. No wastes were associated with this process.

1.4.6 Oil Gas

Oil gas was the thermal cracking and reforming of a liquid hydrocarbon. Oil gas was produced in a three vessel system similar to the carbureted water gas machines. Checker brick replaced the coke bed in the generator and the generator and carburetor were used as vaporizers. The vaporizers were alternately heated with a liquid fuel and process another liquid fuel into the superheater where the thermally cracked hydrocarbon was reformed into methane, ethane, ethylene and other higher hydrocarbons. Oil gas had a thermal value of approximately 1100 Btu/ft. The by-product from this process was tar.

1.4.7 By-Products and Waste Handling

<u>Ash</u>

Ash, the residue remaining from the burning of soft and hard coals, was generated in the steam producing portion of the plant up to about 1945, when the boilers were converted to liquid fuels.

Ash was normally removed from the property in bulk by contractors who trucked the material to landfills.

Clinker

Clinker was the residue remaining from the coke used in the carbureted water gas operations.

Clinker was normally removed and disposed of in the same fashion as ash.

Water Gas, Carbureted Water Gas & Oil Gas Tar

Tar was removed from the manufactured gas stream usually as an emulsion with water. It was initially stored in separators and tanks where the water was removed. Tar was sold and transported via tank truck or barge to the road paving industry and the building material industry.

Drip Oil or Light Oil

Drip oil was removed from the manufactured gas stream by condensers and precipitators. It was mixed with the tar by-product and sold with the tar.

Iron Oxide Sponge

Iron oxide sponge (a mixture of colloidal ferric hydrate and wood shavings) was used to remove hydrogen sulfide from the gas stream. The sponge was normally regenerated with air to reactivate the material. However, over the years this material became waste because it could no longer be regenerated.

EXHIBIT 1.1

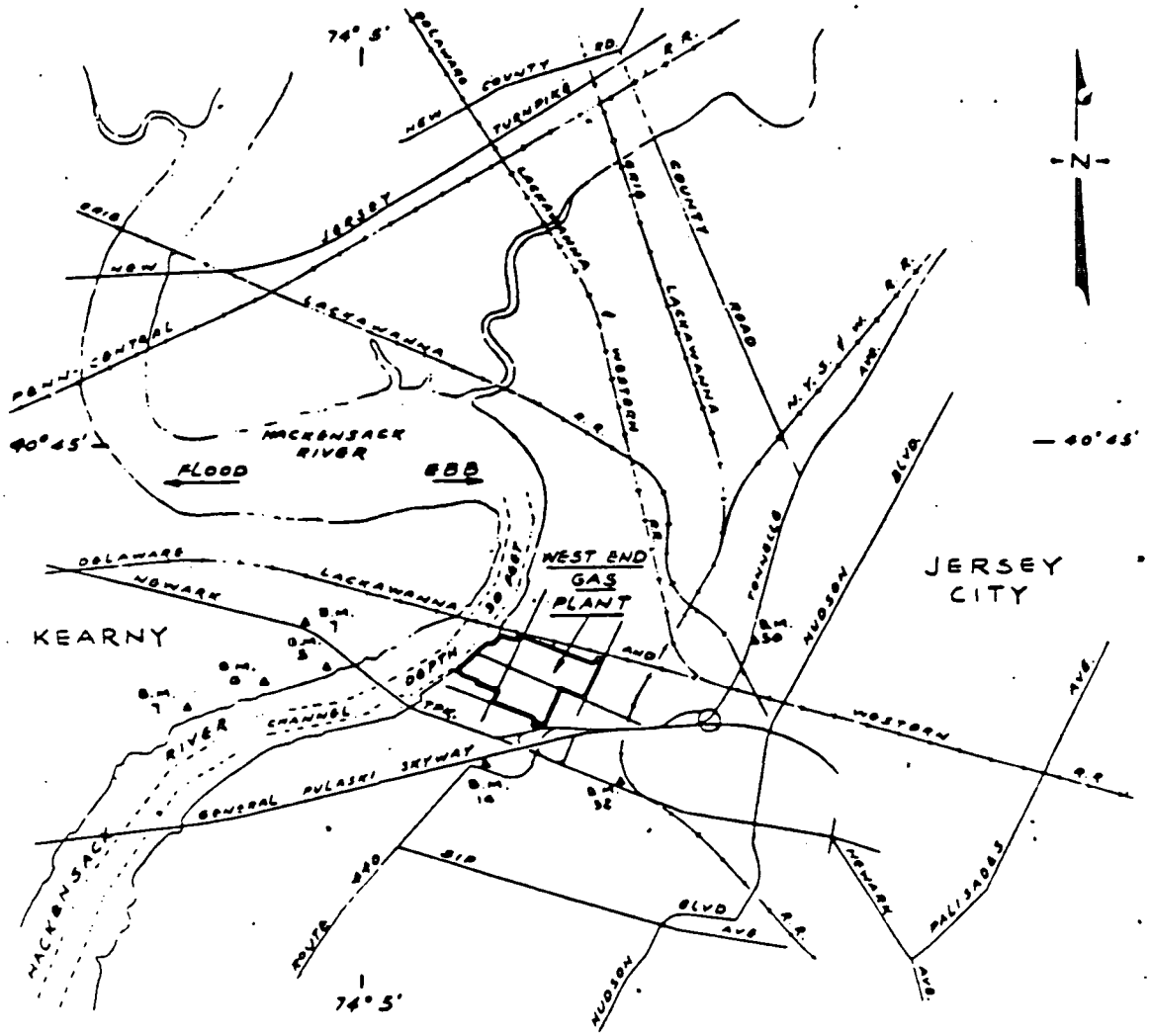
U.S.G.S. QUADRANGLE MAP

EXHIBIT 1.2-1

AERIAL PHOTOGRAPH

EXHIBIT 1.2-2

PROPERTY PLAN



SCALE OF FEET
1000 0 1000 2000
1" = 2000' APPROX.

REFERENCE:
UNITED STATES DEPARTMENT OF INTERIOR GEOLOGICAL SURVEY
JERSEY CITY, N.J.-N.Y.
N 4037.5 - W 7400/7.5 AND
WEEHAWKEN, N.J.-NY
N 4045 - W 7400/7.5
1955

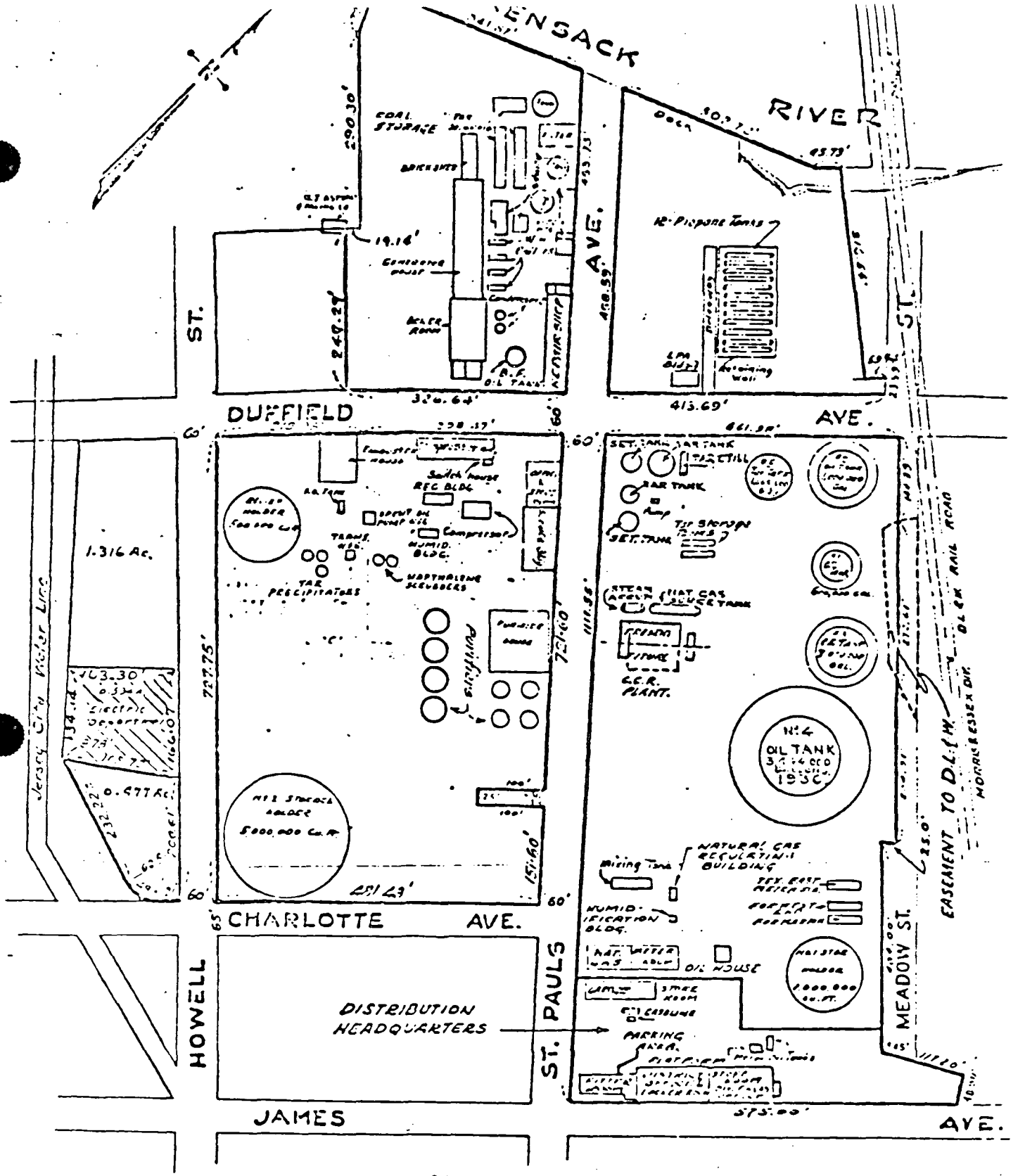
DATUM IS MEAN SEA LEVEL

LOCATION MAP

WEST END GAS PLANT
EXISTING DISCHARGE ARRANGEMENT
IN THE HACKENSACK RIVER
AT WEST END GAS PLANT

COUNTY OF HUDSON, STATE OF NEW JERSEY
APPLICATION BY PUBLIC SERVICE E&G CO.
SHEET 1 OF 5 DATE: NOV. 17, 1971

921010262



PUBLIC SERVICE ELECTRIC AND GAS COMPANY
GAS DEPARTMENT

MAP OF PROPERTY
WEST END GAS WORKS
JERSEY CITY, N.J.
HUDSON COUNTY
Scale: 1" = 200 Ft.

REVISED A-2

921010263

2.0 Site Characteristics

2.1 Land Use

Portions of Kearny, Lyndhurst, Secaucus, North Bergen, Jersey City, and Hoboken are within a 2 mile radius of the West End Gas Plant site. This area is urban with the eastern part being residential with some light commercial use, while the western part is primarily large industrial and commercial. There are some wetlands bordering the Hackensack River which flows south through the area. About one third of the area is covered with paving and structures. There are 11 parks in the area.

The area population density is approximately 11,000 persons per square mile.

The site is secure from the public.

2.2 Site Terrain

The average site slope is 0.2 percent.

The nearest downslope surface water is the Hackensack River which abuts the property. This navigable river is used for commercial shipping and recreational boating, and terminates in Newark Bay.

The average site and immediately adjacent area elevation is 10' above mean sea level.

2.3 Ground and Surface Water Use

The formations within a 3 mile radius are Stratified Glacial Drift, Stockton, Serpentine, Diabase, and Manhattan Schist which supply water for industrial users.

There are no potable public-supply wells within 3 miles.

The surface water within 3 miles downstream is used for recreational and commercial purposes and may be used for industrial purposes.

There are no public surface water-supply intakes within 3 miles downstream.

2.4 Geologic and Hydrologic Factors

2.4.1 General Geology and Topography

The West End Gas Plant is located in the Piedmont Physiographic Province of New Jersey. This province consists of lowlands and gently rolling hills which are underlain by the shales, sandstones and argillites of the Brunswick, Stockton and Lockatong Formations. The Watchung lava flows and Palisades intrusion create areas of higher elevation (Exhibit 2.4.1-1). Much of the area in the Piedmont Province is overlain with interglacial gravels, glacial till and stratified drift.

A broad lowland, called the Hackensack Valley, exists between the First Watchung Mountain and the ridge of the Palisades Sill. Most of the lowland is below 50 feet in elevation and some areas are tidally influenced. Most of this area was under glacial Lake Hackensack during the last glaciation period of the Pleistocene Ice Age (Exhibit 2.4.1-2). Glacial lacustrine clays were deposited beneath the lake. In recent times, these clays have caused extensive areas to become poorly drained marsh and meadowlands. Sand and gravel were also deposited during glaciation and in some areas these deposits have filled pre-glacial river channels to depths of over 200 feet. Low sandstone ridges, 100-200 feet high, which parallel the northeast-southwest trend of the Watchungs and Palisades create upland areas in the Hackensack Valley.

The topography at the West End Gas Plant is level, approximately 10 feet above sea level. To the west of the plant is the Hackensack Meadowlands at sea level. Immediately to the east of the plant is the Palisades Sill which rises to over 100 feet above sea level (Exhibit 2.4.1-3).

The following formations occur at the West End Gas Plant. They are, in order of youngest to oldest:

Quaternary System (Recent Series) - Alluvium
(Pleistocene Series) - Wisconsin glacial deposits

Jurassic System - Palisades Intrusion
Triassic System - Brunswick Formation
- Lockatong Formation
- Stockton Formation

The principal aquifers in the area are the stratified sands and gravels of the Wisconsin drift and the Brunswick Formation.

2.4.2 Hydrology

2.4.2.1 Stockton Formation

The Stockton Formation may occur as a very thin formation in the area of the West End Gas Plant. It is known to be present for a short distance on both sides of the Palisades (Exhibit 2.4.2-1). The Stockton Formation is predominately a light-colored arkosic sandstone which can contain beds of soft red shale. The Palisades Sill was intruded into a portion of the Stockton Formation. The high temperatures generated by the molten rock of the intrusion altered the arkosic sandstone for a few feet above and below the sill producing minor amounts of trace minerals and changing the chemical composition of the rock.

Although the Stockton Formation can be a good aquifer in other areas of the State, it is not in areas close to the Palisades intrusion. The intense heat from the intrusion sealed many of the fractures and reduced porosity. In addition, in the vicinity of the West End Gas Plant, not much of the formation is present.

2.4.2.2 Lockatong Formation

The Lockatong Formation may also be present as a thin formation in the area of the West End Gas Plant (Exhibit 2.4.2-1). Normally the Lockatong Formation consists of dark gray, carbonate rich mudstone and massive, gray, calcareous argillite. In the vicinity of the Palisades

intrusion, however, it has been extensively altered by thermal metamorphism. Here the formation has been changed into a very dense rock containing silica and abundant sodium.

The Lockatong Formation is normally not considered to be a good aquifer. The rock has no porosity and joints are not common. The alteration produced by the Palisades did not improve the water bearing properties of the rock. For this reason and because the Lockatong Formation may only be present as a thin bed, the Lockatong Formation is not considered to be an aquifer in the vicinity of West End Gas Plant.

2.4.2.3 Brunswick Formation

The Brunswick Formation is considered to be the bedrock formation in the area of the West End Gas Plant. It is estimated to be about 6,000 - 7000 feet thick (5).

At this locality, the Brunswick Formation consists predominately of sandstone with some shale layers. The sandstone beds are relatively thick and well cemented. Color range from light brown to reddish brown.

With the intrusion of the molten rock of the Palisades Sill, some of the Brunswick shale was altered into a tough dark rock, similar to slate but without its cleavage. This alteration occurred for a few hundred feet from the sill. As distance from the igneous intrusion increases, the alterations become less pronounced.

The strata of the Brunswick Formation have been faulted and tilted to the northeast. The rocks strike N30°E and dip approximately 10°NW (5).

The Brunswick Formation is considered to be an aquifer in the vicinity

of the West End Gas Plant. The formation is in itself impermeable. The primary pore spaces in the shale are small and water moves very slowly through it. Most of the water in the formation is stored and transmitted in the secondary fracture and joint openings which traverse the bedding at high angles. Some water is also transmitted along the bedding planes. The fracture openings can be widened when groundwater dissolves the rock along the fractures. These cracks and fractures intersect one another and the ground water can theoretically move in any direction. The direction of favorable flow will be determined by the relative size of the cracks. With depth, the weight of the overlying rock causes the fracture openings to decrease in size. Therefore, water yield in the Brunswick Formation decreases with depth.

The altered rock adjacent to the Palisades Sill contains little water. Here the intense heat removed any porosity in the rock and sealed most of the fractures.

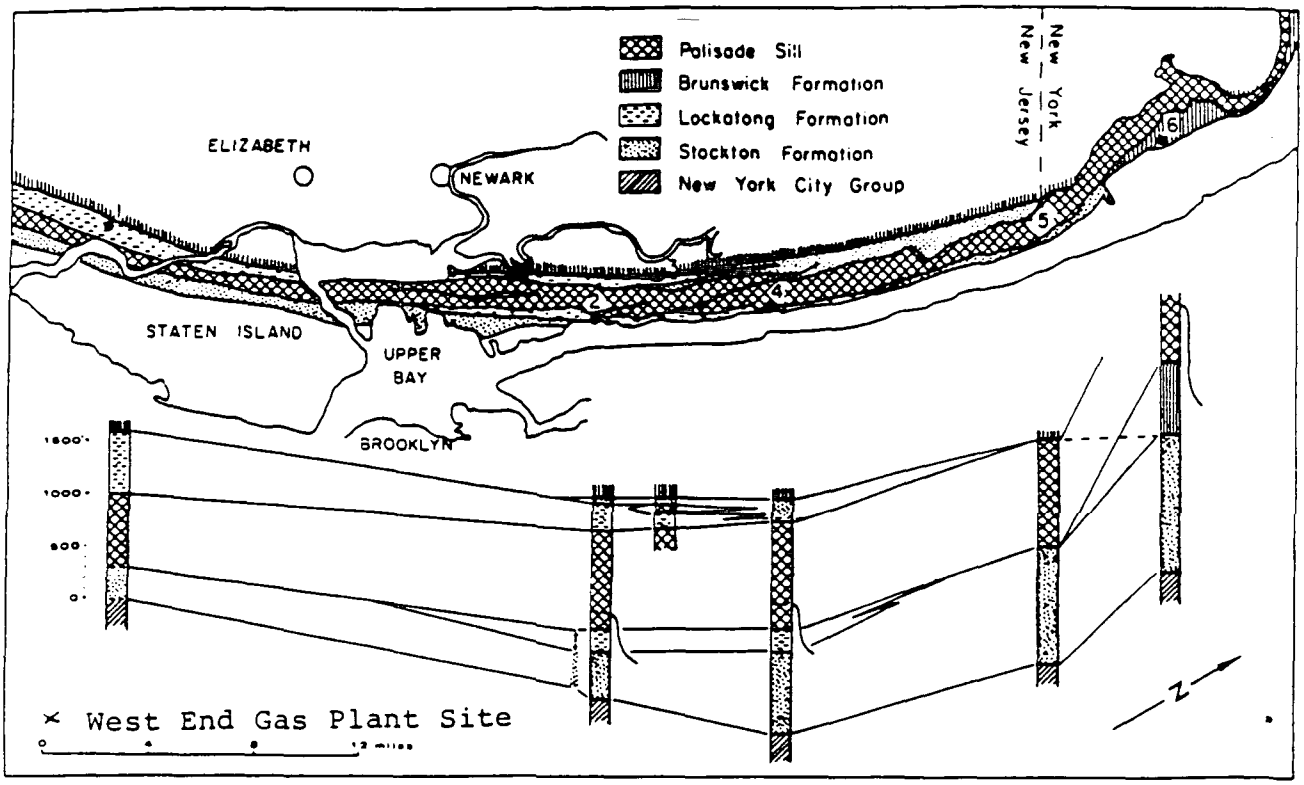
In some areas, the underlying Brunswick Formation is in direct contact with the Hudson River and wells producing from these areas are yielding salt water (8).

2.4.2.4 Palisades Intrusion

The Palisades Intrusion formed from a mass of molten rock which was intruded into the surrounding triassic sandstones and shales and slowly cooled and crystallized. This produced a dense, medium to coarse grained rock, gray to black in color. It contains nearly vertical joints. Diabase is very resistant to weathering.

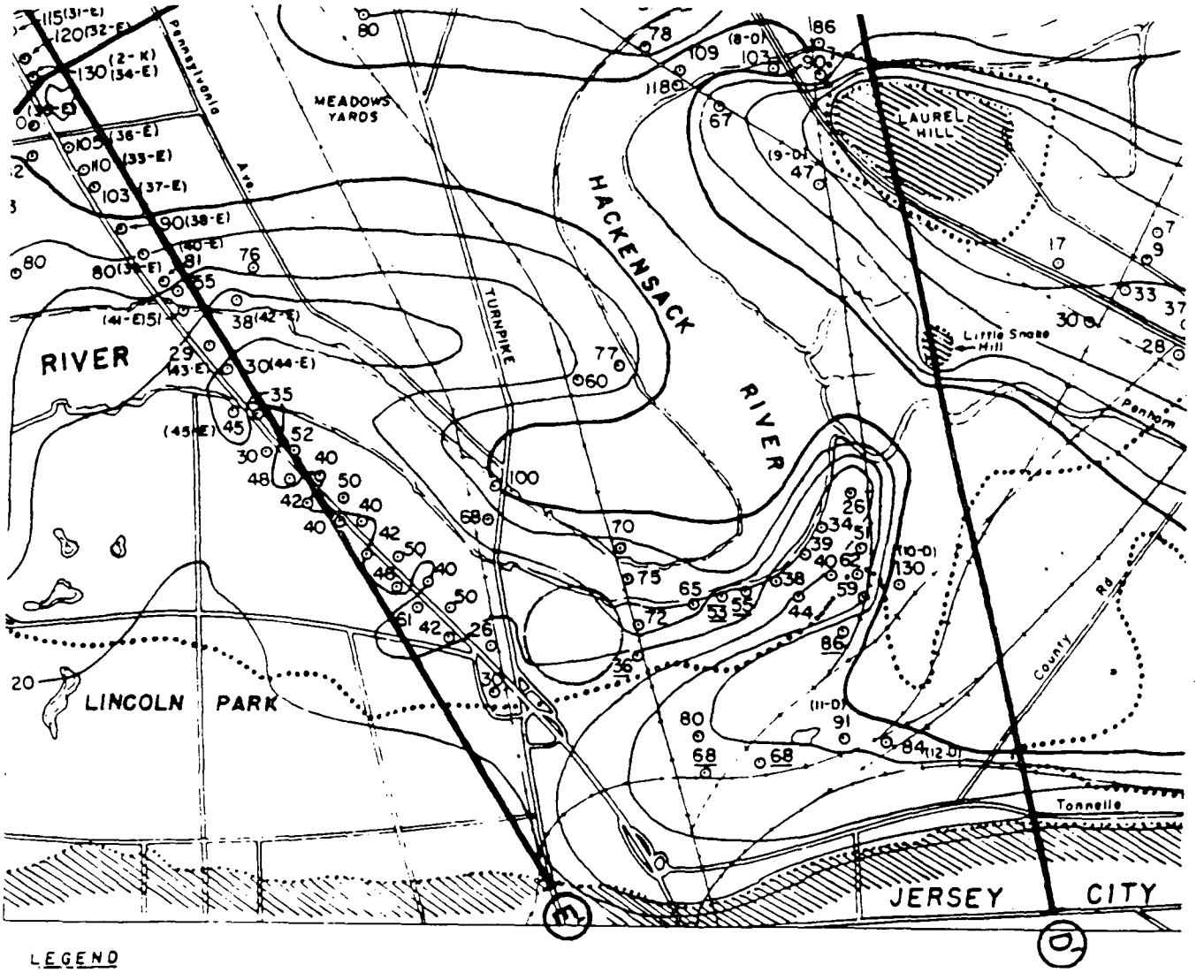
In Jersey City, the Palisades Intrusion dips 7° West. This dip may steepen under the Hackensack Meadowlands.

EXHIBIT 2.4.2-1



GENERALIZED GEOLOGIC MAP AND STRATIGRAPHIC SECTIONS OF NEWARK ROCKS ALONG THE NORTHEASTERN MARGIN OF THE PIEDMONT PROVINCE (VAN HOUTEN, K.B. 1969)

EXHIBIT 2.4.2-2



LEGEND

MAP

- Marsh area
- Bedrock at or near the surface
- Contour of bedrock below sea level
- Approximate boundary of ancient channel
- Elevation of bedrock below sea level
- Elevation below sea level to which no bedrock was found
- Elevation of bedrock above sea level
- Well used in section (log in text)

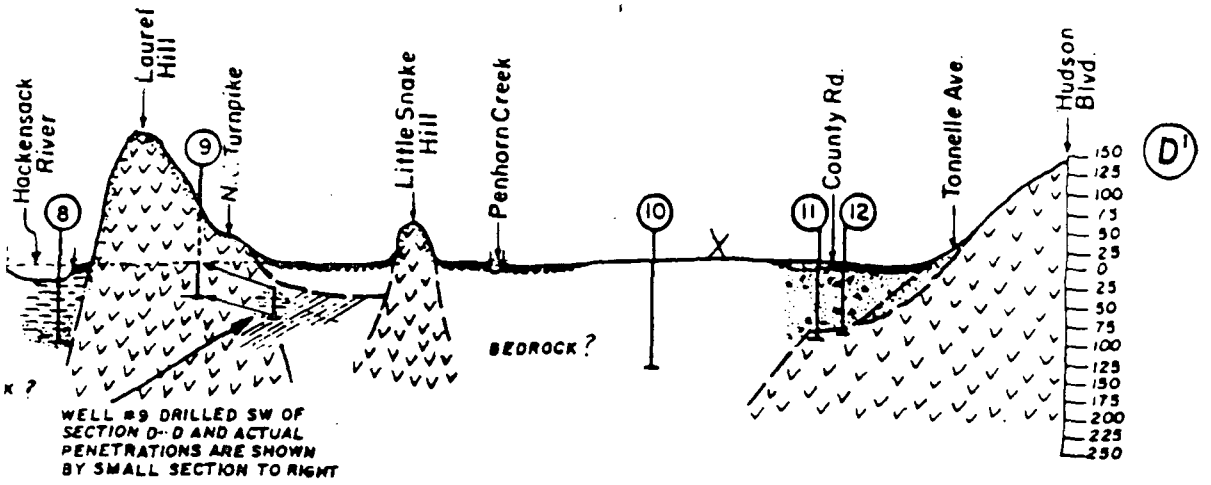
West End Gas Plant Site

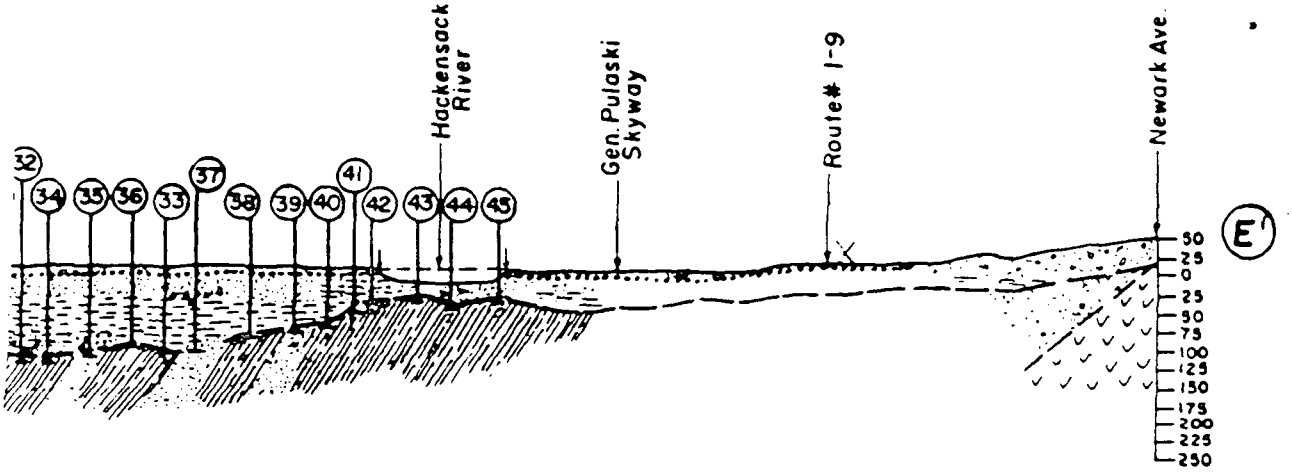
BEDROCK MAP OF THE HACKENSACK MEADOWLANDS

(Parnillo, D.G., Kasabach, H.F. 1959, 1961)

921010270

EXHIBIT 2.4.2-3





LEGEND

CROSS-SECTION

- Marsh
- Sand and Gravel
- Clay and Silt
- Sandstone
- Shale
- Diabase
- Limestone

⊀ West End Gas Plant Site

CROSS SECTIONS FROM BEDROCK MAP OF THE HACKENSACK MEADOWLANDS

(Parnillo, D.G., Kasabach, H.F., 1959, 1961)

921010271

EXHIBIT 2.4.2-4

CORE BORINGS FOR CROSS-SECTION D'

8. New Jersey Turnpike boring

0 - 10	mud
10 - 98	clay
98 - 103	stone and clay
103 - 106	brown clay

9. Erie Railroad boring

0 - 6	marsh
6 - 41	clay
41 - 47	sand, gravel and clay
47 -	shale

10. D.L.&W. Railroad boring

130' no rock

11. Erie Railroad boring

0 - 12	marsh
12 - 24	fine red sand
24 - 39	red sand and gravel
39 - 49	medium sand
49 - 64	fine red sand
64 - 69	medium to coarse sand
69 - 82	fine red sand
82 - 91	fine red sand, clay and gravel
91 -	decomposed diabase

12. Erie Railroad boring

0 - 16	sand, gravel and peat
16 - 22	brown sand and gravel
22 - 29	fine red sand
29 - 58	medium to coarse sand and gravel
58 - 69	fine brown sand
69 - 78	medium and coarse brown sand and gravel
78 - 82	fine brown sand
82 - 84	broken rock
84 - 89	diabase

EXHIBIT 2.4.2-5

CORE BORINGS FOR CROSS-SECTION E'

State Highway Department borings

32.

0 - 30	swamp mud
30 - 45	gray sand
45 - 84	gray clay
84 - 108	red clay
108 - 118	red sand and clay
118 - 112	red clay and gravel
122 - 142	red shale

33.

0 - 14	swamp mud
14 - 34	gray sand
34 - 114	red clay
114 - 126	red shale
126 - 127	gray sandstone
127 - 142	red shale

34.

0 - 34	swamp mud
34 - 44	gray sand
44 - 98	gray clay
98 - 114	red clay
114 - 130	red sand
130 -	red shale

35.

0 - 4	swamp mud
4 - 38	gray sand
38 - 110	soft red clay
110 - 113	boulders
113 - 132	broken&seamy red shale

36.

0 - 12	swamp mud
12 - 35	gray sand
35 - 45	red clay
45 - 108	soft red clay & sand
108 - 128	red shale

37.

0 - 20	swamp mud
20 - 45	gray sand
45 - 56	coarse gray gravel
56 - 102	gray clay
102 - 137	red shale
137 - 148	gray sandstone

38.

0 - 16	swamp mud
16 - 56	gray sand
56 - 99	gray clay
99 - 127	red shale, sandstone

39.

0 - 13	swamp mud
13 - 54	gray sand
54 - 82	gray clay
82 - 110	red sandstone

40.

0 - 15	swamp mud
15 - 25	gray sand
25 - 55	gray clay
55 - 81	red clay and sand
81 - 102	red shale

41.

0 - 7	swamp mud
7 - 44	gray clay
44 - 51	red sand
51 - 68	soft red shale
68 - 73	gray sandstone
73 - 101	red shale & sandstone

42.

0 - 27	water
27 - 32	river mud
32 - 38	red clay
38 - 48	red shale
48 - 59	red shale and gray sandstone

43.

0 - 27	water
27 - 78	red shale

44.

0 - 31	water
31 - 35	river mud
35 - 39	red clay and sand
39 - 45	red shale
45 - 70	red sandstone

45.

0 - 39	swamp mud
39 - 45	red sand
45 - 70	red shale

3.0 Site Contamination

3.1 Operating Experience

Accidental releases of materials may have occurred at various points in the plant. The location of these releases, if any, would likely be as follows for the indicated material:

Tar

a. In the vicinity of the tar stills and storage tanks when they were cleaned or when tar was loaded for shipment out the of the plant.

b. In the area south of St. Pauls Avenue and west of the machine shop, where the tar processing and storage was done in the early 1900's.

Iron Oxide

In the vicinity of the purifiers during removal of spent oxide.

Coal and Coke

In the area southwest of the Generator House where it was stored. Coal was also stored north of St. Pauls Avenue and west of Duffield Avenue.

Fuel Oil

In the vicinity of #5 oil tank and the day tank.

Kerosene

In the vicinity of #2, 3 and 4 oil tanks.

Drip Oil

At collection points where it was removed from the gas mains.

Spent Oil

In the vicinity of the napthalene scrubbers and spent oil tanks.

Clinker and Brick

Gas set clinkers and bricks were used as fill at various locations in the plant.

3.2 Waste Deposits

Sludges from tar tanks and the tar separator were apparently deposited at two locations. One of these, about 100' x 50', is located southeast of No. 4 oil tank where a number of tar accumulations are visible on the surface. The other, about 105' x 75', is located in the northeast corner of the property abutting James Street.

3.3 Surface Water Analysis

Priority pollutant analyses for volatile organics, base neutrals, phenols and metals were performed on water samples taken from the Hackensack River upstream of the plant and at the plant discharge. These analyses (Exhibits 3.3-1, -2,-3,-4) indicated that any contamination which may exist on site has not migrated from the site.

