SDMS Document
92100

NEWARK BAY STUDY AREA

ADDITIONAL SITES AND CANDIDATE PRPS FOR THE NEWARK BAY STUDY AREA

VOLUME I OF II

EVIDENCE CONCERNING

PSE&G – WEST END

PREPARED FOR:
TIERRA SOLUTIONS, INC.

SUBMITTED TO:
USEPA REGION II

OCTOBER 6, 2005

921000001

PSE&G West End

921000002

921000003

MALCOLM PIRNIE

POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

West End Gas Works	222
Site Name	**Site ID Number**
St. Pauls and Duffield Avenues	Jersey City, NJ
Address	**City, State**

Date of Off-Site Reconnaissance February 12, 1985

SITE DESCRIPTION The West End Gas Plant is an oil and gas producing site located along the Hackensack River and owned by P.S.E.&G. Co.. From 1868 to 1939 this site was used to produce water gas, and carbureted water gas. From 1939 to the present the site has been used for oil gas production and natural gas distribution. Known hazardous byproducts of these processes include polynuclear aromatic hydrocarbons (PAH's), oils, tars, and ash. These substances may be buried on-site. Presently, much of the site is paved over.

PRIORITY FOR FURTHER ACTION: High ____ Medium ____ Low X None ____

RECOMMENDATIONS A low priority is recommended at this time given the commercial/industrial setting and limited potential for direct human contact. Since contamination of soil from tars, oils, ash, and various associated PAH's is suspected, a site inspection and investigation should be scheduled to determine the extent of any on-site contamination. If possible, original site layout should be reviewed for clues to possible disposal areas. Sampling should be performed at these areas to determine composition, depth, and quantity of buried deposits.

Prepared by: Nicholas C. Rotonda Date: February 12, 1985

MALCOLM PIRNIE ____

JRB ASSOCIATES ____

SAFE INTERNATIONAL ____

YURASEK ASSOCIATES X

REVISED MAY 24, 1985

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POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
West End Gas Works	St.Pauls and Duffield Avenues

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Jersey City	NJ		Hudson		

09 COORDINATES LATITUDE	LONGITUDE	
40° 44' 30.0"	74° 04' 32.6"	See Attachment C for Lot/Block

10 DIRECTIONS TO SITE (Starting from nearest public road)

New Jersey Turnpike South to Exit 15W. Take Newark/Jersey Turnpike Route 508 East. Exit left onto Tunnele Avenue, Routes 1 and 9 North; make third left onto St.Pauls Avenue. Site is at end of road near river.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Public Service Electric and Gas	80 Park Plaza T10C

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Newark	NJ	07101	(201) 430-5838

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
Same	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: / / (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: / / (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☐ YES DATE / / (MONTH DAY YEAR)
☒ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)

☒ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1868 (BEGINNING YEAR) | present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

From the known processes that were conducted at this site the following by-products and products are possibly present; oil gas tar, light oil, pitch(tar heavies), clinkers(coke residues), ash and assorted polynuclear aromatic hydrocarbons (PAH's) (See Attachment B)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Surface water contamination to Hackensack River (Adjacent to site), groundwater and soil contamination from buried coal tar deposits and/or PAH's.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Fred Schmitt	NJDEP/BEERA	(609) 292-1215

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Nicholas C. Rotonda		Yurasek	(201) 327-7404	2/20/85 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
NJ	

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A. SOLID
- [X] B. POWDER, FINES
- [ ] C. SLUDGE
- [X] D. OTHER _____ (Specify)
- [ ] E. SLURRY
- [X] F. LIQUID
- [X] G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS unknown
CUBIC YARDS _____
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A. TOXIC
- [ ] B. CORROSIVE
- [ ] C. RADIOACTIVE
- [X] D. PERSISTENT
- [X] E. SOLUBLE
- [ ] F. INFECTIOUS
- [X] G. FLAMMABLE
- [ ] H. IGNITABLE
- [X] I. HIGHLY VOLATILE
- [ ] J. EXPLOSIVE
- [X] K. REACTIVE
- [ ] L. INCOMPATIBLE
- [ ] M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	unknown		
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	unknown		
IOC	INORGANIC CHEMICALS	unknown		
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
IOC	Ammonia	7664-41-7	*Storage/disposal method is		
IOC	Ammonium Sulphate	999	unknown. See Attachment for		
IOC	Coke	65996-77-2	a more complete listing/		
IOC	Sulfur	7704-34-9	description of associated		
IOC	Cyanides	999	coal gasification waste		
OCC	Coal Tar Pitch	65996-93-2	materials.		
OCC	Phenols	999			
OCC	Amines	999			
OCC	Coal Tar	8007-45-2			
OCC	Anthracene	120-12-7			
OCC	Napthalene	91-20-3			
OCC	Pyrene	129-00-0			
SOL	Benzene	71-43-2			
SOL	Toluene	108-88-3			
MES	Heavy Metals	999			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NJDEP/HSMA: The compounds listed above should be considered a generic list of constituents commonly found in coal gasification waste products. Site-specific sample must be taken to characterize the actual contaminants on a particular site.

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EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Potential contamination of groundwater from buried tars, PAH's, or associated coal wastes. (See Attachment B)

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Potential for contaminated runoff entering the Hackensack River adjacent to the western boundary.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Buried coal tar deposits could become ignited and burn if located near underground electric cables.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☒ F. CONTAMINATION OF SOIL — 02 ☐ OBSERVED (DATE: _____) — ☒ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (ACRES) — 04 NARRATIVE DESCRIPTION

Substances buried, spilled or stored underground may have contaminated surrounding soils.

01 ☐ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
NJ	

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 [ ] J. DAMAGE TO FLORA — 02 [ ] OBSERVED (DATE:) [ ] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

01 [ ] K. DAMAGE TO FAUNA — 02 [ ] OBSERVED (DATE:) [ ] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

01 [ ] L. CONTAMINATION OF FOOD CHAIN — 02 [ ] OBSERVED (DATE:) [ ] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

01 [X] M. UNSTABLE CONTAINMENT OF WASTES *(Spills/runoff/standing liquids/leaking drums)* — 02 [ ] OBSERVED (DATE:) [X] POTENTIAL [ ] ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Possible wastes buried in pits or underground storage areas.

01 [X] N. DAMAGE TO OFFSITE PROPERTY — 02 [ ] OBSERVED (DATE:) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

Potential exists for offsite contamination via leaching contaminants or storm runoff.

01 [ ] O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 [ ] OBSERVED (DATE:) [ ] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

01 [X] P. ILLEGAL/UNAUTHORIZED DUMPING — 02 [ ] OBSERVED (DATE:) [X] POTENTIAL [ ] ALLEGED

04 NARRATIVE DESCRIPTION

The potential exists that hazardous substances may be buried onsite.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED:

IV. COMMENTS

The location, quantity and description of buried waste is unknown. This type of operation is known to have used and produced high concentrations of hazardous compounds.

Presently, this site is under permit number NJ0005550.

V. SOURCES OF INFORMATION *(Cite specific references, e.g. state files, sample analysis, reports)*

P.S.E.& G. site history and process descriptions of by-prodict and waste handling (See Attachments A and B)
(Off-site reconnaissance February 12, 1985)

EPA FORM 2070-12 (7-81)

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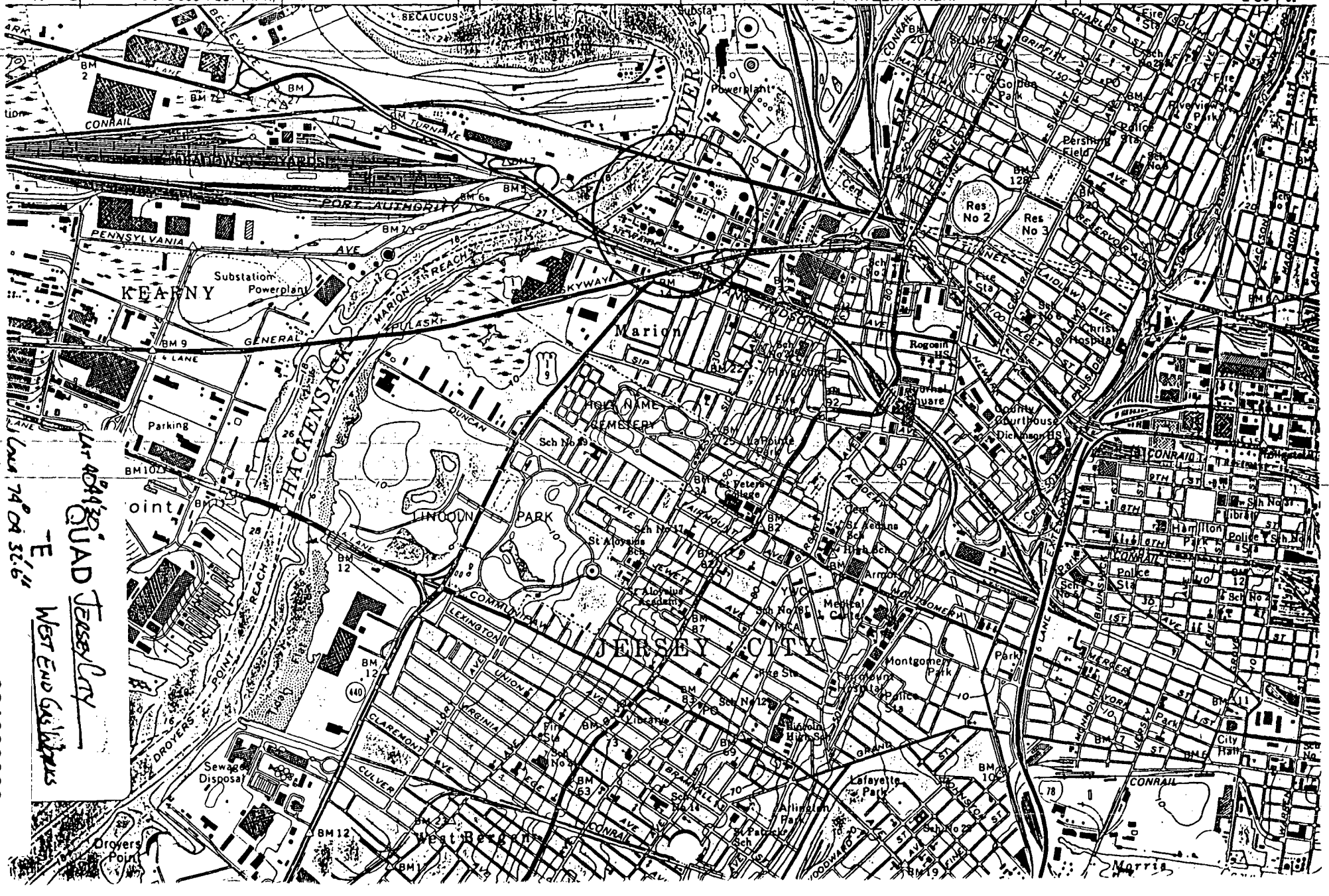
ED STATES
OF THE INTERIOR
ICAL SURVEY

JERSEY CITY QUAD



LAT 40°44'30"
QUAD Jersey City
E
West End Gas Works
Long 74° 04' 32.6"

921000009

WEST END GAS PLANT
JERSEY CITY. N.J.

222

This plant, from all accounts, manufactured water gas, carbureted water gas and oil gas.

April 8, 1868	The Peoples Gas Light Company of the City of Hudson was organized to supply gas to the cities of Hudson and Bergen and places adjacent
February 14, 1871	The corporate name of the Peoples Gas Light Company of the City of Hudson was changed to the Peoples Gas Light Company of Jersey City
October 31, 1899	The Peoples Gas Light Company of Jersey City was consolidated with others to form the Hudson County Gas Company
June 1, 1903	Public Service Corporation leased the Hudson County Gas Company
October 1, 1909	Public Service Corporation assigned its lease to Public Service Gas Company
July 25, 1924	Public Service Gas Company merged into Public Service Electric and Gas Company
March 1, 1939	The Hudson County Gas Company merged into Public Service Electric and Gas Company
December 1983	The West End Gas Plant remains operational, to this date, producing oil gas
Waste Handling Practices:	See Section I.B.
Waste Material Deposits:	None to our knowledge
Remedial Actions:	None
Regulatory Violations:	None
Future Use:	PSE&G Company to retain property for use in distributing natural gas.

 ATTACHMENT A

A-1

921000010

WEST END GAS PLANT - JERSEY CITY

Site Characteristics

A. Land Use

The area surrounding the site is urban with the eastern part being residential and some light commercial use, while the western part is primarily large industrial and commercial. Portions of Kearny, Lyndhurst, Secaucus, North Bergen, Jersey City, and Hoboken are within a 2 mile radius. 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.

B. Site Terrain

The average site slope is 0.2 percent.

The nearest downslope surface water is the Hackensack River which abuts the property. This a navigable river used for commercial shipping and recreational boating, which terminates in Newark Bay.

The average site and immediately adjacent area elevation is 10' above mean sea level.

C. Ground and Surface Water Use

The formations within a 3 mile radius are Statified Glacial Drift, Stockton, Serpentine, Diabase, and Manhattan Schist which supply 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, and may be used for industrial purposes.

There are no public surface water-supply intakes within 3 miles downstream.

D. Site Contamination

Priority pollutant analyses were performed on water samples taken upstream and downstream of the plant from the Passiac River. This testing was performed in September 1983 and showed no contamination of the waterway from the plant site.

A-2

I. PROCESS DESCRIPTION AND BY-PRODUCT & WASTE HANDLING

A. Process Description

1. Oil Gas

Oil gas is the thermal cracking and reforming of a liquid hydrocarbon. Oil gas is produced in a three vessel system similar to the carbureted water gas machines. Checker brick replaces the coke bed in the generator and the generator and carburetor are used as vaporizers. The vaporizers are alternately heated with a liquid fuel and process another liquid fuel into the superheater where the thermally cracked hydrocarbon is reformed into methane, ethane, ethylene and other higher hydrocarbons. Oil gas has a thermal value of approximately 1100 Btu/ft. The by-product from this process is tar.

2. Coal Gas

Coal gas is manufactured through the thermo-decomposition of the volatile matter in coal. It is generated in equipment called retorts, benches and coke ovens. The coal gas produced from the thermo-decomposition is high in hydrogen and methane and contains lesser amounts of ethane, ethylene, ammonia, hydrogen sulfide, water, carbon monoxide, carbon dioxide, tar, fixed carbon, and other hydrocarbons.

The by-products of coal gasification are ammonia, ammonium sulphate, tar, light oils, coke and sulfur.

3. Water Gas

Water gas is manufactured by passing steam over and through an incandescent bed of hot coke, coal or other carbonaceous material. The manufacturing equipment consists of a generator, waste heat boiler and a wash box. The generator contains the coke bed; the waste heat boiler is used to extract heat from the gas produced or from the products of combustion when heating the coke bed and the wash box is used to cleanup the gas of all condensables. Water gas consists essentially of hydrogen and carbon monoxide which is formed in the following chemical reaction.

$$H_2O + C = H_2 + CO$$

ATTACHMENT B

The thermal value of water gas is approximately 380 Btu/ft. The by-product from water gas manufacturing is ash and clinker.

4. Carbureted Water Gas

Carbureted water gas is the water gas process enriched with a thermally cracked hydrocarbon such as oil, natural or liquified petroleum gas. The manufacturing equipment consists of a generator, carburetor, superheater, waste heat boiler and wash box. The generator contains the coke bed used for generating the water gas and providing heat to the carburetor and superheater. The carburetor is where the hydrocarbon is added, usually vaporizing and being thermally cracked on checker brick installed in the carburetor. The superheater, also filled with checker brick, is where the thermally cracked hydrocarbon is reformed into methane, ethane and other gaseous hydrocarbons. The thermal value of carbureted water gas is approximately 560 Btu/ft. The by-products from the carbureted water gas reaction are clinker, tar, pitch, and light oil.

B. By-Products and Waste Handling

1. Ash

Ash, the residue remaining from the burning of soft and hard coals, was generated in the steam producing portion of all gas plants 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.

2. Clinker

Clinker is the residue remaining from the coke used in the water gas and carbureted water gas operations.

Clinker was normally removed and disposed of in the same fashion as ash.

3. Iron Oxide Sponge

Iron Oxide Sponge was used in all gas plants for the removal of hydrogen sulfide from the manufactured gas stream. The sponge was normally regenerated with air to reactivate

921000013

the material. However, over the years great quantities of this material became waste because it could no longer be regenerated.

Spent Iron Oxide Sponge was normally removed from the property in bulk by contractors.

4. Coke

Coke was a by-product from the coal gas plants the result of the thermo decomposition of coal. Coke was sold to the gas industry, the steel industry, residential, commercial, and industrial consumers who utilized it for fuel.

Coke was transported from the plants via barge, rail and trucks. In some instances, it was bagged for retail sale.

5. 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 tar wells (separators) and tanks where the water was removed. Tar was sold to the road paving industry, the building material industry, and was used in-plant for boiler fuel.

Tar was transported via tank truck, rail car, and barge to the above listed industries.

6. Coal Gas Tar

Tar was removed from the manufactured gas stream in the ammonia liquor stream. Dry tar was separated from the ammonia liquor and stored in tanks. The tar was then sold to the chemical industry for recovery of the valuable chemicals in the tar by-product. After chemical recovery, the remaining tar was sold principally to the paving industry.

Tar was transported from the plants via tank truck, rail car, and barge to the chemical industry.

7. Pitch

Pitch or tar heavies resulted from the processing of tar for the paving industry.

This by-product was sold to the electrolytic industry, both domestic and foreign, for the manufacture of electrodes.

Pitch was transported form the plants via trucks or barge. Foreign bound pitch was transported via truck to ships for sea transportation.

8. Drip Oil or Light Oil

Drip oil was removed from the manufactured gas stream usually by condensers and precipitators, collected, processed for water removal, and stored in tanks. Coal gas drip oil was sold to the chemical industry, whereas carbureted water gas drip oil was mixed with the tar by-product and sold with the tar.

Drip oil, when sold independently, was transported from the plant via tank truck.

9. Ammonium Sulphate

Ammonium sulphate was removed from the manufactured coal gas stream usually in a liquid purification system. The sulphate was dried and stored in buildings for sale to the fertilizer industry.

The material was shipped from the plant in bulk via truck or barge to the various fertilizer plants.

10. Flotation Sulfur

Flotation sulfur was removed from the manufactured coal gas stream by a liquid purification system. The sulfur was then further dried in presses and loaded into wooden barrels for sale as a pesticide to individual farmers or farm cooperatives for spraying on fruit trees.

The sulfur barrels were transported via truck or barge to their destination.

11. Ammonia Liquor

Ammonia liquor was the result of washing the manufactured coal gas stream with water. The liquor was then disposed of prior to 1950 by mixing with cooling water effluent and discharged

to the nearest waterway. After 1950, this effluent was discharged to the local sewer plants.

921000016

MALCOLM PIRNIE

TELEPHONE CALL CONFIRMATION

SITE No ZZZ

Local 547-5167 Long Distance _____ Date 2/20/85

To/From TAX ASSESSOR/MAPPING DEPARTMENT Time 3:15PM

CITY OF JERSEY CITY Project NJDEP PA

MPI Name NICK ROTONDA (YURASEK ASSOCIATES) Proj. No. 835-03-1

Subject: PHONE CALL MADE TO OBTAIN LOT AND BLOCK NUMBERS FOR PROPERTIES OWNED BY P S.E+G AT ST. PAULS AVE AND DUFFIELD AVE. (WEST END GAS WORKS)

BLOCK # 652 LOTS 4D
4C
4F
4E
4
F
S

Nicholas C Rotonda 2/20/85

Route to:

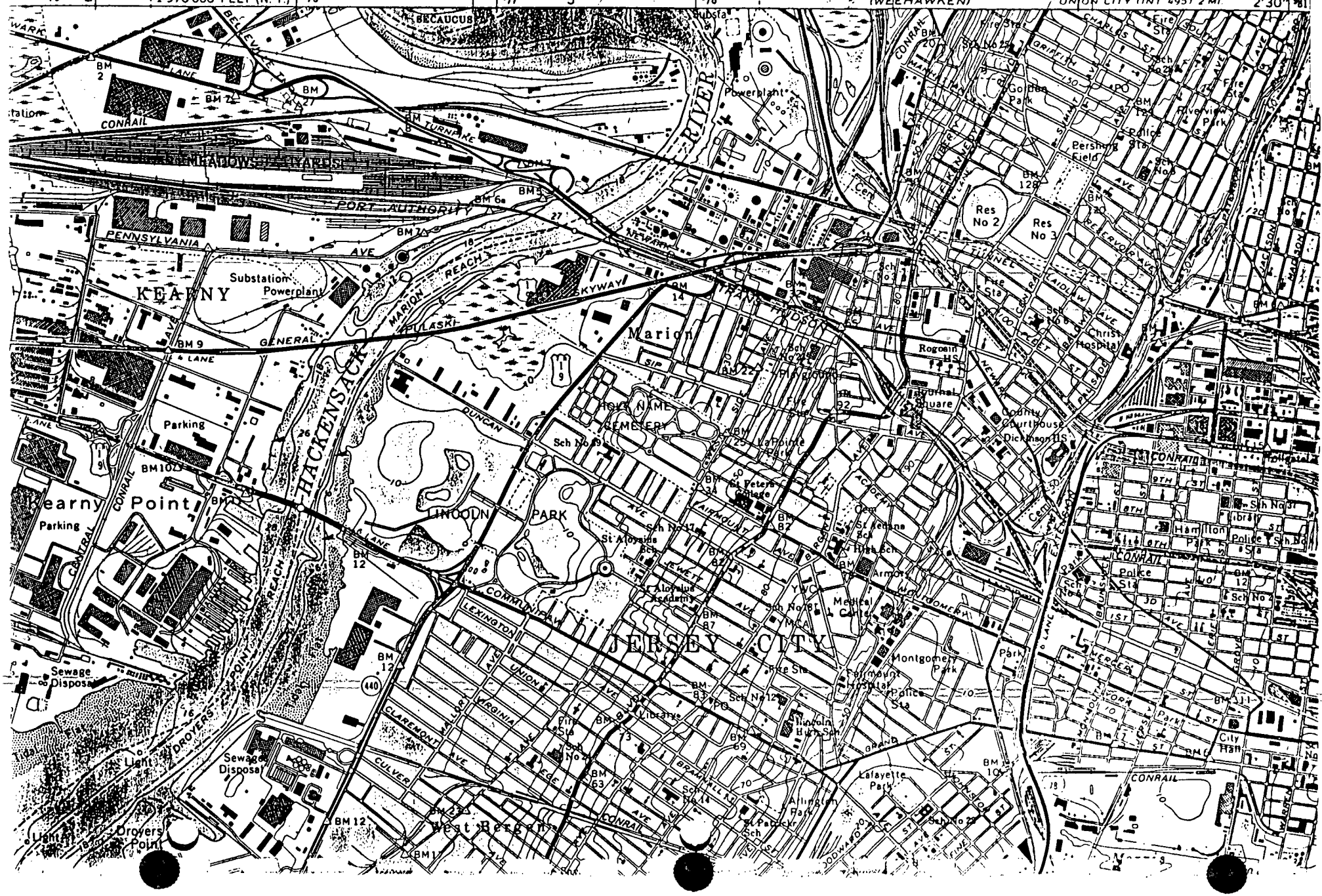
File:

ATTACHMENT C

921000017

ED STATES
T OF THE INTERIOR
GICAL SURVEY

JERSEY CITY QUAD



921000018

MALCOLM PIRNIE

OFF - SITE RECONNAISSANCE

Date: FEBRUARY 12, 1985 Time In 2:53 Out 3:06

Site ID No. ZZZ

Site Name: WEST END GAS WORKS

Location: JERSEY CITY

Address: ST PAULS AND DUFFIELD AVES

City, County: HUDSON Zip:

Personnel: TONY RUSSO Title: ENVIRONMENTAL SCI.