PSE&G Research Corporation

RESEARCH AND TESTING LABORATORY

To Mr John Mooney
General Manager Gas Production
Attn Mr Ken Kelton
Chief Chemist Gas Production

Date 10/11/83
Purchase Order #
Test Order # 67572

PRIORITY POLLUTANTS - VOLATILE ORGANICS

GENERAL MANAGER-GAS PRODUCTION
NOV - 3 1983
KK

	Detection Limit ug/l				
Station		West End Gas	West End Gas		
Date Sampled		10/6/83	10/6/83		
Sample Location		L.P. Plant Hackensack River	Discharge	Blank	
Laboratory Sample #		9346	9347		
		ug/l	ug/l	ug/l	ug/l
Acrolein *	~~6250~~ 100	N	N	N	
Acrylonitrle *	~~6250~~ 100	N	N	N	
Chloromethane	10	N	N	N	
Bromomethane	10	N	N	N	
Vinylchloride	10	N	N	N	
Chloroethane	10	N	N	N	
Methylene Chloride	10	11	11	11	
Trichloro Fluoromethane	10	N	N	N	
1, 1 Dichloroethene	10	N	<DL	N	
Bromochloromethane	int. std.	**	**	**	
1, 1 Dichloroethane	10	N	N	N	
Trans 1, 2 dichloroethene	10	N	<DL	N	
Chloroform	10	<DL	<DL	<DL	
1, 2 Dichloroethane	10	N	N	N	
1, 1, 1 Trichloroethane	10	<DL	<DL	<DL	
Carbon tetrachloride	10	N	N	N	
Bromodichloromethane	10	N	N	N	
1, 2 Dichloropropane	10	N	<DL	N	
Trans 1, 3 dichloropropene	10	N	N	N	
Trichloroethene	10	<DL	<DL	N	
Dibromochloromethane	10	N	<DL	N	
Cis 1, 3 dichloropropene	10	N	N	N	
1, 1, 2 - Trichloroethane	10	N	N	N	
Benzene	10	<DL	<DL	<DL	
2 - Chloroethylvinylether	10	N	N	N	
2 - Bromo - 1 - Chloropropane	int. std.	**	**	**	
Bromoform	10	N	<DL	N	
Tetrachloroethene	10	<DL	<DL	N	
1, 1, 2, 2 Tetrachloroethane	10	<DL	<DL	N	
1, 4 Dichlorobutane	int. std.	**	**	**	
Tolune	10	<DL	<DL	<DL	
Chlorobenzene	10	<DL	<DL	<DL	
Ethylbenzene	10	N	N	N	
Dichlorodifluoromethane	10	N	N	N	

* direct aqueous injection

** These compounds are internal standards which are added to the sample prior to analysis.

<DL = Less than detection limit
N = Not detected

Manager,
Chemical Division

921010276

PSEG Research Corporation

RESEARCH AND TESTING LABORATORY

Date 10/17/83
Purchase Order #
Test Order # 67572

PRIORITY POLLUTANTS - PHENOLS

Station		West End Gas	West End Gas		
Date Sampled		10/6/83	10/6/83		
Location		North	Discharge	Blank	
Laboratory Sample #		9346A	9347A		
	Detection Limit ug/l	ug/l	ug/l	ug/l	ug/l
2 - Chlorophenol	25	N	N	N	
2 - Nitrophenol	25	N	N	N	
Pnenol	25	N	N	N	
2, 4 Dimethylphenol	25	N	N	N	
2, 4 Dichlorophenol	25	N	N	N	
2, 4, 6 Trichlorophenol	25	N	N	N	
4 Chloro - 3 - methylphenol	25	N	N	N	
2, 4 Dinitrophenol	250	N	N	N	
2 - Methyl - 4, 6 dinitrophenol	250	N	N	N	
Pentachlorophenol	25	N	N	N	
4 - Nitrophenol	25	N	N	N	

Manager,
Chemical Division

921010277

PSEG Research Corporation

RESEARCH AND TESTING LABORATORY

Date 10/24/83
Purchase Order #
Test Order # 67572
Page 1 of 2

PRIORITY POLLUTANT BASE NEUTRALS

	Detection Limit ug/l				
Station		West End Gas	West End Gas		
Date Sampled		10/6/83	10/6/83		
Sample Location		North	Discharge	Blank	
Laboratory Sample #		9346A	9347A		
		ug/l	ug/l	ug/l	ug/l
1, 3 Dichlorobenzene	10	N	N	N	
1, 4 Dichlorobenzene	10	N	N	N	
Hexachloroethane	10	N	N	N	
Bis (2 - chloroethyl) ether	10	<DL	N	N	
1, 2 Dichlorobenzene	10	N	N	N	
Bis (2 - chloroisopropyl) ether	10	N	N	N	
N - Nitrosodipropyl amine	10	N	N	N	
Isophorone	10	N	N	N	
Nitrobenzene	10	<DL	<DL	N	
Hexachlorobutadiene	10	N	N	N	
1, 2, 4 Trichlorobenzene	10	N	N	N	
Naphthalene	10	N	N	N	
Bis (2 - chloroethoxy) methane	10	N	N	N	
Hexachlorocyclopentadiene	10	N	N	N	
2 - Chloronaphthalene	10	N	N	N	
Acenaphthylene	10	N	N	N	
Acenaphthene	10	N	N	N	
Dimethyl phthalate	10	N	N	N	
2, 6 Dinitrotoluene	10	N	N	N	
Fluorene	10	N	N	N	
4 - Chlorophenyl phenyl ether	10	N	N	N	
2, 4 Dinitrotoluene	10	N	N	N	
1, 2 Diphenylhydrazine	10	N	N	N	
Diethyl phthalate	10	<DL	<DL	N	
N - Nitrosodiphenyl amine	10	N	N	N	
Hexachlorobenzene	10	N	N	N	
4 - Bromophenyl phenyl ether	10	N	N	N	
Phenanthrene	10	N	N	N	
Anthracene	10	N	N	N	
Dibutyl phthalate	10	<DL	<DL	<DL	
Fluoranthene	10	N	N	N	
Pyrene	10	N	N	N	
Benzidine	10	N	N	N	
Butyl benzyl phthalate	10	N	N	N	

921010278

PSEG Research Corporation

RESEARCH AND TESTING LABORATORY

Date 10/24/83
Purchase Order #
Test Order # 67572

PRIORITY POLLUTANT BASE NEUTRALS

Station		West End Gas	West End Gas		
Date Sampled		10/6/83	10/6/83		
Sampel Location		North	Discharge	Blank	
Laboratory Sample #		9346A	9347A		
	Detection Limit ug/l	ug/l	ug/l	ug/l	ug/l
Bis (2 ethyl hexyl) phthalate	10	<DL	<DL	<DL	
Chrysene	10	N	N	N	
Benzo (a) anthracene	10	N	N	N	
3, 3' Dichlorobenzidine	10	N	N	N	
Dioctyl phthalate	10	N	N	N	
Benzo (b) Fluoranthene	10	N	N	N	
Benzo (k) Fluoranthene	10	N	N	N	
Benzo (a) pyrene	10	N	N	N	
Ideno (1, 2, 3 - c, d) pyrene	25	N	N	N	
Dibenzo (a, h) anthracene	25	N	N	N	
Benzo (g, h, i) perylene	25	N	N	N	
N - Nitrosodimethyl amine	--	N	N	N	
Bis (chlorometh1) ether	--	N	N	N	

Manager,
Chemical Division

921010279

PSEG Research Corporation

RESEARCH AND TESTING LABORATORY

Date 11/2/83
Purchase Order #
Test Order # 67572

PRIORITY POLLUTANTS METALS

Station	West End Gas	West End Gas			
Date Sampled	10/6/83	10/6/83			
Sample Location	L.P. Plant Hackensack River	Discharge			
Laboratory Sample #	9346	9347			
	ug/l	ug/l	ug/l	ug/l	ug/l
Berylium	-	-			
Cadmium	-	-			
Chromium	24	25			
Copper	59	48			
Lead	<50	<50			
Mercury	1.2	0.90			
Nickel	188	164			
Silver	-	-			
Zinc	63	39			
Thallium	-	-			
Antimony	-	-			
Arsenic	<8	<8			
Selenium	-	-			

Total Phenols

Phenols	2.9	6.8			

Cyanide

Cyanide	12	12			

CPW Jacobson
Manager,
Chemical Division

Jm 11/16/83

921010280

The Palisades Intrusion is a very poor source of groundwater. The rock has no primary permeability. It contains few fractures large enough and open enough for water to pass through. The vertical joints contain little water.

Occasionally the top of the Palisades is fractured from post-Triassic folding. A yield of 10 gpm from a well in this locality is considered excellent.

2.4.2.5 Wisconsin Glacial Deposits

The deposits of the Wisconsin ice sheet are composed of unconsolidated sediments which were deposited by three mechanisms: glacial-deposited directly by the glacier; glaciolacustrine-deposited by glacial meltwater in lakes, and glaciofluvial-deposited by glacial meltwater in streams.

The material can be deposited as till, an unstratified mixture composed of boulders, cobbles, gravel, sand and clay or it can be deposited in stratified layers containing material close in size. This is usually referred to as stratified drift.

During the last ice advance of the Pleistocene ice age, the area of the Hackensack Meadowlands was submerged beneath glacial Lake Hackensack. This glaciolacustrine environment caused thick layers of silt and clay to accumulate. Some of these clay deposits are nearly 200 feet thick (10). These lake clays seem to have been deposited during two separate periods between which was a period of erosion and deposition of sand and gravel.

The Hackensack Meadowlands are crossed by a number of pre-glacial river valleys which are cut into the bedrock. These valleys

or channels contain both deposits of stratified sand and gravel and unstratified material. In some areas, the channels are over 200 feet deep.

At the West End Gas Plant, bedrock appears to be 40-60 feet below the surface (Exhibit 2.4.2-2,3,4,5). This is overlain by glacial deposits and a thin layer of alluvium. Less than one mile to the north is a pre-glacial valley with over 100 feet of sediments. Less than one mile to the east, bedrock is at the surface.

The unconsolidated stratified glacial drift deposits provide varying amounts of water. Where deposits of sand and gravel are thick enough, the pore spaces between the constituent grains are large and water can flow freely. Where silt and clay are present though, the interstitial openings are small and water cannot move through them.

The bedrock channels underlying the Hackensack Meadowlands are primarily filled with stratified drift which consists of clays and sandy clays that were deposited in a lacustrine environment. These fine grained sediments transmit water poorly. Also present are interbedded lenses sand and gravel. These coarser sediments are capable of bearing large quantities of water.

The aquifers in these Pleistocene deposits are recharged by water percolating down from the surface. Besides acting as an aquifer, these Pleistocene deposits also have the important function of absorbing, storing and transmitting water to the Brunswick Formation below. There seems to be some correlation between the thickness and permeability of the Pleistocene deposits and the yield of wells in the Brunswick Formation.

2.4.2.6 Alluvium

Normally, the top few feet of the Hackensack Meadowlands area consist of decomposed tidal marsh plant growth combined with silty clays and silt.

These deposits are not considered to be a source of water.

2.4.3 Conclusion

The area at the West End Gas Plant is underlain by 40-60 feet of glacial deposits. Much of this material contains clay and silt which were laid down as lacustrine deposits in glacial Lake Hackensack. These deposits limit the ability of the formation to store and transport water. The Brunswick Formation is considered the bedrock material at West End Gas Plant. This formation can serve as a relatively good aquifer, however, some wells in this area have been known to pump salt water because of a direct connection to the brackish Hudson River.

Jersey City does not receive its drinking water supply from wells in either of these two aquifers. Water is obtained from a surface water reservoir in Morris County.

EXHIBIT 2.4

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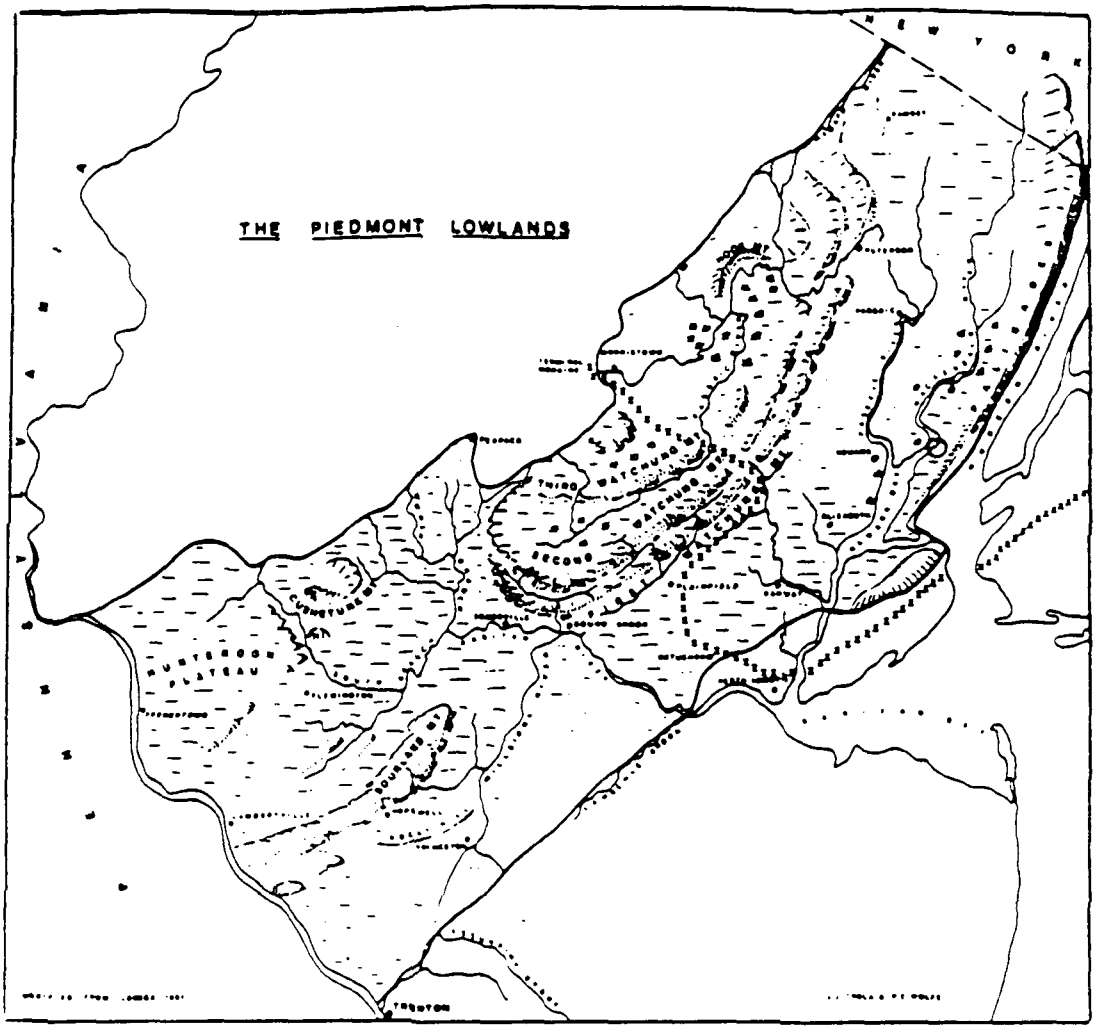
EXHIBIT 2.4.1-1

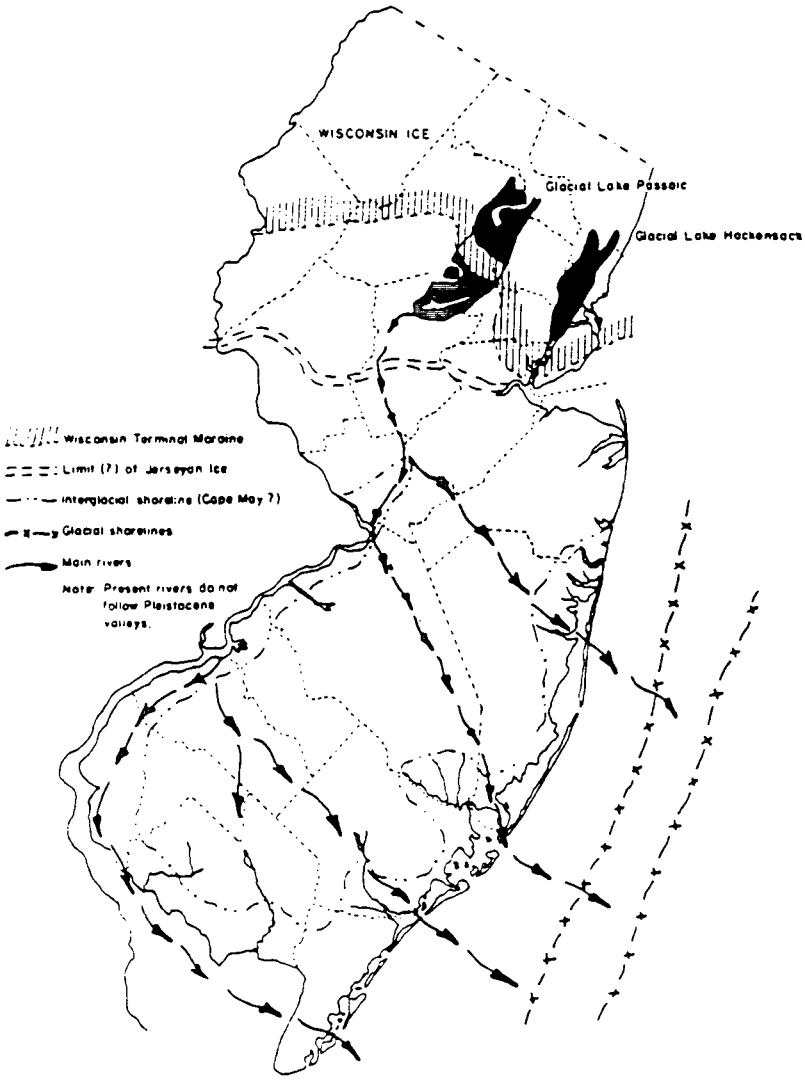


○ West End Gas Plant Site

GENERALIZED SKETCH LANDFORM MAP OF THE PIEDMONT PROVINCE

(Wolfe, P.E., 1977)

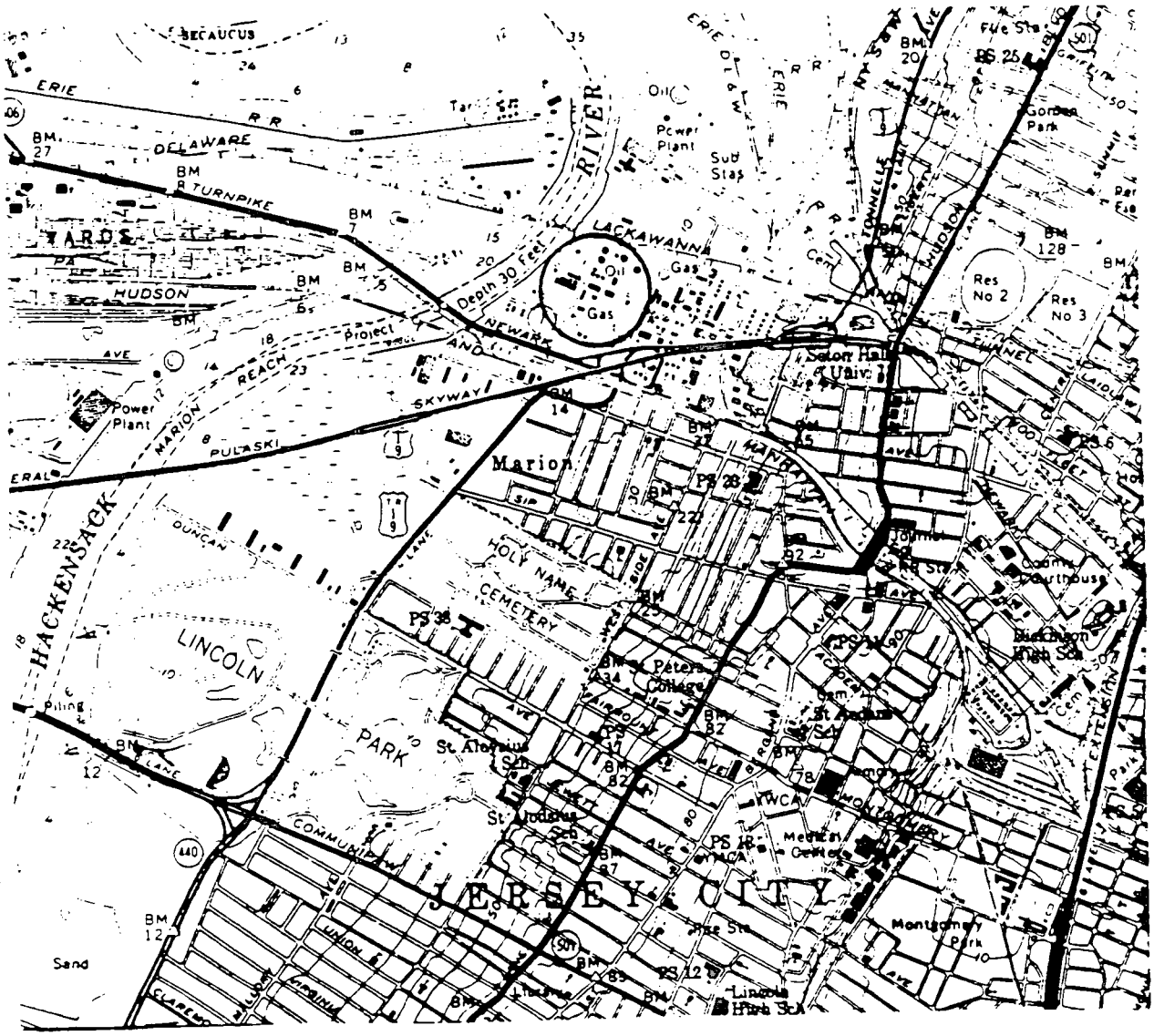
EXHIBIT 2.4.1-2



ICE AGE (PLEISTOCENE) NEW JERSEY

EXTENT OF GLACIAL LAKE HACKENSACK (Widmer, K., 1964)

EXHIBIT 2.4.1-3



O West End Gas Plant Site

TOPOGRAPHY AT THE WEST END GAS PLANT SITE (U.S.G.S., 1955)

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10-K 1 a39290.htm PUBLIC SERVICE ELECTRIC AND GAS COMPANY

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE FISCAL YEAR ENDED DECEMBER 31, 2004,

OR

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

FOR THE TRANSITION PERIOD FROM TO .

Commission File Number	Registrants, State of Incorporation, Address, and Telephone Number	I.R.S. Employer Identification No.
001-09120	PUBLIC SERVICE ENTERPRISE GROUP INCORPORATED (A New Jersey Corporation) 80 Park Plaza, P.O. Box 1171 Newark, New Jersey 07101-1171 973 430-7000 http://www.pseg.com	22-2625848
001-00973	PUBLIC SERVICE ELECTRIC AND GAS COMPANY (A New Jersey Corporation) 80 Park Plaza, P.O. Box 570 Newark, New Jersey 07101-0570 973 430-7000 http://www.pseg.com	22-1212800
000-49614	PSEG POWER LLC (A Delaware Limited Liability Company) 80 Park Plaza—T25 Newark, New Jersey 07102-4194 973 430-7000 http://www.pseg.com	22-3663480
000-32503	PSEG ENERGY HOLDINGS LLC (A New Jersey Limited Liability Company)	42-1544079

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80 Park Plaza—T20
Newark, New Jersey 07102-4194
973 456-3581
http://www.pseg.com

Securities registered pursuant to Section 12(b) of the Act:

Registrant	Title of Each Class	Name of Each Exchange On Which Registered
Public Service Enterprise Group Incorporated	Common Stock without par value	New York Stock Exchange

Participating Equity Preference Securities (consisting of a Purchase Contract and a Preferred Trust Security), $50 par value at 10.25%, issued by PSEG Funding Trust I (Registrant) and registered on the New York Stock Exchange.

Trust Originated Preferred Securities (Guaranteed Preferred Beneficial Interest in PSEG's Debentures), $25 par value at 8.75%, issued by PSEG Funding Trust II (Registrant) and registered on the New York Stock Exchange.

Registrant	Title of Each Class	Title of Each Class			Name of Each Exchange On Which Registered
Public Service Electric and Gas Company	***Cumulative Preferred Stock $100 par value Series:***	***First and Refunding Mortgage Bonds:***	***Series***	***Due***	
	4.08%	9½%	BB	2005	
	4.18%	9¼%	CC	2021	
	4.30%	6¾%	UU	2006	New York Stock Exchange
	5.05%	6¾%	VV	2016	
	5.28%	6¼%	WW	2007	
		6¾%	YY	2023	
		8%		2037	
		5%		2037	

(Cover continued on next page)

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(Cover continued from previous page)

Securities registered pursuant to Section 12(g) of the Act:

Registrant	Title of Class
Public Service Enterprise Group Incorporated	Floating Rate Capital Securities (Guaranteed Preferred Beneficial Interest in PSEG's Debentures), $1,000 par value issued by Enterprise Capital Trust II (Registrant), LIBOR plus 1.22%.
	Trust Originated Preferred Securities (Guaranteed Preferred Beneficial Interest in PSEG's Debentures), $25 par value at 7.44%, issued by Enterprise Capital Trust I (Registrant).
	Trust Originated Preferred Securities (Guaranteed Preferred Beneficial Interest in PSEG's Debentures), $25 par value at 7.25%, issued by Enterprise Capital Trust III (Registrant).
Public Service Electric and Gas Company	6.92% Cumulative Preferred Stock $100 par value
	Medium-Term Notes, Series A
	Medium-Term Notes, Series B
	Medium-Term Notes, Series C
PSEG Power LLC	Limited Liability Company Membership Interest
PSEG Energy Holdings LLC	Limited Liability Company Membership Interest

The aggregate market value of the Common Stock of Public Service Enterprise Group Incorporated held by non-affiliates as of June 30, 2004 was $9,313,972,867 based upon the New York Stock Exchange Composite Transaction closing price.

The number of shares outstanding of Public Service Enterprise Group Incorporated's sole class of Common Stock, as of the latest practicable date, was as follows:

Class	Outstanding at January 31, 2005
Common Stock, without par value	238,350,363

PSEG Power LLC and PSEG Energy Holdings LLC are wholly-owned subsidiaries of Public Service Enterprise Group Incorporated and meet the conditions set forth in General Instruction I(1)(a) and (b) of Form 10-K and are filing their respective Annual Reports on Form 10-K with the reduced disclosure format authorized by General Instruction I.

As of January 31, 2005, Public Service Electric and Gas Company had issued and outstanding 132,450,344 shares of Common Stock, without nominal or par value, all of which were privately held, beneficially and of record by Public Service Enterprise Group Incorporated.

Indicate by check mark whether the registrants (1) have filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrants were required to file such reports) and (2) have been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to

this Form 10-K. ☒

Indicate by check mark whether each registrant is an accelerated filer (as defined in Rule 12b-2 of the Exchange Act).

Public Service Enterprise Group Incorporated	Yes ☒	No ☐
Public Service Electric and Gas Company	Yes ☐	No ☒
PSEG Power LLC	Yes ☐	No ☒
PSEG Energy Holdings LLC	Yes ☐	No ☒

DOCUMENTS INCORPORATED BY REFERENCE

Part of Form 10-K of Public Service Enterprise Group Incorporated	Documents Incorporated by Reference
III	Portions of the definitive Proxy Statement for the 2005 Annual Meeting of Stockholders of Public Service Enterprise Group Incorporated, which definitive Proxy Statement is expected to be filed with the Securities and Exchange Commission on or about April 30, 2005, as specified herein.

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FORWARD-LOOKING STATEMENTS

Certain of the matters discussed in this report constitute "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements are subject to risks and uncertainties, which could cause actual results to differ materially from those anticipated. Such statements are based on management's beliefs as well as assumptions made by and information currently available to management. When used herein, the words "will," "anticipate," "intend," "estimate," "believe," "expect," "plan," "hypothetical," "potential," "forecast," "project," variations of such words and similar expressions are intended to identify forward-looking statements. Public Service Enterprise Group Incorporated (PSEG), Public Service Electric and Gas Company (PSE&G), PSEG Power LLC (Power) and PSEG Energy Holdings LLC (Energy Holdings) undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. The following review should not be construed as a complete list of factors that could effect forward-looking statements.

In addition to any assumptions and other factors referred to specifically in connection with such forward-looking statements discussed above, factors that could cause actual results to differ materially from those contemplated in any forward-looking statements include, among others, the following:

PSEG, PSE&G, Power and Energy Holdings

- credit, commodity, interest rate, counterparty and other financial market risks;
- liquidity and the ability to access capital and credit markets and maintain adequate credit ratings;
- adverse or unanticipated weather conditions that significantly impact costs and/or operations, including generation;
- changes in the electric industry, including changes to power pools;
- changes in the number of market participants and the risk profiles of such participants;
- changes in technology that may make power generation, transmission and/or distribution assets less competitive;
- availability of power transmission facilities that impact the ability to deliver output to customers;
- growth in costs and expenses;
- environmental regulations that significantly impact operations;
- changes in rates of return on overall debt and equity markets that could adversely impact the value of pension assets and liabilities and the Nuclear Decommissioning Trust Funds;
- ability to maintain satisfactory regulatory results;
- changes in political conditions, recession, acts of war or terrorism;
- continued availability of insurance coverage at commercially reasonable rates;
- involvement in lawsuits, including liability claims and commercial disputes;

- inability to attract and retain management and other key employees;
- acquisitions, divestitures, mergers, restructurings or strategic initiatives that change PSEG's, PSE&G's, Power's and Energy Holdings' structure;
- business combinations among competitors and major customers;
- general economic conditions, including inflation or deflation;
- regulatory issues that significantly impact operations;
- changes to accounting standards or accounting principles generally accepted in the U.S., which may require adjustments to financial statements;
- changes in tax laws and regulations;
- ability to service debt as a result of any of the aforementioned events;

PSE&G and Energy Holdings

- ability to obtain adequate and timely rate relief;

Power and Energy Holdings

- energy transmission constraints or lack thereof;
- adverse changes in the market for energy, capacity, natural gas, emissions credits, congestion credits and other commodity prices, especially during significant price movements for natural gas and power;
- surplus of energy capacity and excess supply;
- generation operating performance below projected levels;
- substantial competition in the worldwide energy markets;
- inability to effectively manage portfolios of electric generation assets, gas supply contracts and electric and gas supply obligations;
- margin posting requirements, especially during significant price movements for natural gas and power;
- availability of fuel and timely transportation at reasonable prices;
- effects on competitive position of actions involving competitors or major customers;
- changes in product or sourcing mix;
- delays, cost escalations or unsuccessful acquisitions, construction and development;

Power

- changes in regulation and safety and security measures at nuclear facilities;

Energy Holdings

- changes in political regimes in foreign countries;
- international developments negatively impacting business;
- changes in foreign currency exchange rates;
- substandard operating performance or cash flow from investments falling below projected levels, adversely impacting the ability to service project debt;
- deterioration in the credit of lessees and their ability to adequately service lease rentals; and
- ability to realize tax benefits.

Consequently, all of the forward-looking statements made in this report are qualified by these cautionary statements and PSEG, PSE&G, Power and Energy Holdings cannot assure you that the results or developments anticipated by management will be realized, or even if realized, will have the expected consequences to, or effects on, PSEG, PSE&G, Power and Energy Holdings or their respective business prospects, financial condition or results of operations. Undue reliance should not be placed on these forward-looking statements in making any investment decision. Each of PSEG, PSE&G, Power and Energy Holdings expressly disclaims any obligation or undertaking to release publicly any updates or revisions to these forward-looking statements to reflect events or circumstances that occur or arise or are anticipated to occur or arise after the date hereof. In making any investment decision regarding PSEG's, PSE&G's, Power's and Energy Holdings' securities, PSEG, PSE&G, Power and Energy Holdings are not making, and you should not infer, any representation about the likely existence of any particular future set of facts or circumstances. The forward-looking statements contained in this report are intended to qualify for the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended.

WHERE TO FIND MORE INFORMATION

Public Service Enterprise Group Incorporated (PSEG), Public Service Electric and Gas Company (PSE&G), PSEG Power LLC (Power) and PSEG Energy Holdings LLC (Energy Holdings) file annual, quarterly and special reports, proxy statements and other information with the Securities and Exchange Commission (SEC). You may read and copy any document that PSEG, PSE&G, Power and Energy Holdings file at the Public Reference Room of the SEC at 450 Fifth Street, N.W., Washington, D.C. 20549. Information on the operation of the Public Reference Room may be obtained by calling the SEC at 1-800-SEC-0330. You may also obtain PSEG's, PSE&G's, Power's and Energy Holdings' filings on the Internet at the SEC's website at www.sec.gov or at PSEG's website, www.pseg.com. PSEG's Common Stock is listed on the New York Stock Exchange under the ticker symbol "PEG." You can obtain information about PSEG, PSE&G, Power and Energy Holdings at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005.

PART I

This combined Annual Report on Form 10-K is separately filed by PSEG, PSE&G, Power and Energy Holdings. Information contained herein relating to any individual company is filed by such company on its own behalf. PSE&G, Power and Energy Holdings each makes representations only as to itself and its subsidiaries and makes no other representations whatsoever as to any other company.

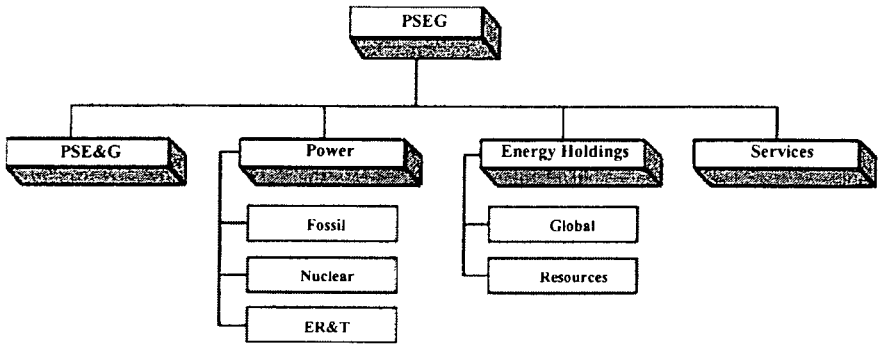
ITEM 1. BUSINESS

GENERAL

PSEG, PSE&G, Power and Energy Holdings

PSEG was incorporated under the laws of the State of New Jersey in 1985 and has its principal executive offices located at 80 Park Plaza, Newark, New Jersey 07102. PSEG is an exempt public utility holding company under the Public Utility Holding Company Act of 1935 (PUHCA).

PSEG has four principal direct wholly-owned subsidiaries: PSE&G, Power, Energy Holdings and PSEG Services Corporation (Services). The following organization chart shows PSEG and its principal subsidiaries, as well as the principal operating subsidiaries of Power: PSEG Fossil LLC (Fossil), PSEG Nuclear LLC (Nuclear) and PSEG Energy Resources & Trade LLC (ER&T); and of Energy Holdings: PSEG Global LLC (Global) and PSEG Resources LLC (Resources):



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The regulatory structure that has historically governed the electric and gas utility industries in the United States (U.S.) has changed dramatically in recent years. Deregulation is complete in New Jersey and is complete or underway in certain other states in the Northeast and across the U.S. Actions by state regulators and the Federal Energy Regulatory Commission (FERC) and the implementation of the National Energy Policy Act of 1992 (Energy Policy Act) have afforded power marketers, merchant generators, Exempt Wholesale Generators (EWGs) and utilities the opportunity to compete actively in wholesale energy markets and have allowed consumers the right to choose their energy suppliers. The deregulation and restructuring of the nation's energy markets, the unbundling of energy and related services, the diverse strategies within the industry related to holding, building, buying or selling generation capacity and consolidation within the

industry have had, and are likely to continue to have, a significant effect on PSEG and its subsidiaries, providing them with new opportunities and exposing them to new risks.

As energy markets have changed dramatically in recent years, PSEG and its subsidiaries have transitioned from a vertically integrated utility to an energy company with a diversified business mix. PSEG has realigned its organizational structure to address the competitive environment brought about by the deregulation of the electric generation industry and has evolved from primarily being a state regulated New Jersey utility to operating as a competitive energy company with operations primarily in the Northeastern U.S. and in other select markets. As the competitive portion of PSEG's business has grown, the resulting financial risks and rewards have become greater, causing financial requirements to change and increasing the volatility of earnings and cash flows.