NICK ROTONDA CIVIL ENGINEER

Conditions: RAINING / HAIL Temperature: 40 °F

Any evidence of imminent hazard? NO Illegal Dumping? NO

Uncapped Monitoring Wells? NO If Yes, Notify NJDEP

Signature: [signature] Date: 2/12/85

Witness: [signature] Date: 2/12/85

921000019

MALCOLM PIRNIE

FIELD NOTES

Site: WEST END GAS WORKS Site ID No. 222

Date: FEBRUARY 12, 1985

SITE ACTIVE COMPLETELY FENCED. SEVERAL ABOVE GROUND TANK FIELDS VISIBLE. SOME MARKED #6 FUEL OIL AND OTHERS KEROSENE. NO VISIBLE DEPOSITS OF UNCONTAINED OR SPILLED MATERIALS. SITE APPEARS CLEAN, MAINTAINED WELL.

Signature: [signature] Date: 2/12/85

Witness: [signature] Date: 2/12/85

921000020

MALCOLM PIRNIE

PHOTO LOG

Subject: WEST END GAS WORKS Site ID No. ZZZ

Date: FEBRUARY 12, 1985 Page No.

ASA: 100

Frame No:	Object photographed:*	Location of photographer:*	Compass heading:
~~18~~ NEG 19	TANK FIELD	DUFFIELD AVE	S
~~19~~ NEG 20	TANK (55g DRUMS)	" "	E
20 NEG 21	TANK	" "	E
21 NEG 22	MAIN ENTRANCE CORNER	" "	N
22 NEG 23	ST PAULS ST + PSEG OFFICES	AT CORNER	E
23 NEG 24	" " " ~~WITH OFFICES~~	ST PAULS ST	W

*Indicate on sketch or map if possible

Signature: [signature] Date: 2/12/85

Witness: [signature] Date: 2/12/85

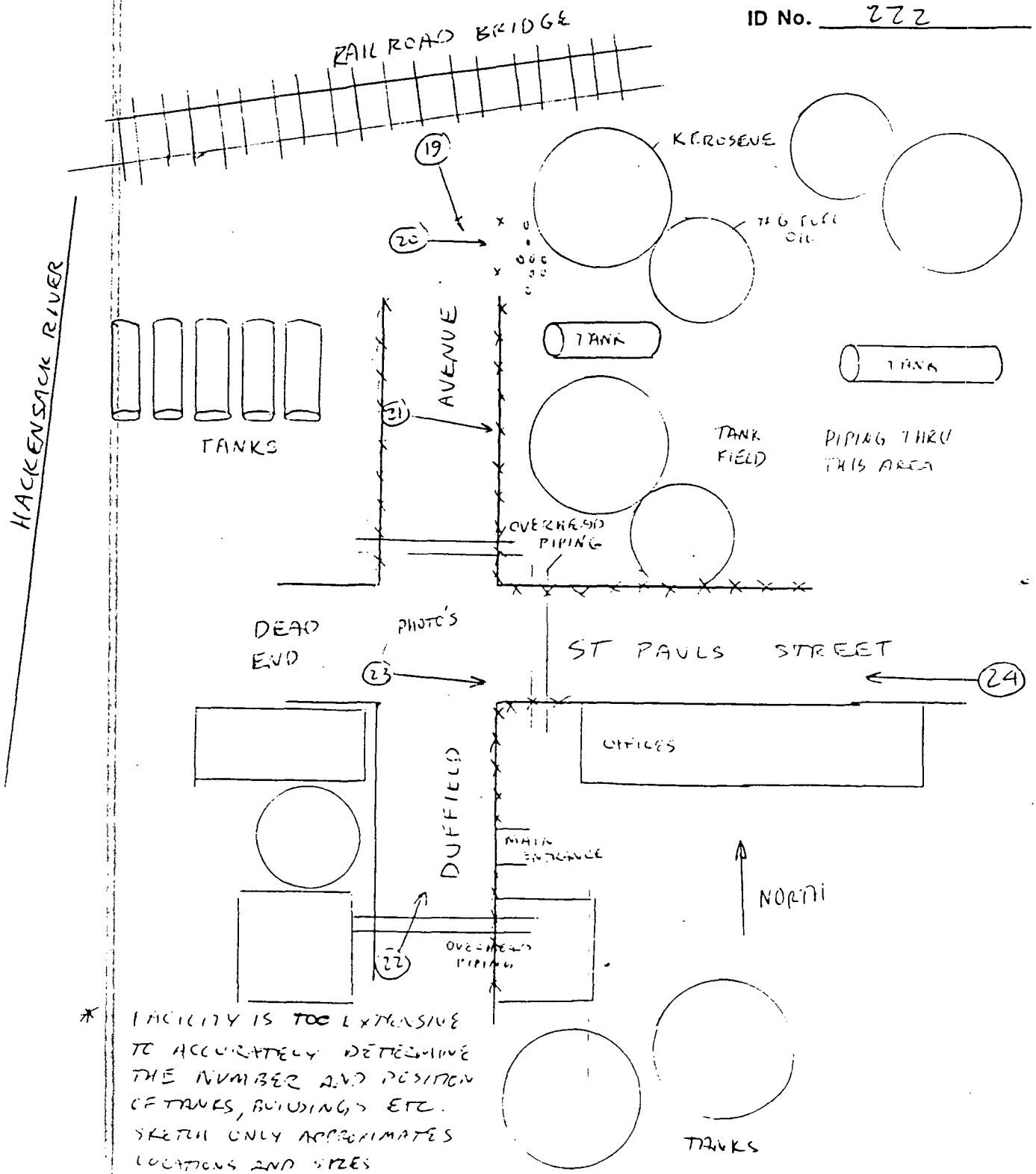
921000021

MALCOLM PIRNIE

MAPS AND SKETCHES

Site: WEST END GAS WORK

ID No. 222



* FACILITY IS TOO EXTENSIVE TO ACCURATELY DETERMINE THE NUMBER AND POSITION OF TANKS, BUILDINGS ETC. SKETCH ONLY APPROXIMATES LOCATIONS AND SIZES

Signature: [illegible] Date: 2/12/85

Witness: [illegible] Date: 2/12/85

921000022

MALCOLM PIRNIE

SITE NAME: ~~PSE+G West End Gas Works~~ PSE+G

ID NO: 222

LOCATION: ~~Newark~~ Jersey City Hudson

FILE	SEARCH DATE	REVIEWER	RCRA 3001 FORM	CERCLA 103C FORM	PRELIMINARY INSP. REPORT	FIELD INSPECTION REPORTS	AGENCY INTERNAL MEMOS	RESP. PARTY CORRESPONDENCE	FORMAL REPORTING DOCUMENTS	SITE SKETCHES	ANALYTICAL DATA	SECOND SEARCH DATE	REMARKS	QA CHECK
NJDEP-Newark	2/13/85	MM							+				NPDES permits up to 1983 (discharges into Hackensack Location: St. Pauls and Duffield Ave. 07029 Resp. party: PSE+G 80 Park Plaza Newark 07101	
										✓			Location Map. NJPDES permit + NJ0005570	

File reiew information was requested from the following sources:
NJDEP/DWR: Central; Groundwater; Regional Enforcement
NJDEP/DWM: HSMA; Central; Enforcement
NJDEP/OSR: Industrial Survey
USEPA: Federal Plaza, Edison

CODES:

✓ REVIEWED AND COPIED
X REVIEWED BUT NOT COPIED
NF NOT FOUND

921000023

MALCOLM PIRNIE

SITE NAME: COAL GAS SITES - PSE&G GENERAL FILE

ID NO: GENERAL FILE

LOCATION:

219 227 217 216
233 211 207 224
204 205 208 225
212 (222) [redacted] 229
220 218 206
[redacted] 203
241

FILE	SEARCH DATE	REVIEWER	RCRA 3001 FORM	CERCLA 103C FORM	PRELIMINARY INSP. REPORT	FIELD INSPECTION REPORTS	AGENCY INTERNAL MEMOS	RESP. PARTY CORRESPONDENCE	FORMAL REPORTING DOCUMENTS	SITE SKETCHES	ANALYTICAL DATA	SECOND SEARCH DATE	REMARKS	QA CHECK
HSWA Coal Gas	2/6/85						✓	✓	✓				PSE&G PROVIDED A DOCUMENT DESCRIBING ALL SITES IT IS RESPONSIBLE FOR.	

CODES:

✓ REVIEWED AND COPIED
X REVIEWED BUT NOT COPIED
NF NOT FOUND
NA NOT APPROPRIATE

921000024

MALCOLM PIRNIE

Preliminary Assessment Photo Log

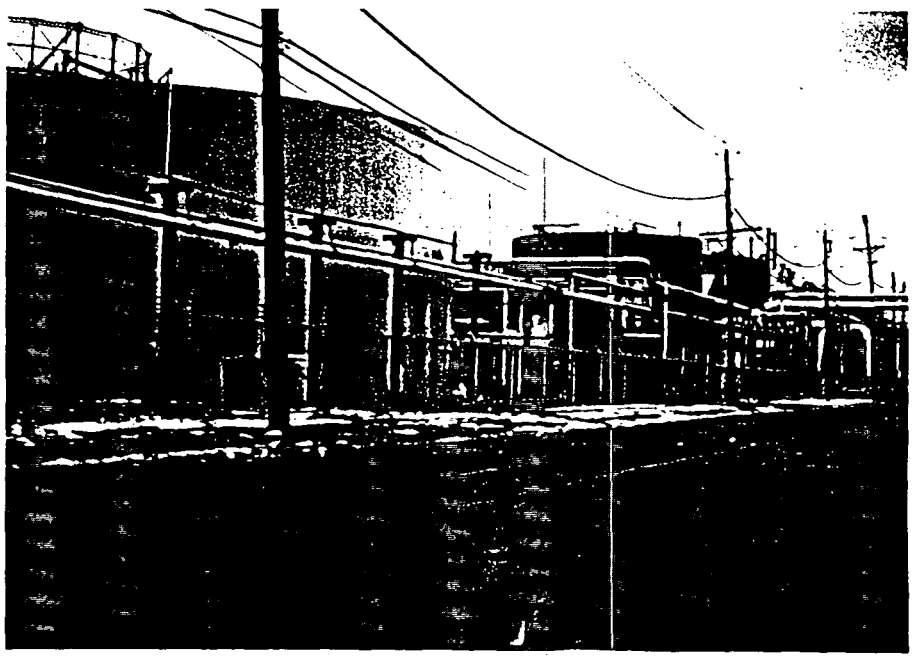
SITE: WEST END GAS WORKS

I.D. ZZZ

DATE: FEBRUARY 12, 1985

FRAME: 20 TIME: 3:00 PM DIRECTION: EAST

DESCRIPTION: FUEL TANK AND 55 gal DRUMS



FRAME: 19 TIME: 3:00 PM DIRECTION: SOUTH

DESCRIPTION: TANK FIELD AND DUFFIELD AVENUE

921000025

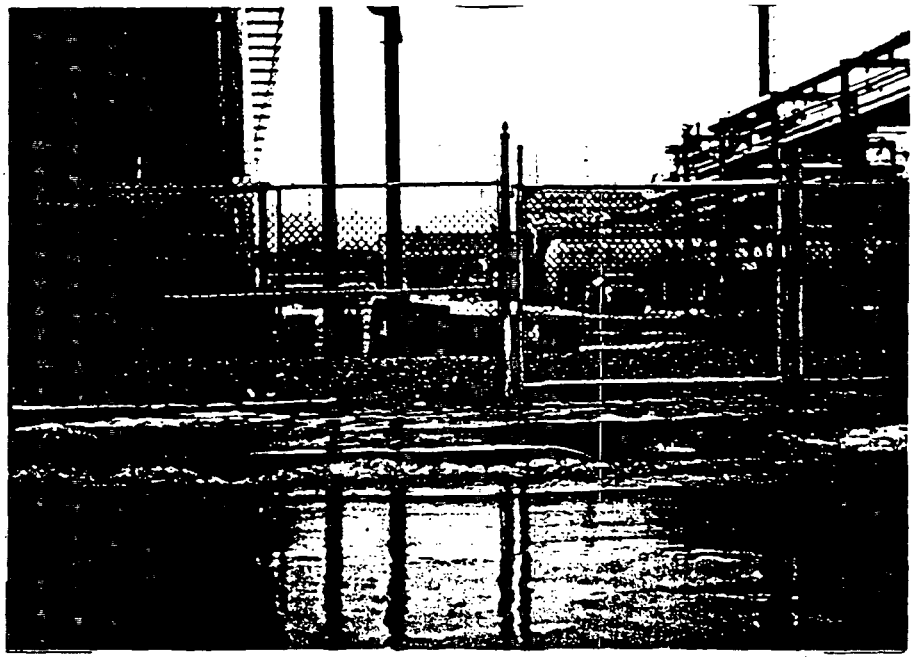
MALCOLM PIRNIE

Preliminary Assessment Photo Log

SITE: WEST END GAS WORKS

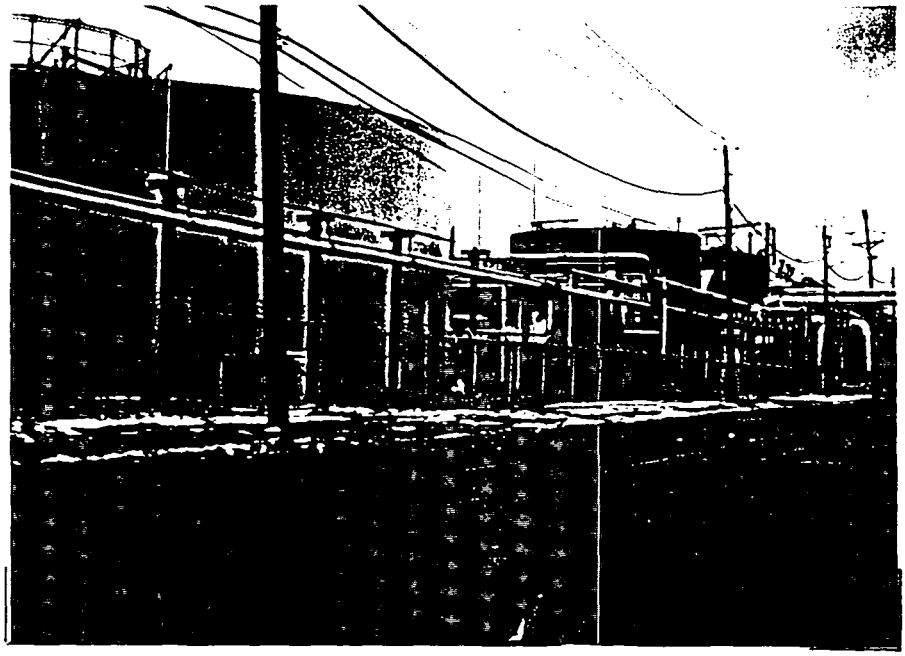
I.D. ZZZ

DATE: FEBRUARY 12, 1985



FRAME: 20 TIME: 3:00 PM DIRECTION: EAST

DESCRIPTION: FUEL TANK AND 55 gal DRUMS



FRAME: 19 TIME: 3:00 PM DIRECTION: SOUTH

DESCRIPTION: TANK FIELD AND DUFFIELD AVENUE

921000026

RECEIVED
OCT 23 12 50 PM '74
DEPT. ENVIR. PROTECT.
DIV. OF WATER RESOURCES

Permit Number: NJ0000574

Name of Permittee: Public Service Electric and Gas Company, West End Gas Plant

Effective Date: November 30, 1974

Expiration Date: November 30, 1979

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

DISCHARGE PERMIT

In reference to the above application for a permit authorizing the discharge of pollutants in compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Federal Water Pollution Control Act Amendments of 1972, P.L. 92-500, October 18, 1972 (33 U.S.C. §1251-1376) (hereinafter referred to as "the Act"),

Public Service Electric and Gas Co.,
80 Park Place
Newark, New Jersey 07101
(hereinafter referred to as "the permittee")

is authorized by the Regional Administrator, Region II, U. S. Environmental Protection Agency to discharge from St. Pauls & Duffield Avenue

Jersey City, New Jersey

to the Hackensack River

in accordance with the following conditions.

BJC000019

921000028

921000029

WEST END GAS PLANT

8-17
Hackensack

FORM APPROVED
OMB NO. 49-R 0408

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

APPLICATION FOR PERMIT TO DISCHARGE OR WORK IN NAVIGABLE WATERS AND THEIR TRIBUTARIES

000149

SECTION I. GENERAL INFORMATION

1. State: N.J.
Application Number (to be assigned by Corps of Engineers): 250 0XV 2 000149
Div. Dist. Type Sequence No.

2. Name of applicant and title of signing official: Public Service Electric and Gas Company
R. A. Baker, Executive Vice President

3. Mailing address of applicant:
80 Park Place
Newark, New Jersey 07101

4. Name, address, telephone number and title of applicant's authorized agent for permit application coordination and correspondence.
C. C. Ruffle, Director - Environmental Affairs
80 Park Place, Room 4251
Newark, New Jersey 07101
(201) 622-7000, Ext. 3440

NOTE TO APPLICANT: Refer to the pamphlet entitled "Permits for Work and Structures in and for Discharges or Deposits into Navigable Waters" before attempting to complete this form.

Required Information

a. All information contained in this application will, upon request, be made available to the public for inspection and copying. A separate sheet entitled "Confidential Answers" must be used to set out information which is considered by the applicant to constitute trade secrets or commercial or financial information of a confidential nature. The information must clearly indicate the item number to which it applies. Confidential treatment can be considered only for that information for which a specific written request of confidentiality has been made on the attached sheet. However, in no event will identification of the contents and frequency of a discharge be recognized as confidential or privileged information.

b. The applicant shall furnish such supplementary information as is required by the District Engineer in order to evaluate fully an application.

c. If additional space is needed for a complete response to any item on this form, attach a sheet entitled "Additional Information." Indicate on that sheet the item numbers to which answers apply.

d. Drawings required by items 20 and 21 should be attached to this application. Other papers which must be attached to this application include, if applicable, copies of a water quality certification or a written communication which describes water quality impact (see Item 22 and Item 10 of Section II below), the additional information sheet(s) in "c" above, and the confidential information sheet described in "a" above.

Fees

If any discharge or deposit is involved, an application fee of $100 must be submitted with this application. An additional $50 is required for each additional point of discharge or deposit.

Signature

a. If a discharge is involved, an application submitted by a corporation must be signed by the principal executive officer of that corporation or by an official of the rank of corporate vice president or above who reports directly to such principal executive officer and who has been designated by the principal executive officer to make such applications on behalf of the corporation. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor. Other signature requirements are discussed in the pamphlet.

b. If no discharge is involved, an application may be signed by the applicant or his authorized agent.

Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate.

[signature]
Signature of Applicant

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

FOR CORPS OF ENGINEERS USE ONLY

Acronym name of applicant: PEG

Are discharge structures: Major? ☐ Minor? ☐ N/A? ☐

Date received, form not complete: 14 JUN 71
Date received, form complete but without certificate: — — — — — —
Date received, form complete: — — — — — —
Date of Cert./Ltr.: — — — — — —
day mo yr

Date sent to EPA, form not complete: — — — — — —
Date sent to EPA, NOAA, D/I, AEC, FPC in complete form: — — — — — —
day mo yr

ENG FORM 4345
MAY 71

921000030

Date	(Office use only)
6 (mo) 25 (day) 71 (yr)	25 D OXW 2SD OXW 2 000149 000149

6. Check type of application: a. Original [X] b. Revision [ ]

7. Number of original application

8. Name of facility where discharge or construction will occur.

Public Service Electric & Gas Company
West End Gas Plant

9. Full mailing address of facility named in item 8 above.

St. Pauls & Duffield Ave.
Jersey City, N.J. 07306

10. Names and mailing addresses of all adjoining property owners whose property also adjoins the waterway.

Erie-Lackawanna Railroad Co.- Hoboken Terminal, Hoboken, N.J.

Hudson Builders Material Inc., Ft. of Howell St., Jersey City, N.J.

11. Check to indicate the nature of the proposed activity:

a. Dredging [ ] b. Construction [ ] c. Construction with Discharge [ ] b. Discharge only [X]

12. If activity is temporary in nature, estimate its duration in months.

Not Applicable

If application is for a discharge:

13. List intake sources

Source	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal or private water supply system	0.322 (S) 0.434 (W)
Surface water body	4.6349 (S) 14.1839 (W)
Ground water	
Other	

14. Describe water usage within the plant

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Cooling water	4.68 (S) 4.18 (W)
Boiler Feed water	0.256 (S) 0.417 (W)
Process water	0.0185 (S) 0.0185 (W)
Sanitary system*	0.0024 (S) 0.0024 (W)
Other	

15. List volume of discharges or losses other than into navigable waters.

Type	Estimated Volume in Million Gallons Per day or Fraction Thereof
Municipal waste treatment system	0.0024
Surface containment	
Underground disposal	
Waste Acceptance firms	
Evaporation	
Consumption	

(S) Summer
(W) Winter

* Indicate number employees served per day 84

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If structures exist, or dredging, filling or other construction will occur, the precise location of the activity must be described.

(Office use only) 2SD OXW 2 000149 000148

a. Name the corporate boundaries within which the structures exist or the activity will occur.

16. State: N.J. 17. County: Hudson 18. City or Town: Jersey City

b. Name of waterway at the location of the activity

19. Hackensack River

20. Maps and sketches which show the location and character of each structure or activity, including any and all outfall devices, dispersive devices, and non-structural points of discharge, must be attached to this application.

21. For construction or work in navigable waters for which a separate permit is sought under 33 U.S.C. 403, the character of each structure must be fully shown on detailed plans to be submitted with this application. Note on the drawings those structures for which separate discharge information (Section II of this form) has been submitted.

22. List all approvals or denials granted by Federal, interstate, State or local agencies for any structures, construction, discharges or deposits described in this application.

Type of document	Id. No.	Date	Issuing Agency
None			

23. Check if facility existed or was lawfully under construction prior to April 3, 1970. [X]

24. If dredging or filling will occur:

State the type of materials involved, their volume in cubic yards, and the proposed method of measurement.

Not Applicable

25. Describe the proposed method of instrumentation which will be used to measure the volume of any solids which may be deposited and to determine its effect upon the waterway.

None at this time

26. State rates and periods of deposition described in Item 25.

Not Applicable

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MAY 71

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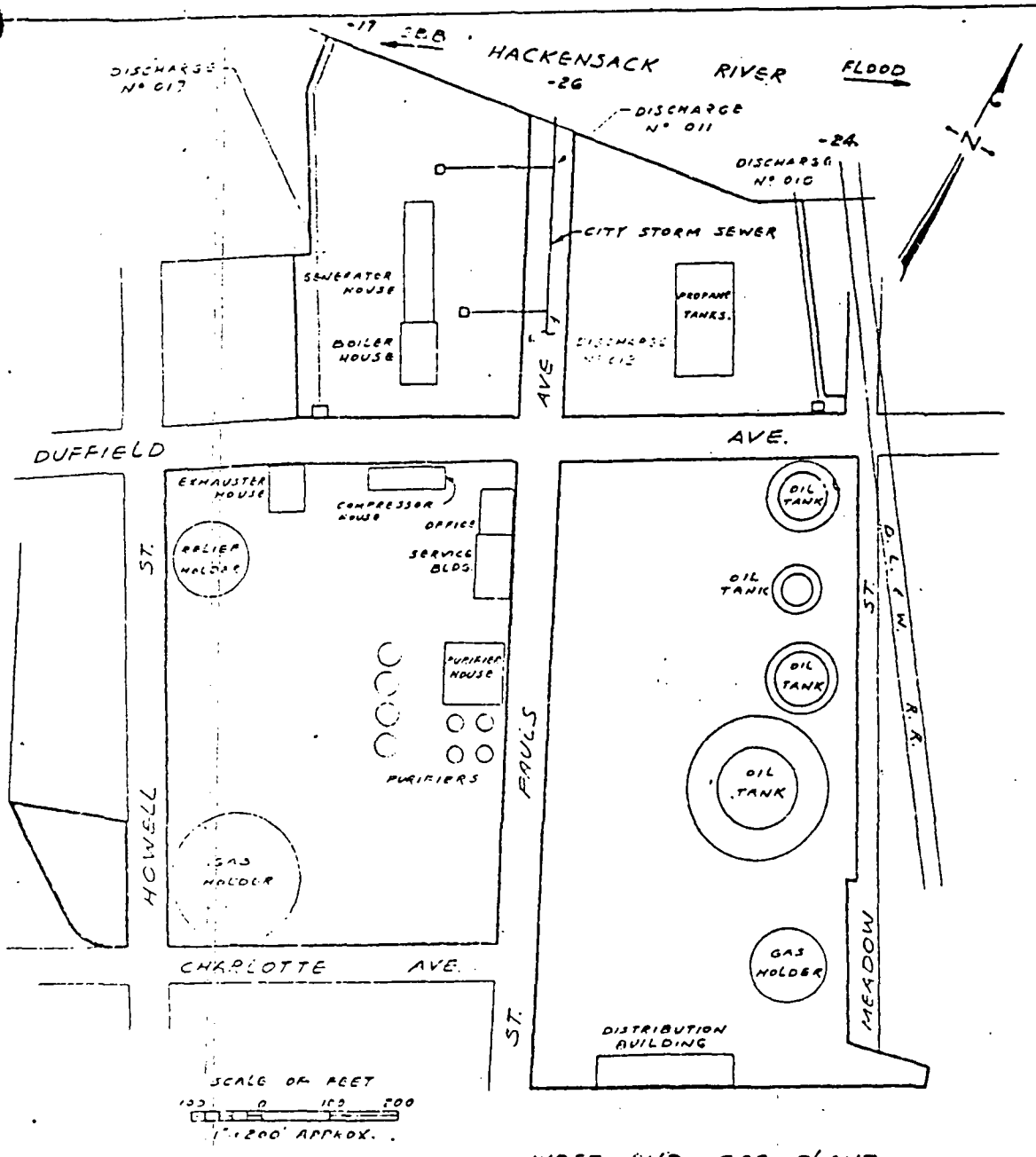
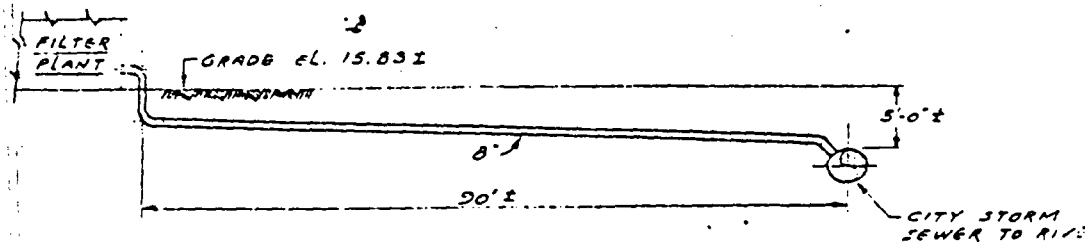


WEST END GAS PLANT

EXISTING DISCHARGE ARRANGEMENT
IN THE HACKENSACK RIVER
AT WEST END GAS PLANT

SOUNDINGS ARE IN FEET ABOVE (+) OR BELOW (-) MLW (6.40'±)

COUNTY OF HUDSON, STATE OF NEW JERSEY
APPLICATION BY PUBLIC SERVICE E&G CO.
SHEET 2 OF 5 DATE: NOV. 17, 1971



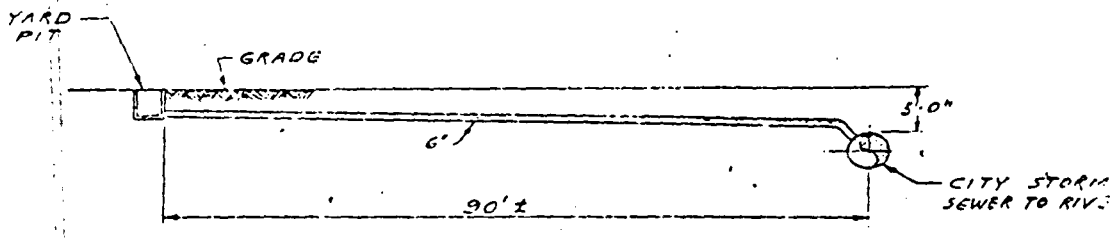
PROFILE

DISCHARGE Nº 011

SCALE OF FEET

25 0 20 40

1" = 20' APPROX.



PROFILE

DISCHARGE Nº 012

SCALE OF FEET

25 0 20 40

1" = 20' APPROX.

REFERENCE

ALL ELEVATIONS REFER TO WARDS BASE. WARDS BASE IS 6.546 FEET HIGHER THAN THE DATUM USED BY THE U.S. COAST GUARD & GEODETIC SURVEY AT SANDY HOOK

WEST END GAS PLANT

EXISTING DISCHARGE ARRANGEMENT

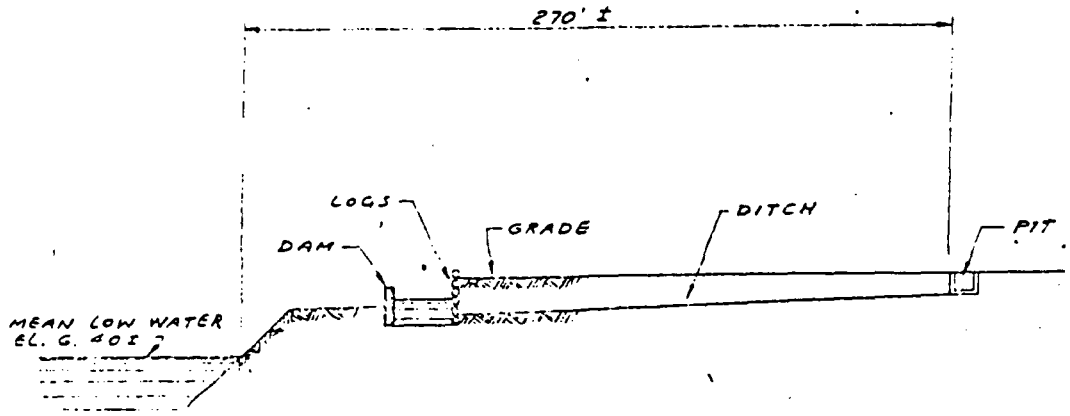
IN THE HACKENSACK RIVER

AT WEST END GAS PLANT

COUNTY OF HUDSON, STATE OF NEW JERSE

APPLICATION BY PUBLIC SERVICE E & G C

SHEET 4 OF 5 DATE: NOV. 17, 1971



PROFILE
DISCHARGE Nº 010

SCALE OF FEET
50 0 50 100
1" = 60' APPROX.

REFERENCE
ALL ELEVATIONS REFER TO WARDS BASE. WARDS BASE IS 6.546 FEET HIGHER THAN THE DATUM USED BY THE U.S. COAST GUARD & GEODETIC SURVEY AT SANDY HOOK.

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 3 OF 5 DATE: NOV. 17, 1971

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

1. Discharge described below is
a. Present [x] b. Proposed new or changed [ ]

2. Implementation schedule [ ]

(Office use only) 2SD OXW 2 000149 00014

Name of corporate boundaries within which the point of discharge is located.

State	County	City or Town
3. N.J.	4. Hudson	5. Jersey City

6. Discharge Serial No. 010

State the precise location of the point of discharge.

7. Latitude 40 Degrees; 44 Min; 20 Sec. N

8. Longitude 74 Degrees; 4 Min; 40 Sec. W

9. Name of waterway at the point of discharge.

Hackensack River

10. Has application for water quality certification or description of impact been made? If so, give date:

Date: Not Applicable (mo / day / yr)

Check if certificate is attached to form [ ]

Name Issuing Agency:

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

General Activity - Combination Companies & Systems SIC 493

Specific Activity - North Ditch to River SIC 493

12. Standard industrial classification number.	13. Principal product.	14. Amount of principal product produced per day year.
SIC 493	N.G. Distn. & Peak Shaving Prod. & Distn.	N.G. 197.840 KTh O.G. 2.810 KTh LPA 540 KTh

15. Principal raw material.	16. Amount of principal raw material consumed per day.	17. Number of batch discharges per day.
#1 Oil 3,750,000 Gal. (42 gal/B) #6 Oil 3,130,000 Gal. Propane 553,000 Gal. N.G. 197,840 KTh	Not Applicable	Not Applicable

18. Average gallons per batch discharge.	19. Date discharge began.	20. Date discharge will begin.
Not Applicable	1950 (mo / day / yr)	Not Applicable (mo / day / yr)

21. Describe waste abatement practices.

None

ENG FORM 4345-1 MAY 71

921000036

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

1. Discharge described below is
a. Present [X] b. Proposed new or changed [ ]

2. Implementation schedule [ ]

(Office use only) 1 ESD OXW2 000219 000149

Name of corporate boundaries within which the point of discharge is located.

3. State: N.J.
4. County: Hudson
5. City or Town: Jersey City

6. Discharge Serial No.: 017

State the precise location of the point of discharge.

7. Latitude 40 Degrees; 44 Min; 20 Sec. N
8. Longitude 74 Degrees; 4 Min; 30 Sec. W

9. Name of waterway at the point of discharge: Hackensack River

10. Has application for water quality certification or description of impact been made? If so, give date:

Date: Not Applicable (mo / dry / yr)
Check if certificate is attached to form [ ]
Name Issuing Agency:

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

General Activity - Combination Companies & Systems SIC 493

Specific Activity - Outlet of south ditch SIC 493

12. Standard industrial classification number: SIC 493

13. Principal product: N.G. Distn. & Peak Shaving Prod. & Distn.

14. Amount of principal product produced per day year.

N.G.	197,840 KTh
O.G.	2,820 KTh
LPA	540 KTh

15. Principal raw material.

#1 Oil	3,750,000 Gal.
#6 Oil	3,130,000 Gal.
Propane	553,000 KTh

16. Amount of principal raw material consumed per day: Not Applicable

17. Number of batch discharges per day: Not Applicable

18. Average gallons per batch discharge: Not Applicable

19. Date discharge began: (mo / day / yr) 1964

20. Date discharge will begin: Not Applicable (mo / day / yr)

21. Describe waste abatement practices.

None

ENG FORM MAY 71 4345-1

921000037

921000038

REMEDIAL INVESTIGATION REPORT

FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

VOLUME 1 OF 4
Text, Tables and Figures

BJC000022

Submitted by:

Public Service Electric and Gas Company
80 Park Plaza
Newark, NJ 07102

PSE&G

The Energy People

July 2000

921000039

REMEDIAL INVESTIGATION REPORT

FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

VOLUME 1 OF 4
Text, Tables and Figures

Submitted by:

Public Service Electric and Gas Company
80 Park Plaza
Newark, NJ 07102

July 2000

921000040

REMEDIAL INVESTIGATION REPORT
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

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REMEDIAL INVESTIGATION REPORT
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

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Volume 3

Soil Sample Analytical Results Summary Sheets

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Volume 4

Soil Sample Analytical Results Summary Sheets (continued)
Ground Water Sample Analytical Results Summary Sheets

LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
BEE	Baseline Ecological Evaluation
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene and xylenes
°C	Degrees Celsius
CEA	Classification Exception Area
CGRM	Coal Gasification Related Material
CLP	Contract Laboratory Program
CN	Total cyanides
COC	Chain of custody
COPEC	Contaminant of Potential Environmental Concern
DNAPL	Dense Non-Aqueous Phase Liquid
DNAPR	Dense Non-Aqueous Phase Residual
DO	Dissolved Oxygen
DQO	Data Quality Objective
EDS	Electronic Data Submission
FB	Field Blank Sample
GWQS	Ground Water Quality Standards
HSA	Hollow-stem auger
I.D.	Inside diameter
IGW	Impact to Ground Water
KCSL	Known Contaminated Sites List
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
NAPL	Non-Aqueous Phase Liquid
NAVD	North American Vertical Datum
NFA	No Further Action
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NRDC	Non-Residential Direct Contact
O.D.	Outside diameter
OLM	Oil-Like material
OSHA	Occupational Safety and Health Administration
OVM	Organic Vapor Meter
PA	Preliminary Assessment
PAH	Polynuclear aromatic hydrocarbon
PAR	Preliminary Assessment Report
PCB	Polychlorinated biphenyl
PID	Photoionization detector
PPE	Personal Protective Equipment
PPL	Priority Pollutant List

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PQL	Practical Quantitation Limit
PSE&G	Public Service Electric and Gas Company
PVC	Polyvinyl chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RA	Remedial Action
RAO	Remedial Action Objective
RDC	Residential Direct Contact
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
ROW	Right-of-Way
RPD	Relative percent difference
SI	Site Investigation
SIR	Site Investigation Report
SOP	Standard Operating Procedure
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TIC	Tentatively Identified Compound
TOC	Total organic carbon
TPH	Total Petroleum Hydrocarbons
TLM	Tar-like material
µg/kg	Micrograms per kilogram
µg/L	Micrograms per liter
USCS	Unified Soil Classification System
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground storage tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

This 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 complete the characterization of environmental conditions at the Site in compliance with a Memorandum of Agreement (MOA) between the New Jersey Department of Environmental Protection (NJDEP) and Public Service Electric and Gas Company (PSE&G) 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 work conducted during this RI 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 criteria. This includes delineating Site-related contamination to the extent necessary to select appropriate remedial alternatives.

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- 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.

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 and 3 and underlies roughly two thirds of Parcel 2. 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 downcutting 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 soil criteria 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 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 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 shallow zone suggested a greater potential for biodegradation than conditions in the deeper zone.

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 3 and 4

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, 6-7 and 6-8

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. Figure 4-1

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

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 7-9

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 & 6-3

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, 6-4, and 6-5

E) horizontal and vertical distribution of contaminants in soil and sediment with sample numbers* and contaminant concentrations..... Pg. No. Figs 6-2, 6-4, and 6-5

F) all ground water sampling points* including open hole and screened intervals..... Pg. No. Figure 6-3

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

N:\project\s\s-priv\s99227\b\RI Report\[RIR Checklist.xls]Sheet1

SECTION 1 INTRODUCTION

1.1 BACKGROUND

Schoor DePalma (SD) has prepared this Remedial Investigation Report (RIR) on behalf of Public Service Electric and Gas Company (PSE&G) to document the data obtained during implementation of field activities associated with the Remedial Investigation (RI) at the Former West End Gas Works Site located in Jersey City, New Jersey (Site).

This RIR presents data associated with field activities specified in the RI Work Plan (RIWP) prepared by Harding Lawson Associates (HLA) dated October 1999. This RIR also presents a preliminary evaluation of the data generated with regard to the data quality objectives (DQO) for the project and preliminary recommendations.

The RI is being conducted and reported in accordance with the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements for Site Remediation (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 scope 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 activities reported in the RIWP (HLA, 1999b)

This RIR concludes with PSE&G's preliminary recommendations to address environmental conditions at the Site. These recommendations include an evaluation of possible in-situ and/or ex-situ treatment technologies, and remedial actions consisting of installation of a containment wall.

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

PSE&G has retained Schoor DePalma (SD) as its environmental consultant for preparation of this RIR and completion of the RI.

1.2 REPORT ORGANIZATION

This RIR includes the following sections:

SECTION 1 INTRODUCTION
SECTION 2 SITE HISTORY
SECTION 3 ENVIRONMENTAL SETTING
SECTION 4 REMEDIAL INVESTIGATION ACTIVITIES
SECTION 5 TECHNICAL OVERVIEW OF REMEDIAL INVESTIGATION
SECTION 6 PRESENTATION OF FINDINGS
SECTION 7 SUMMARY AND CONCLUSIONS
SECTION 8 RECOMMENDATIONS
SECTION 9 REFERENCES

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 for the Site, a summary of the RI activities proposed in the RIWP and any subsequent modifications or addenda.

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.

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The SUMMARY AND CONCLUSIONS section (SECTION 7) summarizes the data collected through the RI 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 Remedial Action Selection Report (RASR) to be submitted after completion of the RI.

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

Appendices to the RIR are presented in Volume 2. The appendices include a recent tax map, NJDEP Computer Radius Search Results, Data Validation 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 3 and 4.

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 Manufactured Gas Plant (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 2.5 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. Three natural gas metering and regulation 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 industrial Site history since 1868 based on existing records. This section identifies 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. The SIR included the results of a title search performed on July 12, 1995 that identifies the 67 property transactions that occurred at the Site.

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 metering and regulating (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 Wreckers and Excavators, Inc. (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 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 PAR and SIR reports. 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 6.2.27 and 6.2.52.

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 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 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 metering and regulating (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 tne other Transcontinental Gas Pipeline (Transcon). 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 Transcon, 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 Wreckers and Excavators (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 Preliminary Assessment (PA) as documented in the Preliminary Assessment Report (PAR) (Langan, 1998) identified 61 potential AOCs. Based on information developed in scoping the SI and on the actual results of the SI, PSE&G 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 and are identified below:

- AOC-1A - Gas Manufacturing Area

  Results of the SI indicated PAHs and benzene, toluene, ethylbenzene and xylenes (BTEX) in Site soils at concentrations above the NJDEP Residential Direct Soil Cleanup Criteria (RDC Criteria), Non-Residential Direct Soil Cleanup Criteria (NRDC Criteria) and Impact to Ground Water Soil Cleanup Criteria (IGW Criteria) hereinafter referred to as the "NJDEP soil criteria". BTEX was identified in Site ground water at concentrations above the NJDEP Ground Water Quality Standards (GWQS). Further investigation of this AOC was recommended.

- AOC-1B - Open Ditch

  This AOC was not investigated during the SI. Based on historical Site operations and the location of this ditch, sediment sampling was recommended. At the request of NJDEP, subsurface soil sampling was also conducted 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, soil sampling was also conducted in this AOC during the RI.

- AOC-2A - Storage Tank Area

  During the SI, PAHs, BTEX, polychlorinated biphenyls (PCBs) and several metals were detected in soil samples from this AOC at concentrations above the NJDEP soil criteria. Volatile organic compounds (VOC) and metals were detected in the ground water at concentrations above the NJDEP GWQS. Further investigation of this AOC was performed during the RI.

- 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 soil criteria. Further investigation of this AOC was performed during the RI.

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

  As part of the SI, five underground storage tanks (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, PSE&G concluded that these constituents were related to general conditions at the Site, not a release from the USTs. Additional sampling was performed during the RI to evaluate the extent of affected soil in this area. In addition, at the request of NJDEP, the RI included ground water sampling in the area from which the USTs were removed.

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

  Limited sampling performed in this area during the SI indicated BTEX concentrations above NJDEP soil criteria. Further investigation of this AOC was included in the RI.

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

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

- AOC-3C - 13 kV Switch Yard

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

- AOC-3D - Gasoline Fueling Area

  During the SI, PSE&G 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 soil criteria. 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.

- 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.

- AOC-3F - Stockpile Area

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

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

  Results of the SI indicated benzene and total xylenes concentrations above NJDEP soil criteria in this AOC. Further investigation of this AOC was conducted during the RI.

- AOC-4A - Tar Storage Tanks

  No sampling was conducted in this AOC during the SI 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. PSE&G understands that NJDOT has collected environmental data from the parcel. PSE&G 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, PSE&G 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. The seven 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 PSE&G 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 BTEX 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?

4.3 SUMMARY OF REMEDIAL INVESTIGATION ACTIVITIES

Surface soil, subsurface soil and ground water investigations were conducted as part of the RI. 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.

- AOC-1A – 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. PSE&G 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. 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 ground water sampling, an oily NAPL was detected in monitoring well MW-2B. A sample of this NAPL was collected and submitted to the laboratory for fingerprint analysis (DQO-6).

- AOC-1B – 6 surface and 8 subsurface soil samples were collected from 6 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-1C – 6 surface and 16 subsurface soil samples were collected from 6 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-2A – 5 surface and 59 subsurface soil samples were collected from 21 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-2B – 6 surface and 59 subsurface soil samples were collected from 17 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-2C – 9 subsurface soil samples were collected from 2 soil borings and analyzed to evaluate conditions in this AOC. 2 ground water monitoring wells were installed and sampled to assess ground water conditions in this AOC.

- AOC-2D – 3 surface and 21 subsurface soil samples were collected from 10 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-2E – 4 surface and 11 subsurface soil samples were collected from 5 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-3A – 5 subsurface soil samples were collected from 5 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-3B – 9 surface and 18 subsurface soil samples were collected from 9 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-3C – 4 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC.

- 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.

- AOC-3E – 8 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-3F – 1 surface and 9 subsurface soil samples were collected from 4 soil borings and analyzed to evaluate conditions at this AOC.

- AOC-3G – 2 surface and 4 subsurface soil samples were collected from 2 soil borings and analyzed to evaluate conditions at this AOC.

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In addition to the AOC-specific sampling activities, the RI included investigation of Site-wide ground water conditions (DQO-5 and DQO-7).

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

- PSE&G added one double-cased soil boring, identified as SB-1 Deep to assess whether TLM identified near the former Tar Separators had migrated below the peat layer.
- 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.
- PSE&G 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

- 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 BTEX and the sample from the 2.0- to 4.0-foot interval was to be analyzed for PAHs. Based on data from other samples in this area, BTEX does not appear to be associated with this AOC. As noted in the discussions of results for this and other AOCs (see Section 6.0) PAHs appear to be widespread in the fill across most of the site with exceedences to the top of the peat layer. This area exhibited conditions similar to the rest of the Site. Therefore, PSE&G concluded that PAH results for the deeper sample would be similar to that encountered across the rest of the Site and did not resample this location.