PSEG seeks to reduce future volatility of earnings and cash flows principally by entering into longer-term contracts for material portions of its anticipated energy output. PSEG may also reduce exposure to its international businesses by seeking to opportunistically monetize investments of Energy Holdings that may no longer have a strategic fit. PSEG also expects a gradual decline in earnings from Resources' leveraged leasing business due to the maturation of its investment portfolio. The proceeds from Energy Holdings' asset sales will be used, over time, to reduce debt and equity and to maintain credit requirements. For additional information, see Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A)—Overview of 2004 and Future Outlook.

Recent Developments—Merger Agreement

On December 20, 2004, PSEG entered into an agreement and plan of merger (Merger Agreement) with Exelon Corporation (Exelon), a public utility holding company registered under PUHCA which is headquartered in Chicago, Illinois, whereby PSEG will be merged with and into Exelon (Merger). Under the Merger Agreement, each share of PSEG Common Stock will be converted into 1.225 shares of Exelon Common Stock.

The Merger Agreement has been unanimously approved by both companies' boards of directors. Before the Merger may be completed, various approvals or consents must be obtained from shareholders, FERC, the SEC, the Nuclear Regulatory Commission (NRC) and various utility regulatory, antitrust and other authorities in the U.S. and in foreign jurisdictions. PSEG and Exelon have made some of the regulatory filings to obtain necessary regulatory approvals. It is anticipated that this approval process will be completed and the Merger will close within 12 months to 15 months after the announcement of the Merger Agreement in December 2004.

PSEG is committed to this proposed business combination, however, pending receipt of the various required approvals, which cannot be assured, PSEG intends to remain positioned with a viable stand-alone strategy. For additional information related to the Merger, see Item 3. Legal Proceedings, Item 7. MD&A—Overview of 2004 and Future Outlook—Merger Agreement and Note 25. Merger Agreement of the Notes to the Consolidated Financial Statements (Notes).

PSE&G

PSE&G is a New Jersey corporation, incorporated in 1924, and has principal executive offices at 80 Park Plaza, Newark, New Jersey 07102. PSE&G is an operating public utility company engaged principally in the transmission and distribution of electric energy and gas service in New Jersey. PSE&G, pursuant to an order of the New Jersey Board of Public Utilities (BPU) issued under the provisions of the New Jersey Electric Discount and Energy Competition Act (EDECA), transferred all

of its electric generation facilities, plant, equipment and wholesale power trading contracts to Power and its subsidiaries in August 2000 for approximately $2.8 billion. Also, pursuant to a BPU order, PSE&G transferred its gas supply business, including its inventories and supply contracts, to Power in May 2002 for $183 million. PSE&G continues to own and operate its electric and gas transmission and distribution business. In addition, PSE&G Transition Funding LLC (Transition Funding), a bankruptcy-remote subsidiary of PSE&G, was formed in 1999 for the sole purpose of issuing $2.525 billion principal amount of transition bonds in connection with the securitization of $2.4 billion of PSE&G's stranded costs approved for recovery by the BPU under EDECA.

PSE&G provides electric and gas service in areas of New Jersey in which approximately 5.5 million people, about 70% of the state's population, reside. PSE&G's electric and gas service area is a corridor of approximately 2,600 square miles running diagonally across New Jersey from Bergen County in the northeast to an area below the city of Camden in the southwest. The greater portion of this area is served with both

electricity and gas, but some parts are served with electricity only and other parts with gas only. This heavily populated, commercialized and industrialized territory encompasses most of New Jersey's largest municipalities, including its six largest cities—Newark, Jersey City, Paterson, Elizabeth, Trenton and Camden—in addition to approximately 300 suburban and rural communities. This service territory contains a diversified mix of commerce and industry, including major facilities of many nationally prominent corporations. PSE&G's load requirements are split among residential, commercial and industrial customers, detailed below under customers. PSE&G believes that it has all the franchise rights (including consents) necessary for its electric and gas distribution operations in the territory it serves. Such franchise rights are not exclusive.

PSE&G distributes electric energy and gas to end-use customers within its designated service territory. All electric and gas customers in New Jersey have the ability to choose an electric energy and/or gas supplier. Pursuant to BPU requirements, PSE&G serves as the supplier of last resort for electric and gas customers within its service territory. PSE&G earns no margin on the commodity portion of its electric and gas sales. PSE&G earns margins through the transmission and distribution of electricity and gas. PSE&G's revenues for these services are based upon tariffs approved by the BPU and FERC. The demand for electric energy and gas by PSE&G's customers is affected by customer conservation, economic conditions, weather and other factors not within PSE&G's control.

New Jersey's Electric Distribution Companies (EDCs), including PSE&G, provide two types of Basic Generation Service (BGS). BGS is the default electric supply service for customers who do not choose a third party to source their electric supply requirements. BGS-Fixed Price (FP) provides supply for smaller commercial and residential customers at seasonally-adjusted fixed prices. BGS-FP rates change annually on June 1 and are based on the average BGS price obtained at auction in the current year and two prior years. BGS-Commercial and Industrial Energy Price (CIEP) provides supply for larger customers at hourly PJM Interconnection, L.L.C. (PJM) real-time market prices for a term of 12 months. BGS-FP and BGS-CIEP represent approximately 84% and 16%, respectively, of PSE&G's load.

New Jersey's EDCs jointly procure the supply to meet their BGS obligations through two concurrent auctions authorized by the BPU for New Jersey's total BGS requirement each February. The results of this auction determine which energy suppliers are authorized to supply BGS to New Jersey's EDCs. As a condition of qualification to participate in this auction, energy suppliers are required to agree to execute the BGS Master Service Agreement and provide required security within three days of BPU certification of auction results, in addition to satisfying creditworthiness requirements.

PSE&G's total BGS-FP load is approximately 8,600 megawatts (MW). Approximately one-third of this total load is expected to be auctioned off each year for a three-year term. The current pricing is as follows:

	Term Ending			
	May 2005(a)	**May 2006(b)**	**May 2007(a)**	**May 2008(c)**
Term	**12 months**	**34 months**	**36 months**	**36 months**
Load (MW)	2,840	2,900	2,840	2,840
$ per Kilowatt-hour (kWh)	$ 0.05479	$ 0.05560	$ 0.05515	$ 0.06541

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(a) Prices set in the February 2004 BGS auction.

(b) Prices set in the February 2003 BGS auction.

(c) Prices set in the February 2005 BGS auction which become effective on June 1, 2005 when the agreements for the 12-month (May 2005) BGS-FP supply agreements expire.

PSE&G has entered into a full requirements contract through 2007 with Power to meet the supply requirements of PSE&G's gas customers. Power charges PSE&G for gas commodity costs which PSE&G recovers from its customers. Any difference between rates charged by Power under the Basic Gas Supply Service (BGSS) contract and rates charged to its customers are deferred and collected or refunded through adjustments in future rates.

On October 5, 2004, the BPU approved a 3% increase in PSE&G's residential gas commodity charge to cover the higher cost of natural gas. The cost of energy supply, for both gas and electricity, is passed through from PSE&G to its customers.

Competitive Environment

The electric and gas transmission and distribution business has minimal risks from competitors. PSE&G's transmission and distribution business is minimally impacted when customers choose alternate electric or gas suppliers since PSE&G earns its return by providing transmission and distribution service, not by supplying the commodity.

Customers

As of December 31, 2004, PSE&G provided service to approximately 2.1 million electric customers and approximately 1.7 million gas customers, detailed below. In addition to its transmission and distribution business, PSE&G also offers appliance services and repairs to customers throughout its service territory.

	% of Sales	
Customer Type	Electric	Gas
Commercial	30%	60%
Residential	55%	36%
Industrial	15%	4%
Total	100%	100%

Employee Relations

As of December 31, 2004, PSE&G had 6,327 employees. PSE&G has three-year collective bargaining agreements in place with four unions, representing 4,996 employees, which expire on April 30, 2005. New six-year collective bargaining agreements with the four unions were ratified in February 2005. PSE&G believes that it maintains satisfactory relationships with its employees. For additional information related to the Merger, see Item 7. MD&A—Overview of 2004 and Future Outlook—Merger Agreement and Note 25. Merger Agreement of the Notes.

Power

Power is a Delaware limited liability company, formed in 1999, and has its principal executive offices at 80 Park Plaza, Newark, New Jersey 07102. Power is a multi-regional, independent wholesale energy supply company that integrates its generating asset operations with its wholesale energy, fuel supply, energy trading and marketing and risk management functions through three principal direct wholly-owned subsidiaries: Nuclear, Fossil and ER&T.

As of December 31, 2004, Power's generation portfolio consisted of approximately 14,607 MW of installed capacity which is diversified by fuel source and market segment. For additional information, see Item 2. Properties.

Through its operating subsidiaries, Power competes as an independent wholesale electric generating company, primarily in the Northeast U.S. Most of Power's generating assets are strategically located within PJM, one of the nation's largest and most developed energy markets.

In the PJM market, the pricing of energy is based upon the locational marginal price (LMP) set through power providers' bids. Due to transmission constraints, the LMP may be higher in congested areas during peak demand periods reflecting the bid prices of the higher cost units that are dispatched to supply demand. This typically occurs in the eastern portion of the grid, where many of Power's plants are located. These bids are currently capped at $1,000 per megawatt-hour (MWh). In the event that available generation within PJM is insufficient to satisfy demand, PJM may institute emergency purchases from adjoining regions for which there is no price cap.

To reduce volatility in earnings and cash flow, Power's objective is to enter into load serving contracts, firm sales and trading positions sufficient to hedge at least 75% of its anticipated output over an 18-month to 24-month horizon. Power has achieved this objective through a combination of contracts related to the New Jersey BGS auctions, contracts in Pennsylvania and Connecticut and other firm sales and trading positions. Prospectively, Power intends to take advantage of the BGS auctions in New Jersey and other opportunities elsewhere in the market region to continue to meet this objective.

In February 2005, the BPU approved the results of the BGS-FP and CIEP auctions for New Jersey customers. Each bidder was limited to a third of each EDC's total load. Power will continue to be a direct supplier of New Jersey EDCs under both the BGS-FP and CIEP auctions, entering into additional contracts that will begin on June 1, 2005. Power believes that its obligations under these contracts are reasonably balanced by its available supply.

In addition to the electric generation business described above, Power's revenues include gas supply sales under the BGSS contract with PSE&G. Power also generates revenue from the sales of various commodity-based instruments, such as capacity, ancillary services, emission credits and congestion credits, such as firm transmission rights (FTRs).

Fossil

Fossil has an ownership interest in 12 generating stations in New Jersey, one in New York, two in Connecticut, two in Pennsylvania, one in Ohio and one in Indiana. Fossil also has an ownership interest in one hydroelectric-pumped storage facility in New Jersey. For additional information, see Item 2. Properties—Power.

Fossil began operating in New England Power Pool (NEPOOL) with the acquisition of two fossil fuel generating stations in Connecticut in late 2002: the Bridgeport Harbor facility, a 513 MW coal/oil fuel facility and the New Haven Harbor facility, a 448 MW oil/gas facility. Fossil completed construction of the Waterford, Ohio plant, an 821 MW natural gas-fired, combined cycle plant, which began commercial operation in August 2003. In addition, Fossil completed construction of a 1,096 MW natural gas-fired, combined cycle plant in Lawrenceburg, Indiana, which began commercial operation in June 2004. Additionally, the Albany, New York generating station is currently being replaced with a 763 MW combined cycle plant, the Bethlehem Energy Center, which is expected to be operational in the second quarter of 2005. The Linden, New Jersey generating station is currently being replaced with a 1,220 MW natural gas-fired, combined cycle plant, which is expected to be operational in 2006.

Fossil uses coal, natural gas and oil for electric generation. These fuels are purchased through various contracts and in the spot market and represent a significant portion of Power's working capital requirements. Changes in the prices of these fuel sources impact Power's costs and working capital requirements. The majority of Power's fossil generating stations obtain their fuel supply from within the U.S. In order to minimize emissions levels, the Connecticut generating facilities use a specific type of coal, which is obtained from Indonesia through a fixed-price supply contract through 2008 and transportation contracts covering 100% of supply through 2006, 66% in 2007 and 33% in 2008. Fossil believes it can obtain adequate coal, natural gas and oil supplies for its facilities over the next several years. However, issues could arise, such as transportation constraints, which could adversely affect the operation of Fossil's plants. In addition, if the supply of coal from Indonesia or equivalent coal from other sources was not available for the Connecticut facilities, additional material capital expenditures could be required to modify the existing plants to enable their continued operation. For additional information, see Item 2. Properties—Power.

Nuclear

Nuclear has an ownership interest in five nuclear generating units: the Salem Nuclear Generating Station, Units 1 and 2 (Salem 1 and 2), each owned 57.41% by Nuclear and 42.59% by Exelon Generation Company LLC (Exelon Generation); the Hope Creek Nuclear Generating Station (Hope Creek), which is owned 100% by Nuclear; and, the Peach Bottom Atomic Power Station Units 2 and 3 (Peach Bottom 2 and 3), each of which is operated by Exelon Generation and owned 50% by Nuclear. For additional information, see Item 2. Properties—Power.

For a discussion of recent operational issues, see Regulatory Issues—NRC.

Nuclear unit capacity and availability factors for 2004 were as follows:

Unit	Capacity Factor*	Availability Factor
Salem Unit 1	74.9%	77.0%
Salem Unit 2	89.8%	90.5%
Hope Creek	65.6%	69.7%
Peach Bottom Unit 2	91.0%	91.9%
Peach Bottom Unit 3	102.3%	100.0%
Combined Nuclear's Share	81.8%	83.2%

* Maximum Dependable Capacity (MDC) net.
The 2004 capacity factor was adversely affected by extended outages at Salem and Hope Creek during the year. For additional information, see Regulatory Issues—NRC and Item 7. MD&A—Overview of 2004 and Future Outlook—Power. The combined capacity factor for Nuclear in 2003 was approximately 87.7%.

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Nuclear has several long-term purchase contracts with uranium suppliers, converters, enrichers and fabricators to meet the currently projected fuel requirements for the Salem and Hope Creek nuclear power plants. Nuclear has been advised by Exelon Generation that it has similar purchase contracts to satisfy the annual fuel requirements for Peach Bottom. See Note 14. Commitments and Contingent Liabilities of the Notes.

Concurrent with the Merger Agreement, Nuclear entered into an Operating Services Contract (OSC) with Exelon Generation, which commenced on January 17, 2005, relating to the operation of the Salem and Hope Creek nuclear generating stations. The OSC provides that Exelon Generation will provide a chief nuclear officer and other key personnel to oversee daily plant operations at the Hope Creek and Salem nuclear generating stations and to implement the Exelon operating model, which defines practices that Exelon has used to manage its own nuclear performance improvement program. Nuclear will continue as the license holder with exclusive legal authority to operate and maintain the plants, will retain responsibility for management oversight and will have full authority with respect to the marketing of its share of the output from the facilities. Exelon Generation will be entitled to receive reimbursement of its costs in discharging its obligations, an annual operating services fee and incentive fees of up to $12 million annually based on attainment of goals relating to safety, capacity factors of the plants and operation and maintenance expenses. The OSC has a term of two years, subject to earlier termination in certain events upon prior notice, including any termination of the Merger Agreement. In the event of such termination, Exelon Generation will continue to provide services under the OSC for a transition period of at least 180 days and up to two years at the election of Nuclear. This period may be further extended by Nuclear for up to an additional 12 months if Nuclear determines that additional time is necessary to complete required activities during the transition period.

ER&T

ER&T purchases the capacity and energy produced by each of the generation subsidiaries of Power. In conjunction with these purchases, ER&T uses commodity and financial instruments designed to cover estimated commitments for BGS and other bilateral contract agreements. ER&T also markets electricity, capacity, ancillary services and natural gas products on a wholesale basis. ER&T is a fully integrated wholesale energy marketing and trading organization that is active in the long-term and spot wholesale energy markets.

Electric Supply

Power's generation capacity is sourced from a diverse mix of fuels comprised of approximately 45% gas, 24% nuclear, 16% coal, 14% oil and 1% pumped storage. Power's fuel diversity serves to mitigate risks associated with fuel price volatility and market demand cycles. The following table indicates the MWh output of Power's generating stations by fuel type in 2004 and its estimated MWh output by fuel type for 2005.

Generation by Fuel Type	Actual 2004	Estimated 2004(A)
Nuclear:		
New Jersey facilities	34%	38%
Pennsylvania facilities	21%	18%
Fossil:		
Coal:		
New Jersey facilities	12%	14%
Pennsylvania facilities	13%	13%

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Connecticut facilities	6%	5%
Oil and Natural Gas:		
New Jersey facilities	13%	7%
New York facilities	—	2%
Connecticut facilities	1%	2%
Midwest facilities	—	1%
Pumped Storage:	—	—
Total	100%	100%

(A) No assurances can be given that actual 2005 output by source will match estimates.

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Approximately 86% of Power's generation was from nuclear and coal facilities in 2004, which are typically the most cost-effective fuel types on an operating cost basis. On a per-MWh basis, nuclear power is the most cost-effective and, as a result, Power's profitability is largely affected by the utilization and efficiency of its nuclear facilities. The nuclear facilities are considered "base load" and run continuously when not in shutdown. Older oil and gas-fired facilities are typically the least cost-effective of the fossil fuel burners. Accordingly, these plants are not usually run outside of peak periods of demand when the cost of operation can be justified by the market price. The costs of operating coal and oil burning facilities and new combined cycle gas facilities range between those of the two aforementioned facility types. These plants can be base load plants and/or load following plants.

Gas Supply

As described above, Power sells gas to PSE&G under the BGSS contract. Additionally, based upon availability, Power sells gas to others. About 42% of PSE&G's peak daily gas requirements are provided through firm transportation, which is available every day of the year. The remainder comes from field storage, liquefied natural gas, seasonal purchases, contract peaking supply, propane and refinery and landfill gas. Power purchases gas for its gas operations directly from natural gas producers and marketers. These supplies are transported to New Jersey by four interstate pipeline suppliers.

Power has approximately 1.17 billion cubic-feet-per-day of firm transportation capacity under contract to meet the primary needs of the gas consumers of PSE&G and the needs of its generation fleet. In addition, Power supplements that supply with a total storage capacity of 82 billion cubic feet that provides a maximum of 0.94 billion cubic feet-per-day of gas during the winter season.

Power expects to be able to meet the energy-related demands of its firm natural gas customers. However, the ability to maintain an adequate supply could be affected by several factors not within Power's control, including curtailments of natural gas by its suppliers, the severe weather and the availability of feedstocks for the production of supplements to its natural gas supply. In addition, supply of all types of gas is affected by the nationwide availability of all sources of fuel for energy production.

Competitive Environment

Power's competitors include merchant generators with or without trading capabilities, utilities that have generating capability or have formed generation and/or trading affiliates, aggregators, wholesale power marketers and combinations thereof. These participants compete with Power and one another buying and selling in wholesale power pools, entering into bilateral contracts and/or selling to aggregated retail customers. Power believes that its asset size and location, regional market knowledge and integrated functions allow it to compete effectively in its selected markets.

Actions by developers, including Power, to build new generating stations have led to an overbuild situation in certain markets, including PJM, causing downward pressure on energy and capacity prices. Capacity prices in PJM have recently averaged well below $10 per kW-year as compared to historical levels of more than $25 per kW-year. This overcapacity has decreased capacity revenues and has decreased margins from some of Power's units. Power believes that recent events in PJM, including preliminary discussions with regard to changes in the design of the capacity market, as well as advancement toward reliability-based payments to generators, may lead to changes that could enhance the value of Power's generation fleet in PJM. In addition, Power anticipates that capacity prices in PJM will return to historical levels in the next several years.

The New England market is also overbuilt and is also undergoing changes. The existence of

reliability-based payments, coupled with the anticipated start of locational capacity markets in 2006, could also enhance the value of Power's generation assets in Connecticut.

The Midwest is also expected to have excess capacity over the next several years due to recent additions, which will continue to negatively impact the expected returns of Power's Lawrenceburg and Waterford facilities. The drivers to reduce the excess capacity will be load growth, the retirement of certain plants, particularly older plants of competitors due to the weakened wholesale energy and capacity market, and increased costs associated with higher levels of environmental compliance.

PJM continues to expand. On May 1, 2004, Commonwealth Edison Company joined PJM. On June 17, 2004, FERC issued two orders to allow the operating affiliates of American Electric Power (AEP) Service Corporation to transfer transmission facilities in Virginia to PJM's control and to allow AEP's Kentucky operating company to join PJM. AEP joined PJM effective October 1, 2004. On January 1, 2005, Duquesne Light Company joined PJM. In addition, FERC has conditionally approved Virginia Electric and Power Company's, a unit of Dominion Resources Inc., application to join PJM. These changes bring both opportunities and risks to Power.

Power's businesses are also under competitive pressure due to technological advances in the power industry and increased efficiency in certain energy markets. It is possible that advances in technology, such as distributed generation, will reduce the cost of alternative methods of producing electricity to a level that is competitive with that of most central station electric production.

Additional legislation in the states where Power operates or into which Power sells energy has been introduced within the last few years to further encourage competition at the retail level (often referred to as customer choice or retail access). However, there is a risk if states should decide to turn away from competition and allow regulated utilities to continue to own or reacquire and operate generating stations in a regulated and potentially uneconomical manner. This has already occurred in certain states in which Power does business. The lack of consistent rules in markets outside of PJM can negatively impact the competitiveness of Power's plants. Also, regional inconsistencies in environmental regulations, particularly those related to emissions, have put some of Power's plants which are located in the Northeast, where rules are more stringent, at an economic disadvantage compared to its competitors in certain Midwest states.

Customers

As EWGs, Power's subsidiaries do not directly serve retail customers. Power uses its generation facilities primarily for the production of electricity for sale at the wholesale level. Power's customers consist mainly of wholesale buyers, primarily within PJM, but also in New York, Connecticut and the Midwest. Power is a direct supplier of New Jersey's EDCs. In addition, Power extended into the New England Power Market by securing a three-year, full requirements contract with a Connecticut utility with an expected peak load of 1,150 MW expiring December 31, 2006. In addition, Power has entered into four-year contracts totaling 500 MW with two Pennsylvania utilities, expiring in 2008 and is considering pursuing similar opportunities in other states.

Employee Relations

As of December 31, 2004, Power had 2,935 employees. Power has collective bargaining agreements with three union groups, which expire on April 30, 2005, October 31, 2005 and May 15, 2006, respectively. New six-year collective bargaining agreements were ratified with the three union groups in February 2005. These agreements cover 1,449 employees (701 employees, or approximately 65% of the workforce for Fossil and 748 employees, or approximately 45% of the workforce for Nuclear). Power believes that it maintains satisfactory relationships with its employees. For additional information, see Item 7. MD&A—Overview of 2004 and Future Outlook—Merger Agreement and Note 25. Merger Agreement of the Notes.

Energy Holdings

Energy Holdings is a New Jersey limited liability company and is the successor to PSEG Energy Holdings Inc., which was originally incorporated in 1989. Energy Holdings' principal executive offices are located at 80 Park Plaza, Newark, New Jersey 07102. Energy Holdings has two principal direct wholly-owned subsidiaries, which are also its segments: Global and Resources.

Energy Holdings has pursued investment opportunities in the global energy markets, with Global focusing on the operating segments of the electric industries and Resources primarily making financial investments in these industries. Global and Resources have more than 70 financial and operating investments.

Energy Holdings' portfolio is diversified by number, type and geographic location of investments. As of December 31, 2004, its assets were comprised of the following types:

	As of December 31, 2004
Leveraged Leases (mainly energy-related)	40%
International Electric Distribution Facilities	22%
International Electric Generation Plants	15%
Domestic Electric Generation Plants	12%
Other(1)	8%
Other Passive Financial Investments	3%
Total	100%

(1) Assets not allocated to a special project, including corporate receivables.

The characteristics of each of these investment types are described in more detail below.

Global

Global is a power producer and distributor that owns and operates electric generation and distribution facilities in selected domestic and international markets.

As of December 31, 2004, Global's assets, which include consolidated projects and those accounted for under the equity method, share of project MW and number of customers by region are as follows:

	As of December 31, 2004		
	Assets	MW	Number of Customers
	(Millions)		
Generation:			
North America	$ 841	2,411	N/A
South America	335	397	N/A
Europe	446	662	N/A
India and the Middle East	309	260	40,000
Distribution:			
South America	1,616	N/A	2,900,000
Other:			
Other(1)	597	N/A	N/A
Total	$ 4,144	3,730	2,940,000

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(1) Assets not allocated to a specific project, including corporate receivables and deferred tax assets.

Global realized substantial growth prior to 2002, but has been faced with significant challenges as the international electricity privatization model has become stressed. These challenges include the losses incurred on the abandonment of Global's Argentine investments in 2002, the devaluation of the Brazilian Real and the corresponding decrease in earnings and cash flow from Global's investment in Rio Grande Energia S.A. (RGE), the impact of other foreign currency fluctuations and the failure of certain counterparties to honor contracts with certain of Global's investments. In 2003, Global began to review its portfolio and to seek to opportunistically monetize investments that no longer had a strategic fit. As part of this strategy, in May 2004, Global completed the sale of its majority interest in Carthage Power Company (CPC) in Rades, Tunisia. In December 2004, Global completed the sale of its 50% equity interest in Meiya Power Company Limited (MPC) to BTU Power Company. For additional information relating to these dispositions, see Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes.

Global has placed its near-term emphasis on maintaining adequate liquidity and improving profitability of currently held investments. While Global still expects certain of its investments in South America to

contribute significantly to its earnings in the future, adverse political and economic risks associated with this region could have a material adverse impact on such investments.

Global has sought to minimize risk in the development and operation of its generation projects by selecting partners with complementary skills, structuring long-term power purchase contracts, arranging financing prior to the commencement of construction and contracting for adequate fuel supply. Historically, Global's operating affiliates have entered into long-term power purchase contracts, thereby selling the electricity produced for the majority of the project life. However, two plants in Texas, Guadalupe (1,000 MW) and Odessa (1,000 MW), and one plant in Poland, Skawina CHP Plant (Skawina) (439 MW), operate as merchant plants without long-term power purchase agreements (PPAs).

Global, to the extent practical, attempts to limit its financial exposure associated with each project and to mitigate development risk, foreign currency exposure, interest rate risk and operating risk, including exposure to fuel costs, through contracts. For additional information related to these risks, see Item 7A. Qualitative and Quantitative Disclosures About Market Risk. In addition, project loan agreements are generally structured on a non-recourse basis. Further, Global generally structures project financings so that a default under one project's loan agreement will have no effect on the loan agreements of other projects or Energy Holdings' debt.

Fuel supply arrangements are designed to balance long-term supply needs with price considerations. Global's project affiliates generally utilize a combination of long-term contracts and spot-market purchases. Global believes that there are adequate fuel supplies for the anticipated needs of its generating projects. Global also believes that transmission access and capacity are sufficient at this time for its generation projects.

See Item 2. Properties—Energy Holdings for discussion of individual investments.

Resources

Resources invests in energy-related financial transactions and manages a diversified portfolio of assets, including leveraged leases, operating leases, leveraged buyout funds, limited partnerships and marketable securities. Established in 1985, Resources has a portfolio of more than 50 separate investments. Based on current market conditions and Energy Holdings' intent to limit capital expenditures, it is unlikely that Resources will make significant additional investments in the near term.

Also, the Demand Side Management (DSM) business, previously managed by PSEG Energy Technologies Inc. (Energy Technologies) was transferred to Resources as of December 31, 2002. DSM revenues are earned principally from monthly payments received from utilities, which represent shared electricity savings from the installation of the energy efficient equipment.

The major components of Resources' investment portfolio as a percent of its total assets as of December 31, 2004 were:

	As of December 31, 2004	
	Amount	% of Resources' Total Assets
	(Millions)	
Leveraged Leases		
Energy-Related		
Foreign	$ 1,341	45%
Domestic	1,177	39%
Real Estate—Domestic	188	6%
Commuter Railcars—Foreign	88	3%
Aircraft—Domestic	57	2%
Total Leveraged Leases	2,851	95%
Limited Partnerships		
Leveraged Buyout Funds	27	1%
Other	14	—
Total Limited Partnerships	41	1%
Marketable Securities	3	—
Other Investments	15	1%
Owned Property	72	2%
Current and Other Assets	17	1%
Total Resources' Assets	$ 2,999	100%

As of December 31, 2004, no single investment represented more than 9% of Resources' total assets.

Leveraged Lease Investments

Resources maintains a portfolio that is designed to provide a fixed rate of return. Income on leveraged leases is recognized by a method which produces a constant rate of return on the outstanding net investment in the lease, net of the related deferred tax liability, in the years in which the net investment is positive. Any gains or losses incurred as a result of a lease termination are recorded as Operating Revenues as these events occur in the ordinary course of business of managing the investment portfolio.

In a leveraged lease, the lessor acquires an asset by obtaining equity representing approximately 15% to 20% of the cost and incurring non-recourse lease debt for the balance. The lessor acquires economic and tax ownership of the asset and then leases it to the lessee for a period of time no greater than 80% of its remaining useful life. As the owner, the lessor is entitled to depreciate the asset under applicable federal and state tax guidelines. In addition, the lessor receives income from lease payments made by the lessee during the term of the lease and from tax receipts associated with interest and

depreciation deductions with respect to the leased property. The ability of Resources to realize these tax benefits is dependent on operating gains generated by its affiliates and allocated pursuant to PSEG's consolidated tax sharing agreement. Lease rental payments are unconditional obligations of the lessee and are set at levels at least sufficient to service the non-recourse lease debt. The lessor is also entitled to any residual value associated with the leased asset at the end of the lease term. An evaluation of the after-tax cash flows to the lessor determines the return on the investment. Under accounting principles generally accepted in the U.S. (GAAP), the lease investment is recorded on a net basis and income is recognized as a constant return on the net unrecovered investment.

Resources has evaluated the lease investments it has made against specific risk factors. The assumed residual-value risk, if any, was analyzed and verified by third parties at the time the investment was made. Credit risk was assessed and, if necessary, mitigated or eliminated through various structuring techniques, such as defeasance mechanisms and letters of credit. Resources has not taken currency risk in its cross-border lease investments. Transactions have been structured with rental payments denominated and payable in U.S. Dollars. Resources, as a passive lessor or investor, has not taken operating risk with respect to the assets it owns, so leveraged leases have been structured with the lessee having an absolute obligation to make rental payments whether or not the related assets operate. The assets subject to lease are an integral element in Resources' overall security and collateral position. If such assets were to be impaired, the rate of return on a

particular transaction could be affected. The operating characteristics and the business environment in which the assets operate are, therefore, important and must be understood and periodically evaluated. For this reason, Resources retains experts to conduct appraisals on the assets it owns and leases, as necessary.

Resources' ten largest lease investments as of December 31, 2004 were as follows:

Investment	Description	Recorded Investment Balances as of December 31, 2004	% of Resources' Total Assets
		(Millions)	
Reliant Energy MidAtlantic Power LLC	Three generating stations (Keystone, Conemaugh and Shawville)	$ 255	9%
Dynegy Holdings Inc	Two electric generating stations (Danskammer and Roseton)	207	7%
Seminole Electric Cooperative	Seminole Generation Station Unit #2	197	7%
Midwest Generation (Guaranteed by Edison Mission Energy)	Two electric generating stations (Powerton and Joliet)	191	6%
ENECO	Gas distribution network (Netherlands)	155	5%
Merrill Creek	Merrill Creek Reservoir Project	136	5%
Grand Gulf	Nuclear generating station (U.S.)	130	4%
ESG	Electric distribution system (Austria)	126	4%
EZH	Electric generating station (Netherlands)	122	4%
NUON	Gas distribution network (Netherlands)	98	3%
		$ 1,617	54%

For additional information on leases, including credit, tax and accounting risk related to certain lessees, see Item 7. MD&A—Results of Operations—Energy Holdings and Item 7A. Qualitative and Quantitative Disclosures About Market Risk—Credit Risk—Energy Holdings.

Other Subsidiaries

Enterprise Group Development Corporation (EGDC), a commercial real estate property management business, is conducting a controlled exit from the real estate business. Total assets of EGDC as of December 31, 2004 and 2003 were $72 million and $86 million, respectively, and include development land in New Jersey, Maryland and Virginia and an 80% partnership interest in buildings and land in New Jersey.

Competitive Environment

Energy Holdings and its subsidiaries continue to experience substantial competition, both in the U.S. and in international markets. In the U.S., an overbuild in generation facilities has led to a large capacity surplus in several regions, including Texas. This has resulted in reduced operating margins for both

independent power producers and utility generators where the marketplace has been evolving from a rate-regulated structure to a competitive environment. Global anticipates that these matters in Texas may improve in the long term, leading to higher capacity prices and increased utilization of its facilities.

In addition, the Polish government is seeking to renegotiate existing PPAs that it believes to be uncompetitive in the local energy market. With respect to Global's distribution businesses in Chile, Peru and Brazil, these investments are rate-regulated and are exposed to minimal risks from competitors. See Regulatory Issues—International Regulation for additional information.

Customers

Global has ownership interests in four distribution companies in South America which serve approximately 2.9 million customers and has developed or acquired interests in electric generation facilities which sell energy, capacity and ancillary services to numerous customers through PPAs, as well as into the wholesale market. For additional information, see Item 2. Properties—Energy Holdings.

Employee Relations

As of December 31, 2004, Energy Holdings had 68 employees. Energy Holdings believes that it maintains satisfactory relationships with its employees. For additional information, see Item 7. MD&A—Overview of 2004 and Future Outlook—Merger Agreement and Note 25. Merger Agreement of the Notes.

Services

Services is a New Jersey corporation with its principal executive offices at 80 Park Plaza, Newark, New Jersey 07102. Services provides management and administrative services to PSEG and its subsidiaries. These include accounting, legal, communications, human resources, information technology, treasury and financial, investor relations, stockholder services, real estate, insurance, risk management, tax, library and information services, security, corporate secretarial and certain planning, budgeting and forecasting services. Services charges PSEG and its subsidiaries for the cost of work performed and services provided pursuant to the terms and conditions of intercompany service agreements. As of December 31, 2004, Services had 1,183 employees, including 114 unionized employees. A new six-year collective bargaining agreement with the union group was ratified in February 2005. Services believes that it maintains satisfactory relationships with its employees. For additional information, see Item 7. MD&A—Overview of 2004 and Future Outlook—Merger Agreement and Note 25. Merger Agreement of the Notes.

REGULATORY ISSUES

Federal Regulation

PSEG, PSE&G, Power and Energy Holdings

PUHCA

PSEG has claimed an exemption from regulation by the SEC as a registered holding company under PUHCA, except for Section 9(a)(2) thereof, which relates to the acquisition of 5% or more of the voting securities of an electric or gas utility company. Fossil, Nuclear, certain subsidiaries of Fossil and certain subsidiaries of Energy Holdings with domestic operations are EWGs. In addition, several of Energy Holdings' investments include foreign utility companies (FUCOs) under PUHCA and Qualifying Facilities (QFs) under the Public Utility Regulatory Policies Act of 1978 (PURPA). If PSEG were no longer exempt under PUHCA, or if the subsidiaries' investments failed to maintain their status as EWGs, FUCOs or QFs, PSEG and its subsidiaries may be subject to additional regulation by the SEC with respect to their financing and investing activities, including the amount and type of non-utility investments they would be permitted to make. PSEG does not believe, however, that this would have a material adverse effect on it and its subsidiaries.

Environmental

PSEG and its subsidiaries are also subject to the rules and regulations relating to environmental issues promulgated by the U.S. Environmental Protection Agency (EPA), the U.S. Department of Energy (DOE) and other regulators. For information on environmental regulation, see Environmental Matters.

FERC

FERC is an independent federal agency that regulates the transmission of electric energy and sale of electric energy at wholesale prices in interstate commerce pursuant to the Federal Power Act. FERC also regulates the interstate transportation of, as well as certain wholesale sales of, natural gas pursuant to the Natural Gas Act. Several PSEG subsidiaries including PSE&G, Fossil, Nuclear, ER&T and certain subsidiaries of Fossil and certain subsidiaries of Energy Holdings with domestic operations are public utilities subject to regulation by FERC. FERC's regulation of public utilities is comprehensive and governs such

matters as rates, services, mergers, financings, affiliate transactions, market behaviors and reporting. FERC is also responsible under PURPA for administering PURPA's requirements for QFs.

Power

Reliability Must-Run (RMR) Status in PJM and New England

In September 2004, Power filed notice with PJM that it was considering the retirement of seven generating units in New Jersey, effective December 7, 2004, due to concerns about whether the units were economically viable under the current market structure. The units being considered for retirement are Sewaren 1, 2, 3 and 4, Kearny 7 and 8 and Hudson 1. The sites where the units are located have other electric generating units that would remain in operation. The units that were the subject of the notice have a combined installed capacity of 1,132 MW and a combined book value of $22 million. In response to Power's filed notice, PJM identified certain system reliability concerns associated with the retirements and said it would initiate meetings with Power on these and other issues designed to address these concerns including the compensation necessary to retain the generating units, discussed below.

Although applicable tariff provisions differ from region to region, RMR tariff provisions provide compensation to a generation owner when a unit proposed for retirement must continue operating for reliability purposes. On November 2, 2004, PJM filed with FERC to amend its Tariff and Operating Agreement. This filing sets forth a RMR compensation mechanism for those generation units in PJM that are scheduled to be retired or mothballed but would remain necessary for reliability. Under the proposal, RMR compensation would be in the form of cost-of-service recovery or recovery of going-forward costs plus a fixed cost adder. By order dated January 25, 2005, FERC approved the RMR compensation mechanism set forth in the November 2, 2004 filing. It is anticipated that the Sewaren 1, 2, 3 and 4 and Hudson 1 units will qualify for RMR treatment under these procedures at least through the summer of 2006. In February 2005, Power requested that FERC approve cost-of-service recovery rates for the Sewaren and Hudson units. If approved the rates would provide approximately $23 million and $17 million of annual revenue for the Sewaren and Hudson units, respectively. The Kearny 7 and 8 units, however, require significant repairs before they can be returned to operational status and it is not anticipated that this work can be performed in time for the units to be available for the summer of 2005, which is the only period for which PJM has identified a reliability need for them. As a result, it does not appear that these units will be eligible for RMR treatment under the PJM procedures.

In the New England electricity market, many owners of generation facilities have filed with FERC for RMR treatment under the NEPOOL Open Access Transmission Tariff. If FERC grants RMR status for a generation facility, the owner is entitled to receive cost-of-service treatment for its facility for the duration of an RMR contract that it enters into with ISO New England Inc. On November 17, 2004, PSEG Power Connecticut LLC (Power Connecticut), a Power subsidiary, filed a request for RMR treatment for the New Haven Harbor generation station and Unit 2 at the Bridgeport Harbor generation station. Numerous parties, including the Connecticut Department of Public Utility Control, the Connecticut Attorney General and various consumer groups, opposed this filing. On January 14, 2005, FERC issued an order that accepted the filing, suspended its effectiveness for a nominal period of 60 days, and set certain issues for hearing and settlement procedures. Beginning on January 14, 2005, subject to refund and hearing, Power Connecticut began collecting a monthly fixed payment amount of approximately $1.6 million for reliability services provided by the Bridgeport Harbor Station, Unit 2 and approximately $3.9 million for reliability services performed by the New Haven Harbor Station. By their terms, the RMR contracts expire when a locational installed capacity mechanism becomes effective in New England, which, according to FERC's directives, is expected to occur on January 1, 2006. The first RMR settlement conference was held on February 8, 2005. It is anticipated that settlement discussions will continue for a 60-day period, at a minimum. Power Connecticut believes that it has meritorious

positions with respect to the issues set for hearing and settlement; however, a final outcome of this process cannot be determined at this time. In addition, it is anticipated that certain parties opposing the filing will seek rehearing of the January 14, 2005 order and, following the exhaustion of remedies at FERC, could seek judicial review. Settlement of challenges to the order would result in dismissal by the settling parties. While Power Connecticut does not believe such challenges are likely to be successful, Power Connecticut cannot predict a final outcome at this time.

PSEG, PSE&G and Power

Regional through and out rates (RTOR)

RTOR are separate transmission rates for transactions where electricity originated in one transmission control area was transmitted to a point outside that control area. Both the Midwest Independent Transmission System Operator, Inc. (MISO) and PJM charged RTORs through December 1, 2004. Under an order dated November 18, 2004, FERC approved a new regional rate design which became effective December 1, 2004 for the entire PJM/MISO region. FERC's order also approved the continuation of license plate or concentrated rates with a transitional Seams Elimination Charge/Cost Adjustment/Assignment (SECA) methodology effective from December 1, 2004 through March 2006.

PSEG and its subsidiaries, along with other stakeholders, jointly (1) filed for rehearing of the November 18, 2004 order as it relates to the imposition of a SECA charge, (2) protested the SECA compliance filings and (3) protested and moved to reject the filing of AEP, Commonwealth Edison Company and Dayton Power & Light Company (New PJM Companies) to collect certain lost revenues resulting from the elimination of RTORs between PJM transmission owners. This request for rehearing is currently pending. On November 30, 2004, FERC issued an order that allowed the New PJM Companies to make a filing with FERC to collect their lost revenues. On December 1, 2004, PSE&G began charging its BGS-FP customers for the increase in transmission charges. Consistent with the terms of the BGS-FP contracts, ER&T (and other BGS-FP suppliers) will not receive any revenue associated with a BGS-FP pass-through of the SECA charge until the FERC's November 18, 2004 order is final and non-appealable. In the case of BGS-CIEP, it is anticipated that pass-through of the SECA charge will commence at the time when PJM begins billing of the SECA. Pursuant to a reciprocity provision in its tariff, PJM will not bill for the SECA until MISO commences billing of the SECA, which is estimated to be during March or April 2005. This delay in billing may allow sufficient time for FERC to rule on the protests before the Regional Transmission Organizations (RTOs) begin SECA billing, subject to refund. On February 10, 2005, FERC issued an order that accepted various SECA filings, established December 2004 as the effective date for the SECA rates, made them subject to refund and surcharge, and established hearing procedures to resolve the outstanding factual issues raised in the filings and the responsive pleadings. Depending on the outcome of this proceeding, which cannot be predicted at this time, PSEG, PSE&G and/or Power's results of operations could be negatively affected.

PJM Expansion

For information on PJM expansion, see Item 1. Business—Power—Competitive Environment.

PSEG, PSE&G, Power and Energy Holdings

Market Power

Under FERC regulations, public utilities may sell power at cost-based rates or apply to FERC for authority to sell at market-based rates (MBR). PSE&G, Fossil, Nuclear, ER&T and certain subsidiaries of Fossil, have applied for and received MBR authority from FERC.

On April 14, 2004, FERC issued a final order revising its generation market power screen, which it uses to determine whether power sellers may have the ability to exercise market power. Upon application by a power seller, if FERC determines that a seller is not able to exercise market power

under the screen, and the seller passes other tests, FERC's rules permit the seller to sell power at MBR. Failing FERC's revised screen will not conclusively determine whether an entity has market power, and applicants failing the test will have the ability to demonstrate that they do not possess market power despite the screen failure. The screen includes two separate analyses: (1) an uncommitted pivotal supplier analysis and (2) a market share analysis that is to be prepared on a seasonal basis. FERC eliminated an exemption that previously existed for generators in RTOs and Independent System Operators (ISOs), such as PJM and New York ISO (NYISO), and will require all entities that wish to sell at MBR to comply with the revised market power screen.

Also on April 14, 2004, FERC issued a notice that it will commence a pre-rulemaking to analyze the adequacy of its overall process used to consider whether an applicant is entitled to MBR authority. On July 8, 2004, FERC clarified that MBR applicants may net their supply against load-following or provider of last resort contracts, such as obligations to supply BGS in New Jersey, within the screen.

PSEG Lawrenceburg Energy Company LLC (Lawrenceburg) and PSEG Waterford Energy LLC (Waterford), indirect wholly-owned subsidiaries of Power, filed their respective triennial market power

reviews in August 2004, and received a notice from FERC on November 16, 2004 requesting further information as to whether Lawrenceburg and Waterford comply with FERC's revised market power screen in combination with other generation assets that their affiliates own in PJM. FERC required this new information by February 7, 2005, and Lawrenceburg and Waterford provided the required information by that date. Power is scheduled for its next triennial market power review in 2006. Despite the request for further information, Power continues to believe that the new market power rules as adopted by FERC will not have a material adverse effect on Power's ability to sell at MBR, although no assurances can be given.

On October 6, 2004, FERC issued a Notice of Proposed Rulemaking (NOPR) regarding reporting requirements for changes in status for entities with MBR authority. On February 10, 2005, FERC issued a final rule in this proceeding that requires entities with MBR to report to FERC within 90 days any changes in circumstances that FERC relied upon in granting MBR authority, and requires FERC to reevaluate MBR status following such an update. The final rule may require updates to FERC upon an acquisition, merger, generation retirement, contract execution or any other event that could affect the facts upon which FERC ruled in granting MBR to an entity. PSEG, PSE&G, Power and Energy Holdings cannot predict the impact, if any, that this rule will have on their operations.

Standards of Conduct

Since 1996, FERC has maintained standards of conduct governing the relationship between transmission providers and their domestic wholesale generation affiliates. These rules prevent domestic wholesale generation affiliates of a transmission provider from gaining an anticompetitive advantage over entities that are not affiliated with a transmission provider by obtaining non-public transmission information or preferential treatment from the affiliated transmission provider. In late 2003, FERC extended the applicability of its standards of conduct to gas and electric transmission providers and their energy affiliates. On April 16, 2004, FERC issued an order on rehearing that further revised and clarified its standards of conduct for transmission providers and their energy affiliates. The revised rules apply to the relationship between PSE&G, as an electric transmission provider, and (1) wholesale sales or marketing employees of PSE&G and (2) employees of Power and certain domestic subsidiaries of Energy Holdings. As of December 31, 2004, PSE&G and the applicable subsidiaries of PSEG believe that they are in compliance with FERC's revised standards of conduct, and posted written procedures on FERC's Open Access Same-Time Information System (OASIS) for compliance with FERC's standards of conduct.

RTO Accounting Treatment

On September 16, 2004, FERC issued a NOPR for the purpose of considering standard accounting and financial reporting rules for RTOs, ISOs and transmission owners within RTOs or ISOs. The proposed rule generally focuses on ensuring consistency in the reporting of costs by RTOs, ISOs and transmission owners within RTOs and ISOs. PSE&G, Power and Energy Holdings cannot predict the impact, if any, that these proceedings will have on their respective businesses.

PSE&G

Neptune Complaint Proceeding

On December 21, 2004, Neptune Regional Transmission System, LLC (Neptune) filed a complaint with FERC against PJM. Neptune is a 660 MW merchant transmission project running from central New Jersey to Long Island, with an expected in-service date of June 2007. Neptune is directly

interconnected to the transmission system of FirstEnergy Corporation (FirstEnergy), but upgrades to the PSE&G transmission system will also be required to move power across the grid. In its complaint, Neptune alleges that PJM impermissibly conducted an interconnection re-study triggered by generator retirements in PJM, which had the effect of increasing Neptune's cost exposure for network upgrades from approximately $4 million to approximately $26 million. Neptune is thus seeking to cap its cost exposure for upgrades. On February 10, 2005, FERC granted Neptune's complaint against PJM. In this order, FERC directed PJM to provide an Interconnection Agreement to Neptune within 10 days of the date of the order, which agreement will limit Neptune's cost responsibility for network upgrades to $4.4 million. FERC expressly declined to determine which entity(ies) would be responsible for paying the cost difference between $4.4 million and $26 million, noting that these issues would be addressed once transmission service is requested on the Neptune line. All affected parties in this proceeding are expected to seek rehearing of the FERC order, and may seek judicial

review as well. It is difficult to determine at this time whether PSE&G will be required to bear any portion of the upgrade costs related to the provision of transmission service on the Neptune line.

Lower Delaware Valley (LDV) Complaint Proceeding

On December 30, 2004, Jersey Central Power & Light Company (JCP&L) filed a complaint at the FERC against the other four signatories to the LDV Transmission System Agreement (LDV Agreement), including PSE&G. The LDV Agreement, which governs the construction of, and investment in, certain 500 kilovolt (kV) transmission facilities, was entered into by the parties in 1977 and remains in effect until 2027. JCP&L seeks to terminate its construction obligations under the LDV Agreement and to terminate its payment obligations to the other contract signatories under related agreements. PSE&G receives from JCP&L approximately $2.7 million annually under the LDV Agreement and its related agreements. PSE&G, along with the other LDV Agreement signatories, will file a response opposing the JCP&L complaint. At this time, PSE&G cannot predict the outcome of this proceeding.

NRC

PSEG and Power

Nuclear's operation of nuclear generating facilities is subject to continuous regulation by the NRC, a federal agency established to regulate nuclear activities to ensure protection of public health and safety, as well as the security and protection of the environment. Such regulation involves testing, evaluation and modification of all aspects of plant operation in light of NRC safety and environmental requirements. Continuous demonstrations to the NRC that plant operations meet requirements are also necessary. The NRC has the ultimate authority to determine whether any nuclear generating unit may operate. The current operating licenses of Power's nuclear facilities expire in the years shown below:

Facility	Year
Salem 1	2016
Salem 2	2020
Hope Creek	2026
Peach Bottom 2	2033
Peach Bottom 3	2034

The NRC has issued orders to all nuclear power plants to implement compensatory security measures. Some of the requirements formalize a series of security measures that licensees had taken in response to advisories issued by the NRC in the aftermath of the September 11, 2001 terrorist attacks. Nuclear has evaluated these orders for the Salem, Peach Bottom and Hope Creek facilities and does not expect the cost of implementation of the additional NRC measures to be material. Security measures required to be in place by October 2004 have been completed at Salem, Hope Creek and Peach Bottom.

Reactor Vessel Heads

In 2002, the NRC issued a bulletin requiring that all operators of pressurized water reactor (PWR) nuclear units submit certain information related to potential degradation of reactor vessel heads. In 2003, the NRC issued an order to all operators of PWR units concerning reactor vessel head inspections. The order confirms the previous bulletin's requirements and adds more intrusive and frequent future inspections, which apply to Salem 1 and 2. In September 2002, Nuclear provided the requested

information for Salem to the NRC, and performed inspections in accordance with the NRC order for Salem 1 and 2 during 2004 and 2003, respectively. The reactor heads were determined to be satisfactory for continued safe operation. Nuclear plans to replace Salem 1 and 2 reactor heads in 2005 as a preventive measure, during scheduled refueling outages.

Also in 2003, the NRC issued a bulletin requiring that all operators of PWR nuclear units also perform inspections of the reactor vessel lower head, due to leakage observed at another nuclear unit not owned by Power. Bare metal visual examinations were completed during Salem 2's October 2003 outage and Salem 1's April 2004 outage, and no degradation was observed. Nuclear's Hope Creek nuclear unit and Peach Bottom 2 and 3 are unaffected by either of these bulletins as they are boiling water reactor nuclear units. Power cannot predict what other actions the NRC may take on this issue.

Nuclear Safety Issues

On January 28, 2004, the NRC issued a letter requesting Power to conduct a review of its Salem and Hope Creek nuclear generation facilities to assess the workplace environment for raising and addressing safety issues. Power responded to the letter on February 28, 2004 and had independent assessments of the work environment at both facilities performed. The results of these assessments were provided to the NRC in May 2004. The assessments concluded that Salem and Hope Creek were safe for continued operations, but also identified issues that needed to be addressed.

At an NRC public meeting on June 16, 2004, PSEG outlined its action plan to address these issues, which focused on a safety-conscious work environment, the corrective action program and work management. A letter documenting these plans and commitments was sent to the NRC on June 25, 2004. On July 30, 2004, the NRC provided a letter to PSEG indicating that it had completed its review. The letter indicated that the NRC had not identified any safety violations and that it appeared that the PSEG action plan would address the key findings of both the NRC and PSEG assessments. On August 30, 2004, the NRC provided Power with its mid-cycle performance reviews of Salem and Hope Creek, which detailed the NRC's plan for enhanced oversight related to the work environment. The letter indicated the NRC plans to continue with this heightened oversight until Power has concluded that substantial, sustainable progress has been made, and the NRC has completed a review that confirms Power's conclusions. Under the NRC oversight program, among other things, Power provided the NRC with a report of its progress at a public meeting in December 2004 and began publishing quarterly metrics to demonstrate performance in the fourth quarter of 2004. The next public meeting is scheduled for Spring 2005.

Steam Pipe Failure

On October 24, 2004, Power's Hope Creek nuclear generation facility transitioned to a planned refueling outage following the unit's shutdown on October 10, 2004 due to a steam pipe failure. Power's preliminary investigation revealed equipment and personnel performance issues associated with the shutdown. The NRC also investigated the event and held a public meeting on January 12, 2005. In the meeting, the NRC reviewed its findings, concurring with the root causes and corrective actions that Power had identified. In a letter to the NRC dated January 9, 2005, Power committed to install vibration-monitoring equipment on the "B" Reactor Recirculation Pump prior to the unit's return to service to address pump vibration concerns and replace the pump's shaft during the next refueling outage or any sooner outage of sufficient duration. This commitment was the subject of a January 11, 2005 Confirmatory Action Letter from the NRC. Hope Creek completed its refueling outage and returned to service on January 26, 2005.

For additional information, see Note 14. Commitments and Contingent Liabilities of the Notes.

Other Regulatory Matters

PSEG, PSE&G, Power and Energy Holdings

American Jobs Creation Act of 2004 (Jobs Act)

On October 22, 2004, President Bush signed into law the Jobs Act which provides a phased-in special deduction associated with pre-tax income from certain of PSEG's businesses, including Power's and Global's pre-tax income from domestic generation projects. This special deduction is equal to 3% of qualifying income for years 2005 and 2006, 6% in years 2007 through 2009 and 9% thereafter. This law

is also expected to provide energy tax credits for certain renewable energy projects, including two projects at Global. Additionally, this law provides a one-year window to repatriate earnings from foreign investments and claim a special 85% dividends received tax deduction on such distributions. For additional information see Item 7. MD&A—Critical Accounting Estimates and Note 2. Recent Accounting Standards and Note 17. Income Taxes of the Notes.

PSE&G

Investment Tax Credits (ITC)

For a discussion of an Internal Revenue Service (IRS) proposal that could have a material impact on PSE&G's treatment of ITCs, see Note 14. Commitments and Contingent Liabilities of the Notes.

State Regulation

PSEG, PSE&G, Power and Energy Holdings

The BPU is the regulatory authority that oversees electric and natural gas distribution companies in New Jersey. PSE&G is subject to comprehensive regulation by the BPU including, among other matters, regulation of retail electric and gas distribution rates and service and the issuance and sale of securities. Power's partial ownership of nuclear generating facilities in Pennsylvania, as well as PSE&G's ownership of certain transmission facilities in Pennsylvania, are subject to regulation by the Pennsylvania Public Utility Commission (PPUC), which oversees the electric and natural gas industries in Pennsylvania. PSE&G and Power are also subject to rules and regulations of the New Jersey Department of Environmental Protection (NJDEP) and the New Jersey Department of Transportation (NJDOT).

PSEG is not subject to direct regulation by the BPU, except potentially with respect to certain transfers of control and reporting requirements. Certain subsidiaries of PSEG and Power with operations in New Jersey may be subject to some regulation by the BPU, with respect to energy supply (BGS and BGSS), certain asset sales, transfers of control, reporting requirements and affiliate standards.

Various Power subsidiaries and Energy Holdings' subsidiaries are subject to some state regulation in other individual states where they operate facilities, including New York, Connecticut, Indiana, Ohio, Texas, California, Hawaii and New Hampshire.

PSE&G and Power

BGSS Filing

On April 9, 2004, PSE&G received the Administrative Law Judge's (ALJ) Initial Decision on the two remaining issues from the 2003/2004 BGSS Commodity Charge Proceeding, filed on May 30, 2003. Under the ALJ's Initial Decision, the partial settlement executed and submitted by the parties was approved. Moreover, under the Initial Decision, the New Jersey Rate Payer Advocate's (RPA) proposal to return pipeline refunds previously received by Power in September and November 2002 and the deferred cost balance as of May 1, 2002 retained by Power to commercial and industrial customers was rejected. On August 18, 2004, the BPU approved a stipulation authorizing a refund of approximately $6 million from Power to commercial and industrial customers in September 2004 and gave final approval to the partial settlement.

On May 28, 2004, PSE&G filed its 2004/2005 BGSS commodity charge filing, requesting an increase in its BGSS commodity charges to its residential gas customers of approximately $47 million in annual revenues effective October 1, 2004 or approximately 3% for the class average residential heating customer. A provisional settlement was approved by the BPU on October 5, 2004. Under this settlement, PSE&G's filed BGSS rates became effective on October 5, 2004 on a provisional basis, subject to refund with interest. The BPU also ordered that PSE&G's filing be transferred to the Office of Administrative Law (OAL) for a full review and an Initial Decision. On January 4, 2005, the parties entered into a final settlement, which was approved by the ALJ on January 6, 2005. Under the final settlement, the provisional rates became final and all other issues raised during the proceeding were resolved. The BPU approved the ALJ Decision and Settlement with no changes on February 1, 2005.

PSE&G

Remediation Adjustment Clause (RAC) Filing

PSE&G is currently implementing a program to address potential environmental concerns regarding its former Manufactured Gas Plant (MGP) properties in cooperation with and under the NJDEP. On March 5, 2004, the BPU approved PSE&G's RAC-10 petition, filed in June 2003, for the recovery of approximately $35 million of certain environmental remediation program expenditures for the period August 1, 2001 through July 31, 2002. The Final Decision and Order approved the Stipulation of Settlement from December 16, 2003, without exception.

On April 22, 2004, PSE&G filed its RAC-11 filing with the BPU to recover approximately $36 million of remediation program expenditures for the period from August 1, 2002 through July 31, 2003. Public hearings were held in July 2004. On September 10, 2004, the ALJ issued an Initial Decision recommending approval of the settlement reached between all parties, allowing PSE&G to recover all requested costs. This will result in PSE&G recovering an additional $0.4 million annually in remediation program expenditures. On October 5,

2004, the BPU issued a Final Decision and Order approving, in its entirety, the ALJ's Initial Decision recommending acceptance of the settlement.

Cost Recovery Mechanism

EDECA required that the BPU provide electric and natural gas customers with the opportunity to choose a supplier for some or all electric or natural gas customer account services (CAS). On July 1, 2004, PSE&G filed a petition with the BPU to implement the CAS Cost Recovery Mechanism for both the electric and gas operations. The request petitions the BPU for the approval to recover $4 million of CAS costs and accumulated interest resulting from implementing PSE&G's dual billing for its delivery costs and for the third-party suppliers' commodity charges as a result of customer migration from PSE&G. On September 21, 2004, the case was transferred to the OAL as a contested case.

Deferral Audit

The BPU Energy and Audit Division conducts audits of deferred balances. A draft Deferral Audit—Phase II report relating to the 12-month period ended December 31, 2003 was released by the consultant to the BPU in February 2005. The draft report addressed the Societal Benefits Clause (SBC), Market Transition Charge (MTC) and Non-Utility Generation (NUG) deferred balances.

While the consultant to the BPU found that the deferral balances complied in all material respects with the BPU Orders regarding such deferrals, the consultant noted that the BPU Staff had raised certain questions with respect to the reconciliation method PSE&G employed in calculating the overrecovery of its MTC and other charges during the four-year transition period. PSE&G and the BPU Staff are continuing discussions to resolve these questions and, if a resolution cannot be achieved, a BPU proceeding may be instituted to consider the issues raised.

While PSE&G believes the MTC methodology it used was fully litigated and resolved, without exception, by the BPU and other intervening parties in its previous electric base rate case, deferral audit and deferral proceeding that were approved by the BPU in its order of April 22, 2004, and that such order is non-appealable, PSE&G cannot predict the impact of the outcome of any such proceeding, which could be material.

Levelized Gas Adjustment Clause (LGAC)/BGSS Audit

The BPU's Division of Audit reviews gas costs of utilities in New Jersey on a regular basis. As part of its regular review in November 2004, the BPU commenced an audit of the gas supply costs incurred during the period October 1, 1999 through September 30, 2004. The outcome of the audit cannot be determined at this time.

New Jersey Clean Energy Program

The BPU has approved a new funding requirement for each New Jersey utility applicable to Renewable Energy and Energy Efficiency programs for the years 2005 to 2008. The sum of PSE&G's electric and gas funding requirement for 2005 is $82 million and grows to $137 million in 2008 for a four-year total of $406 million, a liability that has been recorded at discounted present value with an offsetting regulatory asset. The BPU is seeking new program managers for the Energy Efficiency program, currently being administered by the utilities. The transition from the utilities to the program managers is expected to take place in mid-2005.

International Regulation

Energy Holdings

Global

Global's electric distribution facilities in South America and Oman are rate-regulated enterprises. Rates charged to customers are established by government authorities and are viewed by Global as currently sufficient to cover all operating costs and provide a return. Global can give no assurances that future rates will be established at levels sufficient to cover such costs, provide a return on its investments or generate

adequate cash flow to pay principal and interest on its debt or to enable it to comply with the terms of its debt agreements.

Brazil

RGE is regulated by Agencia Nacional de Energia Eletrica (ANEEL), the national regulatory authority. ANEEL's functions include granting and supervising electric utility concessions, approving electricity tariffs, issuing regulations and auditing distribution systems' performance. The rate setting process for Brazilian distribution companies has two components: an annual adjustment for which RGE applies every April which is embedded in the concession contract and a rate case revision, which was last conducted in 2003 and will be repeated again every fifth year.

In 2004, RGE received a 15% tariff increase adjustment based on 2003 annual inflation. In April 2005, RGE will apply for the annual rate case adjustment. Based on 2004 annual inflation and other postponed increases, Global expects that RGE should be granted a 15% tariff increase, although no assurances can be given.

Chile

Distribution companies in Chile, including Chilquinta Energia S.A. (Chilquinta), Sociedad Austral de Electricidad S.A. (SAESA) and other members of the SAESA Group, are subject to rate regulation by the Comision Nacional de Energia (CNE), a national governmental regulatory authority. The Chilean regulatory framework has been in existence since 1982, with rates set every four years based on a model company for each typical concession area. The tariff which distribution companies charge to regulated customers consists of two components: the actual cost of energy purchased plus an additional amount to compensate for the value added in distribution (DVA tariff). The DVA tariff considers allowed losses incurred in the distribution of electricity, administrative costs of providing service to customers, costs of maintaining and operating the distribution systems and an annual return on investment of 6% to 14% over inflation based on the replacement cost of distribution assets. Changes in electricity distribution companies' cost of energy are passed through to customers, with no impact on the distributors' margins (equal to the DVA tariff). Therefore, distributors, including members of the SAESA Group and Chilquinta, should not be affected by changes in the generation sector which affect prices. The most recent tariff adjustments for members of the SAESA Group and Chilquinta occurred in 2004 and have been reviewed and approved by CNE.

Peru

Distribution companies in Peru, including Luz del Sur (LDS), are subject to tariff regulation by the Organismo Supervisor de la Inversión en Energí a, a national governmental regulatory authority. The Peruvian regulatory framework has been in existence since 1992, with tariffs set every four years based on a model company. The tariff which distribution companies charge to regulated customers consists of two components: the actual cost of energy purchased plus an additional amount to compensate for the value added in distribution (DVA tariff). The DVA tariff considers allowed losses incurred in the distribution of electricity, administrative costs of providing service to customers, costs of maintaining and operating the distribution systems and an annual return on investment of 8% to 16%, based on the replacement cost of distribution assets. Changes in electricity distribution companies' cost of energy are passed through to customers, with no impact on the distributors' margins (equal to the DVA tariff). Therefore, distributors, including LDS, should not be affected by changes in the generation sector which affect prices. The most recent tariff adjustments for LDS occurred in 2001 and the 2005 tariff setting process is currently in progress. New tariffs will be applicable as of November 1, 2005.

SEGMENT INFORMATION

Financial information with respect to the business segments of PSEG, PSE&G, Power and Energy Holdings is set forth in Note 20. Financial Information by Business Segments of the Notes.

ENVIRONMENTAL MATTERS

PSEG, PSE&G, Power and Energy Holdings

Federal, regional, state and local authorities regulate the environmental impacts of PSEG's operations within the U.S. Laws and regulations particular to the region, country or locality where PSEG's operations are located govern the environmental impacts associated with its foreign operations. For both domestic and foreign operations, areas of regulation may include air quality, water quality, site remediation, land use, waste disposal, aesthetics, impact on global climate and other matters.

To the extent that environmental requirements are more stringent and compliance more costly in certain states where PSEG operates compared to other states that are part of the same market, such rules may impact its ability to compete within that market. Due to evolving environmental regulations, it is difficult to project expected costs of compliance and its impact on competition. For additional information related to environmental matters, see Item 3. Legal Proceedings.

PSEG, Power and Energy Holdings

Air Pollution Control

The Federal Clean Air Act (CAA) and its implementing regulations require controls of emissions from sources of air pollution and also impose record keeping, reporting and permit requirements. Facilities in the U.S. that Power and Energy Holdings operate or in which they have an ownership interest are subject to these Federal requirements, as well as requirements established under state and local air pollution laws applicable where those facilities are located. Except as noted below, capital costs of complying with air pollution control requirements through 2009 are included in Power's estimate of construction expenditures in Item 7. MD&A—Capital Requirements.

Prevention of Significant Deterioration (PSD)/New Source Review (NSR)

For a discussion of PSD/NSR, see Note 14. Commitments and Contingent Liabilities of the Notes.

Sulfur Dioxide (SO_2)/Nitrogen Oxide (NO_x)

To reduce emissions of SO_2, the CAA sets a cap on total SO_2 emissions from affected units and allocates SO_2 allowances (each allowance authorizes the emission of one ton of SO_2) to those units. Generation units with emissions greater than their allocations can obtain allowances from sources that have excess allowances. At this time, Power does not expect to incur material expenditures to continue complying with the SO_2 emissions program.

The EPA has issued regulations (commonly known as the NO_x State Implementation Plan (SIP) Call) requiring the 19 states in the eastern half of the U.S. and the District of Colombia to reduce and cap NO_x emissions from power plant and industrial sources. The NO_x reduction requirements are consistent with requirements already in place in New Jersey, New York, Connecticut and Pennsylvania, and therefore have not had an additional impact on the capacity available from Power's facilities in those states. Power has been implementing measures to reduce NO_x emissions at several of its units (including the installation of selective catalytic reduction systems at the Mercer Generating Station), which should reduce the impact of any further increases to the costs of allowances. New facilities that Power developed in Ohio and Indiana became subject to rules that those states have promulgated to comply

with the NO_x SIP Call. Because the rules in Ohio and Indiana both set aside allowances for allocation to new sources, Power did not experience any material adverse effects from complying with this program in these states.

In 1997, the EPA adopted a new air quality standard for fine particulate matter and a revised air quality standard for ozone. In 2004, the EPA identified and designated areas of the U.S. that fail to meet the revised federal health standard for ozone or the new federal health standard for fine particulates. States are expected to develop regulatory measures necessary to achieve and maintain the health standards, which may require reductions in NO_x and SO_2 emissions. Additional NO_x and SO_2 reductions also may be required to satisfy requirements of an EPA rule protecting visibility in many of the nation's Class 1 (pristine) environmental areas, including most areas near Power's facilities. Power cannot at this time determine whether any costs it may incur to comply with these standards would be material.

In December 2003, the EPA announced its intent to propose an Interstate Air Quality Rule (IAQR) (which was renamed as the Clean Air Interstate Rule (CAIR)) that would identify 29 states and the District of Columbia as contributing significantly to the levels of fine particulates and/or eight-hour ozone in downwind states. New Jersey, New York, Pennsylvania and Connecticut are among the states the EPA lists in the proposed CAIR. Based on state obligations to address interstate transport of pollutants under the CAA, the EPA is proposing a two-phased emission reduction program for SO_2 and NO_x, with Phase 1 beginning in 2010 and Phase 2 beginning in 2015. The EPA is recommending that the program be implemented through a cap-and-trade program, although states are not required to proceed in this manner. States would have to submit plans to the EPA for complying with the rule within 18 months of publication of the notice of final rulemaking. The rule is anticipated to be finalized or re-proposed in 2005. Alternatively, Congress has also expressed interest in providing legislation to further improve air quality. Power cannot at this time determine whether any costs it may incur to comply with these standards would be material.

Carbon Dioxide (CO_2) Emissions

Countries participating in the Kyoto Protocol will be required to achieve material reductions of CO_2 and certain other greenhouse gases between 2008 and 2012. Although the U.S. has not ratified the treaty, Global's assets in Europe will be affected by implementation of the Kyoto Protocol, as adopted through regulations by the European Union (EU). At this time, these regulations are not anticipated to have a material effect on operations at Global's European assets in Poland and Italy.

In 2002, Power announced a voluntary agreement that calls for a December 31, 2005 goal of reducing the annual average CO_2 emission rate of its New Jersey fossil fuel-fired electric generating units by 15% below the 1990 average annual CO_2 emission rate. Fossil also made a $1.5 million payment to the NJDEP to assist in the development of landfill gas projects and has agreed to make an additional payment equal to $1 per ton of CO_2 emitted greater than the 15% goal, up to $1.5 million, if that reduction is not achieved.

PSEG joined the EPA Climate Leaders Program in February 2002. On January 13, 2004, PSEG established a goal of reducing its CO_2 emissions intensity by 18% per MWh generated (nuclear excluded) from 2000 levels by December 31, 2008. The goal would in part be met by re-powering the Bergen, Linden and Albany plants. PSEG has developed an emission inventory and is currently working with the EPA Climate Leaders Program to obtain approval of the inventory management plan.

There continues to be a debate within the U.S. over the direction of change in domestic climate policy. Several states, primarily in the Northeastern U.S., are developing state-specific or regional legislative initiatives to stimulate CO_2 emission reductions in the electric power industry. For example, New York initiated the Regional Greenhouse Gas Initiative (RGGI) in April 2003 and the NJDEP in 2004 proposed amendments to its regulations governing air pollution control that would designate CO_2 as an air contaminant subject to regulation. Currently, in the RGGI, nine Northeastern states are participating in discussions intended to lead to a regional program to cap CO_2 emissions from the electric power sector in the region. The outcome of this initiative cannot be determined at this time; however, adoption of stringent CO_2 emission reduction requirements in the Northeast could materially impact Power's operations.