4.4.4 AOC-2A

- Proposed soil boring SB-2A-13 could not be sampled due to refusal encountered at 10 alternate locations in this area.
- 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, PSE&G did not attempt to advance the borings beyond this depth. Conditions in this area will be evaluated during the remedial action.
- The two deep samples at soil boring SB-2A-21 were combined due to the shallow depth to peat at this location.
- 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

- 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.
- 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
- 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, PSE&G 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 6.2.5.1).

- 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.
- 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

- 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. PSE&G 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. PSE&G concluded that the PAH exceedences 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.
- 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

- 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

- 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 soil criteria 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, PSE&G did not attempt to advance the borings beyond the depth of refusal. Conditions in this area will be confirmed during the remedial action.
- 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 and 3F

- No modifications

4.4.10 AOC-3D

- 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.

SECTION 5 TECHNICAL OVERVIEW OF REMEDIAL INVESTIGATION

5.1 RELIABILITY OF LABORATORY ANALYTICAL DATA

The soil and ground water samples collected during the RI were submitted to Accutest Laboratories of Dayton, New Jersey (NJ Certification No. 12129) for the analyses discussed in this report. Analytical results from the soil and ground water samples collected during the RI were subject to data validation by SD. The analytical results from the RI are 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 validation. Data validation 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 QA/QC activities, QC samples collected, laboratory testing, data reporting and data validation 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 the requirements of the NJDEP Field Sampling Procedures Manual. 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 Field Sampling Procedures Manual and the SIWP.

Dedicated, contaminant-free sample containers were prepared and provided by the laboratory consistent with U.S. Environmental Protection Agency (EPA) 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 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 SIWP.

5.2.2 Quality Control Samples

5.2.2.1 Soil Sampling Program

SD collected the following field QA/QC samples for soil during Geoprobe sampling program:

- Field Blanks (FB)
- Trip Blanks (TB)

The QA/QC samples collected during the SI 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.

Trip Blanks

SD submitted six TB samples for analysis during the soil sampling program. The TB samples accompanied each sample shipment to the laboratory and were analyzed for TCL VOCs. 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 QAPP, SD collected the following field QA/QC samples during the ground water sampling.

- Field Duplicate
- Field/Equipment Blanks
- MS/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 validation and are referenced as appropriate in the data validation 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.

Trip Blanks

SD submitted two TB samples during the ground water sampling program. The TB samples were was 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.

5.2.3 Analytical Laboratory Methodology

Samples collected during the remedial action 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 investigation, complete analytical data packages are not provided in this RIR. Analytical data packages are on file with PSE&G.

5.3 SUMMARY OF RESULTS

Copies of the analytical results are presented in Volumes 3 and 4 of this report. Complete analytical data packages are kept on file with PSE&G 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, BTEX and several metals in soils above current NJDEP soil criteria and benzene in ground water at concentrations above the NJDEP GWQS across much of the Site.

5.4 SIGNIFICANT EVENTS IMPACTING RESULTS

Poor weather conditions prevailed during most of the 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.

SECTION 6 PRESENTATION OF FINDINGS

6.1 INTRODUCTION

The primary goal of the RI was to investigate environmental conditions at the 17 AOCs identified at the Site and to fulfill the seven Site-specific DQOs. The RI field activities were performed in accordance with the Site-specific project Health and Safety Plan (HASP) dated December 1999. Sample handling and field decontamination procedures were performed in accordance with the procedures specified in the project RIWP and QAPP. Utility mark outs (including 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 Supplemental SI. RI sampling locations are shown on Figure 4-2.

Concurrently with the RI, PSE&G 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.

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 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 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 6-9 and in Figure 6-1 through Figure 6-5.

Laboratory deliverables are kept on file at PSE&G and are available upon request.

6.2 AREAS OF CONCERN

The RI 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-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 or RI.

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 Supplemental SI, 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 was detected in soil samples from nine of these locations. Table 6-1 presents a summary of OLM and TLM reported during the SI, Supplemental SI 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, 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 soil criteria. 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 exceedences in this area. During an interim review of project DQOs, PSE&G 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, PSE&G 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, PSE&G 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 eastern 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 BTEX, PAHs, cyanide and the following Selected Metals: arsenic, beryllium, cadmium, lead and mercury. For purposes of this RI, 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 Priority Pollutant List (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. Figure 6-2 identifies constituents 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 soil criteria. Based on the relatively high concentrations of BTEX in the ground water samples from

nearby monitoring well MW-2B, PSE&G 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 soil criteria. In addition, the soil sample from TS-15 exhibited BTEX, ethylbenzene and styrene concentrations above the NJDEP soil criteria.

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.

6.2.2 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

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 BTEX 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 soil criteria. One or more PAHs exceeded the NJDEP soil criteria in samples from all six of the soil borings in this area. Three PPL metals were detected at concentrations above the NJDEP soil criteria. These exceedences 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 exceedences observed were each limited to a single sample and are therefore considered to be limited in extent.

6.2.3 AOC-1C – Coal Yard/LP Vaporizer Blowdown 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, Transcontinental Pipeline and Amerada Hess 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 BTEX, PAHs and either PPL or Selected Metals. BTEX concentrations detected in samples from SB-1C-05 and SB-1C-06 exceeded NJDEP

soil criteria. PAH concentrations detected in samples from SB-1C-01 through SB-1C-05 exceeded NJDEP soil criteria. Neither the metals analyzed nor total cyanide were detected at concentrations above the NJDEP soil criteria in the soil samples from this AOC.

6.2.4 AOC-2A – Storage Tank Area

6.2.4.1 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.

6.2.4.2 Historical Sampling Results

During the SI and Supplemental SI, 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, Supplemental SI 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). BTEX and PAH concentrations in several samples from this AOC exceeded the NJDEP soil criteria. In addition, total PCBs, beryllium and arsenic were detected above the NJDEP soil criteria in one sample, identified as SB-18A-1.0-3.0. Lead was detected above the NJDEP soil criteria in one sample, identified as SB-21A-1.5-2.5.

6.2.4.3 Remedial Investigation Results

During the RI, 22 soil borings were completed in AOC-2A. The soil borings, identified as SB-2A-01 through SB-2A-22, 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 soil criteria. 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 soil criteria. 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 soil criteria.

Based on these results, benzene and PAHs are present across this AOC. Other exceedences appear to occur in isolated areas within this AOC.

6.2.5 AOC-2B – Headquarters Area

6.2.5.1 Description

AOC-2B comprises the northwestern 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, PSE&G located and removed the meter oil tank. Based on excavation in the area identified as the location of a former fuel oil tank, PSE&G determined that this structure had been removed previously. Details regarding tank closure activities were presented in the SIR (HLA, 1999a).

6.2.5.2 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 Supplemental SI. 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, Supplemental SI 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). BTEX, PAH, lead and arsenic concentrations in several samples from this AOC exceeded the NJDEP soil criteria. In addition, the PCB Aroclor 1248 was detected in one sample, SB-26A 0.5-2.5 at a concentration that exceeded the NJDEP soil criteria.

6.2.5.3 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. BTEX was analyzed in 53 of the soil samples from this AOC. One or more BTEX compounds were detected in 22 of these samples and exceeded the NJDEP soil criteria 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

BTEX compounds were not detected at concentrations above the NJDEP soil criteria 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 soil criteria 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 soil criteria 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 soil criteria 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 soil criteria for this metal. None of the remaining metals analyzed in samples from this AOC were detected at concentrations above the NJDEP soil criteria.

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

6.2.6.1 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.

6.2.6.2 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 TPH. In addition, 21 post-excavation soil samples were collected during removal of the five USTs.

Concentrations of benzene and xylenes exceeded NJDEP soil criteria 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 soil criteria.

6.2.6.3 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 BTEX, 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 soil criteria. None of the parameters analyzed in the deep sample at MW-7B exceeded the NJDEP soil criteria.

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 total dissolved solids (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 AOC-2D – Tar Processing / Catalytic Reformer / Storage Area / Underground Oil Accumulations

6.2.7.1 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 will be provided in the RIR.

6.2.7.2 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 BTEX concentrations above the NJDEP soil criteria in this AOC.

During the Supplemental SI, 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.

6.2.7.3 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 BTEX, PAHs and Selected Metals and cyanide.

With one exception, concentrations of one or more BTEX compounds and several PAHs exceeded the NJDEP soil criteria in samples from each of the soil borings in this AOC. PAH concentrations were below the NJDEP soil criteria in the samples from SB-2D-06. Arsenic concentrations exceeded the NJDEP soil criteria 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 soil criteria in the remainder of the samples from this AOC.

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

6.2.8.1 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.

6.2.8.2 Historical Sampling Results

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

6.2.8.3 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 BTEX, PAHs and Selected Metals and cyanide.

With one exception, concentrations of benzene and several PAHs exceeded the NJDEP soil criteria in the samples from each of the soil borings in this AOC. PAH concentrations were below the NJDEP soil criteria in the samples from SB-2E-03. Lead concentrations exceeded the NJDEP soil criteria 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 soil criteria in the remainder of the samples from this AOC.

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

6.2.9.1 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.

6.2.9.2 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 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 at depths ranging 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 soil criteria 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 soil criteria. Concentrations of cyanide and the other metals analyzed were below the NJDEP soil criteria in the five samples from this AOC.

6.2.10 AOC-3B – Processing Area

6.2.10.1 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.

6.2.10.2 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 BTEX, PAH, cadmium and lead concentrations above the NJDEP soil criteria in this AOC.

During the Supplemental SI, 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.

6.2.10.3 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 BTEX, 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 BTEX compounds and several PAHs above the NJDEP soil criteria.

Concentrations of BTEX and PAHs were below NJDEP soil criteria in the samples from SB-3B-01. Styrene was detected in the deepest sample at SB-3B-09 at a concentration above the NJDEP soil criteria 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 soil criteria. Concentrations of cyanide and the other metals analyzed were below the NJDEP soil criteria in the remainder of the samples from this AOC.

6.2.11 AOC-3C – 13 kV Switch Yard

6.2.11.1 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.

6.2.11.2 Historical Sampling Results

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

6.2.11.3 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 soil criteria in the samples from this AOC. The arsenic concentration detected in the sample from soil borings SB-3C-02 exceeded the NJDEP soil criteria. PCBs were not detected in any of the samples. Concentrations of cyanide and the other metals analyzed were below the NJDEP soil criteria in the four samples from this AOC.

6.2.12 AOC-3D – Gasoline Fueling Area

6.2.12.1 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.

6.2.12.2 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 soil criteria in this AOC.

6.2.12.3 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 BTEX 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 soil criteria for this compound. None of the other VOCs were detected at concentrations above the NJDEP soil criteria in this AOC. PAH concentrations in samples from SB-3D-01 and SB-3D-03 exceeded the NJDEP soil criteria. PAH concentrations were below the NJDEP soil criteria in the sample from SB-3D-02.

6.2.13 AOC-3E – Compressor House Area

6.2.13.1 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.

6.2.13.2 Historical Sampling Results

No historical sampling was conducted in this area.

6.2.13.3 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 at depths ranging from 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 BTEX. 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 soil criteria 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 soil criteria. None of the remaining analytes were detected in soil samples from this AOC at concentrations above the NJDEP soil criteria.

6.2.14 AOC-3F – Stockpile Area

6.2.14.1 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.

6.2.14.2 Historical Sampling Results

No historical sampling was conducted in this AOC.

6.2.14.3 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 BTEX and SVOCs+25. Concentrations of one or more BTEX compounds and one or more PAHs exceeded the NJDEP soil criteria 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 soil criteria in all of the samples from this AOC.

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

6.2.15.1 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 6.2.5.1. Details regarding this area were presented in the SIR as potential AOC-50.

6.2.15.2 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 soil criteria in sample SB-50A-4.0-4.5. None of the other analytes were detected at concentrations above the NJDEP soil criteria in this AOC.

6.2.15.3 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 BTEX.

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 soil criteria. None of the other analytes were detected at concentrations above the NJDEP soil criteria in this AOC.

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?

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 69 of the 203 soil borings and 8 deep monitoring wells drilled during the SI, RI 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 6-3 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 92 soil borings and deep well borings extended to at least 10 feet bgs. The peat layer was encountered in 61 of these locations.

The peat layer was not encountered in 31 borings that extended to 10 feet or greater in depth. Seven of these borings, identified as SB-TS-01, SB-TS-02, SB-TS-04, SB-TS-08, SB-TS-09, SB-TS-10, and SB-TS-11, were located in AOC-1A and extended to 12 feet bgs. Based on data from other borings in this AOC, the peat layer is believed to occur at or slightly below 12 feet and is roughly 4 to 7 feet thick. Therefore, the fact that these seven 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, identified below, were located in the eastern half of Parcel 2:

• SB-2B-05	• SB-2B-16	• SB-2B-20	• SB-31C	• SB-2C-03	• SB-2E-03	• SB-2B-03
• SB-2B-06	• SB-2B-18	• SB-30A	• MW-7B	• SB-33A	• SB-2E-04	• SB-2B-11
• SB-2B-08	• SB-2B-19	• SB-31A	• SB-2C-01	• SB-34A	• MW-1B	• SB-2B-13

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, Supplemental SI, RI and geotechnical evaluation, the following 16 soil borings fully penetrated the peat layer.

• SB-50A	• SB-07-DP	• MW-2B	• MW-3B
• GB-01	• SB-20-DP	• GB-02	• MW-4B
• SB-2B-07	• SB-26A	• SB-22-DP	• MW-5B
• SB-1 Deep	• MW-6B	• MW-8B	• SB-57DP

The thickness of the peat layer ranged from 0.8 feet at SB-50A to 10.4 feet at SB-57A. The thickness of the peat layer encountered at each of these locations can be found on Table 6-3.

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 6-4. 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 98 of the 247 soil borings, deep well borings and test trenches completed during the SI and RI 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 70 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 10 feet at SB-2D-05.

TLM was observed in 38 borings and test trenches. Depths to the TLM ranged from 1.3 feet bgs at SB-22B to 7.3 feet bgs at SB-26D. 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.

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 soil criteria were BTEX and PAHs. Concentrations of several other constituents exceeded the NJDEP soil criteria in limited areas across the Site. These constituents included styrene, PCBs, arsenic, beryllium, lead, mercury and nickel.

BTEX compounds were analyzed in a total of 271 samples during the SI and RI. BTEX compounds were detected in 205 samples. Reported total BTEX concentrations ranged from below the method detection limit (MDL) in 66 samples to a maximum of 5,282 milligrams per kilogram (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 BTEX 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 and RI. 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 BTEX.

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 Supplemental SI. 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 Supplemental SI 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, PSE&G 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 ID, 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 6-5

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

Water Level Gauging

Water levels were gauged on January 12, 2000 and March 15, 2000. Table 6-6 presents a summary of measured depths to ground water and calculated ground water elevations.

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. Volume 4 of this RIR contains copies of the laboratory report summary sheets for the ground water samples analyzed. Table 6-7 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 (BTEX and styrene), three metals (arsenic, iron and lead), Aroclor 1260, ammonia, nitrate, total nitrate/nitrite, and TDS. Table 6-8 identifies these exceedences and compares the results with exceedences identified in ground water samples collected during the Supplemental SI.

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 6-9

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:

Field Analyses

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

Laboratory Analyses

- Ferric and Ferrous Iron
- Nitrate
- Sulfate
- Alkalinity

Results for natural attenuation data obtained during both the supplemental SI and the RI are summarized on Table 6-10. 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 (mV)	<0	>800
Dissolved Oxygen (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 ferric and ferrous iron. The production of ferrous iron (Fe^{+2}) within the plume is considered a potential indicator of biodegradation activities. Samples in which Fe^{+2} concentrations are higher than ferric iron (Fe^{+3}) concentrations, were considered to indicate the production of ferrous iron and, therefore, an indicator of potential biodegradation.

For samples in which levels of these indicators Wherefell between the

- Redox potential less than 0 mV
- Inverse relationship between BTEX and DO levels
- Depletion of DO, NO3 and SO4 in the plume
- Production of Ferrous iron (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

6.3.4.2 Natural Attenuation Data Evaluation Results

Table 6-10 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-08A and MW-08B, temperature and pH results fell within the prescribed ranges. pH readings for the samples from monitoring wells MW-08A and MW-08B were 4.02 and 4.08, respectively, indicating acidic conditions. The conditions at this well pair may be unfavorable to biodegradation.

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. Ferrous iron concentrations exceeded ferric iron 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.

6.3.5 Mobilization and Utility Clearance

On December 3, 1999, SD and our geophysical survey subcontractor, USRadar Inc. (USRadar) of Matawan, New Jersey initiated site mobilization activities. 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. 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 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.

USRadar 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, 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, 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 6-6 presents a topographic map of the Site.

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 BTEX 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, PSE&G identified nine historical soil boring logs prepared during development activities on Parcel 1, in the area of the M&R station. PSE&G 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 6-6.

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

SD measured the depth to ground water in the 16 onsite monitoring wells on January 12 and March 15, 2000. 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 7-10 presents the 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 6-6, ground water elevations are higher in the deep zone than the shallow zone at half of the well locations. Data for the following well pairs suggest an upward hydraulic gradient: MW-2A/2B; MW-5A/5B; MW-6A/6B and MW-8A/8B. The cause of this condition has not been determined.

7.4 NATURE AND EXTENT OF CONTAMINATION

Based on results of the SI and RI activities, BTEX and PAHs are present in soils across most of the Site at concentrations above the NJDEP soil criteria. 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, PSE&G 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, Supplemental SI, 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, Supplemental SI, 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. PSE&G 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 sixteen monitoring wells have been installed and sampled at the Site. These included 10 wells installed during the Supplemental SI to evaluate overall ground water conditions and 6 wells installed during the RI to assess conditions at former UST areas. 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. For purposes of the RI, 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 BTEX 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?

Data necessary to evaluate these conditions have been collected during the RI. Based on these data there is a low to moderate potential for biodegradation to occur at the site. Further time-series sampling should be performed as part of the remedial action to demonstrate changes in ground water contaminant concentrations

following remediation of the contaminant sources including NAPLs and contaminated soils.

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 seven DQOs discussed in Section 4.2.

A Remedial Action Selection Report (RASR) will be developed following completion of the RI. The RASR will address Site remedies and is expected to incorporate the following components:

- Removal of relic MGP structures
- Repairs and/or removal of the relieving platform
- Treatment of a portion of the contaminated soils on Parcels 2 and 3. This will likely include excavation of soils to the top of the peat layer and remediation through a combination of offsite disposal and onsite treatment. PSE&G is currently evaluating possible bioremediation alternatives for soils on these two parcels.
- Containment of contaminated zones encountered on Parcel 1. Due to the proximity of the Hackensack River, major utility conduits and the presence of deep contamination below the peat layer, excavation and treatment is not practical. The anticipated remedial alternative for this parcel will be installation of a containment wall to prevent offsite migration of the contamination detected.

It is expected that the remediation approach outlined above will remove the bulk of potential source materials from the Site. Once this has been completed, it is expected that ground water contamination outside of the containment area will decline to acceptable concentrations through natural attenuation processes. This will be confirmed through further evaluation of data collected during this RI.

As part of the remedial action, a monitoring well network will be installed to demonstrate the natural attenuation of ground water contamination. If ground water conditions do not improve within anticipated timeframes and data suggest the possibility of additional sources below the peat layer, additional limited investigation may be recommended. Any such further investigation below the peat layer should

be performed after remediation of Site soils to prevent the possibility of cross contamination.

SECTION 9 REFERENCES

BCM Engineers, 1989. *Preliminary Evaluation and Prioritization of 15 Manufactured Gas Plant Sites,* February.

Environmental Research and Technology, Inc., 1984. *Handbook on Manufactured Gas Plant Sites,* Utility Solid Waste Activities Group Superfund Committee. September.

Harding Lawson Associates, 1998. *Site Investigation Work Plan for the Former West End Gas Works, Jersey City, New Jersey.* September.

Harding Lawson Associates, 1999a. *Site Investigation Report for the Former West End Gas Works, Jersey City, New Jersey.* April.

Harding Lawson Associates, 1999b. *Remedial Investigation Work Plan for the Former West End Gas Works, Jersey City, New Jersey.* October.

Langan Engineering and Environmental Services, Inc., 1998. *Preliminary Assessment Report for the Former West End Gas Works, Jersey City, New Jersey*, June 9.

National Oceanic and Atmospheric Administration, 1999. http://www.noaa.gov. 1961-1990 Data Set, Newark International Airport.

Public Service Electric and Gas Company, 1985. *West End Gas Plant Preliminary Site Assessment,* November 25.