Other Air Pollutants

The CAA directed the EPA to study potential public health impacts of mercury and nickel hazardous air pollutants (HAP) emitted from electric utility steam generating units. In December 2000, the EPA announced its intent to regulate HAP emissions from coal-fired and oil-fired steam units by requiring Maximum Achievable Control Technology (MACT) standards for these units. The EPA proposed the MACT standards in December 2003 and expects to promulgate a final rule by March 2005, with compliance expected by December 2007. PSEG is evaluating the potential impact of these proposed standards.

The EPA announced in December 2003 its intent to propose alternative rules for addressing emissions of mercury from electric generating sources. The first alternative proposes to regulate mercury through the establishment of a MACT standard applicable on a unit-by-unit basis or through a cap-and-trade program. The MACT standard would establish mercury emission limits for all new and existing units and reduce nationwide mercury emissions by approximately 29% by December 2007. The second option requires the EPA to rescind its December 2000 announcement to regulate mercury as a HAP through a MACT standard and to regulate mercury through a cap-and-trade program to be implemented by changes to the states' individual SIPs that establish decreasing emission caps in 2010 and 2018. As part of the December 15, 2003

proposal, the EPA is also proposing to set nickel MACT emission limits for oil-fired electric steam generating units.

New Jersey and Connecticut have already adopted standards for the reduction of emissions of mercury from coal-fired electric generating units. The Connecticut legislation requires coal-fired power plants in Connecticut to achieve either an emissions limit or a 90% mercury removal efficiency through technology installed to control mercury emissions effective in July 2008. The regulations in New Jersey require coal-fired electric generating units in New Jersey to meet certain emission limits or reduce emissions by 90% by December 15, 2007. Companies that are parties to multi-pollutant reduction agreements are permitted to postpone such reductions on half of their coal-fired electric generating capacity until December 15, 2012. Power has a multi-pollutant reduction agreement with the NJDEP as a result of a consent decree that resolved issues arising out of the PSD and NSR air pollution control programs at the Hudson, Mercer and Bergen facilities. Substantial uncertainty exists regarding the feasibility of achieving the reductions in mercury emissions required by the New Jersey regulations and Connecticut statute; however, the costs of technology believed to be capable of meeting these emissions limits at Power's coal-fired unit in Connecticut by July 2008 and at its Mercer Station by December 15, 2007 are included in Power's capital expenditure forecast.

Water Pollution Control

The Federal Water Pollution Control Act (FWPCA) prohibits the discharge of pollutants to waters of the U.S. from point sources, except pursuant to a National Pollutant Discharge Elimination System (NPDES) permit issued by the EPA or by a state under a federally authorized state program. The FWPCA authorizes the imposition of technology-based and water quality-based effluent limits to regulate the discharge of pollutants into surface waters and ground waters. The EPA has delegated authority to a number of state agencies, including the NJDEP, to administer the NPDES program through state acts. The New Jersey Water Pollution Control Act (NJWPCA) authorizes the NJDEP to implement regulations and to administer the NPDES program with EPA oversight, and to issue and enforce New Jersey Pollutant Discharge Elimination System (NJPDES) permits. Power and Energy Holdings also have ownership interests in domestic facilities in other jurisdictions that have their own laws and implement regulations to control discharges to their surface waters and ground waters that directly govern Power's or Energy Holdings' facilities in these jurisdictions.

The EPA is conducting a rulemaking under FWPCA Section 316(b), which requires that cooling water intake structures reflect the best technology available (BTA) for minimizing "adverse environmental impact." Phase I of the rule covering new facilities became effective on January 17, 2002. None of the projects that Power currently has under construction or in development is subject to the Phase I rule. The Phase II rule covering large existing power plants became effective on September 7, 2004. The regulations provide the following five alternative methods by which a facility can demonstrate that it complies with the requirement for BTA for minimizing adverse environmental impacts associated with cooling water intake structures: (1) reduce flow commensurate with a closed-cycle system or reduce intake velocity; (2) meet applicable performance standards for reduction of entrainment and impingement mortality through the use of the existing design, construction, operational or restoration measures; (3) meet applicable performance standards through a combination of existing and proposed design, construction, operational or restoration measures; (4) installation of a design and construction technology specified by the regulation or pre-approved by the agency; and (5) a site-specific determination that the cost to the facility to meet the performance standards is "significantly greater" than either (a) the costs that the EPA estimated for that type of facility or (b) the environmental benefits of complying with the performance standards. Although the rule applies to all of Power's electric generating units that use surface waters for once-through cooling purposes, the impact of the rule to Power and the rule's ability to withstand legal challenges cannot be determined at this time. If

application of the Phase II rules by the states requires the retrofitting of cooling water intake structures at Power's existing facilities, additional material capital expenditures could be required to modify the existing plants to enable their continued operations. Several environmental groups, the Attorneys General of six Northeastern states, the Utility Water Act Group and several of its members, including Power, are parties to litigation challenging the Phase II rule. The case will be heard in the U.S. Court of Appeals for the Second Circuit. The states and environmental groups have indicated that they intend to challenge the use of restoration and other measures to satisfy performance standards as well as a state's ability to make site-specific determinations based on cost tests. A decision issued in February 2004 by the Second Circuit in litigation challenging the Phase I rule (new facilities) struck down that rule's provision allowing for the use of

restoration measures to satisfy the specified performance standards. An unfavorable decision in the Phase II litigation could have a material impact on Power's ability to renew its NJPDES permits at its larger once-through cooled plants without significant upgrades to their existing intake structures and cooling systems.

PSE&G and Power

Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and New Jersey Spill Compensation and Control Act (Spill Act)

CERCLA and the Spill Act authorize Federal and state trustees for natural resources to assess damages against persons who have discharged a hazardous substance, causing an injury to natural resources. Pursuant to the Spill Act, the NJDEP requires persons conducting remediation to characterize injuries to natural resources and to address those injuries through restoration or damages. The NJDEP adopted regulations concerning site investigation and remediation that require an ecological evaluation of potential damages to natural resources in connection with an environmental investigation of contaminated sites. In 2003, the NJDEP issued a policy directive memorializing its efforts to recover natural resource damages and its intent to continue to pursue the recovery of natural resource damages. The NJDEP also issued guidance to assist parties in calculating their natural resource damage liability for settlement purposes, but has stated that those calculations are applicable only for those parties that volunteer to settle a claim for natural resource damages before a claim is asserted by the NJDEP. PSE&G and Power cannot assess the magnitude of the potential financial impact of this regulatory change. See Note 14. Commitments and Contingent Liabilities of the Notes for additional information.

Because of the nature of PSE&G's and Power's respective businesses, including the production and delivery of electricity, the distribution of gas and, formerly, the manufacture of gas, various by-products and substances are or were produced or handled that contain constituents classified by Federal and state authorities as hazardous. For discussions of these hazardous substance issues and a discussion of potential liability for remedial action regarding the Passaic River, see Note 14. Commitments and Contingent Liabilities of the Notes. For a discussion of remediation/clean-up actions involving PSE&G and Power, see Item 3. Legal Proceedings.

Uranium Enrichment Decontamination and Decommissioning Fund

In accordance with the Energy Policy Act, domestic entities that own nuclear generating stations are required to pay into a decontamination and decommissioning fund, based on their past purchases of U.S. government enrichment services. Since these amounts are being collected from PSE&G's customers over a period of 15 years, this obligation remained with PSE&G following the generation asset transfer to Power in 2000. PSE&G's obligation for the nuclear generating stations in which it had an interest was $75 million (adjusted for inflation). As of December 31, 2004, PSE&G had paid $64 million, resulting in a balance due of $11 million. As of December 31, 2004, Power also had a balance due of approximately $2 million, which related to interests in certain nuclear units it purchased. These amounts are payable to the DOE in annual installments through October 2006.

PSE&G and Power

Permit Renewals

In June 2001, the NJDEP issued a renewed NJPDES permit for Salem, expiring in July 2006, allowing for the continued operation of Salem with its existing cooling water system. A renewal

application prepared in accordance with the new Phase II 316(b) rule will be filed by February 1, 2006. Recently published regulations pursuant to Section 316(b) of the FWPCA require existing facilities, including Salem, to demonstrate that their cooling water intake structures reflect the BTA for minimizing adverse environmental impact through one of several options including the reduction of cooling water intake commensurate with closed cycle cooling. For additional information, see Environmental Matters—Water Pollution Control. The NJDEP, in anticipation of the company's application to renew the permit for Salem, has advised PSEG that it strongly recommends that cooling water intake flow at the Salem facility be reduced commensurate with closed cycle cooling. The installation of structures at the Salem facility to reduce cooling water intake flow commensurate with closed cycle cooling would result in material costs of compliance for Power. Power is

evaluating its ability to demonstrate compliance with the new Phase II 316(b) rule through all applicable options available under the new rule.

The consultant hired by the NJDEP to review the NJPDES permit renewal application and studies filed in the 1980s for the Hudson generating station recommended that the Hudson generating station be retrofitted to operate with closed cycle cooling to address alleged adverse impacts associated with the thermal discharge and intake structure. Power proposed certain modifications to the intake structure in filings with the NJDEP in 1998. In the fourth quarter of 2004, Power received a modified NJPDES permit for its Hudson generating station that required the modification to the intake structures that Power had proposed consistent with the timing of upgrades of air pollution control technology pursuant to the consent decree that resolved issues related to NSR and PSD for Hudson Unit 2, but did not require Power to retrofit the station to operate with closed cycle cooling.

The NJDEP has advised Power that it is reviewing a NJPDES permit renewal application and recent studies for the Mercer station and, in connection with these filings, will be re-examining the effects of the Mercer station's cooling water system pursuant to FWPCA. Power cannot predict the timing and/or outcome of NJDEP's review. An unfavorable outcome could require significant modifications to the Mercer station's cooling water system at material cost.

Title V Operating Permits

Title V of the CAA and Sub-Chapter 22 of the New Jersey Administrative Code require that certain air emissions sources obtain Operating Permits issued by NJDEP. All Power generating facilities are required to be included in Title V Operating Permits. The costs of compliance associated with any new requirements imposed by these permits are not known at this time, but may be material.

Nuclear Fuel Disposal

For a discussion of nuclear fuel disposal, see Note 14. Commitments and Contingent Liabilities of the Notes.

Low Level Radioactive Waste (LLRW)

As a by-product of their operations, nuclear generation units produce LLRW. Such wastes include paper, plastics, protective clothing, water purification materials and other materials. LLRW materials are accumulated on site and disposed of at licensed permanent disposal facilities. New Jersey, Connecticut and South Carolina have formed the Atlantic Compact, which gives New Jersey nuclear generators, including Power, continued access to the Barnwell LLRW disposal facility which is owned by South Carolina. Power believes that the Atlantic Compact will provide for adequate LLRW disposal for Salem and Hope Creek through the end of their current licenses, although no assurances can be given. Both Power and Exelon have on-site LLRW storage facilities for Salem, Hope Creek and Peach Bottom, which have the capacity for at least five years of temporary storage for each facility.

PSE&G

MGP Remediation Program

For information regarding PSE&G's MGP Remediation Program, see Note 14. Commitments and Contingent Liabilities of the Notes.

ITEM 2. PROPERTIES

PSEG and Services

PSEG does not own any property. All property is owned by PSEG's subsidiaries.

Services leases substantially all of a 25-story office tower for PSEG's corporate headquarters at 80 Park Plaza, Newark, New Jersey, together with an adjoining three-story building. In addition, the Maplewood Test Services in Maplewood, New Jersey was transferred to Services from Power in January 2004.

PSE&G

PSE&G's First and Refunding Mortgage (Mortgage), securing the bonds issued thereunder, constitutes a direct first mortgage lien on substantially all of PSE&G's property.

PSE&G's electric lines and gas mains are located over or under public highways, streets, alleys or lands, except where they are located over or under property owned by PSE&G or occupied by it under easements or other rights. These easements and other rights are deemed by PSE&G to be adequate for the purposes for which they are being used.

PSE&G believes that it maintains adequate insurance coverage against loss or damage to its principal properties, subject to certain exceptions, to the extent such property is usually insured and insurance is available at a reasonable cost.

Electric Transmission and Distribution Properties

As of December 31, 2004, PSE&G's transmission and distribution system included approximately 21,735 circuit miles, of which approximately 7,754 circuit miles were underground, and approximately 757,646 poles, of which approximately 525,872 poles were jointly-owned. Approximately 99% of this property is located in New Jersey.

In addition, as of December 31, 2004, PSE&G owned five electric distribution headquarters and four subheadquarters in four operating divisions, all located in New Jersey.

Gas Distribution Properties

As of December 31, 2004, the daily gas capacity of PSE&G's 100%-owned peaking facilities (the maximum daily gas delivery available during the three peak winter months) consisted of liquid petroleum air gas (LPG) and liquefied natural gas (LNG) and aggregated 2,973,000 therms (approximately 2,886,000 cubic feet on an equivalent basis of 1,030 Btu/cubic foot) as shown in the following table:

Plant	Location	Daily Capacity (Therms)
Burlington LNG	Burlington, NJ	773,000
Camden LPG	Camden, NJ	280,000
Central LPG	Edison Twp., NJ	960,000
Harrison LPG	Harrison, NJ	960,000

Total	2,973,000

As of December 31, 2004, PSE&G owned and operated approximately 17,064 miles of gas mains, owned 12 gas distribution headquarters and two subheadquarters, all in two operating regions located in New Jersey and owned one meter shop in New Jersey serving all such areas. In addition, PSE&G operated 61 natural gas metering or regulating stations, all located in New Jersey, of which 28 were located on land owned by customers or natural gas pipeline suppliers and were operated under lease, easement or other similar arrangement. In some instances, the pipeline companies owned portions of the metering and regulating facilities.

Office Buildings and Facilities

PSE&G rents office space from Services as its headquarters in Newark, New Jersey. PSE&G also leases office space at various locations throughout New Jersey for district offices and offices for various corporate

groups and services. PSE&G also owns various other sites for training, testing, parking, records storage, research, repair and maintenance, warehouse facilities and for other purposes related to its business.

In addition to the facilities discussed above, as of December 31, 2004, PSE&G owned 41 switching stations in New Jersey with an aggregate installed capacity of 21,203 megavolt-amperes and 242 substations with an aggregate installed capacity of 7,652 megavolt-amperes. In addition, four substations in New Jersey having an aggregate installed capacity of 109 megavolt-amperes were operated on leased property.

Power

Power rents office space from Services as its headquarters in Newark, New Jersey. Other leased properties include office, warehouse, classroom and storage space, primarily located in New Jersey. Power also owns the Central Maintenance Shop at Sewaren, New Jersey.

Power has a 57.41% ownership interest in approximately 13,000 acres in the Delaware River Estuary region to satisfy the condition of the NJPDES permit issued for Salem. Power also owns several other facilities, including the on site Nuclear Administration and Processing Center buildings.

Power has a 13.91% ownership interest in the 650-acre Merrill Creek Reservoir in Warren County, New Jersey and approximately 2,158 acres of land surrounding the reservoir. The reservoir was constructed to store water for release to the Delaware River during periods of low flow. Merrill Creek is jointly-owned by seven companies that have generation facilities along the Delaware River or its tributaries and use the river water in their operations.

Power believes that it maintains adequate insurance coverage against loss or damage to its plants and properties, subject to certain exceptions, to the extent such property is usually insured and insurance is available at a reasonable cost. For a discussion of nuclear insurance, see Note 14. Commitments and Contingent Liabilities of the Notes.

As of December 31, 2004, Power's share of installed generating capacity was 14,607 MW, as shown in the following table:

OPERATING POWER PLANTS

Name	Location	Total Capacity (MW)	% Owned	Owned Capacity (MW)	Principal Fuels Used	Mission
Steam:						
Hudson	NJ	991	100%	991	Coal/Gas	Load Following
Mercer	NJ	648	100%	648	Coal/Gas	Load Following
Sewaren	NJ	453	100%	453	Gas/Oil	Load Following
Linden(F)	NJ	430	100%	430	Oil	Load Following
Keystone(A)(B)	PA	1,700	23%	388	Coal	Base Load
Conemaugh(A)(B)	PA	1,700	23%	382	Coal	Base Load
Kearny	NJ	300	100%	300	Oil	Load Following
Albany(F)	NY	376	100%	376	Gas/Oil	Load Following
Bridgeport Harbor	CT	503	100%	503	Coal/Oil	Base Load
New Haven Harbor	CT	448	100%	448	Oil/Gas	Load Following
Total Steam		7,549		4,919		
Nuclear:						
Hope Creek(G)	NJ	1,049	100%	1,049	Nuclear	Base Load
Salem 1 & 2(A)(G)	NJ	2,304	57%	1,323	Nuclear	Base Load
Peach Bottom 2 & 3(A)(C)	PA	2,224	50%	1,112	Nuclear	Base Load
Total Nuclear		5,577		3,484		
Combined Cycle:						
Bergen	NJ	1,221	100%	1,221	Gas/Oil	Load Following
Lawrenceburg	IN	1,096	100%	1,096	Gas	Load Following
Waterford	OH	821	100%	821	Gas	Load Following
Total Combined Cycle		3,138		3,138		
Combustion Turbine:						
Essex	NJ	617	100%	617	Gas/Oil	Peaking
Edison	NJ	504	100%	504	Gas/Oil	Peaking
Kearny	NJ	443	100%	443	Gas/Oil	Peaking
Burlington	NJ	557	100%	557	Gas/Oil	Peaking
Linden	NJ	324	100%	324	Gas/Oil	Peaking
Mercer	NJ	129	100%	129	Oil	Peaking
Sewaren	NJ	129	100%	129	Oil	Peaking

Bayonne	NJ	42	100%	42	Oil	Peaking
Bergen	NJ	21	100%	21	Gas	Peaking
National Park	NJ	21	100%	21	Oil	Peaking
Kearny	NJ	21	100%	21	Gas	Peaking
Linden(F)	NJ	21	100%	21	Gas/Oil	Peaking
Salem(A)	NJ	38	57%	22	Oil	Peaking
Bridgeport Harbor	CT	10	100%	10	Oil	Peaking
Total Combustion Turbine		2,877		2,861		
Internal Combustion:						
Conemaugh(A)(B)	PA	11	23%	2	Oil	Peaking
Keystone(A)(B)	PA	11	23%	3	Oil	Peaking
Total Internal Combustion		22		5		
Pumped Storage:						
Yards Creek(A)(D)(E)	NJ	400	50%	200		Peaking
Total Operating Generation Plants		19,563		14,607		

(A)Power's share of jointly-owned facility.
(B)Operated by Reliant Energy.
(C)Operated by Exelon Generation.
(D)Operated by JCP&L.
(E) Excludes energy for pumping and synchronous condensers.
(F) These assets are scheduled for retirement within the next five years, partially dependent upon new generation going into service discussed below.
(G)Pursuant to the Nuclear OSC, operations of these facilities were transferred from Power to Exelon Generation on January 17, 2005. See Item 1. Business—Power—Nuclear.

As of December 31, 2004, Power had generating capacity in construction or advanced development, as shown in the following table:

POWER PLANTS IN CONSTRUCTION OR ADVANCED DEVELOPMENT

Name	Location	Total Capacity (MW)	% Owned	Owned Capacity (MW)	Principal Fuels Used	Scheduled In Service Date
Combined Cycle:						
Bethlehem	NY	763	100%	763	Gas	2005
Linden	NJ	1,220	100%	1,220	Gas	2006
Total Construction		1,983		1,983		
Nuclear Uprates	NJ/PA	185	Various	162	Nuclear	2005-2008
Total Advanced Development		185		162		

Projected Capacity	Total Owned Capacity (MW)
Total Owned Operating Generation Plants	14,607
Under Construction	1,983
Advanced Development	162
Less: Planned Retirements	(827)
Projected Capacity	15,925

Energy Holdings

Energy Holdings rents office space from Services as its headquarters in Newark, New Jersey.

Energy Holdings believes that it maintains adequate insurance coverage for properties in which its subsidiaries have an equity interest, subject to certain exceptions, to the extent such property is usually insured and insurance is available at a reasonable cost.

Global has invested in the following generation facilities that were in operation as of December 31, 2004:

OPERATING POWER PLANTS

Name	Location	Total Capacity (MW)	% Owned	Owned Capacity (MW)	Principal Fuels Used
United States					
Texas Independent Energy, L.P. (TIE)					
Guadalupe Power Partners, L.P. (Guadalupe)	TX	1,000	100%	1,000	Natural gas
Odessa-Ector Power Partners, L.P. (Odessa)	TX	1,000	100%	1,000	Natural gas
Total TIE		2,000		2,000	
Kalaeloa Partners L.P. (Kalaeloa)	HI	209	50%	105	Oil
GWF Power Systems, L.P. (GWF)					
Bay Area I	CA	21	50%	10	Petroleum coke
Bay Area II	CA	21	50%	10	Petroleum coke
Bay Area III	CA	21	50%	10	Petroleum coke
Bay Area IV	CA	21	50%	10	Petroleum coke
Bay Area V	CA	21	50%	10	Petroleum coke
Total GWF		105		50	
Hanford L.P. (Hanford)	CA	27	50%	14	Petroleum coke
Thermal Energy Development Partnership L.P. (Tracy)	CA	21	35%	7	Biomass
GWF Energy LLC (GWF Energy)					
Hanford—Peaker Plant	CA	95	60%	57	Natural gas
Henrietta—Peaker Plant	CA	97	60%	58	Natural gas
Tracy—Peaker Plant	CA	171	60%	103	Natural gas
Total GWF Energy		363		218	
SEGS III	CA	30	9%	3	Solar
Bridgewater	NH	16	40%	6	Biomass
Conemaugh	PA	15	50%	8	Hydro
Total United States		2,786		2,411	
International					
PPN Power Generating Company Limited (PPN)	India	330	20%	66	Naphtha/Natural gas
Prisma					
Crotone	Italy	20	25%	5	Biomass
Bando D'Argenta I	Italy	20	50%	10	Biomass
Strongoli	Italy	40	25%	10	Biomass
Total Prisma		80		25	
Electroandes S.A. (Electroandes)	Peru	183	100%	183	Hydro
Skawina CHP Plant (Skawina)	Poland	590	75%	439	Coal
Elektrocieplownia Chorzow Sp. Z o.o. (ELCHO)	Poland	220	90%	198	Coal
Turboven					

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Maracay	Venezuela	60	50%	30	Natural gas
Cagua	Venezuela	60	50%	30	Natural gas
Total Turboven		120		60	
Turbogeneradores de Maracay (TGM)	Venezuela	40	9%	4	Natural gas
Dhofar Power Company S.A.O.C. (Dhofar Power)	Oman	240	81%	194	Natural gas
SAESA Group	Chile	72	100%	72	Oil/Hydro/Wind
Total International		1,875		1,241	
Total Operating Power Plants		4,661		3,652	

As of December 31, 2004, Global had invested in the following generation facilities that were in construction or advanced development:

POWER PLANTS IN CONSTRUCTION

Name	Location	Total Capacity (MW)	% Owned	Owned Capacity (MW)	Principal Fuels Used	Scheduled In Service Date
Construction						
SAESA Group	Chile	43	100%	43	Natural Gas/Diesel	2005
Advanced Development						
Electroandes	Peru	35	100%	35	Hydro	2007
Total Projected Capacity		4,739		3,730		

Domestic Generation In Operation

TIE

Global had a 50% interest in TIE through its joint venture with TECO Energy Inc. (TECO). In June 2004, Global signed an agreement to acquire all of TECO's equity interest in TIE for less than $1 million. With this purchase, Global owns 100% of TIE and consolidated this investment effective July 1, 2004. TIE owns and operates two electric generation facilities, one in Guadalupe County in south central Texas (Guadalupe) and one in Odessa in western Texas (Odessa).

In 2003, TIE entered into an asset management agreement that provides greater access to the energy and gas marketplace. Approximately 55% and 57% of the total peak capacity for the Guadalupe and Odessa plants, respectively, for 2005 have been sold via bilateral PPAs. Any remaining uncommitted output is sold in the Texas spot market. Guadalupe and Odessa continue to enter into forward contracts on an ongoing basis.

Kalaeloa

Global's 50% partner in Kalaeloa is a power fund managed by Harbert Power Corporation (Harbert). All of the electricity generated by the Kalaeloa power plant is sold to the Hawaiian Electric Company, Inc. (HECO) under a PPA expiring in May 2016. Under a steam purchase and sale agreement expiring in May 2016, the Kalaeloa power plant supplies steam to the adjacent Tesoro refinery. The primary fuel, low sulfur fuel oil, is provided from the adjacent Tesoro refinery under a long-term all requirements contract. The refinery is interconnected to the power plant by a pipeline and preconditions the fuel oil prior to delivery. Back-up fuel supply is provided by HECO.

The two combustion turbines of Kalaeloa were upgraded in 2004 resulting in both an increase in the net plant output by approximately 20 MW and an improvement in the efficiency of consuming fuel. As a result of the upgrades, Kalaeloa and HECO entered into two amendments to the PPA. The amendments

will be effective upon final approval from the Public Utility Commission of the State of Hawaii. If approved, the amendments could increase Kalaeloa firm capacity and associated energy sales to HECO from 180 MW to 209 MW, or a lesser amount as actually demonstrated.

GWF and Hanford

Global and Harbert each own 50% of GWF. PPAs for the five GWF Bay Area plants' net output are in place with Pacific Gas and Electric Company (PG&E) ending in 2020 and 2021. GWF acquires the petroleum coke used to fuel its plants through contracts with two local oil refineries with price and minimum volumes being negotiated annually. Three of the five GWF plants have been modified to burn a wider variety of petroleum coke products to mitigate fuel supply and pricing risk.

Global and Harbert each own 50% of Hanford. A PPA for the plant's net output is in place with PG&E ending in August 2011. Hanford acquires its petroleum coke from a refinery whose previously scheduled October 2004 closing has been extended to March 2005 to enable the current owner to find a buyer for the refinery. The sale of the refinery is now expected to close in the first quarter of 2005 subject to all required

regulatory approvals. During 2004, Hanford tested the quality and firing characteristics of alternate sourced delayed petroleum coke and applied for permit modifications, which are under review, to be in position to transition to a new fuel supply, if necessary.

Hanford, Henrietta and Tracy Peaker Plants

GWF Energy, which is 60% owned by Global and 40% owned by Harbinger GWF LLC (Harbinger), an affiliate of Harbert, owns and operates three peaker plants in California. Global had owned approximately 75% of GWF Energy, but was required under an arbitration panel's finding to sell a 14.9% interest to Harbinger for approximately $14 million (approximate book value) in February 2004. The output of these plants is sold under a PPA with the California Department of Water Resources (DWR) with maturities in 2011 and 2012. DWR has the right to schedule energy and/or reserve capacity from each unit of the three plants for a maximum of 2,000 hours each year. Energy and capacity not scheduled by the DWR is available for sale by GWF Energy. GWF Energy obtains the natural gas used to fuel its plants from the spot market on a non-firm basis, with DWR taking the price and availability risk.

International Generation in Operation

India

PPN

Global owns a 20% interest in PPN located in Tamil Nadu, India. Global's partners include Marubeni Corporation, with a 26% interest, El Paso Energy Corporation, with a 26% interest, and the Apollo Infrastructure Company Ltd., with a 28% interest. PPN has entered into a PPA for the sale of 100% of its output to the State Electricity Board of Tamil Nadu (TNEB) for 30 years, with an agreement to take-or-pay equal to a plant load factor of at least 68.5%. TNEB has not made full payment to PPN for the purchase of energy under the contract. For a discussion of the TNEB's failure to meet its obligations under this PPA, see Item 3. Legal Proceedings.

Oman

Dhofar Power

In March 2001, Global, through Dhofar Power, signed a 20-year concession with the Government of Oman to privatize the electric system of the city of Salalah. A consortium led by Global (81% ownership) and several major Omani investment groups own Dhofar Power. Dhofar Power achieved commercial operation in May 2003. As required under the concession agreement, 35% of Dhofar Power's shares will be made available through a public offering on the Oman stock exchange in 2005. See Note 14. Commitments and Contingent Liabilities of the Notes for additional discussions regarding contractual disputes between Dhofar Power and the Government of Oman.

Peru

Electroandes

Electroandes' main assets include four hydroelectric facilities with a combined installed capacity of 183 MW and 437 miles of transmission lines located in the central Andean region east of Lima. In addition, Electroandes is in the process of developing a 35 MW expansion to an existing station. In

2004, 98% of Electroandes' revenues were obtained through various PPAs expiring between 2005 and 2008.

Venezuela

Turboven

The facilities in Cagua and Maracay are owned and operated by Turboven, an entity which is jointly-owned by Global and Corporacion Industrial de Energia (CIE). PPAs expiring between 2006 and 2011 have been entered into for the sale of approximately 40% of the output of Maracay and Cagua to various industrial customers. The PPAs are structured to provide energy only with minimum take provisions. Fuel

costs are passed through directly to customers and the energy tariffs are calculated in U.S. Dollars and paid in local currency.

TGM

Global has a 9% indirect interest in TGM through a partnership with CIE. TGM sells all of the energy produced under a PPA with Manufacturas del Papel (MANPA), a paper manufacturing concern located in Maracay. MANPA and CIE have common controlling shareholders.

Poland

ELCHO

Global has 90% ownership in ELCHO, a company that has developed a combined thermal energy and power generation plant located in the city of Chorzow, Poland that began operation in the fourth quarter of 2003. ELCHO also owns an older, smaller combined heat and power plant that was retired in 2004. ELCHO has a 20-year PPA with Polskie Sieci Elektroenergetyczne SA (PSE), the Polish government power grid company. In addition to the PPA, ELCHO has contracts with local distribution companies to provide hot water. Approximately 80% of ELCHO's revenues are derived from the PPA and 20% from the thermal business. A portion of the PPA is indexed to U.S. Dollars to support the portion of ELCHO's non-recourse project financing that is in U.S. Dollars. The remainder of the PPA is in Polish Zlotys. For additional information related to ELCHO, see Item 3. Legal Proceedings.

Skawina

During 2002, Global acquired a 50% interest in Skawina, a combined thermal energy and power generation plant in Poland. In accordance with the purchase agreement, Global purchased additional shares from Skawina's employees to increase its equity interest in Skawina to approximately 63% in August 2003 and 75% in September 2004. Skawina supplies electricity to several electric distribution companies and heat mainly to the city of Krakow under one-year contracts consistent with current practice in Poland.

Electric Distribution Facilities

Global has invested in the following major distribution facilities:

Name	Location	Number of Customers	Global's Ownership Interest
RGE	Brazil	1,070,000	32%
Chilquinta	Chile	509,000	50%
SAESA Group	Chile	571,000	100%
LDS	Peru	750,000	38%
Total		2,900,000	

As part of Dhofar Power's concession, Global also operates a small distribution facility serving approximately 40,000 customers.

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Brazil

RGE

Global owns a 32% equity interest in RGE. Global is the named operator for the system. A shareholders' agreement establishes corporate governance, voting rights and key financial provisions. Global has veto rights over certain actions, including approval of the annual budget and financing plan, appointment of executive officers, significant investments or acquisitions, sale or encumbrance of assets, establishment of guarantees, amendment of the by-laws of the company and dividend policies. Day-to-day operations are the responsibility of RGE's management, subject to shareholder oversight. During 2001, VBC Energia and Previ transferred their shares to Companhia Paulista de Forcae Luz (CPFL), an electric distribution company in which VBC Energia and Previ collectively own a majority interest.

RGE operates under a territorial concession agreement ending in 2027. Under a new regulation passed in 2004, the concession is exclusive and only large consumers have the right to choose another provider of energy or to self-generate. Global does not believe this represents a material threat to the profitability of the distribution system in Brazil since the tariff structure provides the distribution system the opportunity to recover all costs associated with distribution service plus a return. In 2002, RGE secured its energy supply through a 12-year contract signed with Tractebel, a European generation company, which covers all its actual capacity not covered by other existing contracts. Of RGE's existing contracts, only one is denominated in U.S. Dollars. This contract represents 20% of RGE's current needs.

For additional information related to RGE, see Item 1. Business—Regulatory Issues and Item 3. Legal Proceedings.

Chile and Peru

Chilquinta and LDS

Global together with its partner, Sempra Energy (Sempra), own 99.99% of the shares of Chilquinta, an energy distribution company with numerous energy holdings, based in Valparaiso, Chile. Global's interest is 50% of this aggregate. Following the sale in 2004 of 12% of shares of LDS to the public, Global and Sempra own 75.9% of LDS, an electric distribution company located in Lima, Peru. As part of the Chilquinta and LDS investments, Global and Sempra also own Tecnored and Tecsur, located in Chile and Peru, respectively. These companies provide procurement and contracting services to Chilquinta, LDS and others.

As equal partners, Global and Sempra share in the management of Chilquinta and LDS. However, Sempra has assumed lead operational responsibilities at Chilquinta, while Global has assumed lead operational responsibilities at LDS. The shareholders' agreement provides for important veto rights over major partnership decisions including dividend policy, budget approvals, management appointments and indebtedness.

Chilquinta operates under a non-exclusive perpetual franchise within Chile's Region V which is located just north and west of Santiago. Global believes that direct competition for distribution customers would be uneconomical for potential competitors. LDS operates under an exclusive, perpetual franchise in the southern portion of the city of Lima and in an area just south of the city along the coast serving a population of approximately 3.2 million. Both Chilquinta and LDS purchase energy for distribution from generators in their respective markets on a contract basis. For additional information related to Chilquinta and LDS, see Item 1. Business—Regulatory Issues.

SAESA Group

Global owns a 99.98% equity interest in SAESA, 98.36% of Empresa Electrica de la Frontera S.A. (Frontel) and 100% of PSEG Generacion y Energia Chile Limitada (Generacion), collectively known together with subsidiaries of SAESA as the SAESA Group. The SAESA Group consists of four distribution companies and one transmission company that provide electric service to 390 cities and towns over 900 miles in southern Chile and a generating company. The SAESA Group has 72 MW of installed generating capacity in operation (52 MW oil-fired, 18 MW hydro and 2 MW wind) and an additional 43 MW of natural gas-fired peaker capacity under construction. The transmission company, Sistema de Transmision del Sur S.A. (STS), provides transmission services to electric generation facilities that have PPAs with distributors in Regions VIII, IX and X and has installed transformation

capacity of 816 megavolt-amperes.

SAESA also owns a 50% interest in an Argentine distribution company, Empresa de Energia Rio Negro S.A. (EDERSA), which provides generation, transmission and distribution services to approximately 147,000 customers in the Province of Rio Negro.

The Chilean members of the SAESA Group are organized and administered according to a centralized administrative structure designed to maximize operational synergies. In Argentina, EDERSA has its own independent administrative structure. For additional information related to the SAESA Group, see Item 1. Business—Regulatory Issues.

ITEM 3. LEGAL PROCEEDINGS

PSE&G

On November 15, 2001, Consolidated Edison Company of New York, Inc. (Con Edison) filed a complaint against PSE&G with the FERC asserting that PSE&G had breached agreements covering 1,000 MW of transmission. PSE&G denied the allegations set forth in the complaint. An Initial Decision issued by an ALJ in April 2002 upheld PSE&G's claim that the contracts do not require the provision of "firm" transmission service to Con Edison but also accepted Con Edison's contentions that PSE&G was obligated to provide service to Con Edison utilizing all the facilities comprising its electrical system including generation facilities and that PSE&G was financially responsible for "out-of-merit," i.e., above-market, generation costs needed to effectuate the desired power flows. On December 9, 2002, FERC issued an order modifying the Initial Decision by finding that only 600 MW of the total 1,000 MW power transfers is required to be supported by out-of-merit generation. FERC also made a number of other findings, on a preliminary basis, including favorable findings to PSE&G that power transfers should be measured on a "net" basis that considers the impacts of third-party transactions and that PSE&G's obligations should be reduced to the extent that Con Edison has impaired PSE&G's ability to perform under the contracts. FERC remanded a number of issues to the ALJ for additional hearings, mainly related to the development of protocols to implement the findings of the December 9, 2002 order. In addition, issues related to Phase II of the complaint involving the past administration of the contracts and a claim that PSE&G improperly benefited from the purchase of hedging contracts in New York, were also referred to the ALJ. The ALJ issued an Initial Decision on the Phase II issues on June 11, 2003 and on August 2, 2004 FERC issued its decision on Phase II issues. Those decisions were largely favorable to PSE&G; however, PSE&G did seek rehearing as to certain issues as did Con Edison. Those rehearing applications are currently pending. The August 2, 2004 order required that PJM, NYISO, Con Edison and PSE&G meet for the purpose of developing operational protocols to implement FERC's directives. Several meetings have occurred, including meetings before the ALJ, in an attempt to agree upon protocols. On February 18, 2005, NYISO, PJM and PSE&G submitted a joint compliance filing pursuant to the FERC's August 2, 2004 decision. Comments on the filing are due March 11, 2005.

Power

Hudson and Mercer Generation Stations

During 1997 and 1998, approximately 150,000 tons of fly ash generated by the Hudson and Mercer generating stations was taken by an ash marketer, with whom Power then worked, and sold to the owner and operator of a clay mine. The operator of the clay mine used the fly ash as fill material to return the mine site to grade, without obtaining the necessary approvals from the NJDEP. Upon discovery of this use, Power terminated the services of this ash marketer and initiated discussions with the NJDEP for the appropriate regulatory approvals to allow this material to remain at the site. The NJDEP has approved a closure plan for the site that features a clay cap and other engineering controls to ensure that the ash is isolated from the environment. The cost of resolving this matter will depend upon the results of negotiations with the property owner and the ash marketer. Although the precise extent of liability is not currently estimable, it is not expected to be material.

Kearny Generation Station

A preliminary review of possible mercury contamination at the Kearny station concluded that additional studies and investigations are required. A Remedial Investigation (RI) was conducted and a

report was submitted to the NJDEP in 1997. This report is currently under technical review. The RI report found that the mercury at the site is stable and immobile and should be addressed at the time the Kearny station is retired.

Energy Holdings

Texas

The Public Utility Commission of Texas (PUCT) instituted an investigation regarding certain price spikes in the Electric Reliability Council of Texas (ERCOT) Balancing Energy Service (BES) market and ancillary services market that occurred during extreme weather conditions on February 24-26, 2003, to determine whether any market manipulation occurred and whether any existing protocols need to be revised. On those days, during several trading periods, prices in the ERCOT balancing energy market cleared near the $1,000 per MWh ERCOT price cap. As part of the PUCT investigation, TIE and its two operating subsidiaries, Guadalupe and Odessa, along with the other market participants, were requested to provide certain information to the PUCT relating to their bids during this period. TIE, Guadalupe and Odessa supplied all the requested information and believe such information demonstrates that Guadalupe's and Odessa's bidding activities were consistent with ERCOT protocols.

The PUCT issued an order in May 2003 directing ERCOT to implement certain changes to the BES market to mitigate the affects of potential future price spikes. These changes have been implemented. Global believes that the new protocols will have minimal financial impact on Guadalupe and Odessa.

On July 7, 2003, Texas Commercial Energy LLC (TCE) filed suit against the three major electric utilities in Texas, certain wholesale power generators, their related affiliated retail electric providers and certain qualified scheduling entities, as well as ERCOT, in its function as the ISO for the Texas energy market. The action filed in the U.S. District Court for the Southern District of Texas, Civil Action No. C-03-249, alleges price-fixing, predatory pricing and certain common law claims. Automated Power Exchange, Inc. (APX), a named defendant, acted as agent and submitted bids on behalf of Guadalupe and Odessa, as well as several other generators in the ERCOT balancing energy market. APX has submitted a demand for indemnification from Guadalupe and Odessa. On February 3, 2004, TCE amended its complaint and named TIE, Guadalupe and Odessa and others as additional defendants. On May 20, 2004, the U.S. District Court granted the defendants' motion to dismiss the state and federal antitrust claims. All collateral claims were to be held in abatement pending an appeal of the ruling to the Fifth Circuit Court of Appeals. On July 19, 2004, TCE filed a Notice of Appeal, and the parties subsequently filed briefs and reply briefs. Global continues to believe there are valid defenses to TCE's claims which will be vigorously asserted.

On February 18, 2005, Utility Choice L.P., and Cirro Group Inc. filed suit against many of the same defendants in the TCE suit, including TIE based on facts similar to those alleged in the TCE litigation. The new action, filed in the U.S. District Court for the Southern Division of Texas also alleges price-fixing, predatory pricing and various other claims. Global believes there are valid defenses to these claims which will be vigorously asserted.

Poland

ELCHO

Global has an approximate 90% ownership interest in ELCHO, which owns a combined power generation and thermal energy plant in Poland. ELCHO has a contract with a local distribution company for the delivery of heat to Chorzow and three other towns, which represents approximately 20% of ELCHO's business. The local heat distribution company is under bankruptcy protection as of June 30, 2004. The bankruptcy of this customer caused a default under ELCHO's bank agreements, which are non-recourse to Global and Energy Holdings. A waiver has been obtained from ELCHO's lenders which

Global will seek to extend, as appropriate. ELCHO's net receivable from the local distribution company is approximately $7 million. Payments are currently being made and the receivable has not increased. Although Global believes that the receivable will be recoverable and that there will not be a material adverse impact on its financial position, results of operations or cash flows as a result of this matter, no assurances can be given.

In a separate matter, ELCHO has a 20-year PPA with the Polish government's power grid company. The Polish government has embarked on a process with the intention of terminating all of the more than 30 long-term PPAs it has with energy suppliers. The Polish government has expressed its intention to compensate each entity whose contract is terminated with monies raised by the government by securitizing a charge that will be passed on to ratepayers. In 2003, the Polish government informally proposed compensation that Global did not believe to be adequate. Global has been holding discussions with the Polish government with the objective of ensuring that any settlement is financially neutral to ELCHO. There have been recent fundamental changes to the proposed policy to terminate long-term contracts. Such changes may include making it optional for PPA owners to participate in the termination scheme. The risks and benefits to opting in or out of such a program cannot be fully analyzed with information available at this time. Inadequate compensation could lead to lower future revenues and earnings and could have a material adverse impact on Global's financial position, results of operations or cash flows.

India

Global has a 20% ownership interest in PPN, which sells its output under a long-term PPA with the TNEB. TNEB has not made full payment to PPN for the purchase of energy under the PPA and the total receivable as of December 31, 2004 was approximately $110 million. The project ran on a limited basis during the fourth quarter of 2004, primarily due to the high cost of naphtha fuel and resulting low ranking on the merit order dispatch list. The past due receivable as of December 31, 2004 was approximately $27 million, net of a $66 million reserve. If TNEB continues to fail to make required payments under the PPA, PPN may have liquidity problems. On March 26, 2004, Global and one of its partners in PPN, El Paso Energy Corporation, filed a notice of arbitration on behalf of PPN against TNEB under the arbitration clause of the PPA, asserting that they have the right as minority shareholders to protect the contractual rights of PPN where PPN has failed to exercise those rights itself. In response, PPN filed a petition for an anti-suit injunction against the arbitration. Global successfully defended against the petition in two lower courts. PPN has filed its final appeal in the Supreme Court of India (SLP Civil No. 23169). Hearings began on January 24, 2005.

Global expects that a final determination will be made by the Central Electricity Authority and TNEB in 2005 regarding the capital cost of the project that may affect the tariff that PPN charges TNEB. An adverse outcome to the continuing negotiations or arbitration with TNEB could potentially result in an impairment of this investment, which could be material to PSEG's and Energy Holdings' respective results of operations. As of December 31, 2004, Global's total investment in PPN was approximately $38 million.

RGE

ANEEL—RGE Merger Matter

On June 29, 1998, RGE's parent, DOC3 Participacoes, S.A. (DOC3), was merged into RGE. In connection with the merger, the shareholders of DOC3 became direct shareholders in RGE (Downstream Merger). Upon the merger, RGE assumed all of DOC3's liabilities including loans payable to existing shareholders and issued preferred shares which bore a fixed interest rate of 13% per annum. The Brazilian electricity sector regulator, ANEEL, took the position that the Downstream Merger of DOC3 into RGE was inappropriate because it was a related-party transaction and was not expressly approved by ANEEL. Although RGE believed that ANEEL's prior approval of the transaction was not required because it did not involve a change in the control of RGE, it entered into negotiations with ANEEL in order to resolve the dispute. During the fourth quarter of 2004, RGE and ANEEL settled the dispute. ANEEL approved the Downstream Merger of DOC3 into RGE and fined RGE $3 million (Resolution 166, dated July 13, 2004 under Docket No. 48500.003518/03-52). In addition, RGE's shareholders agreed to modify the preferred shares by eliminating the 13% fixed interest rate per annum and capitalizing all accrued and unpaid dividends through the date of the settlement. RGE's preferred shares will only be paid dividends in the future on the same basis as RGE's common shares without a preferential fixed rate of return. Global believes that this outcome is satisfactory because it ends a long lasting dispute and will normalize the relation with ANEEL.

PSEG, PSE&G, Power and Energy Holdings

In addition to matters discussed above, see information on the following proceedings at the pages indicated for PSEG and each of PSE&G, Power and Energy Holdings as noted:

(1) Page 16. (Power) PJM Interconnection L.L.C. filing with FERC on November 2, 2004, Docket No. EL03-236-003 to amend Tariff and Operating Agreement to request Reliability Must-Run (RMR) compensation.
(2) Page 16. (Power) PSEG Power Connecticut's filing with FERC on November 17, 2004, Docket No. ER05-231-000, to request RMR compensation.
(3) Page 17. (Power) PSEG Lawrenceburg Energy Company and PSEG Waterford Energy respective filings of triennial market power reviews, Docket Nos. ER01-2460-002 and ER01-2482-002, August 2004.
(4) Page 17. (PSE&G) FERC proceeding related to MISO and PJM. Joint Filing of New PJM Companies and PJM Interconnection, L.L.C. to expand PJM, The New PJM Companies, et al., Docket No. ER03-262-000, December 11, 2002.
(5) Page 17. (PSEG, PSE&G, Power and Energy Holdings) FERC proceeding related to PJM Restructuring, FERC Order dated June 26, 2003 seeking comments on proposed revisions to market-based rate tariffs and authorizations, Investigation of Terms and Conditions of Public Utility Market-Based Rate Authorizations, 103 FERC § 61,349.

(6) Page 18. (PSE&G) Neptune Regional Transmission System, LLC v. PJM Interconnection, L.L.C. complaint filed with FERC on December 21, 2004, Docket No. EL05-48-000, alleging PJM impermissibly conducted an interconnection re-study triggered by generator retirements in PJM, which had the effect of increasing Neptune's cost exposure for network upgrades from approximately $4 million to $26 million.

(7) Page 19. (PSE&G) JCP&L v. ACE, et al. complaint filed with FERC on December 30, 2004, Docket No. EL05-50-000, seeking to terminate its construction obligations under the LDV Agreement.

(8) Page 21. (PSE&G) PSE&G's BGSS Commodity filing with the BPU on May 28, 2004, Docket No. GR04050390.

(9) Page 21. (PSE&G) Remediation Adjustment Clause filing with the BPU filed in June 2003, Docket No. GR03060436.

(10) Page 21. (PSE&G) Remediation Adjustment Clause filing with the BPU on April 22, 2004, Docket No. GR04040291.

(11) Page 21. (PSE&G) PSE&G's BGSS Commodity filing with the BPU on May 30, 2003, Docket No. EO03050394.

(12) Page 22. (PSE&G) Cost Recovery filing with the BPU on July 1, 2004, Docket No. EE04070718.

(13) Page 22. (PSE&G) Deferral Proceeding filed with the BPU on August 28, 2002, Docket No. EX02060363, and Deferral Audit beginning on October 2, 2002 at the BPU, Docket No. EA02060366.

(14) Page 22. (PSE&G) BPU's audit of gas supply costs.

(15) Page 22. (PSE&G) BPU Order dated December 23, 2003, Docket No. EO02120955 relating to the New Jersey Interim Clean Energy Program.

(16) Page 26. (Power) Power's Petition for Review filed in the United States Court of Appeals for the District of Columbia Circuit on July 30, 2004 challenging the final rule of the United States Environmental Protection Agency entitled "National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Phase II Existing Facilities," now transferred to and venued in the United States Court of Appeals for the Second Circuit with Docket No. 04-6696-ag.

(17) Page 150. (PSE&G) Investigation Directive of NJDEP dated September 19, 2003 and additional investigation Notice dated September 15, 2003 by the EPA regarding the Passaic River site. Docket No. EX93060255.

(18) Page 151. (PSE&G) PSE&G's MGP Remediation Program instituted by NJDEP's Coal Gasification Facility Sites letter dated March 25, 1988.

(19) Page 155. (Power) Filing of Complaint by Nuclear against the DOE on September 26, 2001 in the U.S. Court of Federal Claims, Docket No. 01-551C seeking damages caused by the DOE's failure to take possession of spent nuclear fuel. The complaint was amended to include PSE&G as a prior owner in interest.

(20) Page 157. (Energy Holdings) Peru's Internal Revenue Agency's (SUNAT) claim for past due taxes at LDS, Resolution No. 0150150000030, dated July 10, 2003.

(21) Page 158. (Holdings) Dhofar Power Company SAOC v. Ministry of Housing, Electricity and Water (Sultanate of Oman), ICC Reference EXP/233.

PSE&G and Power

In addition, see the following environmental related matters involving governmental authorities. Based on current information, PSE&G and Power do not expect expenditures for any such site, individually or for all such current sites in the aggregate, to have a material effect on their respective financial condition, results of operations and net cash flows.

(1) Claim made in 1985 by the U.S. Department of the Interior under CERCLA with respect to the Pennsylvania Avenue and Fountain Avenue municipal landfills in Brooklyn, New York, for damages to natural resources. The U.S. Government alleges damages of approximately $200 million. To PSE&G's knowledge there has been no action on this matter since 1988.

(2) Duane Marine Salvage Corporation Superfund Site is in Perth Amboy, Middlesex County, New Jersey. The EPA had named PSE&G as one of several potentially responsible parties (PRPs) through a series of administrative orders between December 1984 and March 1985. Following work performed by the PRPs, the EPA declared on May 20, 1987 that all of its administrative orders had been satisfied. The NJDEP,

however, named PSE&G as a PRP and issued its own directive dated October 21, 1987. Remediation is currently ongoing.

(3) Various Spill Act directives were issued by NJDEP to PRPs, including PSE&G with respect to the PJP Landfill in Jersey City, Hudson County, New Jersey, ordering payment of costs associated with operation and maintenance, interim remedial measures and a Remedial Investigation and Feasibility Study (RI/FS) in excess of $25 million. The directives also sought reimbursement of NJDEP's past and future oversight costs and the costs of any future remedial action.

(4) Claim by the EPA, Region III, under CERCLA with respect to a Cottman Avenue Superfund Site, a former non-ferrous scrap reclamation facility located in Philadelphia, Pennsylvania, owned and formerly operated by Metal Bank of America, Inc. PSE&G, other utilities and other companies are alleged to be liable for contamination at the site and PSE&G has been named as a PRP. A Final Remedial Design Report was submitted to the EPA in September of 2002. This document presents the design details that will implement the EPA's selected remediation remedy. The costs of remedy implementation are estimated to range from $14 million to $24 million. PSE&G's share of the remedy implementation costs are estimated between $4 million and $8 million. The remedy itself and responsibility for the costs of its implementation are the subject of litigation currently in the U.S. District Court for the Eastern District of Pennsylvania entitled United States of America, et. al., v. Union Corporation, et. al., Civil Action No. 80-1589.

(5) The Klockner Road site is located in Hamilton Township, Mercer County, New Jersey, and occupies approximately two acres on PSE&G's Trenton Switching Station property. PSE&G entered into a memorandum of agreement with the NJDEP for the Klockner Road site pursuant to which PSE&G conducted an RI/FS and remedial action at the site to address the presence of soil and groundwater contamination at the site.

(6) The NJDEP assumed control of a former petroleum products blending and mixing operation and waste oil recycling facility in Elizabeth, Union County, New Jersey (Borne Chemical Co. site) and issued various directives to a number of entities including PSE&G requiring performance of various remedial actions. PSE&G's nexus to the site is based upon the shipment of certain waste oils to the site for recycling. PSE&G and certain of the other entities named in NJDEP directives are members of a PRP group that have been working together to satisfy NJDEP requirements including: funding of the site security program; containerized waste removal; and a site remedial investigation program.

(7) The New York State Department of Environmental Conservation (NYSDEC) has named PSE&G as one of many PRPs for contamination existing at the former Quanta Resources Site in Long Island City, New York. Waste oil storage, processing, management and disposal activities were conducted at the site from approximately 1960 to 1981. It is believed that waste oil from PSE&G's facilities was taken to the Quanta Resources Site. NYSDEC has requested that the PRPs reimburse the state for the costs NYSDEC has expended at the site and to conduct an investigation and remediation of the site. Power, PSE&G and the other PRPs have executed an Order on Consent with NYSDEC for the investigation of the site and have entered an agreement among some of the PRPs for the sharing of the associated costs. The holders of a note securing a mortgage on property adjacent to the Quanta Resources Site have filed an action against some of the PRPs seeking to recover damages allegedly incurred as a result of contamination migrating from the Quanta Resources Site onto the adjacent parcels and to compel the cleanup of those parcels.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

PSEG—None.

PSE&G—None.

Power—None.

Energy Holdings—None.

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ITEM 6. SELECTED FINANCIAL DATA

PSEG

The information presented below should be read in conjunction with the Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) and the Consolidated Financial Statements and Notes to Consolidated Financial Statements (Notes).

	For the Years Ended December 31,				
	2004	2003	2002	2001	2000
	(Millions, where applicable)				
Operating Revenues	$10,996	$11,139	$ 8,220	$ 6,883	$ 6,521
Income from Continuing Operations	$ 721	$ 852	$ 405(A)	$ 766	$ 782
Net Income	$ 726	$ 1,160	$ 235	$ 764	$ 770
Earnings per Share:					
Income from Continuing Operations:					
Basic	$ 3.04	$ 3.73	$ 1.94(A)	$ 3.68	$ 3.64
Diluted	$ 3.03	$ 3.72	$ 1.94(A)	$ 3.68	$ 3.64
Net Income:					
Basic	$ 3.06	$ 5.08	$ 1.13	$ 3.67	$ 3.58
Diluted	$ 3.05	$ 5.07	$ 1.13	$ 3.67	$ 3.58
Dividends Declared per Share	$ 2.20	$ 2.16	$ 2.16	$ 2.16	$ 2.16
As of December 31:					
Total Assets	$29,207	$28,084	$26,147	$25,568	$21,531
Long-Term Obligations(B)	$12,975	$12,995	$12,291	$10,814	$ 5,869
Preferred Stock With Mandatory Redemption	$ —	$ —	$ —	$ —	$ 75

(A) 2002 results include after-tax charges of $368 million, or $1.76 per share, related to losses from Energy Holdings' Argentine investments. See Item 7. MD&A—Results of Operations and Note 6. Asset Impairments of the Notes for further discussion.

(B) Includes capital lease obligations. The increase in 2001 is related to a $2.5 billion securitization transaction. In addition, this includes debt supporting trust preferred securities in all years presented due to the implementation of Financial Accounting Standards Board (FASB) Interpretation No. 46 (FIN 46), "Consolidation of Variable Interest Entities (VIE)." See Note 2. Recent Accounting Standards of the Notes.

PSE&G

The information presented below should be read in conjunction with the MD&A, the Consolidated Financial Statements and the Notes.

	For the Years Ended December 31,				
	2004	2003	2002	2001	2000

			(Millions)		
Operating Revenues	$ 6,972	$ 6,740	$ 5,919	$ 6,091	$ 5,887
Income Before Extraordinary Item	$ 346	$ 247	$ 205	$ 235	$ 587
Net Income	$ 346	$ 229	$ 205	$ 235	$ 587
As of December 31:					
Total Assets	$13,586	$13,177	$12,867	$13,299	$15,626
Long-Term Obligations(A)	$ 4,877	$ 5,129	$ 5,050	$ 5,180	$ 4,163
Preferred Stock With Mandatory Redemption	$ —	$ —	$ —	$ —	$ 75

(A) Includes capital lease obligations. The increase in 2001 is related to a $2.5 billion securitization transaction. In addition, this includes debt supporting trust preferred securities in all years presented due to the implementation of FIN 46. For additional information, see Note 2. Recent Accounting Standards of the Notes.

Power

Omitted pursuant to conditions set forth in General Instruction I of Form 10-K.

Energy Holdings

Omitted pursuant to conditions set forth in General Instruction I of Form 10-K.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS (MD&A)

This combined MD&A is separately filed by Public Service Enterprise Group Incorporated (PSEG), Public Service Electric and Gas Company (PSE&G), PSEG Power LLC (Power) and PSEG Energy Holdings LLC (Energy Holdings). Information contained herein relating to any individual company is filed by such company on its own behalf. PSE&G, Power and Energy Holdings each make representations only as to itself and make no other representations whatsoever as to any other company.

OVERVIEW OF 2004 AND FUTURE OUTLOOK

PSEG, PSE&G, Power and Energy Holdings

Merger Agreement

On December 20, 2004, PSEG entered into an agreement and plan of merger (Merger Agreement) with Exelon Corporation (Exelon), a public utility holding company registered under the Public Utility Holding Company Act of 1935 (PUHCA) which is headquartered in Chicago, Illinois, whereby PSEG will be merged with and into Exelon (Merger). Under the Merger Agreement, each share of PSEG Common Stock will be converted into 1.225 shares of Exelon Common Stock.

PSEG and Exelon entered into the Merger Agreement with the expectation that the Merger would result in various benefits, including, among other things, cost savings and operating efficiencies. The Merger Agreement also addresses the key issues of leadership succession at PSEG with John Rowe, Exelon's Chief Executive Officer to become Chief Executive Officer of the combined company. Achieving the anticipated benefits of the Merger is subject to a number of uncertainties, including whether the businesses of Exelon and PSEG are integrated in an efficient and effective manner, as well as general competitive factors in the market place. Failure to achieve these anticipated benefits could result in increased costs, decreases in the amount of expected revenues generated by the combined company and diversion of management's time and energy and could have an adverse effect on the combined company's business, financial condition, operating results and prospects.

The Merger Agreement has been unanimously approved by both companies' boards of directors. Before the Merger may be completed, various approvals or consents must be obtained from shareholders, the Federal Energy Regulatory Commission (FERC), the Securities and Exchange Commission (SEC), the Nuclear Regulatory Commission (NRC) and various utility regulatory, antitrust and other authorities in the United States (U.S.) and in foreign jurisdictions. The governmental authorities from which these approvals are required may impose conditions on completion of the merger or require changes to the terms of the Merger. These conditions or changes could have the effect of delaying completion of the Merger or imposing additional costs on or limiting the revenues of the combined company and/or the individual registrants following the Merger, any of which might have a material adverse effect on the combined company or the individual registrants following completion of

the Merger. PSEG is committed to this proposed business combination, however, pending receipt of the various required approvals, which cannot be assured, PSEG intends to remain positioned with a viable stand-alone strategy.

On February 4, 2005, PSEG and Exelon filed for approval of the Merger with the FERC, the New Jersey Board of Public Utilities (BPU) and the Pennsylvania Public Utility Commission (PPUC). Exelon also filed a notice of the Merger with the Illinois Commerce Commission.

Although PSEG and Exelon intend to take steps to reduce any adverse effects, uncertainties relating to the Merger may impair PSEG's and Exelon's ability to attract, retain and motivate key personnel until the Merger is consummated and for a period of time thereafter due to uncertainty about roles with the future combined company, and could cause customers, suppliers and others that deal with PSEG and Exelon to seek to change existing business relationships. Inability to retain key employees or maintain satisfactory

relationships with employees, customers or suppliers could have a material adverse impact on the operations of PSEG, Exelon and the combined company following the Merger.

It is anticipated that the regulatory approval process will be completed and the Merger will close within 12 months to 15 months after the announcement of the Merger Agreement in December 2004, subject to shareholder and regulatory approvals which cannot be assured. The Merger would create a combined company serving approximately seven million electric customers and approximately two million gas customers in Illinois, New Jersey and Pennsylvania.

PSEG and Exelon expect to incur costs associated with consummating the Merger and integrating the operations of the two companies, as well as approximately $29 million and $41 million in transaction fees for PSEG and Exelon, respectively. Preliminary estimated integration costs associated with the Merger are approximately $700 million over a period of 4 years, with approximately $400 million being incurred in the first year after completion of the Merger and approximately $150 million being incurred in the second year after completion of the Merger.

Following the Merger, approximately 50% of the combined company's earnings and cash flow is expected to be produced by the three regulated utilities, PSE&G, Commonwealth Edison Company in northern Illinois and PECO Energy Company in southeastern Pennsylvania, and 50% by the unregulated businesses, primarily from the combined generation of Power and Exelon Generation Company LLC (Exelon Generation). After the Merger, the combined company expects to maintain its proportion of business in regulated operations while reducing the proportion in international operations. The expected strategy of the combined company would be to divest, in an orderly fashion, PSEG Global LLC's (Global) investments that do not meet the strategic objectives of the combined company.

The Merger Agreement contains certain termination rights for both Exelon and PSEG, and further provides that, upon termination of the Merger Agreement under specified circumstances, (1) Exelon may be required to pay PSEG a termination fee of $400 million plus PSEG's transaction expenses up to $40 million and (2) PSEG may be required to pay Exelon a termination fee of $400 million plus Exelon's transaction expenses up to $40 million.

Among the factors considered by the board of directors of PSEG in connection with its approvals of the Merger Agreement were the benefits as well as the risks that could result from the Merger. PSEG cannot give any assurance that these benefits will be realized within the time periods contemplated or even that they will be realized at all.

Concurrent with the Merger Agreement, PSEG Nuclear LLC (Nuclear) entered into an Operating Services Contract (OSC) with Exelon Generation, which commenced on January 17, 2005, relating to the operation of the Salem and Hope Creek nuclear generating stations. The OSC provides that Exelon Generation will provide a chief nuclear officer and other key personnel to oversee daily plant operations at the Hope Creek and Salem nuclear generating stations and to implement the Exelon operating model, which defines practices that Exelon has used to manage its own nuclear performance program. Nuclear will continue as the license holder with exclusive legal authority to operate and maintain the plants, will retain responsibility for management oversight and will have full authority with respect to the marketing of its share of the output from the facilities. Exelon Generation will be entitled to receive reimbursement of its costs in discharging its obligations, an annual operating services fee and incentive fees of up to $12 million annually based on attainment of goals relating to safety, capacity factors of the plants and operation and maintenance expenses. The OSC has a term of two years, subject to earlier termination in certain events upon prior notice, including any termination of the Merger Agreement. In the event of termination, Exelon Generation will continue to provide services under the OSC for a transition period of at least 180 days and up to two years at the election of Nuclear. This period may be further extended

by Nuclear for up to an additional 12 months if Nuclear determines that additional time is necessary to complete required activities during the transition period.

Prior to the Merger, PSEG and Exelon, and their respective subsidiaries, will continue to operate as separate entities. The discussion contained in the combined MD&A that follows relates solely to the current businesses of PSEG, PSE&G, Power and Energy Holdings and their respective expectations for future financial position, results of operations and cash flows, exclusive of any potential impacts from the Merger.

RESULTS OF OPERATIONS

PSEG, PSE&G, Power and Energy Holdings

Net Income for the year ended December 31, 2004 was $726 million or $3.05 per share of common stock, diluted, based on approximately 238 million average shares outstanding. Net Income for the year ended December 31, 2003 was approximately $1.2 billion or $5.07 per share of common stock, diluted, based on approximately 229 million average shares outstanding. Included in 2003's Net Income was a $370 million after-tax Cumulative Effect of a Change in Accounting Principle related to the adoption in 2003 of Statement of Financial Accounting Standards (SFAS) No. 143, "Accounting for Asset Retirement Obligations" (SFAS 143). See Note 3. Asset Retirement Obligations of the Notes. For the year ended December 31, 2002, Net Income was $235 million or $1.13 per share of common stock, diluted, including certain after-tax charges of $538 million or $2.57 per share. The charges related to the abandoned Argentine investments and losses from operations of those assets, discontinued operations of PSEG Energy Technologies Inc. (Energy Technologies) and Tanir Bavi Power Company Private Ltd. (Tanir Bavi), a generating facility in India, and goodwill impairment charges.

	Earnings (Losses)		
	Years Ended December 31,		
	2004	2003	2002
		(Millions)	
PSE&G	$346	$ 247	$ 205
Power	308	474	468
Energy Holdings:			
Global(A)	78	121	(297)
Resources	68	72	84
Other(B)	(10)	(4)	(7)
Total Energy Holdings(A)	136	189	(220)
Other(C)(D)	(69)	(58)	(48)
PSEG Income from Continuing Operations	721	852	405
Income (Loss) from Discontinued Operations, including Gain (Loss) on Disposal(E)	5	(44)	(49)
Extraordinary Item(F)	—	(18)	—
Cumulative Effect of a Change in Accounting Principle(G)	—	370	(121)
PSEG Net Income(A)	$726	$1,160	$ 235

	Contribution to Earnings Per Share (Diluted)		
	Years Ended December 31,		
	2004	2003	2002
PSE&G	$ 1.45	$ 1.08	$ 0.98
Power	1.29	2.07	2.24
Energy Holdings:			

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Global(A)	0.35	0.53	(1.42)
Resources	0.29	0.31	0.40
Other(B)	(0.04)	(0.02)	(0.04)
Total Energy Holdings(A)	0.60	0.82	(1.06)
Other(C)(D)	(0.31)	(0.25)	(0.22)
PSEG Income from Continuing Operations	3.03	3.72	1.94
Income (Loss) from Discontinued Operations, including Gain (Loss) on Disposal(E)	0.02	(0.19)	(0.23)
Extraordinary Item(F)	—	(0.08)	—
Cumulative Effect of a Change in Accounting Principle(G)	—	1.62	(0.58)
PSEG Net Income(A)	$ 3.05	$ 5.07	$ 1.13

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(A) Includes after-tax write-down and losses related to Argentine investments of $368 million or $1.76 per share for the year ended December 31, 2002.

(B) Other activities include amounts of Energy Holdings (parent company), Energy Technologies, Enterprise Group Development Corporation (EGDC) and intercompany eliminations. Specific amounts include interest on certain financing transactions and certain other administrative and general expenses at Energy Holdings.

(C) Includes pre-tax costs related to the Merger of approximately $8 million for the year ended December 31, 2004, including investment banking fees, accounting and legal fees, consulting fees for market analyses and communications costs.

(D) Other activities include amounts of PSEG (parent company) and intercompany eliminations. Specific amounts include preferred securities dividends requirements for PSE&G and Energy Holdings, interest on certain financing transactions and certain other administrative and general expenses at PSEG (parent company).

(E) Includes Discontinued Operations of Energy Technologies in 2003 and 2002, CPC in 2004, 2003 and 2002, and Tanir Bavi in 2002. See Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes.

(F) Relates to a charge recorded in the second quarter of 2003 from PSE&G's Electric Base Rate Case. See Note 5. Extraordinary Item of the Notes.

(G) Relates to the adoption of SFAS 143 in 2003 and the adoption of SFAS No. 142, "Goodwill and Other Intangible Assets" (SFAS 142) in 2002. See Note 2. Recent Accounting Standards and Note 3. Asset Retirement Obligations of the Notes.

The $131 million, or $0.69 per share, decrease in Income from Continuing Operations for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to lower earnings at Power due to decreased load being served under the fixed-price BGS contracts, higher Operation and Maintenance costs primarily incurred for work performed during a longer-than-planned refueling outage at the Hope Creek nuclear unit, the loss of MTC revenues, which ceased effective August 1, 2003 at the end of the transition period and higher replacement power and congestion costs in 2004. Also contributing to the decrease were currency fluctuations at Global and lower earnings at Resources, primarily resulting from the termination of the Collins lease. These decreases were partially offset by improved earnings at PSE&G primarily relating to increased electric base rates.

Also contributing to the change in Net Income was Energy Holdings' Income from Discontinued Operations of $5 million for the year ended December 31, 2004, as compared to its Loss from Discontinued Operations of $44 million, after-tax, for the same period in 2003.

The $447 million increase in Income from Continuing Operations for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to higher earnings from Energy Holdings due to the absence of the $368 million after-tax losses at Energy Holdings' Argentine

investments recorded in 2002. In addition, PSE&G improved earnings due to increased electric base rates, seasonality differences in pricing that are a component of those rates, favorable weather effects and lower interest costs. In addition, Power had slightly higher earnings primarily related to the benefits resulting from the operation of the two generating facilities in Connecticut that were acquired in December 2002, higher margins driven by an increase in volume as a result of the BGS contracts that went into effect in August 2002 and realized gains in its NDT portfolio, partially offset by the effects of storm-related weather and higher Operation and Maintenance expense. Also contributing to Energy Holdings' increase in earnings were improved results from Global. The growth in Income from Continuing Operations did not result in higher per share amounts due to dilution caused mainly by the PSEG Common Stock issuance in the fourth quarter of 2003.

Included in PSEG's 2003 Net Income was an after-tax benefit of $370 million related to the adoption of SFAS 143 during the first quarter of 2003. This benefit was due mainly to the required remeasurement of Power's nuclear decommissioning obligations. Conversely, in 2002, PSEG adopted SFAS 142 and incurred an after-tax charge of $121 million related to goodwill impairments at certain of Energy Holdings' investments. Also contributing to the changes in Net Income was a decrease in Energy Holdings' Loss from Discontinued Operations, including Loss on Disposal of $5 million, after-tax, for the year ended December 31, 2003, as

compared to the same period in 2002, and an $18 million, after-tax, extraordinary charge recorded at PSE&G in the second quarter of 2003 related to the outcome of its electric base rate case, discussed above in PSE&G's Overview of 2004 and Future Outlook.