TABLES

TABLE 5-1. SUMMARY OF ANALYTICAL METHODS AND QUALITY ASSURANCE INDICATORS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Matrix	Number of Samples Per Matrix	Trip/Field Blanks & Duplicate Samples/Matrix	Parameters	Analtyical Method Reference	MS/MSD Samples	Sample Preservation	Container Volume and Type	Holding Time [1]
Soil	10 VOCs	4 TB, 2 FB	VOCs + 15	SW846/8260	6/6	Methanol, ice (4°C)	4 oz. Glass	14 days
	226 BTEX only	2 TB, 3 FB	BTEX	SW846/8260	20/20	Methanol, ice (4°C)	4 oz. Glass	14 days
	6 Styrene only	0 TB, 0 FB	Styrene	SW846/8260	0/0	Methanol, ice (4°C)	4 oz. Glass	14 days
	14 SVOCs	3 FB	SVOCs + 20	SW846/8270	3/3	Ice (4°C)	4 oz. Glass	14 days to extraction, 40 days to analysis
	246 PAHs only	3 FB	PAHs	SW846/8270	24/24	Ice (4°C)	4 oz. Glass	14 days to extraction, 40 days to analysis
	27 PCBs	3 FB	PCBs	SW846/8080	3/3	Ice (4°C)	4 oz. Glass or plastic	14 days to extraction, 40 days to analysis
	49 PPL metals	5 FB	TAL Metals	SW846/6010, 7471	6/6	Ice (4°C)	4 oz. Glass or plastic	6 months (mercury 28 days)
	115 Selected metals	1 FB	TAL Metals	SW846/6010, 7471	11/11	Ice (4°C)	4 oz. Glass or plastic	6 months (mercury 28 days)
			Cyanide	SW846/9010	2/2	NaOH, ice (4C)	1 liter	14 days
Ground Water	15 VOCs	2 TB, 3 FB, 1 Duplicate	VOCs +15	SW846/8260	2/2	HCL, ice (4C)	2 x 40 ml glass w/ septum	14 days
	15 SVOCs	3 FB, 1 Duplicate	SVOCs + 20	SW846/8270	2/2	Ice (4°C)	1 gallon amber glass	7 days to extraction; 40 days to analysis
	15 PCBs	3 FB, 1 Duplicate	PCBs	SW846/8082	2/2	Ice (4°C)	1 gallon amber glass	7 days to extraction; 40 days to analysis
	15 PPL metals	3 FB, 1 Duplicate	TAL Metals	SW846/6010, 7470	2/2	HNO_3, ice (4°C)	600 ml glass or plastic	6 months (mercury 28 days)
			Cyanide	SW846/9010	2/2	NaOH, ice (4°C)	1 liter	14 days

NOTES:

[1]	Holding time begins at time of sample collection
FB	Field blank
HCl	Hydrochloric acid
HNO_3	Nitric acid
MS/MSD	Matrix spike/Matrix spike duplicate
NaOH	Sodium hydroxide
PCBs	Polychlorinated biphenyls
SVOCs	Semi-volatile organic compounds
PPL	Priority Pollutant List
TB	Trip Blank
VOCs	Volatile organic compounds

TABLE 5-2. TRIP BLANK AND FIELD BLANK ANALYTICAL RESULTS
SOIL SAMPLING PROGRAM
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Type	Field Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Trip Blk
Laboratory Identification	E60358-104	E60358-106	E60358-105	E60450-55	E60450-56	E60588-24	E60588-25	E60729-35	E60729-36	E60729-57	E60729-84	E61066-5
Date Sample Collected	12/8/99	12/9/99	12/9/99	12/10/99	12/10/99	12/13/99	12/13/99	12/14/99	12/14/99	12/15/99	12/15/99	12/22/99
VOLATILE ORGANIC COMPOUNDS												
Acetone	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Benzene	--	NA	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Bromoform	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Bromomethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
2-Butanone (MEK)	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Carbon disulfide	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Carbon tetrachloride	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Chlorobenzene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Chloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Chloroform	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Chloromethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Dibromochloromethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,1-Dichloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,2-Dichloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,1-Dichloroethene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
cis-1,2-Dichloroethene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
trans-1,2-Dichloroethene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,2-Dichloropropane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
cis-1,3-Dichloropropene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
trans-1,3-Dichloropropene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Ethylbenzene	--	NA	--	--	--	--	--	--	--	--	--	--
2-Hexanone	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
4-Methyl-2-pentanone(MIBK)	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Methylene chloride	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Styrene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,1,2,2-Tetrachloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Tetrachloroethene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Toluene	--	NA	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
1,1,2-Trichloroethane	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Trichloroethene	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Vinyl chloride	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
Xylene (total)	--	NA	--	--	--	--	--	--	--	--	--	--
Total TIC, Volatile	--	NA	--	NA	--	NA	NA	NA	NA	--	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS												
2-Chlorophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4-Chloro-3-methyl phenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4-Dichlorophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4-Dimethylphenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4-Dinitrophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4,6-Dinitro-o-cresol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2-Methylphenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
3&4-Methylphenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2-Nitrophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4-Nitrophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Pentachlorophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Phenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4,5-Trichlorophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4,6-Trichlorophenol	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Acenaphthene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Acenaphthylene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Anthracene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Benzo(a)anthracene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Benzo(a)pyrene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Benzo(b)fluoranthene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Benzo(g,h,i)perylene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Benzo(k)fluoranthene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
4-Bromophenyl phenyl ether	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Butyl benzyl phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2-Chloronaphthalene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4-Chloroaniline	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Carbazole	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Chrysene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
bis(2-Chloroethoxy)methane	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA

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TABLE 5-2. TRIP BLANK AND FIELD BLANK ANALYTICAL RESULTS
SOIL SAMPLING PROGRAM
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Type	Field Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Field Blk	Trip Blk	Trip Blk
Laboratory Identification	E60358-104	E60358-106	E60358-105	E60450-55	E60450-58	E60588-24	E60588-25	E60729-35	E60729-36	E60729-57	E60729-84	E61066-5
Date Sample Collected	12/8/99	12/9/99	12/9/99	12/10/99	12/10/99	12/13/99	12/13/99	12/14/99	12/14/99	12/15/99	12/15/99	12/22/99
SEMI VOLATILE ORGANIC COMPOUNDS (Continued)												
bis(2-Chloroethyl)ether	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
bis(2-Chloroisopropyl)ether	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4-Chlorophenyl phenyl ether	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
1,2-Dichlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
1,3-Dichlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
1,4-Dichlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,4-Dinitrotoluene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2,6-Dinitrotoluene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
3,3'-Dichlorobenzidine	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Dibenzo(a,h)anthracene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Dibenzofuran	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Di-n-butyl phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Di-n-octyl phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Diethyl phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Dimethyl phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
bis(2-Ethylhexyl)phthalate	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Fluoranthene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Fluorene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Hexachlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Hexachlorobutadiene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Hexachlorocyclopentadiene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Hexachloroethane	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Indeno(1,2,3-cd)pyrene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Isophorone	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2-Methylnaphthalene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
2-Nitroaniline	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
3-Nitroaniline	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
4-Nitroaniline	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Naphthalene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Nitrobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
N-Nitroso-di-n-propylamine	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
N-Nitrosodiphenylamine	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Phenanthrene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
Pyrene	--	--	NA	--	NA	--	NA	--	NA	--	NA	NA
1,2,4-Trichlorobenzene	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Total TIC, Semi-Volatile	--	--	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
POLYCHLORINATED BIPHENYLS												
Aroclor 1016	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA
INORGANICS												
Antimony	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Arsenic	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A
Beryllium	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A
Cadmium	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A
Chromium	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Copper	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Lead	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A
Mercury	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A
Nickel	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Selenium	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Silver	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Thallium	--	--	N/A	N/A	N/A	--	N/A	--	N/A	--	N/A	N/A
Zinc	--	--	N/A	N/A	N/A	--	N/A	30.6	N/A	--	N/A	N/A
Cyanide	--	--	N/A	--	N/A	--	N/A	--	N/A	--	N/A	N/A

NOTES
All results in micrograms per liter
-- Not detected
N/A Not analyzed

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TABLE 5-3. TRIP BLANK AND FIELD BLANK ANALYTICAL RESULTS
GROUND WATER SAMPLING PROGRAM
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Type	Field Blk	Trip Blk	Field Blk	Field Blk	Trip Blk
Laboratory Identification	E61993-5	E61993-6	E62072-1	E62159-12	E62159-13
Date Sample Collected	1/12/00	1/12/00	1/13/00	1/14/00	1/14/00
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	--	--	--	--	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	--	--	--	--	--
SEMI-VOLATILE ORGANIC COMPOUNDS					
2-Chlorophenol	--	NA	--	--	NA
4-Chloro-3-methyl phenol	--	NA	--	--	NA
2,4-Dichlorophenol	--	NA	--	--	NA
2,4-Dimethylphenol	--	NA	--	--	NA
2,4-Dinitrophenol	--	NA	--	--	NA
4,6-Dinitro-o-cresol	--	NA	--	--	NA
2-Methylphenol	--	NA	--	--	NA
3&4-Methylphenol	--	NA	--	--	NA
2-Nitrophenol	--	NA	--	--	NA
4-Nitrophenol	--	NA	--	--	NA
Pentachlorophenol	--	NA	--	--	NA
Phenol	--	NA	--	--	NA
2,4,5-Trichlorophenol	--	NA	--	--	NA
2,4,6-Trichlorophenol	--	NA	--	--	NA
Acenaphthene	--	NA	--	--	NA
Acenaphthylene	--	NA	--	--	NA
Anthracene	--	NA	--	--	NA
Benzo(a)anthracene	--	NA	--	--	NA
Benzo(a)pyrene	--	NA	--	--	NA

TABLE 5-3. TRIP BLANK AND FIELD BLANK ANALYTICAL RESULTS
GROUND WATER SAMPLING PROGRAM
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Type	Field Blk	Trip Blk	Field Blk	Field Blk	Trip Blk
Laboratory Identification	E61993-5	E61993-6	E62072-1	E62159-12	E62159-13
Date Sample Collected	1/12/00	1/12/00	1/13/00	1/14/00	1/14/00
SEMI-VOLATILE ORGANIC COMPOUNDS (CONTINUED)					
Benzo(b)fluoranthene	--	NA	--	--	NA
Benzo(g,h,i)perylene	--	NA	--	--	NA
Benzo(k)fluoranthene	--	NA	--	--	NA
4-Bromophenyl phenyl ether	--	NA	--	--	NA
Butyl benzyl phthalate	--	NA	--	--	NA
2-Chloronaphthalene	--	NA	--	--	NA
4-Chloroaniline	--	NA	--	--	NA
Carbazole	--	NA	--	--	NA
Chrysene	--	NA	--	--	NA
bis(2-Chloroethoxy)methane	--	NA	--	--	NA
bis(2-Chloroethyl)ether	--	NA	--	--	NA
bis(2-Chloroisopropyl)ether	--	NA	--	--	NA
4-Chlorophenyl phenyl ether	--	NA	--	--	[illegible]
1,2-Dichlorobenzene	--	NA	--	--	NA
1,3-Dichlorobenzene	--	NA	--	--	NA
1,4-Dichlorobenzene	--	NA	--	--	NA
2,4-Dinitrotoluene	--	NA	--	--	NA
2,6-Dinitrotoluene	--	NA	--	--	NA
3,3'-Dichlorobenzidine	--	NA	--	--	NA
Dibenzo(a,h)anthracene	--	NA	--	--	NA
Dibenzofuran	--	NA	--	--	NA
Di-n-butyl phthalate	--	NA	--	--	NA
Di-n-octyl phthalate	--	NA	--	--	NA
Diethyl phthalate	--	NA	--	--	NA
Dimethyl phthalate	--	NA	--	--	NA
bis(2-Ethylhexyl)phthalate	--	NA	--	--	NA
Fluoranthene	--	NA	--	--	NA
Fluorene	--	NA	--	--	NA
Hexachlorobenzene	--	NA	--	--	NA
Hexachlorobutadiene	--	NA	--	--	NA
Hexachlorocyclopentadiene	--	NA	--	--	NA
Hexachloroethane	--	NA	--	--	NA
Indeno(1,2,3-cd)pyrene	--	NA	--	--	NA
Isophorone	--	NA	--	--	NA
2-Methylnaphthalene	--	NA	--	--	NA
2-Nitroaniline	--	NA	--	--	NA
3-Nitroaniline	--	NA	--	--	NA
4-Nitroaniline	--	NA	--	--	NA
Naphthalene	--	NA	--	--	NA
Nitrobenzene	--	NA	--	--	NA
N-Nitroso-di-n-propylamine	--	NA	--	--	NA
N-Nitrosodiphenylamine	--	NA	--	--	NA
Phenanthrene	--	NA	--	--	NA
Pyrene	--	NA	--	--	NA
1,2,4-Trichlorobenzene	--	NA	--	--	NA
Total TIC, Semi-Volatile	--	NA	--	--	NA
POLYCHLORINATED BIPHENYLS					
Aroclor 1016	--	NA	--	--	NA
Aroclor 1221	--	NA	--	--	NA
Aroclor 1232	--	NA	--	--	NA
Aroclor 1242	--	NA	--	--	NA
Aroclor 1248	--	NA	--	--	NA
Aroclor 1254	--	NA	--	--	NA
Aroclor 1260	--	NA	--	--	NA

TABLE 5-3. TRIP BLANK AND FIELD BLANK ANALYTICAL RESULTS
GROUND WATER SAMPLING PROGRAM
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Type	Field Blk	Trip Blk	Field Blk	Field Blk	Trip Blk
Laboratory Identification	E61993-5	E61993-6	E62072-1	E62159-12	E62159-13
Date Sample Collected	1/12/00	1/12/00	1/13/00	1/14/00	1/14/00
METALS					
Antimony	--	NA	--	--	NA
Arsenic	--	NA	--	--	NA
Beryllium	--	NA	--	--	NA
Cadmium	--	NA	--	--	NA
Chromium	--	NA	--	--	NA
Copper	--	NA	--	--	NA
Iron	--	NA	--	--	NA
Lead	--	NA	--	--	NA
Mercury	--	NA	--	--	NA
Nickel	--	NA	--	--	NA
Selenium	--	NA	--	--	NA
Silver	--	NA	--	--	NA
Thallium	--	NA	--	--	NA
Zinc	42	NA	--	--	NA
GENERAL CHEMISTRY					
pH (standard units)	6.1	NA	4.7	NA	NA
Solids, Total Dissolved	244	NA	--	--	NA
Alkalinity, Total	--	NA	--	--	NA
Cyanide	--	NA	--	--	NA
Nitrogen, Ammonia	--	NA	--	--	NA
Nitrogen, Nitrate + Nitrite	--	NA	--	--	NA
Sulfide	--	NA	--	NA	NA
Nitrogen, Nitrate	--	NA	--	--	NA
Total Organic Carbon	NA	NA	NA	--	NA
Iron, Ferrous	--	NA	--	--	NA
Iron, Ferric	--	NA	--	--	NA
Nitrogen, Nitrite	--	NA	--	--	NA
Chloride	--	NA	--	--	NA
Sulfate	--	NA	--	--	NA

NOTES
-- Not detected
N/A Not analyzed
Results in micrograms per liter unless otherwise noted

TABLE 6-1. OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Location	Phase	AOC	Total Depth	Oil-Like Material			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
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
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

TABLE 6-1. OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END 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-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
SB-1C-01	RI	1C	4.0	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
MW-03B	SI	2A	28.0	4.0	4.5	0.5	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
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

TABLE 6-1. OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END 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-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
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
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-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

TABLE 6-1. OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END 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
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
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
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

TABLE 6-1. OIL-LIKE AND TAR-LIKE MATERIAL IDENTIFIED
FORMER WEST END 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-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
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-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
MW-01B	SI	Upgradient	30.0	NE	NE	NE	NE	NE	NE

Notes:

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

N:\project\s\s-priv\s99227\b\Detailed IDS\[Table - OLM-TLM.xls]Sheet1

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	12/15/99	-	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	-	3440	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-02	4.0-4.5	E60450-3	12/10/99	-	10400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-2A-03	0.0-0.5	E60450-16	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000152

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	2990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	3870	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	1190	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	2830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	8960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	366	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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

921000153

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	-	1360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	4260	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000154

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-2B-12	3.5-4.0	E60588-19	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	26900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	5850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 Milligrams per kilogram

Shaded data exceed soil cleanup criteria

921000155

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	46400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	E60358-36	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	-	3780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-04	5.0-5.5	E60358-50	12/9/99	-	6070	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	12/9/99	-	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	12/9/99	-	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

9210000156

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	E60358-56	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	-	2830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	41500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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\s99227\b\RI Report\[Table - Soil Analytical Summary Table.xls]Summary Table

- 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

9210000157

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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
			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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000158

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	162000	-	-	-	-	-	-	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000159

Table 6-2. Summary of Soil Sample Analytical Results
Former Public Service Electric & Gas Company West End 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	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-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	-	-	-	68600	-	-	-	-	-	-	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

921000160

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	-	-	-	654	-	-	-	-	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	-	-	-	-	-	-	126 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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000161

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

9210000162

Table 6-2. Summary of Soil Sample Analytical Results
Former Public Service Electric & Gas Company West End Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria Data / 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
			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	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	12/9/99	-	-	-	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	512000	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-priv\s99227\b\RI Report\[Table - Soil An

- 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

921000163

Table 6-2. Summary of Soil Sample Analytical Results
Former Public Service Electric & Gas Company West End 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-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	86 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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000164

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	116000
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	89.8 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	86.1 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	78 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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000165

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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

921000166

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	-	-	-	-	-	-	-	-	-	-	191000	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	-	-	-	-	-	-	-	-	-	-	-	-	-	465	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000167

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	156000	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

921000168

Table 6-2. Summary of Soil Sample Analytical Results
Former Public Service Electric & Gas Company West End 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-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	3280	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	12/9/99	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	26.7 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

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- 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

921000169

Table 6-2: Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-1A-01	0.0-0.5	E60358-6	12/8/99	5310	6060	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	5410	5360	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	23400	24700	29300	5010	ND	-	-	-	-	-	28600	-	-	-	-	-	-
SB-1B-01	0.0-0.5	E60358-1	12/8/99	11000	10400	6400	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	29000	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	4450	1580	3940	-	-	-	-	-	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	308	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	6460	7700	7540	2020	5240	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	965	-	-	-	-	-	1520	-	-	-	-	-	-
SB-1C-03	1.5-2.0	E60729-83	12/15/99	1520	1450	1730	1740	1050	-	-	-	-	-	2010	-	-	-	-	-	-
SB-1C-03	3.5-4.0	E60729-81	12/15/99	834	935	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	3670	1570	2470	-	-	-	-	-	3600	-	-	-	-	-	-
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	5060	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	8720	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	328	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	43.8 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

921000170

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	-	-	11500	-	-	-	-	-	-
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	5480	4080	3390	1810	2420	-	-	-	-	-	6410	-	-	-	-	-	-
SB-2A-06	10.0-10.5	E60450-51	12/10/99	77000	50100	52100	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	1660	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	79000	69800	24000	13600	38900	-	-	-	-	-	72300	-	-	-	-	-	-
SB-2A-07	11.5-12.0	E60450-27	12/10/99	46400	42800	13200 J	11200	24900	-	-	-	-	-	37800	-	-	-	-	-	-
SB-2A-08	1.5-2.0	E60450-28	12/10/99	3230	2960	2490	2890	2520	-	-	-	-	-	4050	-	-	-	-	-	-
SB-2A-08	2.5-3.0	E60450-29	12/10/99	10600	12000	5560	5120	6760	-	-	-	-	-	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	3500	2490	1320	2900	-	-	-	-	-	3430	-	-	-	-	-	-
SB-2A-09	2.5-3.0	E60450-13	12/10/99	6370	5370	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	8950	5010	1460	5550	-	-	-	-	-	13000	-	-	-	-	-	-
SB-2A-10	3.5-4.0	E60450-39	12/10/99	2170	1690	1250	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	25100	21100	11100	7410	10600	-	-	-	-	-	26800	-	-	-	-	-	-
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	1550	1130	1270	-	-	-	-	-	2540	-	-	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	79200	58700	30500	4410	39400	-	-	-	-	-	115000	-	-	-	-	-	-
SB-2A-14	8.5-9.0	E60450-38	12/10/99	38700	30800	16400	3100	16300	-	-	-	-	-	26700	-	-	-	-	-	-
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	339000	485000	213000	171000	102000	-	-	-	-	-	352000	-	-	-	-	-	-
SB-2A-15	11.5-12.0	E60450-54	12/10/99	25800	34200	22900	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	6880	-	-	-	-	-	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	980	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	116 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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000171

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	12300	3110	9760	-	-	-	-	-	14500	-	-	-	-	-	-
SB-2B-02	5.5-6.0	E60588-28	12/13/99	4210	6200	11900	737 J	9670	-	-	-	-	-	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	756	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	943	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	4360	5180	4450	1940	2300	-	-	-	-	-	4140	-	-	-	-	-	-
SB-2B-04	9.0-9.5	E60588-16	12/13/99	5910	5100	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	2060	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 J	2670	959	1040	-	-	-	-	-	3520	-	-	-	-	-	-
SB-2B-08	5.5-6.0	E60729-51	12/15/99	458	303	240	93	278	-	-	-	-	-	446	-	-	-	-	-	-
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	6450	5930	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	993 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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000172

Table [illegible] Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-2B-12	3.5-4.0	E60588-19	12/13/99	583	585	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	979	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	18100	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	453	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	1.5-2.0	E60729-61	12/15/99	30200	26000	26200	7410	19700	-	-	-	-	-	41000	-	-	-	-	-	-
SB-2C-01	3.5-4.0	E60729-62	12/15/99	4260	6630	5760	3270	6190	-	-	-	-	-	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	3460	3410	2690	2520	2560	-	-	-	-	-	3500	-	-	-	-	-	-
SB-2C-03	7.5-8.0	E60729-42	12/15/99	5720	5390	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	2810	-	-	-	-	-	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 J	1090 J	1320 J	1210 J	-	-	-	-	-	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	91800	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	16800	-	-	-	-	-	34300	-	-	-	-	-	-
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	-	-	-	-	-	36.6 J	-	-	-	-	-	-

- 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

9210001173

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	-	-	-	-	-	16400	-	-	-	-	-	-
SB-2D-09	3.5-4.0	E60588-4	12/13/99	5880	6220	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	446	855	-	-	-	-	-	1010	-	-	-	-	-	-
SB-2E-01	6.5-7.0	E60729-60	12/15/99	8380	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	32100	31200	24400	7020	9430	-	-	-	-	-	34400	-	-	-	-	-	-
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	619	414	566	-	-	-	-	-	751	-	-	-	-	-	-
SB-2E-04	6.5-7.0	E60588-32	12/13/99	81300	44500	24000	2710	52300	-	-	-	-	-	82100	-	-	-	-	-	-
SB-2E-04	8.5-9.0	E60588-44	12/13/99	33600	25500	15800	4810	13500	-	-	-	-	-	34400	-	-	-	-	-	-
SB-2E-05	3.0-3.5	E60588-49	12/13/99	2060	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	3920	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	-	-	-	-	-	9630	-	-	-	-	-	-
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	36600	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	32200	-	-	-	-	-	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	-	-	-	-	-	76.2 J	-	-	-	-	-	-
SB-3B-06	0.0-0.5	E60358-45	12/9/99	192000	223000	168000	139000	134000	-	-	-	-	-	225000	-	-	-	-	-	-
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	152000	52500	74600	-	-	-	-	-	313000	-	-	-	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	246000	288000	57500	64800	53400	-	-	-	-	-	264000	-	-	-	-	-	-

\- 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

921000174

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	176000	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	175000 J	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 J	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	5210	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	5650	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	17.0-17.5	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-priv\s99227\b\RI Report\Table - Soil Ani

- 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

921000175

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	2490	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	-	-	-	-	-	-	3620	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	E60450-16	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

9210000176

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-2A-03	3.0-3.5	E60450-18	12/10/99	-	-	-	-	2390	-	-	-	-	-	-	38400	17800	-	-	-
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	-	-	-	752	-	-	-	-	-	-	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	-	-	-	-	677	-	-	-	-	-	-	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	23600	-	-	-
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	94500	-	-	-
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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

9210000177

Table 6-2: Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	-	-	-	-	-	-	83.3 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	-	-	-	-	-	-	3650	1380	-	-	-
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	-	-	-	-	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	-	-	-	-	1060	-	-	-	-	-	-	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	-	-	-	-	-	-	953	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

921000178

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	-	-	-	66.2 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	-	-	-	-	3650	-	-	-	-	-	-	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	-	-	-	-	743	-	-	-	-	-	-	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

921000179

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	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
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	-	-	-	-	681	-	-	-	-	-	-	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	5.5-6.0	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	-	-	-	-	-	-	190000	51100	-	-	-
SB-3B-03	1.5-2.0	E60358-37	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-03	4.0-4.5	E60358-38	12/9/99	-	-	-	-	8310	-	-	-	-	-	-	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	-	-	-	-	-	-	88200	37900	-	-	-
SB-3B-05	0.0-0.5	E60358-39	12/9/99	-	-	-	-	481	-	-	-	-	-	-	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	492000	-	-	-
SB-3B-07	0.0-0.5	E60358-58	12/8/99	-	-	-	-	19000	-	-	-	-	-	-	387000	81000	-	-	-

- 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

921000180

Table 2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	659000	-	-	-
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

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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

921000181

Table [illegible]. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria 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	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	-	1750	-	-	-	-	-	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	619	-	-	-	-
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	-	-	-	1660	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	-	-	-	236	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	-	-	-	-	-	44.9 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