PSEG

	For the Years Ended December 31,			2004 vs 2003		2003 vs 2002	
	2004	2003	2002	Increase (Decrease)	%	Increase (Decrease)	%
	(Millions)					(Millions)	
Operating Revenues	$10,996	$11,139	$8,220	$ (143)	(1)	$ 2,919	36
Energy Costs	$ 6,057	$ 6,391	$3,710	$ (334)	(5)	$ 2,681	72
Operation and Maintenance	$ 2,260	$ 2,120	$1,899	$ 140	7	$ 221	12
Depreciation and Amortization	$ 719	$ 527	$ 565	$ 192	36	$ (38)	(7)
Income from Equity Method Investments	$ 126	$ 114	$ 119	$ 12	11	$ (5)	(4)
Other Income	$ 176	$ 178	$ 39	$ (2)	(1)	$ 139	356
Other Deductions	$ (93)	$ (101)	$ (80)	$ (8)	(8)	$ 21	26
Interest Expense	$ (859)	$ (836)	$ (819)	$ 23	3	$ 17	2
Income Tax Expense	$ (446)	$ (464)	$ (254)	$ (18)	(4)	$ 210	83

PSEG's results of operations are primarily comprised of the results of operations of its operating subsidiaries, PSE&G, Power and Energy Holdings, excluding changes related to intercompany transactions, which are eliminated in consolidation and certain financing costs at the parent company. For additional information on intercompany transactions, see Note 23. Related-Party Transactions of the Notes. For a discussion of the causes for the variances at PSEG in the table above, see the discussions for PSE&G, Power and Energy Holdings that follow.

PSE&G

	For the Years Ended December 31,			2004 vs 2003		2003 vs 2002	
	2004	2003	2002	Increase (Decrease)	%	Increase (Decrease)	%
	(Millions)					(Millions)	
Operating Revenues	$6,972	$6,740	$5,919	$ 232	3	$ 821	14
Energy Costs	$4,284	$4,421	$3,684	$ (137)	(3)	$ 737	20
Operation and Maintenance	$1,083	$1,050	$ 982	$ 33	3	$ 68	7
Depreciation and Amortization	$ 523	$ 372	$ 409	$ 151	41	$ (37)	(9)
Other Income	$ 12	$ 6	$ 15	$ 6	100	$ (9)	(60)
Other Deductions	$ (1)	$ (1)	$ (2)	$ —	—	$ (1)	(50)
Interest Expense	$ (362)	$ (390)	$ (406)	$ (28)	(7)	$ (16)	(4)
Income Tax Expense	$ (246)	$ (129)	$ (115)	$ 117	91	$ 14	12

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Operating Revenues

PSE&G has three sources of revenue: commodity revenues from the sales of energy to customers and in the PJM spot market; delivery revenues from the transmission and distribution of energy through its system; and other operating revenues from the provision of various services.

Commodity

PSE&G makes no margin on commodity sales as the costs are passed through to customers. The difference between costs and the amount provided by customers in revenues is deferred and collected from or returned to customers in future periods. Total commodity volumes and revenues are subject to market forces. Gas commodity prices fluctuate monthly for commercial and industrial customers and annually through the BGSS tariff for residential customers. In addition, for residential gas customers, PSE&G has the ability to adjust rates upward two additional times and downward at any time, if warranted, between annual Basic Gas Supply Service (BGSS) proceedings.

Gas commodity revenues decreased $3 million for the year ended December 31, 2004, as compared to the same period in 2003, due primarily to lower sales volumes of 20%, offset by higher BGSS prices. Approximately 80% of the volume decline was due to lower sales to cogenerators and the balance was weather-related. Electric commodity prices are set at the annual BGS auction. Electric commodity revenues increased $16 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to $249 million in increased prices offset by $233 million in lower volumes of 12% caused by migration of large customers to third-party suppliers.

Gas commodity revenues increased $660 million for the year ended December 31, 2003, as compared to the same period in 2002, due primarily to higher sales volumes of 9% and higher BGSS prices. Electric commodity revenues increased $80 million for the year ended December 31, 2003, as compared to the same period in 2002, primarily due to $217 million in increased prices offset by $137 million in lower volumes of 7% caused by migration of large customers to third-party suppliers.

Delivery

Electric delivery revenues increased $222 million for the year ended December 31, 2004, as compared to the same period in 2003. The net effect of full-year base rate increases in August 2003, combined with other annual rate adjustments in January 2004, increased revenues by $180 million. The balance of the increase was driven by higher sales volumes of 3%. Less than one percent of the sales increase was weather-related.

Gas delivery revenues decreased $24 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to a 4% decline in residential sales due to weather. Heating degree days were 5% lower in 2004.

Gas delivery revenues increased $97 million for the year ended December 31, 2003, as compared to the same period in 2002, due to higher sales volumes of 14%, primarily due to weather. Heating degree-days were 21% higher in 2003.

Operating Expenses

Energy Costs

The $137 million decrease for the year ended December 31, 2004, as compared to the same period in 2003, was comprised of decreases of $96 million in electric costs and $41 million in gas costs. The electric decrease was caused by $262 million in lower BGS volumes due to customer migration to third-party suppliers offset by $166 million in higher prices for BGS and Non-Utility Generation (NUG) purchases. The gas decrease was caused by a $388 million or 20% decrease in sales volumes due primarily to lower sales to cogenerators offset by a $347 million or 26% increase in gas prices.

The $737 million increase for the year ended December 31, 2003, as compared to the same period in 2002, was comprised of increases of $658 million in gas costs and $79 million in electric costs. The gas increase was caused by a $527 million or 26% increase in gas prices and $131 million or 9% increase in sales volumes. The electric increase was caused by $249 million in higher prices for BGS and NUG purchases, partially offset by $170 million in lower costs due to lower BGS volumes as the result of customer migration and lower NUG volumes.

Operation and Maintenance

The $33 million increase for 2004, as compared to the same period in 2003, was due primarily to increased Demand Side Management (DSM) amortization of $20 million, increased consumer education expenses of $24 million, an $18 million reduction in real estate tax expense in 2003 and $10 million related to a regulatory asset reserve reversal in 2003. DSM costs are deferred when incurred and amortized to expense when recovered in revenues. Offsetting the increases were decreased labor and fringe benefits of $7 million, due to lower pension costs as a result of improved fund performance, a $22 million reduction in Societal Benefits Charges (SBC) expenses and $10 million in lower shared services costs due to reduced technology spending.

The $68 million increase for the year ended December 31, 2003, as compared to the same period in 2002, was due primarily to higher labor and fringe benefit costs of $48 million, due to higher wage and incentive program costs, higher pension costs and increased weather and storm-related expenses due to Hurricane

Isabel and the extreme winter weather. Also contributing to the increase were higher bad debt expense of $10 million due to high winter gas sales and higher DSM costs of approximately $38 million related to the increased sales, discussed above. Partially offsetting these increases were a reduction in real estate tax expense of $18 million and the reversal of a $10 million reserve against a regulatory asset that is now being recovered.

Depreciation and Amortization

The $151 million increase for the year ended December 31, 2004, as compared to the same period in 2003, was due primarily to a $132 million reduction in amortization of an excess electric distribution depreciation reserve regulatory liability, a $30 million increase in the amortization of various regulatory assets and a $10 million increase due to increased plant in service. These increases were offset by a $16 million decrease from the use of a lower book depreciation rate for electric distribution property, which took effect in August 2003 following the conclusion of the electric base rate case, and a $6 million decrease due to plant assets transferred to an affiliate in 2003.

The $37 million decrease for the year ended December 31, 2003, as compared to the same period in 2002, was due primarily to a $52 million increase in amortization of an excess electric distribution depreciation reserve regulatory liability and a $11 million decrease from the use of a lower book depreciation rate for electric distribution property starting in August 2003 due to the rate case referred to above. These decreases were offset by increases of $13 million due to increased plant in service and $9 million due to amortization of regulatory assets related to securitization.

Other Income

The $6 million increase for the year ended December 31, 2004, as compared to the same period in 2003, was due primarily to $11 million of equity return adjustments to regulatory assets in 2003, $4 million of interest income related to an affiliate loan and other Investment Income of $3 million offset by decreased gains on excess property sales of $12 million.

The $9 million decrease for the year ended December 31, 2003, as compared to the same period in 2002, was due primarily to equity return adjustments to regulatory assets of $11 million offset by $2 million in increased gains on the disposal of various electric transmission properties.

Interest Expense

The $28 million decrease for the year ended December 31, 2004, as compared to the same period in 2003, was due primarily to lower interest on long-term debt of $37 million as a result of lower interest rates and lower levels of long-term debt outstanding, partially offset by $11 million in increased interest on affiliated loans.

The $16 million decrease for the year ended December 31, 2003, as compared to the same period in 2002, was due primarily to lower interest on long-term debt of $23 million due to various maturities and redemptions of approximately $250 million. These decreases were partially offset by increased short-term interest expense of $2 million due to higher short-term debt balances outstanding due to increased working capital needs and $6 million in increased carrying charges related to certain regulatory assets.

Income Taxes

The $117 million increase for the year ended December 31, 2004, as compared to the same period in

2003, was primarily due to higher pre-tax income combined with lower tax benefits primarily attributable to the excess depreciation reserve adjustment in 2003.

The $14 million increase for the year ended December 31, 2003, as compared to the same period in 2002, was due to higher pre-tax income, offset by tax benefits recorded in 2003 attributable to the actual filing of the 2002 tax return.

Extraordinary Item

As discussed previously, included in the Electric Base Rate Case decision issued by the BPU was a refund related to revenues collected through the SBC for nuclear decommissioning. Because this amount

reflects the final accounting for PSEG's generation-related business pursuant to the four-year transition plan mandated by the Final Order, the adjustment has been recorded as an $18 million, after-tax, Extraordinary Item as required under Accounting Principles Board (APB) Opinion No. 30, "Reporting the Results of Operations—Reporting the Effects of Disposal of a Segment of a Business, and Extraordinary, Unusual and Infrequently Occurring Events and Transactions" (APB 30) and SFAS No. 101, "Regulated Enterprises—Accounting for the Discontinuation of Application of Financial Accounting Standards Board (FASB) Statement No. 71."

Power

	For the Year Ended December 31,			2004 vs 2003		2003 vs 2002	
	2004	2003	2002	Increase (Decrease)	%	Increase (Decrease)	%
	(Millions)					(Millions)	
Operating Revenues	$5,173	$5,613	$3,640	$ (440)	(8)	$ 1,973	54
Energy Costs	$3,558	$3,754	$1,856	$ (196)	(5)	$ 1,898	102
Operation and Maintenance	$ 967	$ 914	$ 773	$ 53	6	$ 141	18
Depreciation and Amortization	$ 121	$ 102	$ 108	$ 19	19	$ (6)	(6)
Other Income	$ 166	$ 149	$ 1	$ 17	11	$ 148	n/a
Other Deductions	$ (57)	$ (78)	$ (1)	$ (21)	(27)	$ 77	n/a
Interest Expense	$ (142)	$ (114)	$ (122)	$ 28	25	$ (8)	(7)
Income Tax Expense	$ (186)	$ (326)	$ (313)	$ (140)	(43)	$ 13	4

Operating Revenues

Operating Revenues decreased by $440 million for the year ended December 31, 2004, as compared to the same period in 2003, due to decreases of $485 million in generation revenues and $5 million in trading revenues offset by an increase of $50 million in gas supply revenues.

Operating Revenues increased by $2 billion for the year ended December 31, 2003, as compared to the same period in 2002, due to increases of $646 million in generation revenues, $1.3 billion in gas supply revenues and $12 million in trading revenues.

Generation

Generation revenues decreased by $485 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to $1.1 billion in lower revenues due to decreased load being served under the fixed-priced BGS contracts, which was partially offset by $869 million of higher revenues from new contracts and higher sales into the various power pools. Additionally, the loss of MTC and NDT revenues, which amounted to $111 million and $17 million, respectively, comprised part of the decrease.

Also contributing to the decrease was the adoption of Emerging Issues Task Force (EITF) Issue No. 03-11, "Reporting Realized Gains and Losses on Derivative Instruments That Are Subject to FASB Statement No. 133, Accounting for Derivative Instruments and Hedging Activities," and Not "Held for Trading Purposes" as defined in EITF Issue No. 02-3, "Issues Involved in Accounting for Derivative Contracts Held for Trading Purposes and Contracts Involved in Energy Trading and Risk Management

Activities" (EITF 03-11), which requires gains and losses (realized and unrealized) on all derivative instruments within the scope of SFAS No. 133, "Accounting for Derivative Instruments and Hedging Activities" (SFAS 133) to be shown net when recognized in the Consolidated Statement of Operations, whether or not settled physically, if the derivative instruments are "held for trading purposes" as defined in EITF 02-3, which became effective on a prospective basis for transactions occurring after September 30, 2003. Since prior periods were not restated, the effect of adopting EITF 03-11 reduced Power's Operating Revenues by approximately $174 million, with an equal reduction in Energy Costs, as compared to the same period in 2003.

Generation revenues increased by $646 million for the year ended December 31, 2003, as compared to the same period in 2002, primarily due to increased BGS related revenues of $293 million from third-party wholesale electric suppliers which commenced on August 1, 2002 and $153 million in increased revenues from two generation facilities in Connecticut acquired in 2002 and the Waterford, Ohio plant, which became operational in August 2003. Also contributing to the increase were increased MTC revenues of $13 million,

increased capacity sales of $41 million and $167 million of higher revenues from new contracts and higher sales into the various power pools.

Gas Supply

Gas supply revenues increased by $50 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to higher gas prices under the BGSS contract partially offset by decreased sales volumes mainly due to demand by PSE&G.

Gas supply revenues increased by $1.3 billion for the year ended December 31, 2003, as compared to the same period in 2002, primarily due to 2003 being the first full year of the BGSS contract with PSE&G compared to a partial year in 2002 since the contract commenced in May 2002. Gas revenues for the first four months of 2003 totaled $1.1 billion. Also contributing to the increase in gas revenues were higher sales volumes and higher gas prices.

Operating Expenses

Energy Costs

Energy Costs represent the cost of generation, which includes fuel purchases for generation as well as purchased energy in the market, and gas purchases to meet Power's obligation under its BGSS contract with PSE&G.

Energy Costs decreased approximately $196 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to a $216 million decrease in purchased power due to decreased load being served under the BGS contracts, which was offset by increased replacement power costs due to outages and higher purchased power for new contracts and a $12 million increase in gas supply costs due to higher gas prices. For additional information related to the outages at Power facilities, see the MD&A—Overview of 2004 and Future Outlook—Power. Also contributing to the decrease for the year was a reduction of approximately $174 million related to the adoption of EITF 03-11, as discussed above. Partially offsetting these decreases were higher fuel costs for generation of approximately $159 million, primarily related to higher gas prices and higher usage, including an increase of approximately $20 million related to the settlement for nuclear waste storage costs for Peach Bottom. For additional information regarding the settlement, see Note 14. Commitments and Contingent Liabilities—Nuclear Fuel Disposal of the Notes.

Energy Costs increased approximately $1.9 billion for the year ended December 31, 2003, as compared to the same period in 2002, primarily due to a $1.3 billion increase in gas costs due to the effect of a full year under the BGSS contract combined with higher gas sales volumes and prices and higher gas, oil and coal costs for generation. The increase in Energy Costs was also due to increased energy purchases on the spot market, as well as bilateral energy purchases, of approximately $413 million. Also, Power incurred an increase of approximately $116 million in network transmission expenses given that there were no payments for the first seven months in 2002. In addition, charges associated with fuel and energy purchases to satisfy wholesale power agreements related to its Connecticut generating facilities totaled approximately $80 million for the year ended December 31, 2003.

Operation and Maintenance

Operation and Maintenance expense increased $53 million for the year ended December 31, 2004, as

compared to the same period in 2003, due to increased costs of $85 million related to the outages at Hope Creek, Salem and Mercer. For additional information related to the outages at Power facilities, see the MD&A—Overview of 2004 and Future Outlook—Power. Also contributing to the increase was $10 million of higher operation and maintenance costs related to the Waterford and Lawrenceburg facilities offset by $12 million related to the settlement for nuclear waste storage costs for Peach Bottom, $10 million in lower real estate taxes and other items. Additional offsets include the absence of reorganization costs of $9 million and the lower write-down costs related to obsolete materials and supplies of $8 million. For additional information regarding the settlement, see Note 14. Commitments and Contingent Liabilities—Nuclear Fuel Disposal of the Notes.

Operation and Maintenance expense increased $141 million for the year ended December 31, 2003, as compared to the same period in 2002, due to costs of generating facilities in Connecticut acquired in December 2002 of $56 million, accretion expense of $24 million associated with the nuclear decommissioning

liabilities and higher nuclear refueling outage costs of $24 million. Also contributing to the increase was higher pension expense of $20 million, higher reorganization costs of $9 million and higher write-down costs related to obsolete materials and supplies of $8 million.

Depreciation and Amortization

Depreciation and Amortization expense increased $19 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to the Waterford facility being placed into service in August 2003 and the Lawrenceburg facility being placed into service in June 2004.

Depreciation and Amortization expense decreased $6 million for the year ended December 31, 2003, as compared to the same period in 2002. The net decrease was comprised of lower depreciation costs of approximately $30 million due to the absence of decommissioning charges, which are no longer recorded as a result of the implementation of SFAS 143, partially offset by higher depreciation and amortization primarily related to generating facilities in Connecticut acquired in December 2002 and a higher asset base.

Other Income

Other Income increased $17 million for the year ended December 31, 2004, as compared to the same period in 2003, due primarily to increased realized gains and income related to the NDT Funds.

Other Income increased $148 million for the year ended December 31, 2003, as compared to the same period in 2002, due primarily to the recording of realized gains and income on the NDT Funds.

Other Deductions

Other Deductions decreased by $21 million for the year ended December 31, 2004, as compared to the same period in 2003, primarily due to $28 million in lower realized losses and expenses related to the NDT Funds partially offset by a $7 million write-off of unamortized issuance costs related to the extinguishment of project financing related to Power's Waterford and Lawrenceburg facilities.

Other Deductions increased by $77 million for the year ended December 31, 2003, as compared to the same period in 2002, due primarily to the recording of realized losses on the NDT Funds.

Interest Expense

Interest Expense increased by $28 million for the year ended December 31, 2004, as compared to the same period in 2003, including $17 million of increased interest primarily due to higher interest rates on new long-term debt financing that replaced project level non-recourse debt. Also contributing to the increase was interest of $7 million related to the early settlement of an interest rate swap related to the extinguishment of project financing related to the Waterford and Lawrenceburg facilities and higher interest of $4 million related to an affiliate loan.

Interest Expense decreased by $8 million for the year ended December 31, 2003, as compared to the same period in 2002. Capitalized interest relating to various construction projects reduced interest expense by approximately $13 million for the year ended December 31, 2003, as compared to the same period in 2002. Power incurred additional interest charges of $20 million due primarily to the new long-term financing of $600 million in June 2002, this increase was partially offset by lower interest expense on variable rate debt and other lower charges of approximately $15 million.

Income Taxes

Income taxes decreased by $140 million for the year ended December 31, 2004, as compared to the same period in 2003, due primarily to lower pre-tax income.

Income taxes increased by $13 million for the year ended December 31, 2003, as compared to the same period in 2002, due primarily to higher pre-tax income.

Cumulative Effect of a Change in Accounting Principle

For the year ended December 31, 2003, Power recorded an after-tax benefit in the amount of $370 million due to the required remeasurement of Power's nuclear and fossil decommissioning obligations under

SFAS 143, which was adopted on January 1, 2003. See Note 3. Asset Retirement Obligations of the Notes for additional information.

Energy Holdings

	For the Years Ended December 31,			2004 vs 2003		2003 vs 2002	
	2004	2003	2002	Increase (Decrease)	%	Increase (Decrease)	%
	(Millions)					(Millions)	
Operating Revenues	$1,027	$ 725	$ 609	$ 302	42	$ 116	19
Energy Costs	$ 388	$ 155	$ 118	$ 233	150	$ 37	31
Operation and Maintenance	$ 239	$ 176	$ 168	$ 63	36	$ 8	5
Write-down of Project Investments	$ —	$ —	$ 511	$ —	—	$ (511)	(100)
Depreciation and Amortization	$ 57	$ 44	$ 28	$ 13	30	$ 16	57
Income from Equity Method Investments	$ 126	$ 114	$ 119	$ 12	11	$ (5)	(4)
Other Income	$ 4	$ 20	$ 26	$ (16)	(80)	$ (6)	(23)
Other Deductions	$ (33)	$ (5)	$ (77)	$ 28	560	$ (72)	(94)
Interest Expense	$ (255)	$(218)	$(217)	$ 37	17	$ 1	—
Income Tax (Expense) Benefit	$ (48)	$ (59)	$ 144	$ (11)	(19)	$ 203	141

The variances in Operating Revenues, Energy Costs, Operation and Maintenance expense, Depreciation and Amortization expense and Income from Equity Method Investments were primarily attributed to Global's acquisition of the remaining interests in TIE, thus consolidating the entity effective July 1, 2004, as compared to 2003 when Global's ownership was accounted for under the equity method of accounting. For additional information, see Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes. The increases were also due to ELCHO placing a new generation facility in Poland in service in November 2003, a generation facility in Oman owned by Dhofar Power Company S.A.O.C. (Dhofar Power) beginning commercial operation in May 2003 and increases in ownership of Electrowina Skawina S.A (Skawina) in Poland in 2003 and 2004. The variances are also related to favorable foreign currency exchange rates and higher energy sales volumes at Sociedad Austral de Electricidad S.A. (SAESA) and a change for GWF Energy LLC (GWF Energy), which owns three generation facilities in California, which was accounted for under the equity method of accounting in 2004, due to a change in ownership interest, as compared to the first nine months of 2003 and the fourth quarter of 2002 when GWF Energy was consolidated.

Operating Revenues

The increase of $302 million for the year ended December 31, 2004, as compared to the same period in 2003, was due to higher revenues at Global of $355 million, including a $247 million increase related to the consolidation of TIE, a $62 million increase from ELCHO, a $35 million increase from SAESA, a $25 million increase from Dhofar Power and a $35 million gain on the sale of MPC, partially offset by a decrease of $53 million related to GWF Energy, which was not consolidated in 2004. Offsetting the increases at Global were lower revenues at Resources of $51 million, primarily due to a loss of $31 million related to the recalculation of certain leverage leases, a loss of $11 million due to the termination of the lease investment in the Collins generating facility and normal amortization of existing leases of $10 million offset by a realized gain of $2 million related to investments in leases, partnerships and

securities. See Note 10. Long-Term Investments of the Notes for additional information.

The increase of $116 million for the year ended December 31, 2003, as compared to the same period in 2002, was due to higher revenues at Global of $124 million, including a $47 million increase from Skawina, a $38 million increase from Dhofar Power, a $28 million increase from GWF Energy, which was consolidated for nine months in 2003 compared to three months in 2002, and a $19 million increase from SAESA, offset by the absence of $19 million in revenue from Empresa Distribuidora de Electricidad de Entre Rios S.A. (EDEERSA), in Argentina, which was abandoned in 2003. Offsetting the increases at Global were lower revenues at Resources of $10 million, primarily related to a $45 million net decrease in leveraged lease income and a $6 million decrease in realized income due to the termination of two leveraged leases in December 2002. Partially offsetting these decreases was the absence of an other than temporary impairment of non-publicly traded equity securities held within the leveraged buyout funds of $42 million that was recorded in 2002.

Energy Costs

The increase of $233 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to a $192 million increase related to the consolidation of TIE and increases of $22 million, $12 million and $5 million from SAESA, ELCHO and Dhofar Power, respectively, offset by a decrease of $3 million from GWF Energy.

The increase of $37 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to an increase of $21 million, $14 million, and $13 million from Skawina, SAESA and Dhofar Power, respectively, offset by a decrease of $7 million and $5 million from EDEERSA and Electroandes S.A. (Electroandes), respectively.

Operation and Maintenance

The increase of $63 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to a $30 million increase related to the consolidation of TIE and increases of $12 million, $9 million, and $2 million from ELCHO, SAESA and Dhofar Power, respectively, offset by a decrease of $8 million from GWF Energy. The increase is also due to higher operating expenses of $9 million at PSEG Energy Technologies Asset Management Company L.L.C. primarily due to higher legal expenses and final asset sale settlements and $7 million at Global primarily due to the 2003 reversal of contingencies related to the Argentine write-down.

The increase of $8 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to increases of $19 million, $7 million, $6 million and $6 million from Skawina, Dhofar Power, GWF Energy and Electroandes, respectively, offset by decreased operation and maintenance expenses at Global of $28 million related to the abandonment of Global's Argentine investments combined with lower labor and administrative costs.

Write-down of Project Investments

The decrease of $511 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to Global's write-down of investments in 2002, primarily in Argentina. See Note 6. Asset Impairments of the Notes.

Depreciation and Amortization

The increase of $13 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to a $9 million increase related to the consolidation of TIE and increases of $7 million, $5 million and $2 million from ELCHO, Dhofar Power and SAESA, respectively, offset by a decrease of $11 million from GWF Energy.

The increase of $16 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to increases of $8 million from both Dhofar Power and GWF Energy.

Income from Equity Method Investments

The increase of $12 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily driven by an $8 million increase related to the sale of a portion of Global's investment in LDS, an $11 million increase related to MPC due to additional projects going into operation, and a $4 million increase related to GWF Energy, offset by an $11 million decrease related to

the consolidation of TIE commencing July 1, 2004.

The decrease of $5 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to lower equity method income in 2003 of $17 million at GWF Energy, which was recorded as a consolidated company for the first three quarters in 2003, as well as decreased earnings at Chilquinta Energia S.A. (Chilquinta) of $4 million. Partially offsetting this decrease were improved earnings at TIE of $14 million related to power purchase agreements (PPAs) entered into in early 2003 and improved market conditions in Texas.

Other Income

The decrease of $16 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to the absence in 2004 of foreign currency transaction gains of $16 million for RGE and SAESA that occurred in 2003.

The decrease of $6 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily due to the absence of favorable changes in fair value mainly relating to foreign exchange contracts held by Energy Holdings.

Other Deductions

The increase of $28 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to foreign currency transaction losses of $26 million and a loss on early extinguishment of debt of $3 million in 2004, offset by a $5 million favorable change in derivative fair value related to Global. The $26 million in foreign currency transaction losses was almost entirely due to the impact of the weakening U.S. Dollar relative to the Polish Zloty on Global's investment in ELCHO. At the inception of this investment, it was determined that ELCHO is a U.S. Dollar functional currency as a portion of the long-term PPA with the Polish government is indexed to the U.S. Dollar to support the portion of ELCHO's financing that is U.S. Dollar denominated. Since ELCHO has a U.S. Dollar functional currency, all monetary assets and liabilities that are not denominated in U.S. Dollars are marked at period-end exchange rates with changes in values recorded as gains or losses in earnings. ELCHO has significant monetary liabilities in local currency, namely Polish Zloty debt used to partially finance the construction of the plant. As a result of the strengthening of the Polish Zloty against the U.S. Dollar in 2004, there were material losses recorded on the Polish Zloty debt to reflect the greater amount of U.S. Dollars required to pay the local debt. However, the accounting model does not capture the increase in value of Polish Zlotys that will be received under the long-term PPA with the Polish government as the contract is not recorded on the balance sheet. As a result, the financial statements only reflect the losses on the Polish Zloty debt which, economically, have been more than offset by the increase in the value of the Polish Zlotys that will be received under the PPA.

The decrease of $72 million for the year ended December 31, 2003, as compared to the same period in 2002, was largely due to a $77 million foreign currency transaction loss during 2002, which primarily related to Global's Argentine investments.

Interest Expense

The increase of $37 million for the year ended December 31, 2004, as compared to the same period in 2003, was due to a $13 million increase related to the consolidation of TIE commencing on July 1, 2004, a $29 million increase related to ELCHO since interest was no longer capitalized as the plant became operational in the fourth quarter of 2003, and an increase in non-recourse debt at the project level with higher interest rates, offset in part by the repayment of lower interest rate debt at Energy Holdings during 2003 and 2004.

Income Taxes

The decrease of $11 million for the year ended December 31, 2004, as compared to the same period in 2003, was primarily due to lower pre-tax income and the impact of changes in certain lease forecast assumptions. In the fourth quarter of 2004, Resources revised several of its lease runs and recorded additional benefits of state tax losses generated by certain of its leases. These additional benefits resulted

from changes in Resources' forecast of state taxable income and tax liability over the relevant lease terms. This forecast was embedded in the lease reruns and led to an income tax benefit of $43 million in 2004 to reflect the cumulative benefit of this adjustment. This benefit was largely offset by the tax impact associated with a $31 million decrease in leveraged lease revenue. Future earnings will also increase by a modest amount as a result of this forecasted benefit. If Resources affiliates' taxable earnings decreased significantly, resulting in the inability of Resources to record the benefits related to its taxable losses, it could lead to an adverse material impact to Resources' results of operations, financial position and cash flows. See Note 17. Income Taxes of the Notes for additional information.

The increase of $203 million for the year ended December 31, 2003, as compared to the same period in 2002, was primarily attributed to increased pre-tax income for the year ended December 31, 2003, as

compared to pre-tax losses in the same period in 2002. The pre-tax losses in 2002 resulted from the write-off of $511 million, primarily related to investments in Argentina. See Note 6. Asset Impairments of the Notes.

Income (Loss) from Discontinued Operations, including Gain (Loss) on Disposal, net of tax

Carthage Power Company (CPC)

In May 2004, Global completed the sale of its interest in CPC for approximately $43 million in cash and recognized a gain on disposal of $5 million after-tax. Loss from Discontinued Operations for the year ended December 31, 2003 was $24 million including a $23 million estimated loss on disposal for the write-down of CPC to its fair value less cost to sell. The operating results of CPC for the year ended December 31, 2002 yielded after-tax income of approximately $1 million. See Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes for additional information.

Energy Technologies

In September 2003, Energy Holdings completed the sale of the remaining companies of Energy Technologies subsequent to recognizing a loss of $9 million, after-tax, in the first quarter of 2003. Loss from Discontinued Operations for years ended December 31, 2003 and 2002 were $11 million and $41 million, respectively, including the initial write-down in 2002. See Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes for additional information.

Tanir Bavi

In the fourth quarter of 2002, Global sold its 74% interest in Tanir Bavi, a 220 MW generating facility in India. Global reduced the carrying value of Tanir Bavi to the contracted sales price of $45 million and recorded a loss on disposal of $14 million after-tax for the year ended December 31, 2002. The operating results of Tanir Bavi for the year ended December 31, 2002 yielded after-tax income of $5 million. See Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes.

Cumulative Effect of Change in Accounting Principle

In 2002, Energy Holdings finalized the evaluation of the effect of adopting SFAS 142 on its recorded amount of goodwill. Under this standard, Energy Holdings was required to complete an impairment analysis of its recorded goodwill and record any resulting impairment. The total amount of goodwill impairments was $121 million, net of tax of $66 million and was comprised of $36 million (after-tax) at EDEERSA, $35 million (after-tax) at RGE, $32 million (after-tax) at Energy Technologies and $18 million (after-tax) at Tanir Bavi. All of the goodwill on these companies, other than RGE, was fully impaired. In accordance with SFAS 142, this impairment charge was recorded as of January 1, 2002 as a component of the Cumulative Effect of a Change in Accounting Principle and is reflected in the Consolidated Statement of Operations for the year ended December 31, 2002. See Note 9. Goodwill and Other Intangibles of the Notes.

Other

To supplement the Consolidated Financial Statements presented in accordance with accounting principles generally accepted in the U.S. (GAAP), PSEG and Energy Holdings use the non-GAAP measure of Earnings Before Interest and Taxes (EBIT).

PSEG's and Energy Holdings' Management each reviews EBIT internally to evaluate performance and manage operations and believes that the inclusion of this non-GAAP financial measure provides consistent and comparable measures to help shareholders understand current and future operating results. PSEG and Energy Holdings urge shareholders to carefully review the GAAP financial information included as part of this Annual Report.

Global

The following table summarizes Global's capital at risk, net contributions to EBIT and non-recourse interest in the following regions as of December 31, 2004 and 2003 and for the years ended December 31, 2004, 2003 and 2002.

	Total Capital at Risk(A)		EBIT(B)			Non-Recourse Interest(C)		
	As of December 31, 2004	As of December 31, 2003	2004	2003	2002	2004	2003	2002
			(Millions)					
Region:								
North America	$ 427	$ 423	$ 98	$ 117	$ 122	$13	$ 2	$—
South America	1,581	1,575	135	150	(441)	33	27	44
Asia Pacific(D)	6	180	54	8	7	—	—	—
Europe(E)	209	285	24	22	(8)	33	5	—
India and Oman	94	91	18	9	—	15	9	—
Global G&A—Unallocated	—	—	(31)	(30)	(38)	—	—	—
Total	$ 2,317	$ 2,554	$ 298	$ 276	$(358)	$94	$43	$44
Total Global EBIT			$ 298	$ 276	$(358)			
Interest Expense			(170)	(119)	(118)			
Income Taxes(D)			(49)	(23)	178			
Minority Interests			(1)	(13)	1			
Income from Continuing Operations			$ 78	$ 121	$(297)			

(A) Total Capital at Risk includes Global's gross investments and equity commitment guarantees less non-recourse debt at the project level.

(B) For investments accounted for under the equity method of accounting, includes Global's share of net earnings, including Interest Expense and Income Taxes.

(C) Non-recourse interest is Interest Expense on debt that is non-recourse to Global.

(D) The differences in EBIT and Capital at Risk for Asia Pacific and Income Taxes are primarily due to the sale of MPC which closed on December 31, 2004. The 2004 Capital at Risk does not include the $136 million promissory note received from the sale of MPC. See Note 4. Discontinued Operations, Dispositions and Acquisitions of the Notes.

$25 million contingent guarantee related to debt service obligations of Chilquinta in Chile expiring in 2011. Additional guarantees consist of a $35 million and $37 million leasing agreement guarantee for Prisma in Italy as of December 31, 2004 and 2003, respectively, $13 million and $24 million of performance and payment guarantees related to Energy Technologies as of December 31, 2004 and 2003, respectively, that are supported by letters of credit that expire in May 2005, and various other guarantees comprising the remaining $39 million and $45 million as of December 31, 2004 and 2003, respectively, expiring through 2010.

In September 2003, Energy Holdings completed the sale of Energy Technologies and nearly all of its assets. However, Energy Holdings retained certain outstanding construction and warranty obligations related to ongoing construction projects previously performed by Energy Technologies. These construction obligations have performance bonds issued by insurance companies for which exposure is adequately supported by the outstanding letters of credit described above. As of December 31, 2004, there were $30 million of such bonds outstanding, which are related to uncompleted construction projects. These performance bonds are not included in the $138 million of guaranteed obligations discussed above.

In addition to the amounts discussed above, certain subsidiaries of Energy Holdings also have contingent obligations related to their respective projects, which are non-recourse to Energy Holdings and Global.

Environmental Matters

PSEG, PSE&G and Power

Hazardous Substances

The New Jersey Department of Environmental Protection (NJDEP) adopted regulations concerning site investigation and remediation that require an ecological evaluation of potential damages to natural resources in connection with an environmental investigation of contaminated sites. These regulations may substantially increase the costs of environmental investigations and necessary remediation, particularly at sites situated on surface water bodies. PSE&G, Power and respective predecessor companies own or owned and/or operate or operated certain facilities situated on surface water bodies, certain of which are currently the subject of remedial activities. The financial impact of these regulations on these projects is not currently estimable. However, neither PSE&G nor Power anticipate that compliance with these regulations will have a material adverse effect on its respective financial position, results of operations or net cash flow.

The U.S. Environmental Protection Agency (EPA) has determined that a six mile stretch of the Passaic River in the area of Newark, New Jersey is a "facility" within the meaning of that term under the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). PSE&G and certain of its predecessors conducted industrial operations at properties adjacent to the Passaic River facility. The operations included one operating (Essex Site, one former generating station and four former MGPs. PSE&G's costs to clean up former MGPs are recoverable from utility customers through the SBC. PSE&G has sold the site of the former generating station and obtained releases and indemnities for liabilities arising out of the site in connection with the sale. The Essex Site was transferred to Power in August 2000. Power assumed any environmental liabilities of PSE&G associated with the electric generating stations that PSE&G transferred to it, including the Essex Site.

In 2003, the EPA notified 41 potentially responsible parties (PRPs), including PSE&G and Power, that it was expanding its assessment of the Passaic River Study Area to the entire 17-mile tidal reach of the lower Passaic River. The EPA further indicated, with respect to PSE&G, that it believed that hazardous substances were being released from the Essex Site and a former MGP located in Harrison, New Jersey (Harrison Site), which also includes facilities for PSE&G's ongoing gas operations. The EPA has estimated that its study would require five to eight years to complete and would cost approximately $20 million, of which it would seek to recover $10 million from the PRPs, including PSE&G and Power. Power is evaluating recoverability of any disbursed amounts from its insurance carriers.

Also, in 2003, PSEG, PSE&G and 56 other PRPs received a Directive and Notice to Insurers from the NJDEP that directed the PRPs to arrange for a natural resource damage assessment and interim compensatory restoration of natural resource injuries along the lower Passaic River and its tributaries pursuant to the New Jersey Spill Compensation and Control Act. The NJDEP alleged in the Directive that it had determined that hazardous substances had been discharged from the Essex Site and the Harrison Site.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

The NJDEP announced that it had estimated the cost of interim natural resource injury restoration activities along the lower Passaic River to approximate $950 million.

PSE&G and Power have indicated to both the EPA and NJDEP that they are willing to work with the agencies in an effort to resolve their respective claims and, along with approximately 40 other PRPs, have executed an agreement with the EPA that provides for sharing the costs of the study between the government organizations and the PRPs. PSEG, PSE&G and Power cannot predict what further actions, if any, or the costs or the timing thereof, that may be required with respect to the Passaic River or natural resource damages. However, such costs could be material.

PSE&G

MGP Remediation Program

PSE&G is currently working with the NJDEP under a program to assess, investigate and remediate environmental conditions at PSE&G's former MGP sites (Remediation Program). To date, 38 sites have been identified as sites requiring some level of remedial action. The Remediation Program is periodically reviewed, and the estimated costs are revised by PSE&G based on regulatory requirements, experience with the program and available remediation technologies. Since the inception of the program in 1988 through December 31, 2004, PSE&G had expenditures of approximately $294 million.

During the fourth quarter of 2004, PSE&G refined the detailed site estimates, and determined that total Remediation Program costs could range between $650 million and $685 million. No amount within the range was considered to be most likely. Therefore, $356 million was accrued at December 31, 2004, which represents the difference between the low end of the total program cost estimate of $650 million and the total incurred costs through December 31, 2004 of $294 million. Of this amount, approximately $47 million was recorded in Other Current Liabilities and $309 million was reflected in Other Noncurrent Liabilities. The costs associated with the MGP Remediation Program have historically been recovered through the SBC charges to PSE&G ratepayers. As such, a $356 million Regulatory Asset was also recorded.

Costs for the MGP Remediation Program were approximately $34 million in 2004. PSE&G anticipates spending $47 million in 2005, $35 million in 2006, and an average of $26 million per year through 2016.

New Jersey Clean Energy Program

The BPU has approved a new funding requirement for each New Jersey utility applicable to Renewable Energy and Energy Efficiency programs for the years 2005 to 2008. The sum of PSE&G's electric and gas funding requirement for 2005 is $82 million and grows to $137 million in 2008 for a four-year total of $406 million. A liability for PSE&G's funding requirement has been recorded at discounted present value with an offsetting regulatory asset.

Power

Prevention of Significant Deterioration (PSD)/New Source Review (NSR)

The PSD/NSR regulations, promulgated under the Clean Air Act (CAA), require major sources of

certain air pollutants to obtain permits, install pollution control technology and obtain offsets, in some circumstances, when those sources undergo a "major modification," as defined in the regulations. The Federal government is seeking to order companies allegedly not in compliance with the PSD/NSR regulations to install the best available control technology at the affected plants and to pay monetary penalties of up to approximately $27,500 for each day of continued violation.

The EPA and the NJDEP issued a demand in March 2000 under the CAA requiring information to assess whether projects completed since 1978 at the Hudson and Mercer coal-burning units were implemented in accordance with applicable PSD/NSR regulations. Power completed its response to the requests for information and, in January 2002, reached an agreement with New Jersey and the Federal government to resolve allegations of noncompliance with PSD/NSR regulations. Under that agreement, over the course of 10 years, Power has agreed to install advanced air pollution controls that are designed to reduce emissions of NO_x, SO_2, particulate matter and mercury. The estimated cost of the program as of December

31, 2004 includes approximately $110 million for installation of selective catalytic reduction systems (SCRs) at Mercer, of which approximately $92 million has been spent, as well as approximately $300 million to $350 million at the Hudson unit and $150 million to $200 million for other pollution control equipment at Mercer to be installed by December 31, 2012. Power also paid a $1.4 million civil penalty and has agreed to spend up to $6 million on supplemental environmental projects. The agreement resolving the NSR allegations concerning the Hudson and Mercer coal-fired units also resolved a dispute over Bergen 2 regarding the applicability of PSD requirements and allowed construction of the unit to be completed and operations to commence.

Power has notified the EPA and the NJDEP that it is evaluating the continued operation of the Hudson coal unit in light of changes in the energy and capacity markets, increases in the cost of pollution control equipment and other necessary modifications to the unit. These and other factors impacting the power industry identified to the agencies continue to cast doubts on the appropriateness of making the necessary investments and Power's ability to complete the work at this time. A decision has not yet been made as to the Hudson unit's continued operation beyond the December 31, 2006 deadline for installation of pollution control equipment. The related costs associated with the pollution control modifications for the Hudson unit have not been included in Power's capital expenditure projections.

ISRA

Potential environmental liabilities related to subsurface contamination at certain generating stations have been identified. In the second quarter of 1999, in anticipation of the transfer of PSE&G's generation-related assets to Power, a study was conducted pursuant to ISRA, which applies to the sale of certain assets. PSEG had a $51 million liability as of December 31, 2004 related to these obligations, which is recorded on the Consolidated Balance Sheets.

New Generation and Development

Power

Completion of the projects discussed below, within the estimated time frames and cost estimates cannot be assured. Construction delays, cost increases and various other factors could result in changes in the operational dates or ultimate costs to complete.

Power is constructing the Bethlehem Energy Center, which will replace the Albany Station. Total costs for this project are expected to be approximately $551 million with expenditures to date of approximately $496 million (including IDC of $52 million). Construction began in 2002 with the expected completion date in mid-2005, at which time the existing station will be retired.

Power is constructing a natural gas-fired generation plant in Linden, New Jersey. Power is replacing the tubes in both steam turbine condensers due to corrosion that was detected. Power anticipates that construction will be completed in the second quarter of 2006. Including the replacement of the tubes, the total costs are currently estimated at approximately $1 billion with expenditures to date of approximately $880 million (including IDC of $135 million).

Power also has contracts with outside parties to purchase upgraded turbines for Salem Units 1 and 2 and to purchase upgraded turbines and complete a power uprate for Hope Creek to modestly increase its generating capacity. Salem Unit 2 completed Phase I of its turbine replacement during its Fall 2003

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

	Power	Guarantor Subsidiaries	Other Subsidiaries	Consolidating Adjustments	Total
			(Millions)		
For the Year Ended December 31, 2003:					
Net Cash Provided By (Used In) Operating Activities	$ 2,171	$ 262	$ (120)	$ (1,689)	$ 624
Net Cash Provided By (Used In) Investing Activities	$(1,985)	$ (548)	$ (255)	$ 1,956	$ (832)
Net Cash Provided By (Used In) Financing Activities	$ (186)	$ 587	$ 374	$ (566)	$ 209
For the Year Ended December 31, 2002:					
Revenues	$ 2	$ 4,503	$ 42	$ (907)	$ 3,640
Operating Expenses	—	3,603	41	(907)	2,737
Operating Income	2	900	1	—	903
Equity Earnings in Subsidiaries	574	(3)	—	(571)	—
Other Income	—	9	—	(8)	1
Other Deductions	—	—	—	(1)	(1)
Interest Expense	(180)	(69)	118	9	(122)
Income Taxes	72	(343)	(42)	—	(313)
Net Income (Loss)	$ 468	$ 494	$ 77	$ (571)	$ 468
For the Year Ended December 31, 2002:					
Net Cash Provided By (Used In) Operating Activities	$ (182)	$ 738	$ 298	$ (437)	$ 417
Net Cash Provided By (Used In) Investing Activities	$ (695)	$ (1,051)	$ (625)	$ 1,072	$(1,299)
Net Cash Provided By (Used In) Financing Activities	$ 877	$ 332	$ 328	$ (638)	$ 899

Note 25. Merger Agreement

On December 20, 2004, PSEG and Exelon Corporation (Exelon), a public utility holding company registered under PUHCA which is headquartered in Chicago, Illinois, entered into an agreement and plan of merger (the Merger Agreement) whereby PSEG will be merged with and into Exelon (the Merger). Under the Merger Agreement, each share of PSEG common stock will be converted into 1.225 shares of Exelon common stock.

The Merger Agreement contains certain termination rights for both PSEG and Exelon, and further provides that, upon termination of the Merger Agreement under specified circumstances, (1) Exelon may be required to pay PSEG a termination fee of $400 million plus PSEG's transaction expenses up to $40 million and (2) PSEG may be required to pay Exelon a termination fee of $400 million plus Exelon's transaction expenses up to $40 million.

The Merger Agreement has been unanimously approved by both companies' boards of directors but is contingent upon, among other things, the approval by shareholders of both companies, antitrust clearance and a number of regulatory approvals or reviews by federal and state energy authorities. The

parties have made some of the regulatory filings to obtain necessary regulatory approvals. It is anticipated that this approval process will be completed and the Merger will close within 12 months to 15 months after the announcement of the Merger Agreement in December 2004. Concurrent with the Merger Agreement, PSEG adopted the Key Executive Severance Plan of PSEG (Severance Plan) and adopted the Retention Program for Key Employees of PSEG (Retention Program).

Severance Plan

The Severance Plan provides change in control severance benefits to certain elected officers of PSEG whose employment is terminated without "cause" or who resign their employment for "good reason" within two years after a change in control, which would include the consummation of the Merger. Under the Severance Plan, the majority of the participants, if they are terminated without "cause" or resign his or her employment for "good reason" within two years after a change in control, will receive (1) a pro rata bonus based on the participant's target annual incentive compensation, (2) two times the sum of the participant's salary and target incentive bonus, (3) accelerated vesting of equity-based awards, (4) a lump sum payment equal to the actuarial equivalent of the participant's benefits under all of PSEG's retirement plans in which the participant participates calculated as though the participant remained employed for two years beyond the date his or her employment terminates less the actuarial equivalent of such benefits on the date his or her employment terminates, (5) two years continued welfare benefits (the first 18 months of which will be provided through PSEG-paid COBRA continuation coverage), (6) one year of PSEG-paid outplacement

services and (7) vesting of any compensation previously deferred. Under the Severance Plan, one participant will receive the same benefits as the other participants, except that the applicable multiplier for salary and target incentive bonus, retirement plan accruals and continuation of welfare benefits is three years instead of two.

Retention Program

The Retention Program, effective as of December 20, 2004, provides for payments to be made to certain key employees of PSEG who remain employed from the date of execution of the Merger Agreement through the date that is 90 days after the consummation of the Merger. The amount of a participant's retention payment may not be less than 40% or more than 150% of the participant's annual base salary. Retention payments under the Retention Program may not exceed $10 million in the aggregate.

PSEG will pay the first installment, equal to half of a participant's total retention payment, within 60 days after the first anniversary of the date of execution of the Merger Agreement. PSEG will pay the participant's remaining retention payment on the business day following the date that is 90 days after the consummation of the Merger. No participant whose employment terminates for any reason other than involuntary termination without "cause" will receive any subsequent installment of the retention payment. A participant whose employment is terminated without "cause" on or prior to the consummation of the Merger will be treated as if he or she remained employed through the date that is 90 days after the consummation of the Merger for all purposes under the Retention Program.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANTS

Executive Officers

The Executive Officers of each of PSEG, PSE&G, Power and Energy Holdings, respectively, are set forth below, as indicated for each individual.

Name	Age as of December 31, 2004	Office	Effective Date First Elected to Present Position
E. James Ferland (1)(2)(3)(4)	62	Chairman of the Board, President and Chief Executive Officer (PSEG)	July 1986 to present
		Chairman of the Board and Chief Executive Officer (PSE&G)	July 1986 to present
		Chairman of the Board and Chief Executive Officer (Energy Holdings)	June 1989 to present
		Chairman of the Board and Chief Executive Officer (Power)	June 1999 to present
		Chairman of the Board and Chief Executive Officer (Services)	November 1999 to present
Thomas M. O'Flynn(1)(3)(4)	44	Executive Vice President and Chief Financial Officer (PSEG)	July 2001 to present
		Executive Vice President—Finance (Services)	July 2001 to present
		Executive Vice President and Chief Financial Officer (Energy Holdings)	August 2002 to present
		Executive Vice President and Chief Financial Officer (Power)	February 2002 to present
		Managing Director—Global Power and Utility Investment Banking Division Group (Morgan Stanley)	December 1997 to May 2001
Robert J. Dougherty, Jr.(1)(4)	53	President and Chief Operating Officer (Energy Holdings)	January 1997 to present
		Vice President (PSEG)	March 1995 to present
		President (Global)	August 2003 to present
Ralph Izzo(1)(2)	47	President and Chief Operating Officer (PSE&G)	October 2003 to present
		Vice President—Utility Operations (PSE&G)	June 2002 to October 2003
		Vice President—Special Projects (Services)	September 2001 to June 2002
		Vice President—Appliance Service (PSE&G)	April 2000 to September 2001
		Vice President—Corporate Planning (PSEG)	March 1998 to

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			April 2000
R. Edwin Selover (1)(2)	59	Senior Vice President and General Counsel (PSEG)	April 2002 to present
		Vice President and General Counsel (PSEG)	April 1988 to April 2002
		Senior Vice President and General Counsel (PSE&G)	January 1988 to present
		Senior Vice President and General Counsel (Services)	November 1999 to present
Patricia A. Rado(1) (2)(3)(4)	62	Vice President and Controller (PSEG)	April 1993 to present
		Vice President and Controller (PSE&G)	April 1993 to present
		Vice President and Controller (Power)	June 1999 to present
		Vice President and Controller (Energy Holdings)	April 2004 to present
		Vice President and Controller (Services)	November 1999 to present
Robert E. Busch(1) (2)	58	President & Chief Operating Officer (Services)	April 2001 to present
		Senior Vice President-Finance and Chief Financial Officer (Services)	November 1999 to April 2001
		Senior Vice President and Chief Financial Officer (PSE&G)	June 1998 to present

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Name	Age as of December 31, 2004	Office	Effective Date First Elected to Present Position
Harold W. Borden Jr.(3)	60	Vice President and General Counsel (Power)	June 1999 to present
		Vice President—Law (PSE&G)	April 1995 to July 1999
Morton A. Plawner (3)	57	Treasurer (PSEG)	April 1998 to present
		Vice President and Treasurer (PSE&G)	April 1998 to present
		Vice President and Treasurer (Power)	June 1999 to present
Frank Cassidy(1)(3)	58	President and Chief Operating Officer (Power)	June 1999 to present
		President (Energy Technologies)	November 1996 to June 1999
Steven R. Teitelman(3)	58	President (ER&T)	June 1999 to present
		Vice President—Energy Resources and Trading (PSE&G)	August 1997 to August 2002
Michael J. Thomson(3)	46	President (Fossil)	August 2003 to present
		President (Global)	January 1997 to July 2003
Eileen A. Moran(4)	50	President (Resources)	May 1990 to present
		President (EGDC)	January 1997 to present
Miriam E. Gilligan (4)	53	Vice President—Finance and Treasurer (Energy Holdings)	December 2001 to present
		Vice President (Services)	December 2001 to present
		Treasurer (Energy Holdings)	1997 to December 2001

(1) Executive Officer of PSEG

(2) Executive Officer of PSE&G

(3) Executive Officer of Power

(4) Executive Officer of Energy Holdings

Directors

PSEG

The information required by Item 10 of Form 10-K with respect to (i) present directors of PSEG who are nominees for election as directors at PSEG's 2005 Annual Meeting of Stockholders, and directors whose terms will continue beyond the meeting, and (ii) compliance with Section 16(a) of the Securities Exchange Act of 1934, as amended, is set forth under the headings "Election of Directors" and Section

11

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QuickLinks -- Click here to rapidly navigate through this document

As filed with the Securities and Exchange Commission on February 10, 2005

Registration No. 333-

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form S-4

REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

Exelon Corporation

(Exact name of registrant as specified in its charter)

Pennsylvania	4931	23-2990190
(State or other jurisdiction of incorporation or organization)	*(Primary Standard Industrial Classification Code Number)*	*(I.R.S. Employer Identification Number)*

10 South Dearborn Street
37th Floor
Chicago, Illinois 60680-5379
(312) 394-7398
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Randall E. Mehrberg, Esq.
Exelon Corporation
10 South Dearborn Street
37th Floor
Chicago, Illinois 60680-5379
(312) 394-7398
(Name, address, including zip code, and telephone number, including area code, of agent for service)

BCA000130

Copies To:

Thomas A. Cole, Esq. Carol M. Lind, Esq. Sidley Austin Brown & Wood LLP Bank One Plaza 10 South Dearborn Street Chicago, Illinois 60603 (312) 853-7000	R. Edwin Selover, Esq. Public Service Enterprise Group Incorporated 80 Park Plaza P.O. Box 1171 Newark, New Jersey 07101-1171 (973) 430-7000	David P. Falck, Esq. Pillsbury Winthrop LLP 1540 Broadway New York, New York 10036 (212) 858-1000

Approximate date of commencement of proposed sale of the securities to the public: As soon as practicable after this registration statement becomes effective and after the conditions to the completion of the proposed transaction described in the joint proxy statement/prospectus have been satisfied or waived.

If the securities being registered on this form are being offered in connection with the formation of a holding company and there is compliance with General Instruction G, check the following box. ☐

The Information in this joint proxy statement/prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary joint proxy statement/prospectus is not an offer to sell and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY COPY—SUBJECT TO COMPLETION, DATED FEBRUARY 10, 2005

Exelon. PSEG

MERGER PROPOSAL—YOUR VOTE IS IMPORTANT

On behalf of the boards of directors and management of both Exelon Corporation and Public Service Enterprise Group Incorporated, we are pleased to deliver our joint proxy statement/prospectus for the merger involving Exelon and PSEG. We believe this merger will create a strong combined company that will deliver important benefits to our shareholders, to our customers and to the communities we serve.

If the merger is completed, PSEG shareholders will receive 1.225 shares of Exelon common stock for each share of PSEG common stock held. The exchange ratio is fixed and will not be adjusted to reflect stock price changes prior to the completion of the merger. Based on the closing price of Exelon common stock on the New York Stock Exchange on December 15, 2004, the last full trading day prior to a significant increase in trading volume from the average trading volume of Exelon and PSEG common stock and inquiries from *The Wall Street Journal* regarding whether Exelon and PSEG were in advanced merger discussions, the exchange ratio represented approximately $53.14 in value for each share of PSEG common stock. Based on the closing price of Exelon common stock on the New York Stock Exchange on December 16, 2004, the last full trading day prior to the publication of news articles reporting that Exelon and PSEG were in advanced merger discussions, the exchange ratio represented approximately $52.19 in value for each share of PSEG common stock. Based on the closing price of Exelon common stock on the New York Stock Exchange on December 17, 2004, the last full trading day prior to our public announcement of the merger, the exchange ratio represented approximately $51.28 in value for each share of PSEG common stock. Based on the closing price of Exelon common stock on the New York Stock Exchange on [•], 2005, of $[•], the exchange ratio represented approximately $[•] in value for each share of PSEG common stock. **The value of the consideration to be received by PSEG shareholders will fluctuate with changes in the price of Exelon common stock. We urge you to obtain current market quotations for Exelon and PSEG common stock.**

Exelon shareholders will continue to own their existing Exelon shares. We estimate that Exelon may issue up to approximately [•] million shares of Exelon common stock to PSEG shareholders as contemplated by the merger agreement, which includes approximately [•] million shares of Exelon common stock issuable pursuant to PSEG stock options to be assumed by Exelon and substituted with options to purchase Exelon common stock. Upon completion of the merger, Exelon's shareholders immediately prior to the merger will own approximately [•]% of Exelon's outstanding shares on a fully diluted basis and former PSEG shareholders will own approximately [•]% of Exelon's outstanding common stock on a fully diluted basis. Upon completion of the merger, Exelon will change its name from Exelon Corporation to Exelon Electric & Gas Corporation. Exelon common stock will continue to be listed on the New York Stock Exchange.

For a discussion of the United States federal income tax consequences of the merger, see "The Merger—Material United States Federal Income Tax Consequences of the Merger" beginning on page [•] of this joint proxy statement/prospectus.

We urge you to read this joint proxy statement/prospectus, which includes important information about the merger and our annual meetings. **In particular, see the section titled "Risk Factors" on pages [•] through [•] of this joint proxy statement/prospectus which contains a description of the risks that you should consider in evaluating the merger.**

Exelon asks that, in addition to the other matters to be considered at the Exelon annual meeting, Exelon shareholders approve the issuance of shares of Exelon common stock as contemplated by the merger agreement. Exelon's annual meeting will be held at the following time and place:

[•], 2005
[•] local time
[Location TBD]

Exelon's board of directors has reviewed and considered the terms of the merger and the merger agreement and has unanimously determined that the merger, including the issuance of shares of Exelon common stock as contemplated by the merger agreement, is advisable, fair to and in the best interests of Exelon and its shareholders and unanimously recommends that Exelon shareholders vote FOR the proposal to approve the issuance of shares of Exelon common stock as contemplated by the merger agreement.

PSEG asks that, in addition to the other matters to be considered at the PSEG annual meeting, PSEG shareholders approve the merger agreement and thereby approve the merger. PSEG's annual meeting will be held at the following time and place:

[•], 2005
[•] local time
[Location TBD]

PSEG's board of directors has reviewed and considered the terms of the merger and the merger agreement and has unanimously determined that the merger is advisable, fair to and in the best interests of PSEG and its shareholders and unanimously recommends that PSEG shareholders vote FOR the proposal to approve the merger agreement and thereby approve the merger.

We cannot complete the merger unless the Exelon shareholders approve the issuance of shares of Exelon common stock as contemplated by the merger agreement and the PSEG shareholders approve the merger agreement. Your vote is important.

John W. Rowe *Chairman of the Board,* *President and Chief Executive Officer* *Exelon Corporation*	E. James Ferland *Chairman of the Board,* *President and Chief Executive Officer* *Public Service Enterprise Group Incorporated*

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved the securities to be issued under this joint proxy statement/prospectus or determined if this joint proxy statement/prospectus is accurate or adequate. Any representation to the contrary is a criminal offense.

This joint proxy statement/prospectus is dated [•], 2005 and is first being mailed to Exelon and PSEG shareholders on or about [•], 2005.

IRS Private Letter Ruling Regarding Nuclear Decommissioning Trust Funds

United States Treasury regulations generally provide for the nonrecognition of gain or loss for United States federal income tax purposes with respect to the transfer of certain decommissioning trust funds maintained by nuclear power plant owners in connection with the transfer of an interest in a nuclear power plant. The precise application of these Treasury Regulations in the context of the merger, however, is not free from doubt. Therefore, Exelon and PSEG have agreed to seek a ruling from the IRS confirming that no gain or loss will be recognized for United States federal income tax purposes with respect to the transfer of PSEG's decommissioning trust funds as a result of the merger.

Corporate Restructuring

Subject to receipt of necessary regulatory approvals, Exelon and PSEG intend to pursue a restructuring of their corporate organizations after completion of the merger. In general, this restructuring will involve:

- PSE&G becoming a direct subsidiary of Exelon Energy Delivery, LLC; thereafter, PECO, ComEd and PSE&G will be separate indirect subsidiaries of Exelon and will continue to be regulated public utilities;
- Combining PSEG Power and Exelon Generation into one entity and combining certain of PSEG Power's subsidiaries with that combined entity; and
- PSEG Services selling its assets to Exelon Services, with Exelon Services providing central services to the combined company and its subsidiaries.

By virtue of the merger, PSEG Energy Holdings will become a direct subsidiary of the combined company.

The companies may modify these restructuring plans to adapt to changing regulatory and competitive conditions. Completion of the merger is not conditioned on the consummation of, or receipt of regulatory approval for, any portion of these corporate restructuring plans.

Appraisal Rights

Neither Exelon nor PSEG shareholders are entitled to appraisal rights in connection with the merger under the Pennsylvania Business Corporation Law or the New Jersey Business Corporation Act, respectively.

Federal Securities Laws Consequences; Stock Transfer Restriction Agreements

All shares of Exelon common stock received by PSEG shareholders pursuant to the merger will be freely transferable, except that shares of Exelon common stock received by persons who are deemed to be "affiliates" of PSEG under the Securities Act of 1933, as amended, at the time of the PSEG annual meeting may be resold by them only in transactions permitted by Rule 145 under the Securities Act of 1933 or as otherwise permitted under the Securities Act of 1933, as amended. Persons who may be deemed to be affiliates of PSEG for such purposes generally include individuals or entities that control, are controlled by or are under common control with, PSEG, as the case may be, and include directors and certain executive officers of PSEG. The merger agreement requires that PSEG use reasonable best efforts to cause each affiliate to execute a written agreement to the effect that such persons will not offer, sell or otherwise dispose of any of the shares of Exelon common stock issued to them pursuant to the merger in violation of the Securities Act of 1933, as amended, or the related SEC rules and regulations promulgated thereunder.

The registration statement of which this joint proxy statement/prospectus is a part does not cover any resales of the Exelon common stock to be received by the shareholders of PSEG upon completion

THE JERSEY CITY SEWERAGE AUTHORITY
JERSEY CITY, NEW JERSEY

DRAFT
COMBINED SEWER OVERFLOW DISCHARGE CHARACTERIZATION STUDY

PART B - SERVICE AREA DRAINAGE AND LAND USE REPORT

JULY 1996
Project: 1129-125

BAB000001

MALCOLM PIRNIE, INC.

One International Boulevard
Mahwah, NJ 07495-0018

104 Corporate Park Drive
P.O. Box 751
White Plains, NY 10602

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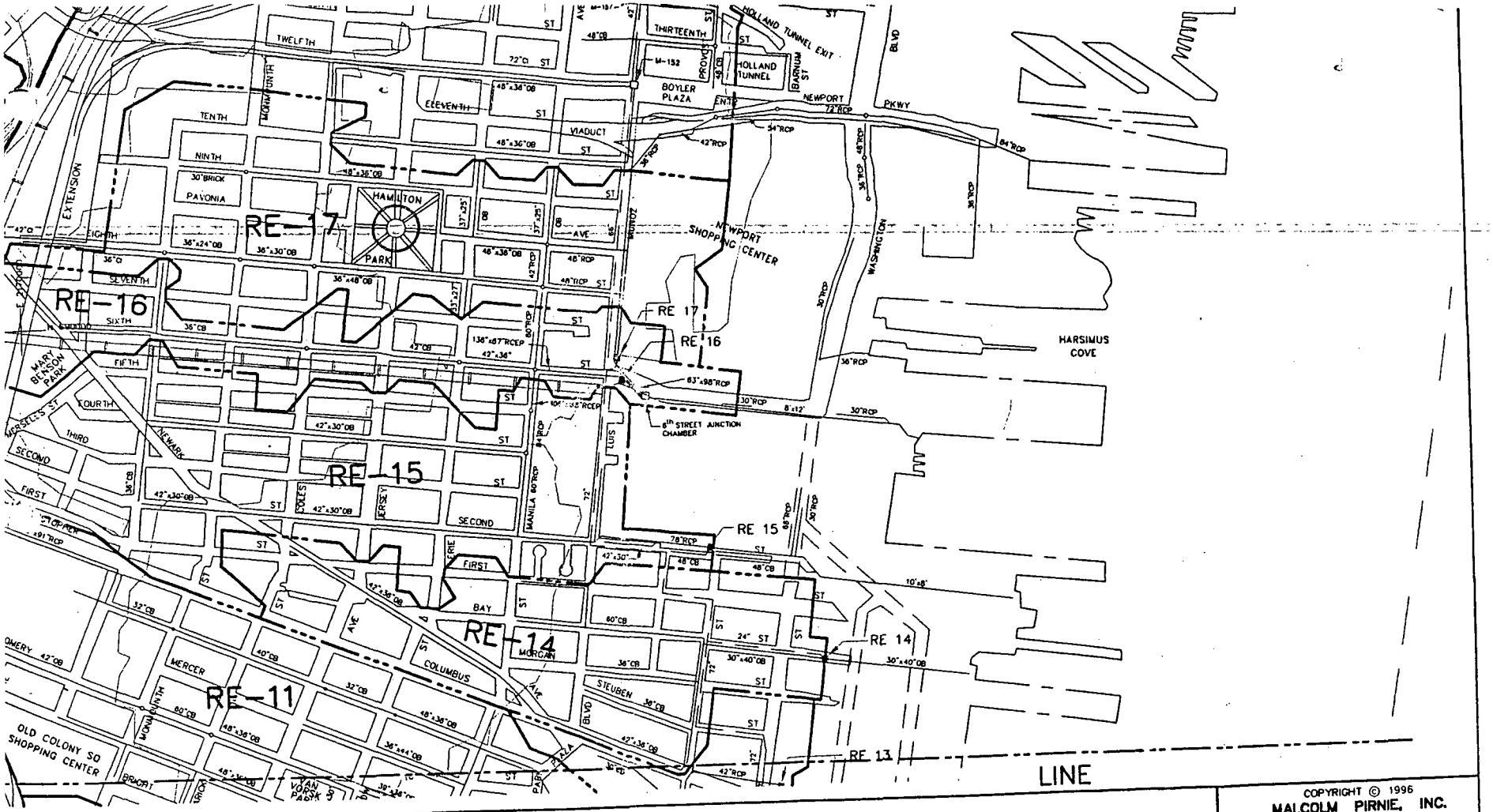

MAP OF JERSEY CITY – MAJOR SEWER SYSTEM COMPONENTS AND TOPOGRAPHY

SCALE: APPROX. 1"=600'

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DATE JUNE 1996

C/S SHEET 1 OF 2

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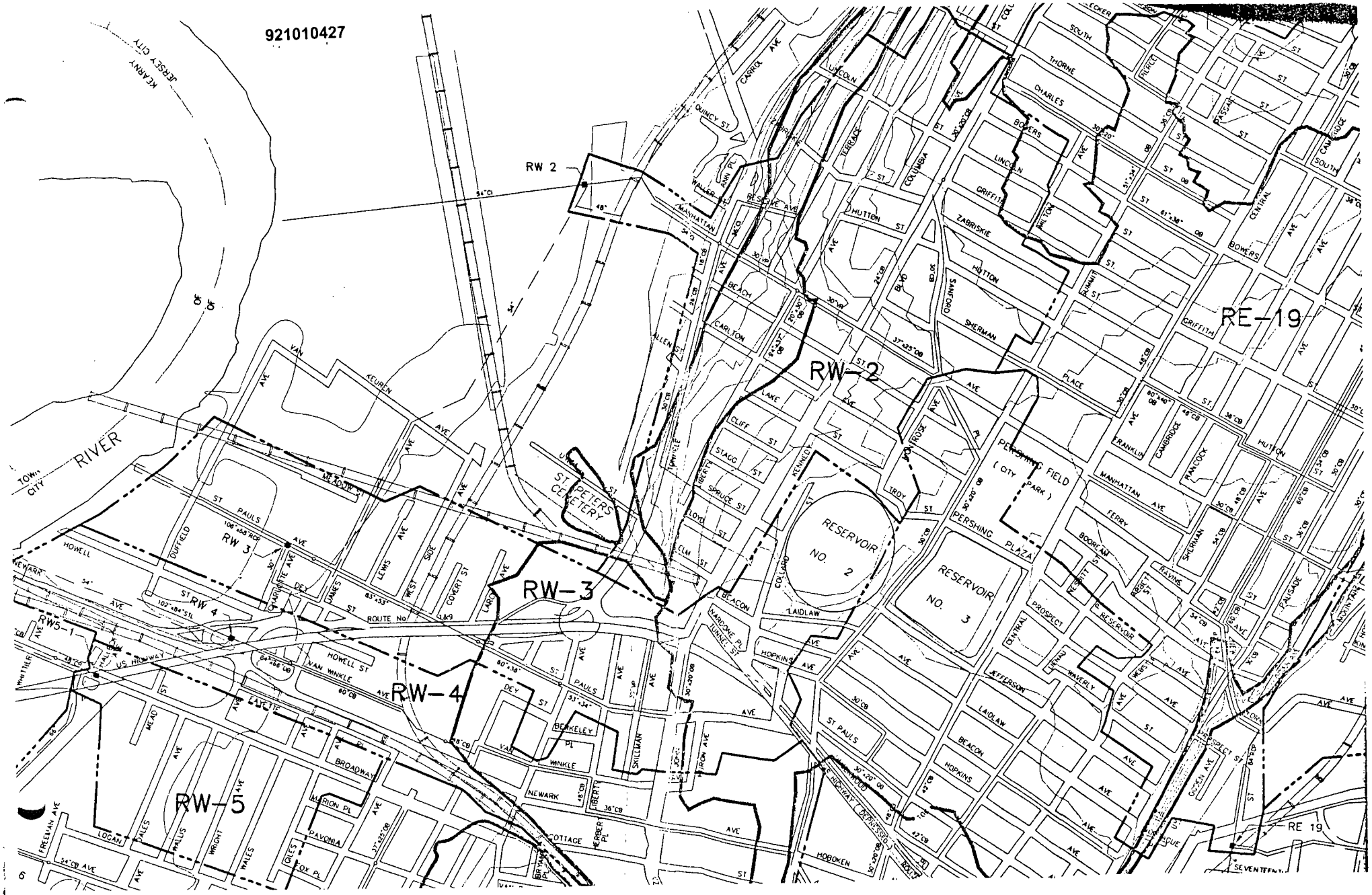

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RW-2
RW-3
RW-4
RW-5
RW 3
RW 4
RW5-1
RE-19
RE 19
RESERVOIR NO. 2
RESERVOIR NO. 3
PERSHING FIELD (CITY PARK)
PERSHING PLAZA
ST. PETERS CEMETERY
RIVER
KEARNY
JERSEY CITY
TOWN CITY
US HIGHWAY
ROUTE No 1&9