921000182

Table 2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria 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	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-2A-03	3.0-3.5	E60450-18	12/10/99	-	5440	-	-	-	-	-	4860	-	-	-	60000	69400	-	-	ND	ND
SB-2A-03	5.5-6.0	E60450-19	12/10/99	-	2080	-	-	-	-	-	90300	-	-	-	72800	29600	-	-	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	-	9720	-	-	-	-	-	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	-	3740	-	-	-	-	-	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	86300	-	-	-	-
SB-2A-12	14.5-15.0	E60450-12	12/10/99	-	136	-	-	-	-	-	115	-	-	-	324	757	-	-	-	-
SB-2A-14	3.5-4.0	E60450-36	12/10/99	-	944	-	-	-	-	-	ND	-	-	-	7320	4930	-	-	-	-
SB-2A-14	7.5-8.0	E60450-37	12/10/99	-	5790	-	-	-	-	-	28900	-	-	-	156000	186000	-	-	-	-
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	-	3510	-	-	-	-	-	2920	-	-	-	2970	5470	-	-	-	-
SB-2A-15	7.5-8.0	E60450-53	12/10/99	-	148000	-	-	-	-	-	34500	-	-	-	164000	696000	-	-	-	-
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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000183

Tab[illegible]. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	-	160 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	-	-	-	561	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	-	-	-	-	-	8970000	-	-	-	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	-	1500	-	-	-	-	-	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

921000184

Table 2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria 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	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	74.8 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	45600	-	-	-	-
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	6450	-	-	-	-
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	10.5-11.0	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	-	-	-	-	-	586000	-	-	-	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

921000185

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End Gas Works
Jersey City, New Jersey

Soil Boring	Depth Interval (feet)	Laboratory Sample No.	NJDEP Soil Cleanup Criteria 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	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-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	-	1960	-	-	-	-	-	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	51600	-	-	-	-
SB-2D-10	5.5-6.0	E60588-23	12/13/99	-	565	-	-	-	-	-	306000	-	-	-	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	-	7610	-	-	-	-	-	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	367 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	-	3100	-	-	-	-	-	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	-	2160	-	-	-	-	-	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	-	-	-	554	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000186

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-3B-07	1.5-2.0	E60358-59	12/8/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB-3B-07	3.0-3.5	E60358-60	12/8/99	-	16600	-	-	-	-	-	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	-	-	-	-	-	345000	-	-	-	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	-	86800 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	-	-	-	-	-	788	-	-	-	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	E60358-16	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	12/9/99	-	90.4 J	-	-	-	-	-	750	-	-	-	56.1 J	119	-	-	-	-
TS-15	7.5-8.0	E60729-78	12/15/99	-	27800	-	-	-	-	-	487000	-	-	-	4[illegible]00	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

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- 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

921000187

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	0.76	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	96.1	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	16.9	40.7	118	0.98	20.4	<12.0	<1.2	<1.2	264	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000188

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	-	-	-	-	-	6.1	-
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	-	-	-	-	-	6.5	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88.2
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

92100189

Table 6-2: Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	-	-	457	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	-	-	-	-	-	-	16.1	<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	<0.96	<0.96	-	-	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

921000190

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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
SB-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
SB-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	<0.046	-	-	-	-	-	<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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85.4
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	<0.69	<0.69	-	-	<14.0	<0.051	-	-	-	-	-	<1.4	72.6
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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000191

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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	-	-	176	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	92.8
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	-	-	-	-	-	<6.8	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	61.8
SB-2E-04	8.5-9.0	E60588-44	12/13/99	-	-	-	-	-	-	14.1	<0.87	<0.87	-	-	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	83.8
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	-	-	682	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 Millgrams per kilogram

Shaded data exceed soil cleanup criteria

921000192

Table 6-2. Summary of Soil Sample Analytical Results
Fomer Public Service Electric & Gas Company West End 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-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	<0.56	0.83	-	-	239	0.76	-	-	-	-	-	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	76.6
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	12/9/99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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

N:\project\s\s-priv\s99227\b\RI Report\[Table - Soil An

- 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 6-3. PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END 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
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
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
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-1 Deep	RI	1A	26.0	7.8	12.0	16.0	4.0	-4.2
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-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-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

TABLE 6-3. PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END 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-20-DP	SI	2A	22.0	9.3	10.0	14.4	4.4	-0.7
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-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
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

TABLE 6-3. PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END 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-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-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-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

TABLE 6-3. PEAT LAYER DEPTH AND ELEVATION
FORMER WEST END 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-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-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
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
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

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

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TABLE 6-4. VERTICAL HYDRAULIC CONDUCTIVITIES
FORMER WEST END 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 6-5. MONITORING WELL CONSTRUCTION DETAILS
FORMER WEST END 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-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-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

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 6-6. GROUND WATER ELEVATIONS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Monitoring Well	Reference Elevation[2]	January 12, 2000		March 15, 2000	
		Depth to Water	Groundwater Elevation[1]	Depth to Water	Groundwater Elevation[1]
MW-1A	16.18	6.01	10.17	6.09	10.09
MW-1B	16.20	6.02	10.18	6.10	10.10
MW-2A	9.74	6.25	3.49	N/A	N/A
MW-2B	9.96	5.89	4.07	3.71	6.25
MW-3A	11.04	2.81	8.23	3.01	8.03
MW-3B	11.39	4.41	6.98	4.50	6.89
MW-4A	10.61	2.20	8.41	2.43	8.18
MW-4B	10.91	4.12	6.79	4.32	6.59
MW-5A	10.00	3.23	6.77	6.13	3.87
MW-5B	10.24	3.40	6.84	2.67	7.57
MW-6A	11.52	6.54	4.98	6.71	4.81
MW-6B	8.83	2.28	6.55	2.45	6.38
MW-7A	13.82	4.88	8.94	4.94	8.88
MW-7B	13.75	5.71	8.04	4.79	8.96
MW-8A	11.24	6.54	4.70	6.90	4.34
MW-8B	9.29	2.80	6.49	3.00	6.29

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 available, product encountered in MW-2B during March 15, 2000 event

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TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of NJDEP Ground Water Criteria/PQL(1)	MW-1A			MW-1B			MW-2A			MW-3A			MW-3B		
Laboratory Identification		E62159-1			E62159-2			E62072-4			E62072-2			E62072-3		
Date Sample Collected		1/14/00			1/14/00			1/13/00			1/13/00			1/13/00		
Units	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
VOLATILE ORGANIC COMPOUNDS																
Acetone	700	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Benzene	1	1.0	–		1.0	1.2		25	8860		1.0	2.4		1.0	18.9	
Bromodichloromethane	1	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Bromoform	4	4.0	–		4.0	–		100	–		4.0	–		4.0	–	
Bromomethane	10	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
2-Butanone (MEK)	300	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Carbon disulfide	-	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Carbon tetrachloride	2	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Chlorobenzene	4	2.0	–		2.0	–		50	–		2.0	–		2.0	–	
Chloroethane	-	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Chloroform	6	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Chloromethane	30	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Dibromochloromethane	10	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
1,1-Dichloroethane	70	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
1,2-Dichloroethane	2	2.0	–		2.0	–		50	–		2.0	–		2.0	–	
1,1-Dichloroethene	2	2.0	–		2.0	–		50	–		2.0	–		2.0	–	
cis-1,2-Dichloroethene	10	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
trans-1,2-Dichloroethene	100	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
1,2-Dichloropropane	1	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
cis-1,3-Dichloropropene	NA	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
trans-1,3-Dichloropropene	NA	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Ethylbenzene	700	1.0	–		1.0	0.45	J	25	3430		1.0	–		1.0	1.4	
2-Hexanone	-	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
4-Methyl-2-pentanone(MIBK)	400	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
Methylene chloride	2	2.0	–		2.0	–		50	–		2.0	–		2.0	–	
Styrene	100	5.0	–		5.0	–		120	483		5.0	–		5.0	–	
1,1,2,2-Tetrachloroethane	2	2.0	–		2.0	–		50	–		2.0	–		2.0	–	
Tetrachloroethene	1	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Toluene	1000	1.0	–		1.0	0.57	J	25	4310		1.0	–		1.0	–	
1,1,1-Trichloroethane	30	5.0	–		5.0	–		120	–		5.0	–		5.0	–	
1,1,2-Trichloroethane	3	3.0	–		3.0	–		75	–		3.0	–		3.0	–	
Trichloroethene	1	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Vinyl chloride	5	1.0	–		1.0	–		25	–		1.0	–		1.0	–	
Xylene (total)	1000	1.0	–		1.0	–		25	1990		1.0	–		1.0	1.3	
Total TIC, Volatile	-	N/A	0		N/A	0		N/A	3680		N/A	65.7		N/A	0	
SEMI-VOLATILE ORGANIC COMPOUNDS																
2-Chlorophenol	40	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
4-Chloro-3-methyl phenol	NA	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
2,4-Dichlorophenol	20	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
2,4-Dimethylphenol	100	5.2	–		5	–		5.0	–		5.0	–		5.0	15.9	
2,4-Dinitrophenol	40	21	–		20	–		20	–		20	–		20	–	
4,6-Dinitro-o-cresol	NA	21	–		20	–		20	–		20	–		20	–	
2-Methylphenol	-	5.2	–		5	–		5.0	–		5.0	–		5.0	1.1	J
3&4-Methylphenol	-	5.2	–		5	–		5.0	–		5.0	–		5.0	1.1	J
2-Nitrophenol	-	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
4-Nitrophenol	-	21	–		20	–		20	–		20	–		20	–	
Pentachlorophenol	1	21	–		20	–		20	–		20	–		20	–	
Phenol	4000	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
2,4,5-Trichlorophenol	700	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
2,4,6-Trichlorophenol	20	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Acenaphthene	400	2.1	–		2	–		800	327	JD	2.0	22.2		2.0	–	
Acenaphthylene	NA	2.1	–		2	–		2.0	111		2.0	0.81	J	2.0	–	
Anthracene	2000	2.1	–		2	–		2.0	11		2.0	1	J	2.0	–	
Benzo(a)anthracene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Benzo(a)pyrene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Benzo(b)fluoranthene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Benzo(g,h,i)perylene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Benzo(k)fluoranthene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
4-Bromophenyl phenyl ether	-	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Butyl benzyl phthalate	100	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
2-Chloronaphthalene	-	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
4-Chloroaniline	-	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Carbazole	-	2.1	–		2	–		2.0	1.7	J	2.0	–		2.0	0.97	J
Chrysene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroethoxy)methane	-	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroethyl)ether	10	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroisopropyl)ether	300	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
4-Chlorophenyl phenyl ether	-	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
1,2-Dichlorobenzene	600	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
1,3-Dichlorobenzene	600	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
1,4-Dichlorobenzene	75	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
2,4-Dinitrotoluene	10	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
2,6-Dinitrotoluene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
3,3'-Dichlorobenzidine	60	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Dibenzo(a,h)anthracene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Dibenzofuran	-	5.2	–		5	–		5.0	2	J	5.0	1.4	J	5.0	–	
Di-n-butyl phthalate	900	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Di-n-octyl phthalate	100	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Diethyl phthalate	5000	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Dimethyl phthalate	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	

TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of NJDEP Ground Water Criteria/PQL(1)	MW-1A			MW-1B			MW-2A			MW-3A			MW-3B		
Laboratory Identification		E62159-1			E62159-2			E62072-4			E62072-2			E62072-3		
Date Sample Collected		1/14/00			1/14/00			1/13/00			1/13/00			1/13/00		
Units	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
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																
bis(2-Ethylhexyl)phthalate	30	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Fluoranthene	300	2.1	–		2	–		2.0	3		2.0	–		2.0	–	
Fluorene	300	2.1	–		2	–		2.0	46.6		2.0	5		2.0	–	
Hexachlorobenzene	10	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Hexachlorobutadiene	1	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Hexachlorocyclopentadiene	50	21	–		20	–		20	–		20	–		20	–	
Hexachloroethane	10	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Indeno(1,2,3-cd)pyrene	NA	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Isophorone	100	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
2-Methylnaphthalene	-	2.1	–		2	–		800	889	D	2.0	–		2.0	1.2	J
2-Nitroaniline	-	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
3-Nitroaniline	-	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
4-Nitroaniline	-	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Naphthalene	-	2.1	–		2	–		800	9580	D	2.0	–		2.0	54.9	
Nitrobenzene	10	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
N-Nitroso-di-n-propylamine	20	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
N-Nitrosodiphenylamine	20	5.2	–		5	–		5.0	–		5.0	–		5.0	–	
Phenanthrene	NA	2.1	–		2	–		2.0	59.5		2.0	3.5		2.0	–	
Pyrene	200	2.1	–		2	–		2.0	5.7		2.0	–		2.0	–	
1,2,4-Trichlorobenzene	9	2.1	–		2	–		2.0	–		2.0	–		2.0	–	
Total TIC, Semi-Volatile	-	N/A	0		N/A	0		N/A	5232		N/A	474		N/A	31.2	
INORGANICS																
Antimony	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Arsenic	8	5.0	**21.6**		5.0	–		5.0	–		5.0	–		5.0	–	
Beryllium	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Cadmium	4	4.0	–		4.0	–		4.0	–		4.0	–		4.0	–	
Chromium	100	10	–		10	89.2		10	–		10	–		10	–	
Copper	1000	25	–		25	–		25	–		25	–		25	–	
Iron	300	100	**18400**		100	**5430**		100	**35200**		100	**31200**		100	–	
Lead	10	3.0	9.4		3.0	**10.5**		3.0	–		3.0	3		3.0	–	
Mercury	2	0.20	–		0.20	–		0.20	–		0.20	–		0.20	–	
Nickel	100	40	–		40	64.1		40	–		40	–		40	–	
Selenium	50	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Silver	-	10	–		10	–		10	–		10	–		10	–	
Thallium	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Zinc	5000	20	182		20	48		20	–		20	–		20	20.8	
Cyanide	200	0.010	–		0.010	–		0.010	–		0.010	0.1		0.010	–	
POLYCHLORINATED BIPHENYLS																
Aroclor 1016	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1221	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1232	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1242	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1248	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1254	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1260	0.5	0.50	–		0.50	**1.8**		0.50	–		0.50	–		0.50	–	
GENERAL CHEMISTRY																
Alkalinity, Total	-	5,000	202,000		5,000	192,000		5,000	243,000		10,000	384,000		5,000	223,000	
Chloride	250,000	20,000	144,000		20,000	76,700		20,000	–		20,000	71,300		20,000	58,500	
Iron, Ferric	-	10,000	–		10,000	5,300		1,100	–		1,100	1,600		200	–	
Iron, Ferrous	-	10,000	15,100		10,000	140		1,000	34,600		1,000	29,600		100	–	
Nitrogen, Ammonia	500	100	**600**		100	110		100	**1,200**		500	**6,100**		100	310	
Nitrogen, Nitrate	10,000	*110*	*1,600*		*110*	***10,600***		*110*	–		*110*	–		*110*	*3,600*	
Nitrogen, Nitrate + Nitrite	10,000	100	1,600		100	**11,500**		100	–		100	–		100	3,700	
Nitrogen, Nitrite	1,000	10	–		10	–		10	–		10	–		10	140	
Solids, Total Dissolved	500,000	10,000	**709,000**		10,000	471,000		10,000	318,000		10,000	498,000		10,000	476,000	
Sulfate	250,000	20,000	82,300		20,000	68,600		20,000	29,800		20,000	–		20,000	66,600	
Sulfide	-	2,000	–		2,000	–		2,000	–		2,000	–		2,000	–	
Total Organic Carbon	-	1,000	8,300		1,000	2,000		N/A	N/A		N/A	N/A		N/A	N/A	
pH (standard units)	6.5-8.5	N/A	6.2		N/A	6.4		N/A	6.5		N/A	6.5		N/A	7	

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.

bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
N/A Not Analyzed
– Not detected
D Result from diluted reanalysis
J Estimated concentration
- No Standard

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TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of NJDEP Ground Water Criteria/PQL(1)	MW-4A			MW-4B			MW-5A			MW-5B			MW-6A		
Laboratory Identification		E62072-6			E62072-7			E62159-5			E62159-6			E61993-1 E62159-8		
Date Sample Collected		1/13/00			1/13/00			1/14/00			1/14/00			1/12/00		
Units	ug/L	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q	MDL	CONC	Q
VOLATILE ORGANIC COMPOUNDS																
Acetone	700	50	–		5.0	–		50	–		5.0	–		5.0	–	
Benzene	1	10	2740		1.0	1.7		10	2050		1.0	–		1.0	73	
Bromodichloromethane	1	10	–		1.0	–		10	–		1.0	–		1.0	–	
Bromoform	4	40	–		4.0	–		40	–		4.0	–		4.0	–	
Bromomethane	10	50	–		5.0	–		50	–		5.0	–		5.0	–	
2-Butanone (MEK)	300	50	–		5.0	–		50	–		5.0	–		5.0	–	
Carbon disulfide	-	50	–		5.0	–		50	–		5.0	–		5.0	–	
Carbon tetrachloride	2	10	–		1.0	–		10	–		1.0	–		1.0	–	
Chlorobenzene	4	20	–		2.0	–		20	–		2.0	–		2.0	–	
Chloroethane	-	50	–		5.0	–		50	–		5.0	–		5.0	–	
Chloroform	6	50	–		5.0	–		50	–		5.0	–		5.0	–	
Chloromethane	30	50	–		5.0	–		50	–		5.0	–		5.0	–	
Dibromochloromethane	10	50	–		5.0	–		50	–		5.0	–		5.0	–	
1,1-Dichloroethane	70	50	–		5.0	–		50	–		5.0	–		5.0	–	
1,2-Dichloroethane	2	20	–		2.0	–		20	–		2.0	–		2.0	–	
1,1-Dichloroethene	2	20	–		2.0	–		20	–		2.0	–		2.0	–	
cis-1,2-Dichloroethene	10	50	–		5.0	–		50	–		5.0	1.4	J	5.0	–	
trans-1,2-Dichloroethene	100	50	–		5.0	–		50	–		5.0	–		5.0	–	
1,2-Dichloropropane	1	10	–		1.0	–		10	–		1.0	–		1.0	–	
cis-1,3-Dichloropropene	NA	10	–		1.0	–		10	–		1.0	–		1.0	–	
trans-1,3-Dichloropropene	NA	10	–		1.0	–		10	–		1.0	–		1.0	–	
Ethylbenzene	700	10	1940		1.0	–		10	267		1.0	–		1.0	–	
2-Hexanone	-	50	–		5.0	–		50	–		5.0	–		5.0	–	
4-Methyl-2-pentanone(MIBK)	400	50	–		5.0	–		50	–		5.0	–		5.0	–	
Methylene chloride	2	20	–		2.0	–		20	–		2.0	–		2.0	–	
Styrene	100	50	–		5.0	–		50	–		5.0	–		5.0	–	
1,1,2,2-Tetrachloroethane	2	20	–		2.0	–		20	–		2.0	–		2.0	–	
Tetrachloroethene	1	10	–		1.0	–		10	–		1.0	–		1.0	–	
Toluene	1000	10	–		1.0	–		10	15.1		1.0	–		1.0	1.1	
1,1,1-Trichloroethane	30	50	–		5.0	–		50	–		5.0	–		5.0	–	
1,1,2-Trichloroethane	3	30	–		3.0	–		30	–		3.0	–		3.0	–	
Trichloroethene	1	10	–		1.0	–		10	–		1.0	–		1.0	–	
Vinyl chloride	5	10	–		1.0	–		10	–		1.0	–		1.0	–	
Xylene (total)	1000	10	297		1.0	–		10	117		1.0	–		1.0	–	
Total TIC, Volatile	-	N/A	1430		N/A	0		N/A	775		N/A	0		N/A	25	
SEMI-VOLATILE ORGANIC COMPOUNDS																
2-Chlorophenol	40	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Chloro-3-methyl phenol	NA	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2,4-Dichlorophenol	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2,4-Dimethylphenol	100	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2,4-Dinitrophenol	40	20	–		20	–		20	–		20	–		20	–	
4,6-Dinitro-o-cresol	NA	20	–		20	–		20	–		20	–		20	–	
2-Methylphenol	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
3&4-Methylphenol	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2-Nitrophenol	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Nitrophenol	-	20	–		20	–		20	–		20	–		20	–	
Pentachlorophenol	1	20	–		20	–		20	–		20	–		20	–	
Phenol	4000	5.0	–		5.0	–		5.0	5.3		5.0	–		5.0	–	
2,4,5-Trichlorophenol	700	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2,4,6-Trichlorophenol	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Acenaphthene	400	100	76.6	JD	2.0	–		2.0	40.6		2.0	–		2.0	3.6	
Acenaphthylene	NA	2.0	1.6	J	2.0	–		2.0	–		2.0	–		2.0	–	
Anthracene	2000	2.0	0.81	J	2.0	–		2.0	5.9		2.0	0.32	J	2.0	–	
Benzo(a)anthracene	NA	2.0	–		2.0	–		2.0	2.2		2.0	–		2.0	–	
Benzo(a)pyrene	NA	2.0	–		2.0	–		2.0	1.9	J	2.0	–		2.0	–	
Benzo(b)fluoranthene	NA	2.0	–		2.0	–		2.0	1.5	J	2.0	–		2.0	–	
Benzo(g,h,i)perylene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Benzo(k)fluoranthene	NA	2.0	–		2.0	–		2.0	0.64	J	2.0	–		2.0	–	
4-Bromophenyl phenyl ether	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Butyl benzyl phthalate	100	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2-Chloronaphthalene	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Chloroaniline	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Carbazole	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Chrysene	NA	2.0	–		2.0	–		2.0	2.4		2.0	–		2.0	–	
bis(2-Chloroethoxy)methane	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroethyl)ether	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroisopropyl)ether	300	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
4-Chlorophenyl phenyl ether	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,2-Dichlorobenzene	600	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,3-Dichlorobenzene	600	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,4-Dichlorobenzene	75	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2,4-Dinitrotoluene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2,6-Dinitrotoluene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
3,3'-Dichlorobenzidine	60	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Dibenzo(a,h)anthracene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Dibenzofuran	-	5.0	0.96	J	5.0	–		5.0	1.9	J	5.0	–		5.0	–	
Di-n-butyl phthalate	900	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Di-n-octyl phthalate	100	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Diethyl phthalate	5000	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Dimethyl phthalate	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	

TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of NJDEP Ground Water Criteria/PQL(1)	MW-4A			MW-4B			MW-5A			MW-5B			MW-6A		
Laboratory Identification		E62072-6			E62072-7			E62159-5			E62159-6			E61993-1		
														E62159-8		
Date Sample Collected		1/13/00			1/13/00			1/14/00			1/14/00			1/12/00		
Units	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
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																
bis(2-Ethylhexyl)phthalate	30	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Fluoranthene	300	2.0	–		2.0	–		2.0	7.6		2.0	–		2.0	–	
Fluorene	300	2.0	11.7		2.0	–		2.0	24.2		2.0	–		2.0	1.2	J
Hexachlorobenzene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Hexachlorobutadiene	1	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Hexachlorocyclopentadiene	50	20	–		20	–		20	–		20	–		20	–	
Hexachloroethane	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Indeno(1,2,3-cd)pyrene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Isophorone	100	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2-Methylnaphthalene	-	100	147	D	2.0	–		2.0	47.3		2.0	–		2.0	–	
2-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
3-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Naphthalene	-	100	2110	D	2.0	0.77	J	10	663	D	2.0	–		2.0	–	
Nitrobenzene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
N-Nitroso-di-n-propylamine	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
N-Nitrosodiphenylamine	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Phenanthrene	NA	2.0	4.3		2.0	–		2.0	43.7		2.0	1.8	J	2.0	–	
Pyrene	200	2.0	0.83	J	2.0	–		2.0	11.1		2.0	–		2.0	–	
1,2,4-Trichlorobenzene	9	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Total TIC, Semi-Volatile	-	N/A	2450		N/A	0		N/A	947.1		N/A	0		N/A	90.7	
INORGANICS																
Antimony	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Arsenic	8	5.0	6.4		5.0	**10.7**		5.0	–		5.0	–		5.0	–	
Beryllium	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Cadmium	4	4.0	–		4.0	–		4.0	–		4.0	–		4.0	–	
Chromium	100	10	–		10	–		10	–		10	–		10	–	
Copper	1000	25	–		25	–		25	–		25	–		25	–	
Iron	300	100	**20700**		100	**15400**		100	**43700**		100	137		100	**6670**	
Lead	10	3.0	–		3.0	–		3.0	–		3.0	–		3.0	–	
Mercury	2	0.20	–		0.20	–		0.20	–		0.20	–		0.20	–	
Nickel	100	40	–		40	–		40	–		40	–		40	–	
Selenium	50	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Silver	-	10	–		10	–		10	–		10	–		10	–	
Thallium	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Zinc	5000	20	–		20	–		20	–		20	–		20	55	
Cyanide	200	0.010	0.16		0.010	–		0.010	0.08		0.010	–		0.020	0.96	
POLYCHLORINATED BIPHENYLS																
Aroclor 1016	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1221	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1232	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1242	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1248	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1254	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1260	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
GENERAL CHEMISTRY																
Alkalinity, Total	-	10,000	291,000		10,000	380,000		5,000	180,000		5,000	233,000		5,000	190,000	
Chloride	250,000	20,000	42,000		20,000	140,000		20,000	21,700		20,000	46,100		20,000	25,100	
Iron, Ferric	-	1,100	1,200		1,100	1,300		10,000	13,200		200	–		200	1,100	
Iron, Ferrous	-	1,000	19,500		1,000	14,100		10,000	30,500		100	–		100	5,600	
Nitrogen, Ammonia	500	100	**2,100**		100	**2,000**		100	**1,800**		100	–		100	**1,800**	
Nitrogen, Nitrate	10,000	110	–		110	–		110	–		110	6,100		110	–	
Nitrogen, Nitrate + Nitrite	10,000	100	–		100	–		100	–		100	6,600		100	–	
Nitrogen, Nitrite	1,000	10	–		10	–		10	–		10	77		10	–	
Solids, Total Dissolved	500,000	10,000	332,000		10,000	**628,000**		10,000	247,000		10,000	**515,000**		10,000	379,000	
Sulfate	250,000	20,000	–		20,000	–		20,000	–		20,000	86,900		20,000	48,300	
Sulfide	-	2,000	–		2,000	–		2,000	N/A		2,000	–		2,000	–	
Total Organic Carbon	-	N/A	N/A		N/A	N/A		1,000	10,200		1,000	–		1,000	4,600	
pH (standard units)	6.5-8.5	N/A	6.7		N/A	6.8		N/A	6.6		N/A	7.3		N/A	6.4	

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.

bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Q Data qualifier
N/A Not Analyzed
– Not detected
D Result from diluted reanalysis
J Estimated concentration
- No Standard

N:\projects\s-pr\s99227b\Detailed IDS\[Table - GW Results.XLS]GW

TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of	MW-6B			MW-7A			MW-7B			MW-8A			MW-8B		
Laboratory Identification	NJDEP	E61993-2			E62159-3			E62159-4			E61993-3			E61993-4		
	Ground Water	E62159-9									E62159-10			E62159-11		
Date Sample Collected	Criteria/PQL(1)	1/12/00			1/14/00			1/14/00			1/12/00			1/12/00		
Units	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
VOLATILE ORGANIC COMPOUNDS																
Acetone	700	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Benzene	1	1.0	–		1.0	73		1.0	–		1.0	–		1.0	24.3	
Bromodichloromethane	1	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Bromoform	4	4.0	–		4.0	–		4.0	–		4.0	–		4.0	–	
Bromomethane	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
2-Butanone (MEK)	300	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Carbon disulfide	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Carbon tetrachloride	2	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Chlorobenzene	4	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Chloroethane	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Chloroform	6	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Chloromethane	30	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Dibromochloromethane	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
1,1-Dichloroethane	70	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
1,2-Dichloroethane	2	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,1-Dichloroethene	2	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
cis-1,2-Dichloroethene	10	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
trans-1,2-Dichloroethene	100	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
1,2-Dichloropropane	1	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
cis-1,3-Dichloropropene	NA	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
trans-1,3-Dichloropropene	NA	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Ethylbenzene	700	1.0	–		1.0	10.8		1.0	–		1.0	–		1.0	133	
2-Hexanone	-	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
4-Methyl-2-pentanone(MIBK)	400	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Methylene chloride	2	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Styrene	100	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
1,1,2,2-Tetrachloroethane	2	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Tetrachloroethene	1	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Toluene	1000	1.0	–		1.0	49.3		1.0	–		1.0	–		1.0	8.6	
1,1,1-Trichloroethane	30	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
1,1,2-Trichloroethane	3	3.0	–		3.0	–		3.0	–		3.0	–		3.0	–	
Trichloroethene	1	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Vinyl chloride	5	1.0	–		1.0	–		1.0	–		1.0	–		1.0	–	
Xylene (total)	1000	1.0	–		1.0	73.7		1.0	–		1.0	–		1.0	693	
Total TIC, Volatile	-	N/A	0		N/A	418		N/A	0		N/A	0		N/A	1059	
SEMI-VOLATILE ORGANIC COMPOUNDS																
2-Chlorophenol	40	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
4-Chloro-3-methyl phenol	NA	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
2,4-Dichlorophenol	20	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
2,4-Dimethylphenol	100	5.0	–		5.0	7.9		5.0	–		5.0	7.6		5.1	2	J
2,4-Dinitrophenol	40	20	–		20	–		20	–		20	–		20	–	
4,6-Dinitro-o-cresol	NA	20	–		20	–		20	–		20	–		20	–	
2-Methylphenol	-	5.0	–		5.0	6.4		5.0	–		5.0	–		5.1	–	
3&4-Methylphenol	-	5.0	–		5.0	1.8	J	5.0	–		5.0	–		5.1	–	
2-Nitrophenol	-	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
4-Nitrophenol	-	20	–		20	–		20	–		20	–		20	–	
Pentachlorophenol	1	20	–		20	–		20	–		20	–		20	–	
Phenol	4000	5.0	–		5.0	3.2	J	5.0	–		5.0	–		5.1	–	
2,4,5-Trichlorophenol	700	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
2,4,6-Trichlorophenol	20	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Acenaphthene	400	2.0	–		2.0	128		2.0	5.3		2.0	7.3		2.0	–	
Acenaphthylene	NA	2.0	–		2.0	4.6		2.0	0.77	J	2.0	–		2.0	–	
Anthracene	2000	2.0	–		2.0	22.4		2.0	3.2		2.0	1.4	J	2.0	–	
Benzo(a)anthracene	NA	2.0	–		2.0	3.6		2.0	–		2.0	–		2.0	–	
Benzo(a)pyrene	NA	2.0	–		2.0	2.2		2.0	–		2.0	–		2.0	–	
Benzo(b)fluoranthene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Benzo(g,h,i)perylene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Benzo(k)fluoranthene	NA	2.0	–		2.0	3.2		2.0	–		2.0	–		2.0	–	
4-Bromophenyl phenyl ether	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Butyl benzyl phthalate	100	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
2-Chloronaphthalene	-	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
4-Chloroaniline	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Carbazole	-	2.0	–		2.0	31.1		2.0	2		2.0	2.8		2.0	–	
Chrysene	NA	2.0	–		2.0	3.1		2.0	–		2.0	–		2.0	–	
bis(2-Chloroethoxy)methane	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroethyl)ether	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
bis(2-Chloroisopropyl)ether	300	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
4-Chlorophenyl phenyl ether	-	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,2-Dichlorobenzene	600	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,3-Dichlorobenzene	600	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
1,4-Dichlorobenzene	75	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2,4-Dinitrotoluene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2,6-Dinitrotoluene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
3,3'-Dichlorobenzidine	60	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Dibenzo(a,h)anthracene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Dibenzofuran	-	5.0	–		5.0	115		5.0	5.7		5.0	2.6	J	5.1	–	
Di-n-butyl phthalate	900	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Di-n-octyl phthalate	100	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Diethyl phthalate	5000	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Dimethyl phthalate	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	

TABLE 6-7
GROUND WATER ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	Higher of NJDEP Ground Water Criteria/PQL(1)	MW-6B			MW-7A			MW-7B			MW-8A			MW-8B		
Laboratory Identification		E61993-2			E62159-3			E62159-4			E61993-3			E61993-4		
		E62159-9									E62159-10			E62159-11		
Date Sample Collected		1/12/00			1/14/00			1/14/00			1/12/00			1/12/00		
Units	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
SEMI-VOLATILE ORGANIC COMPOUNDS (continued)																
bis(2-Ethylhexyl)phthalate	30	2.0	0.73	J	2.0	–		2.0	–		2.0	–		2.0	1.6	J
Fluoranthene	300	2.0	–		2.0	24.7		2.0	2.9		2.0	1.2	J	2.0	–	
Fluorene	300	2.0	–		2.0	121		2.0	7.2		2.0	4.2		2.0	–	
Hexachlorobenzene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Hexachlorobutadiene	1	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Hexachlorocyclopentadiene	50	20	–		20	–		20	–		20	–		20	–	
Hexachloroethane	10	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Indeno(1,2,3-cd)pyrene	NA	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Isophorone	100	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
2-Methylnaphthalene	-	2.0	–		2.0	70.6		2.0	4.9		2.0	19.4		2.0	–	
2-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
3-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
4-Nitroaniline	-	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Naphthalene	-	2.0	–		10	316	D	2.0	12.7		2.0	86.4		2.0	6.6	
Nitrobenzene	10	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
N-Nitroso-di-n-propylamine	20	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
N-Nitrosodiphenylamine	20	5.0	–		5.0	–		5.0	–		5.0	–		5.1	–	
Phenanthrene	NA	2.0	–		2.0	134		2.0	14.5		2.0	5.6		2.0	–	
Pyrene	200	2.0	–		2.0	15.6		2.0	1.8	J	2.0	1.5	J	2.0	–	
1,2,4-Trichlorobenzene	9	2.0	–		2.0	–		2.0	–		2.0	–		2.0	–	
Total TIC, Semi-Volatile	-	N/A	0		N/A	292.2		N/A	0		N/A	2391		N/A	8.8	
INORGANICS																
Antimony	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Arsenic	8	5.0	–		5.0	5		5.0	–		5.0	–		5.0	–	
Beryllium	20	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Cadmium	4	4.0	–		4.0	–		4.0	–		4.0	–		4.0	–	
Chromium	100	10	–		10	–		10	–		10	–		10	13.8	
Copper	1000	25	–		25	–		25	–		25	–		25	–	
Iron	300	100	–		100	**14200**		100	123		100	**12600**		100	**3220**	
Lead	10	3.0	–		3.0	–		3.0	–		3.0	4.4		3.0	3.8	
Mercury	2	0.20	–		0.20	–		0.20	–		0.20	–		0.20	–	
Nickel	100	40	–		40	–		40	–		40	–		40	–	
Selenium	50	5.0	–		5.0	–		5.0	–		5.0	–		5.0	–	
Silver	-	10	–		10	–		10	–		10	–		10	–	
Thallium	10	5.0	6.3		5.0	–		5.0	–		5.0	–		5.0	–	
Zinc	5000	20	22.4		20	–		20	–		20	35.1		20	60.7	
Cyanide	200	0.020	–		0.010	0.093		0.010	–		0.010	0.65		0.010	–	
POLYCHLORINATED BIPHENYLS																
Aroclor 1016	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1221	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1232	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1242	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1248	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1254	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
Aroclor 1260	0.5	0.50	–		0.50	–		0.50	–		0.50	–		0.50	–	
GENERAL CHEMISTRY																
Alkalinity, Total	-	5,000	247,000		5,000	229,000		5,000	266,000		10,000	373,000		10,000	304,000	
Chloride	250,000	20,000	55,300		20,000	180,000		20,000	63,000		20,000	40,000		20,000	47,800	
Iron, Ferric	-	1,100	–		10,000	–		200	–		1,100	1,700		200	3,100	
Iron, Ferrous	-	1,000	–		10,000	13,200		100	–		1,000	10,900		100	140	
Nitrogen, Ammonia	500	100	–		100	**1,400**		100	620		200	**4,300**		100	–	
Nitrogen, Nitrate	10,000	210	6,000		110	–		110	8,800		110	–		110	240	
Nitrogen, Nitrate + Nitrite	10,000	200	6,000		100	–		100	9,700		100	–		100	250	
Nitrogen, Nitrite	1,000	10	37		10	–		10	30		10	10		10	15	
Solids, Total Dissolved	500,000	10,000	**573,000**		10,000	**553,000**		10,000	**553,000**		10,000	**532,000**		10,000	451,000	
Sulfate	250,000	20,000	158,000		20,000	–		20,000	104,000		20,000	51,100		20,000	52,500	
Sulfide	-	2,000	–		2,000	–		2,000	–		2,000	–		2,000	–	
Total Organic Carbon	-	1,000	1,000		1,000	7,100		1,000	1,300		1,000	10,800		1,000	–	
pH (standard units)	6.5-8.5	N/A	7.2		N/A	6.8		N/A	7.2		N/A	6.6		N/A	7.2	

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

bold Concentration exceeds Ground Water Quality Standard
PQL Practical Quantitation Level
MDL Method detection limit/reporting limit
CONC Concentration
Data qualifier
Not Analyzed
Not detected
D Result from diluted reanalysis
J Estimated concentration
- No Standard

N:\projects\s-pm\ts99227b\Detailed IDS\[Table - GW Results.XLS]GW

TABLE 6-8
GROUND WATER ANALYTICAL RESULTS ABOVE CRITERIA
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location		MW-1A		MW-1B		MW-2A		MW-2B		MW-3A		MW-3B		MW-4A	
Sample Date		6/16/99	1/14/00	6/16/99	1/14/00	6/17/99	1/13/00	6/17/99	1/13/00	6/16/99	1/13/00	6/16/99	1/13/00	6/17/99	1/13/00
	GWQS														
VOLATILE ORGANIC COMPOUNDS															
Benzene	1	--	--	--	1.2	4,520	8,860	76,400	NA	1.02	2.4	1,820	18.9	459	2,740
Chloroform	6	10.3	--	--	--	--	--	--	NA	--	--	--	--	--	--
Ethylbenzene	700	--	--	--	<	2,960	3,430	1,930	NA	--	--	<	<	<	1,940
Styrene	100	--	--	--	--	143	483	5,140	NA	--	--	--	--	--	--
Toluene	1,000	--	--	--	<	1,710	4,310	27,200	NA	--	--	<	--	<	--
Xylene (total)	1,000	--	--	--	--	1,560	1,990	3,220	NA	--	--	<	<	<	<
SEMI-VOLATILE ORGANIC COMPOUNDS															
No exceedances		<	<	<	<	<	<	<	NA	<	<	<	<	<	<
INORGANICS															
Arsenic	8	19.5	21.8	--	--	<	--	11	NA	13.3	--	64.4	--	37	<
Iron	300	5,700	18,400	<	5,430	51,400	35,200	19,200	NA	52,400	31,200	5,840	--	17,400	20,700
Lead	10	3,230	<	--	10.5	139	--	11	NA	245	<	--	--	41	--
POLYCHLORINATED BIPHENYLS															
Aroclor 1260	1	NA	--	NA	1.8	NA	--	NA	NA	NA	--	NA	--	NA	--
GENERAL CHEMISTRY															
Nitrogen, Ammonia	500	<	600	<	<	1,700	1,200	5,400	NA	4,600	6,100	<	<	1,700	2,100
Nitrogen, Nitrate	10,000	NA	<	NA	10,600	NA	--	NA	NA	NA	--	NA	<	NA	--
Nitrogen, Nitrate + Nitrite	10,000	<	<	<	11,500	--	--	--	NA	<	--	<	<	--	--
Solids, Total Dissolved	500,000	515,000	709,999	539,000	<	<	<	47,000,000	NA	536,000	<	622,000	<	<	<

NOTES
All results in micrograms per liter
GWQS 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.
< Detected at concentration below GWQS
-- Not detected
NA Not Analyzed
N:\projects\s-pm\s99227\b\Data\[GW Results1.XLS]Exceedances

921000207

TABLE 6-8
GROUND WATER ANALYTICAL RESULTS ABOVE CRITERIA
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location		MW-4B		MW-5A		MW-5B		MW-6A	MW-6B	MW-7A	MW-7B	MW-8A	MW-8B
Sample Date		6/17/99	1/13/00	6/17/99	1/14/00	7/17/99	1/14/00	1/12/00	1/12/00	1/14/00	1/14/00	1/12/00	1/12/00
	GWQS												
VOLATILE ORGANIC COMPOUNDS													
Benzene	1	--	1.7	3,900	2,050	20.3	--	73	--	73	--	--	24.3
Chloroform	6	--	--	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	700	--	--	<	<	<	--	--	--	<	--	--	<
Styrene	100	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	1,000	--	--	<	<	<	--	<	--	<	--	--	<
Xylene (total)	1,000	--	--	<	117	<	--	--	--	73.7	--	--	693
SEMI-VOLATILE ORGANIC COMPOUNDS													
No exceedances		<	<	<	<	<	<	<	<	<	<	<	<
INORGANICS													
Arsenic	8	9	10.7	10	--	--	--	--	--	<	--	--	--
Iron	300	17,200	15,400	38,300	43,700	<	<	6,670	--	14,200	<	12,600	3,220
Lead	10	--	--	108	--	--	--	--	--	--	--	<	<
POLYCHLORINATED BIPHENYLS													
Aroclor 1260	1	NA	--	NA	--	NA	--	--	--	--	--	--	--
GENERAL CHEMISTRY													
Nitrogen, Ammonia	500	1,100	2,000	2,200	1,800	<	--	1,800	--	1,400	620	4,300	--
Nitrogen, Nitrate	10,000	NA	--	NA	--	NA	<	--	<	--	<	--	<
Nitrogen, Nitrate + Nitrite	10,000	--	--	--	--	<	<	--	<	--	<	--	<
Solids, Total Dissolved	500,000	611,000	628,000	<	<	<	515,000	<	573,000	553,000	553,000	532,000	<

NOTES
All results in micrograms per liter
GWQS 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.
< Detected at concentration below GWQS
-- Not detected
NA Not Analyzed
N:\projects\s-priv\s99227\b\Data\[GW Results1.XLS]Exceedances

921000208

TABLE 6-9. NAPL SAMPLE ANALYTICAL RESULTS
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Sample Location	MW-2B
Laboratory Identification	E62072-5
Date Sample Collected	1/13/00
Fingerprint Analysis	
Gasoline (C4-C12)	NO MATCH
Turpentine (C9-C11)	NO MATCH
Mineral Spirits (C9-C12)	NO MATCH
Kerosene (C9-C18)	NO MATCH
Diesel Fuel/Fuel oil #2 (C9-C22)	NO MATCH
Fuel Oil #4 (C11-C24)	NO MATCH
Fuel Oil #6 (C11-C26)	NO MATCH
Other Patterns	INCLUDES C8-C40 HYDROCARBON RANGE

N:\project\s\s-priv\s99227\b\Detailed IDS\[Table - NAPL results.XLS]E62072

TABLE 6-10. NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Location	MW-1A	MW-1A	MW-1B	MW-1B	MW-2A	MW-2A	MW-2B	MW-2B	MW-3A	MW-3A
Date	6/16/99	1/14/00	6/16/99	1/14/00	6/16/99	1/13/00	6/17/99	1/13/00	6/16/99	1/13/00
Field Analyses										
pH	6.5	6.5	6.55	6.8	6.59	6.44	6.93	7.2	6.51	6.47
Temp (°C)	18.7	14	18.83	16	16.7	11.1	16.74	15	15.4	10.6
Redox (mV)	-81	N/A	91	N/A	-85	-64	-169	N/A	-259	-88
DO (mg/L)	--	1.8	0.18	1.3	1.59	1.08	--	0.3	--	1.18
Laboratory Analyses										
Alkalinity (ug/L)	237,000	202,000	249,000	192,000	276,000	234,000	1,346,000	N/A	423,000	384,000
Ferric Iron[1] (ug/L)	5,700	--	116	5,300	22,800	--	17,520	N/A	46,220	1,600
Ferrous Iron (ug/L)	--	15,100	--	140	28,600	34,600	1,680	N/A	6,180	29,600
Nitrate (ug/L)	N/A	1,600	N/A	10,600	N/A	--	N/A	N/A	N/A	--
Sulfate (ug/L)	24,000	82,300	72,000	68,600	15,000	29,800	14,000	N/A	24,000	--
Favorable Natural Attenuation Conditions										
pH between 6 and 8 standard units	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Redox Potential	Low	N/A	Moderate	N/A	Low	Low	Low	N/A	Low	Low
Dissolved Oxygen	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Moderate	Low	Moderate
Alkalinity	High	High	High	High	High	High	High	High	High	High
Nitrate	N/A	Moderate	N/A	Moderate	N/A	Low	N/A	N/A	N/A	Low
Sulfate	High	High	High	High	High	High	High	N/A	High	High
Ferrous iron production	No	Yes	No	No	Yes	Yes	No	N/A	No	Yes

Notes

-- Below detection limit
°C Degrees Celcius
DO Dissolved oxygen
mg/L milligrams per liter
mV millivolts
N/A Not analyzed
ug/L micrograms per liter
[1] For 6/99 sampling, ferric iron = total iron less ferrous

92100021 0

TABLE 6-10. NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Location	MW-3B	MW-3B	MW-4A	MW-4A	MW-4B	MW-4B	MW-5A	MW-5A	MW-5B	MW-5B	MW-6A
Date	6/15/99	1/13/00	6/17/99	1/13/00	6/17/99	1/13/00	6/16/99	1/14/00	6/16/99	1/14/00	1/12/00
Field Analyses											
pH	7.09	7.21	6.86	6.9	6.71	6.9	6.52	6.7	7.39	7.6	5.97
Temp (°C)	15.2	14.8	16.4	9	15.65	14	21.4	10	15.26	16	11.1
Redox (mV)	-70	11	-223	N/A	-147	N/A	-89	N/A	127	N/A	N/A
DO (mg/L)	--	1.01	--	1.1	--	1.6	1.01	1.2	--	1.8	1.72
Laboratory Analyses											
Alkalinity (ug/L)	380,000	223,000	354,000	291,000	446,000	380,000	191,000	180,000	274,000	233,000	190,000
Ferric Iron[1] (ug/L)	5,840	--	12,880	1,200	6,700	1,300	17,700	13,200	178	--	1,100
Ferrous Iron (ug/L)	--	--	4,520	19,500	10,500	14,100	20,600	30,500	--	--	5,600
Nitrate (ug/L)	N/A	3,600	N/A	--	N/A	--	N/A	--	N/A	6,100	--
Sulfate (ug/L)	75,000	66,600	25,000	--	26,000	--	14,000	--	84,000	86,900	48,300
Favorable Natural Attenuation Conditions											
pH between 6 and 8 standard units	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Redox Potential	Low	Moderate	Low	N/A	Low	N/A	Low	N/A	Moderate	N/A	N/A
Dissolved Oxygen	Low	Moderate	Low	Moderate	Low	Moderate	Moderate	Moderate	Low	Moderate	Moderate
Alkalinity	High	High	High	High	High	High	High	High	High	High	High
Nitrate	N/A	Moderate	N/A	Low	N/A	Low	N/A	Low	N/A	Moderate	Low
Sulfate	High	High	High	High	High	High	High	High	High	High	High
Ferrous iron production	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes

Notes

--	Below detection limit
°C	Degrees Celcius
DO	Dissolved oxygen
mg/L	milligrams per liter
mV	millivolts
N/A	Not analyzed
ug/L	micrograms per liter

[1] For 6/99 sampling, ferric iron = total iron less ferrous

921000211

TABLE 6-10. NATURAL ATTENUATION PARAMETER ANALYSES AND EVALUATION
FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Location	MW-6B	MW-7A	MW-7B	MW-8A	MW-8B
Date	1/12/00	1/14/00	1/14/00	1/12/00	1/12/00
Field Analyses					
pH	6.77	6.9	7.4	4.02	4.08
Temp (°C)	15	15	16	16.1	16.8
Redox (mV)	N/A	N/A	N/A	146	144
DO (mg/L)	0.81	1.4	0.94	0.91	0.93
Laboratory Analyses					
Alkalinity (ug/L)	247,000	229,000	266,000	373,000	304,000
Ferric Iron[1] (ug/L)	--	--	--	1,700	3,100
Ferrous Iron (ug/L)	--	13,200	--	10,900	140
Nitrate (ug/L)	6,000	--	8,800	--	240
Sulfate (ug/L)	158,000	--	104,000	51,100	52,500
Favorable Natural Attenuation Conditions					
pH between 6 and 8 standard units	Yes	Yes	Yes	No	No
Temperature between 5°C and 25°C	Yes	Yes	Yes	Yes	Yes
Redox Potential	N/A	N/A	N/A	Moderate	Moderate
Dissolved Oxygen	Moderate	Moderate	Moderate	Moderate	Moderate
Alkalinity	High	High	High	High	High
Nitrate	Moderate	Low	Moderate	Low	Low
Sulfate	High	High	High	High	High
Ferrous Iron production	No	Yes	No	Yes	No

Notes

-- Below detection limit
°C Degrees Celcius
DO Dissolved oxygen
mg/L milligrams per liter
mV millivolts
N/A Not analyzed
ug/L micrograms per liter
[1] For 6/99 sampling, ferric iron = total iron less ferrous

921000212

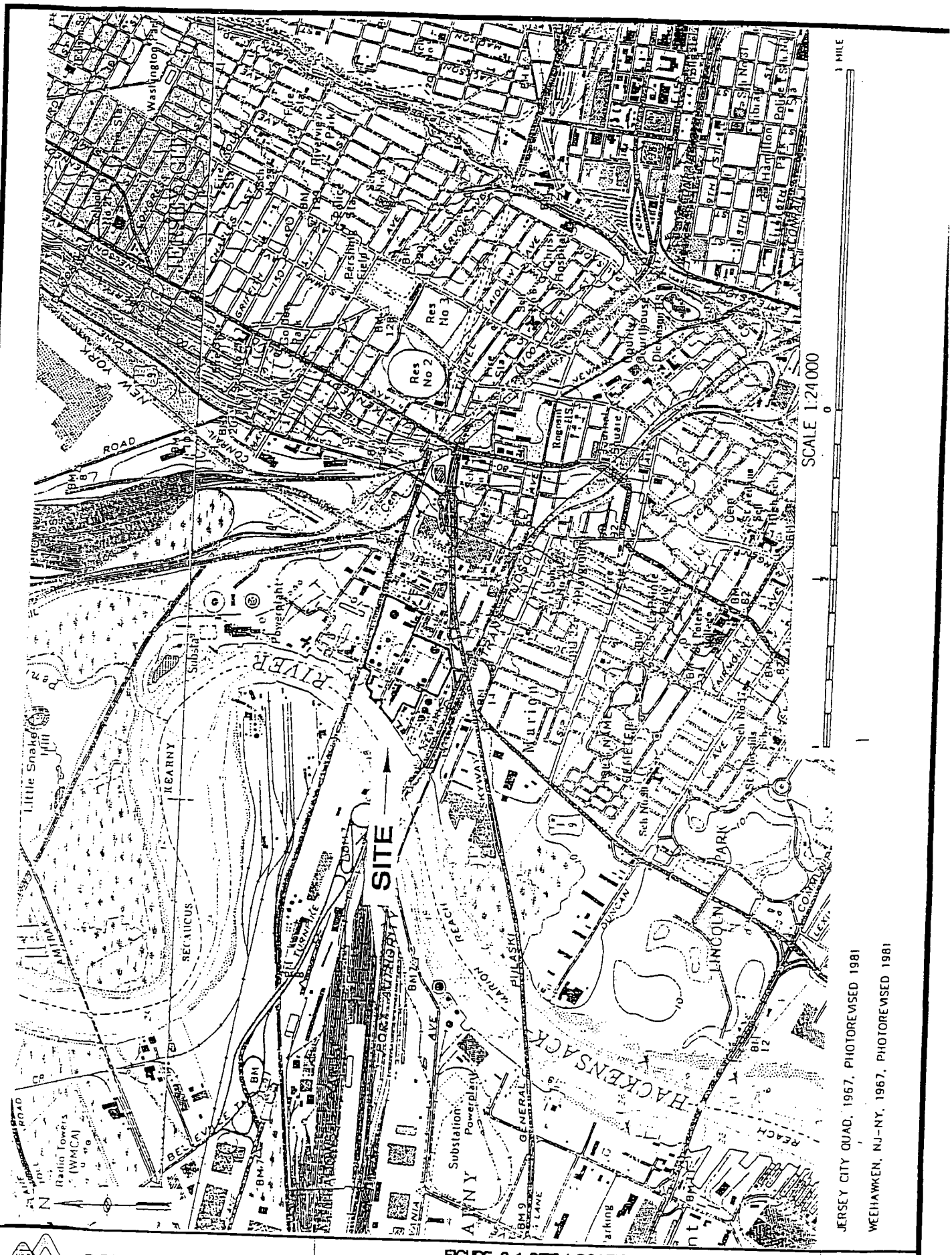

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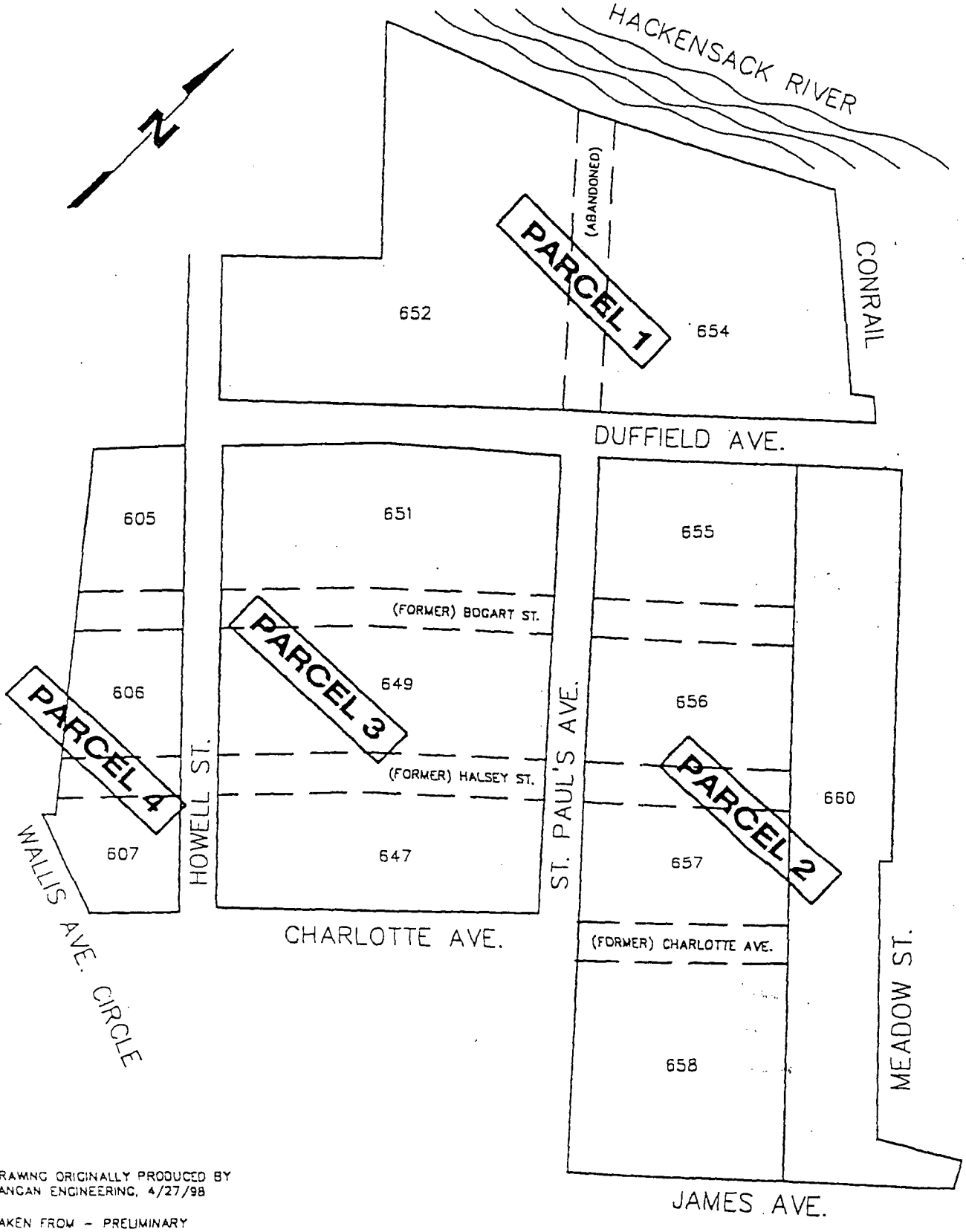
FIGURE 2-1 SITE LOCATION MAP
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY HUDSON COUNTY NEW JERSEY

DATE 5/9/00
PROJECT NUMBER S99227B

921000213

FIGURES

921000215



DRAWING ORIGINALLY PRODUCED BY
LANGAN ENGINEERING, 4/27/98

TAKEN FROM - PRELIMINARY
ASSESSMENT REPORT, 1998

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FIGURE 2-2 APPROXIMATE CURRENT SITE AND PARCEL BOUNDARIES
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY HUDSON COUNTY NEW JERSEY

DATE 5/9/00
PROJECT NUMBER S99227B

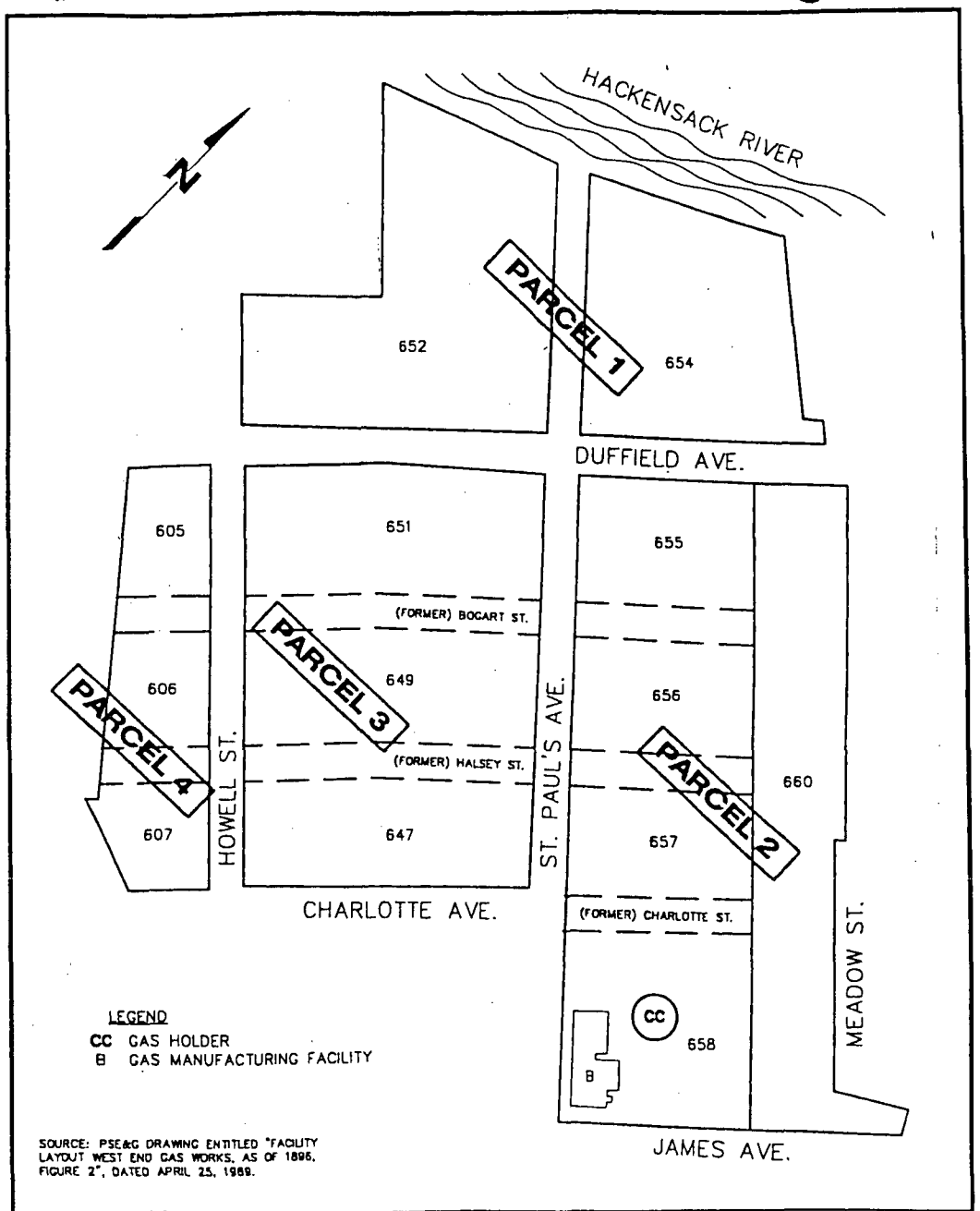

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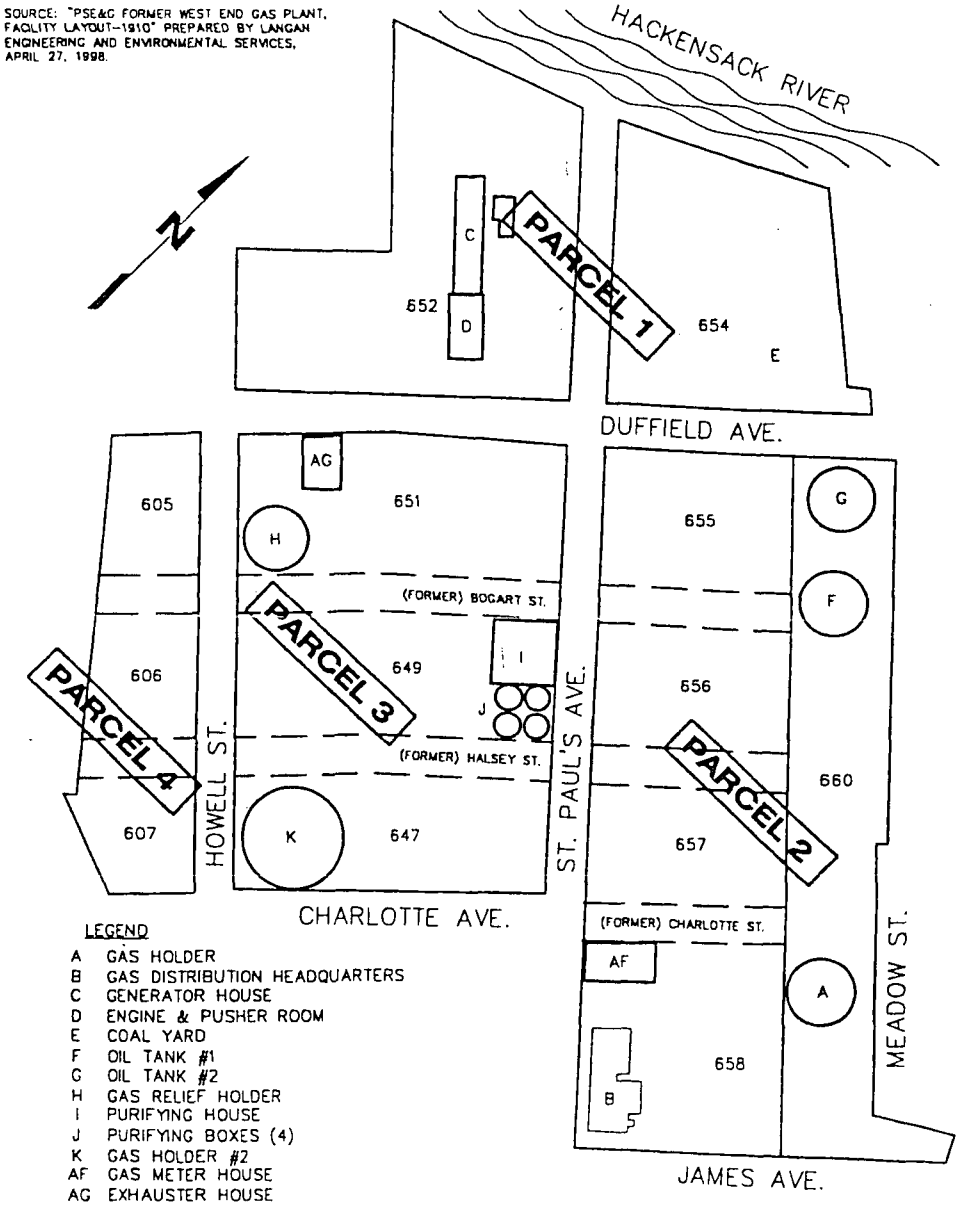
FIGURE 2-4 1896 FACILITY LAYOUT
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY HUDSON COUNTY NEW JERSEY

DATE 7/13/00
PROJECT NUMBER S99227B

921000216

SOURCE: "PSE&G FORMER WEST END GAS PLANT, FACILITY LAYOUT-1910" PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, APRIL 27, 1998.



LEGEND

A GAS HOLDER
B GAS DISTRIBUTION HEADQUARTERS
C GENERATOR HOUSE
D ENGINE & PUSHER ROOM
E COAL YARD
F OIL TANK #1
G OIL TANK #2
H GAS RELIEF HOLDER
I PURIFYING HOUSE
J PURIFYING BOXES (4)
K GAS HOLDER #2
AF GAS METER HOUSE
AG EXHAUSTER HOUSE

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FIGURE 2-5 1910 FACILITY LAYOUT
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY HUDSON COUNTY NEW JERSEY

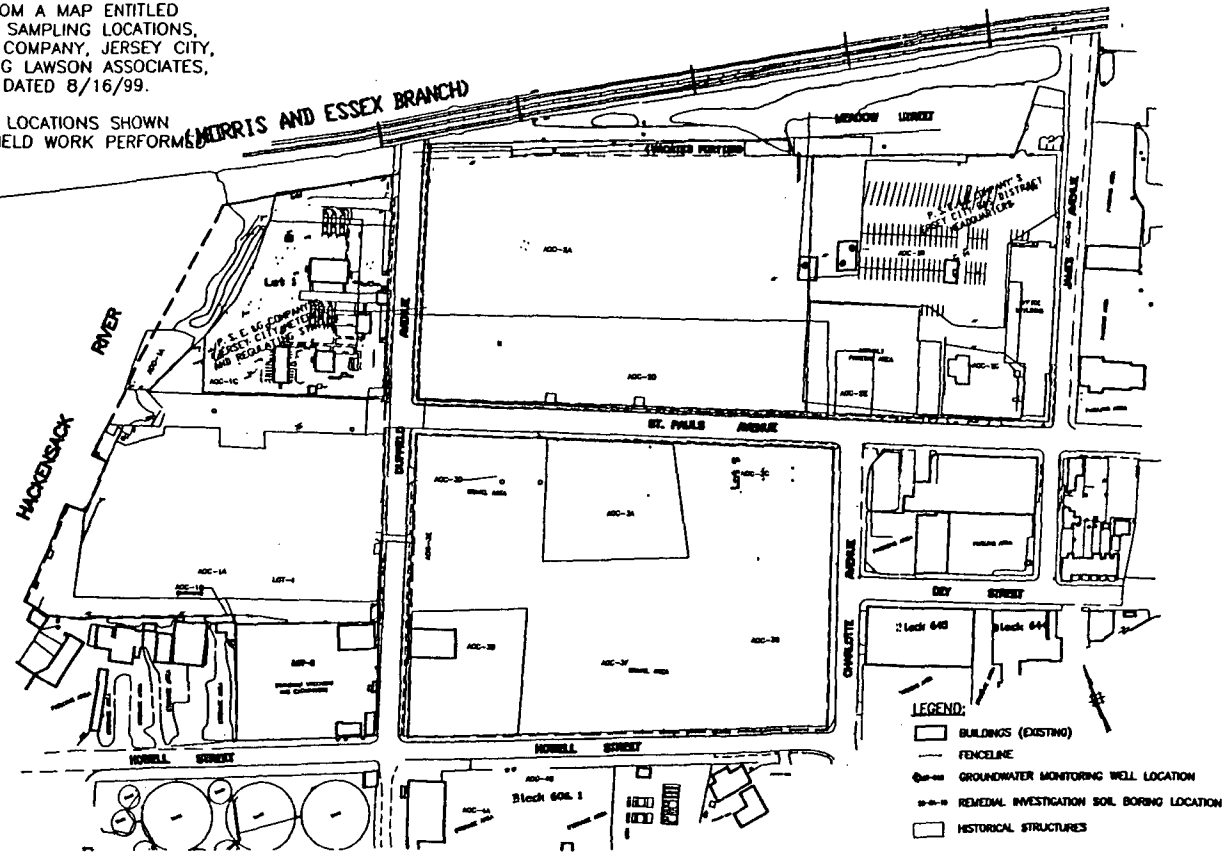
DATE 7/13/00
PROJECT NUMBER S99227B

921000217

NOTES:

1) PLANIMETRIC INFORMATION TAKEN FROM A MAP ENTITLED "PROPOSED REMEDIAL INVESTIGATION SAMPLING LOCATIONS, PUBLIC SERVICE ELECTRIC AND GAS COMPANY, JERSEY CITY, NEW JERSEY." PREPARED BY HARDING LAWSON ASSOCIATES, PRINCETON JUNCTION, NEW JERSEY. DATED 8/16/99.

2) MONITORING WELL AND SOIL BORING LOCATIONS SHOWN HEREON ARE LOCATED BY ACTUAL FIELD WORK PERFORMED BY SCHOOR DEPALMA ON 2/15/00.



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TEL (732)577-9000 FAX. (732)577-9888

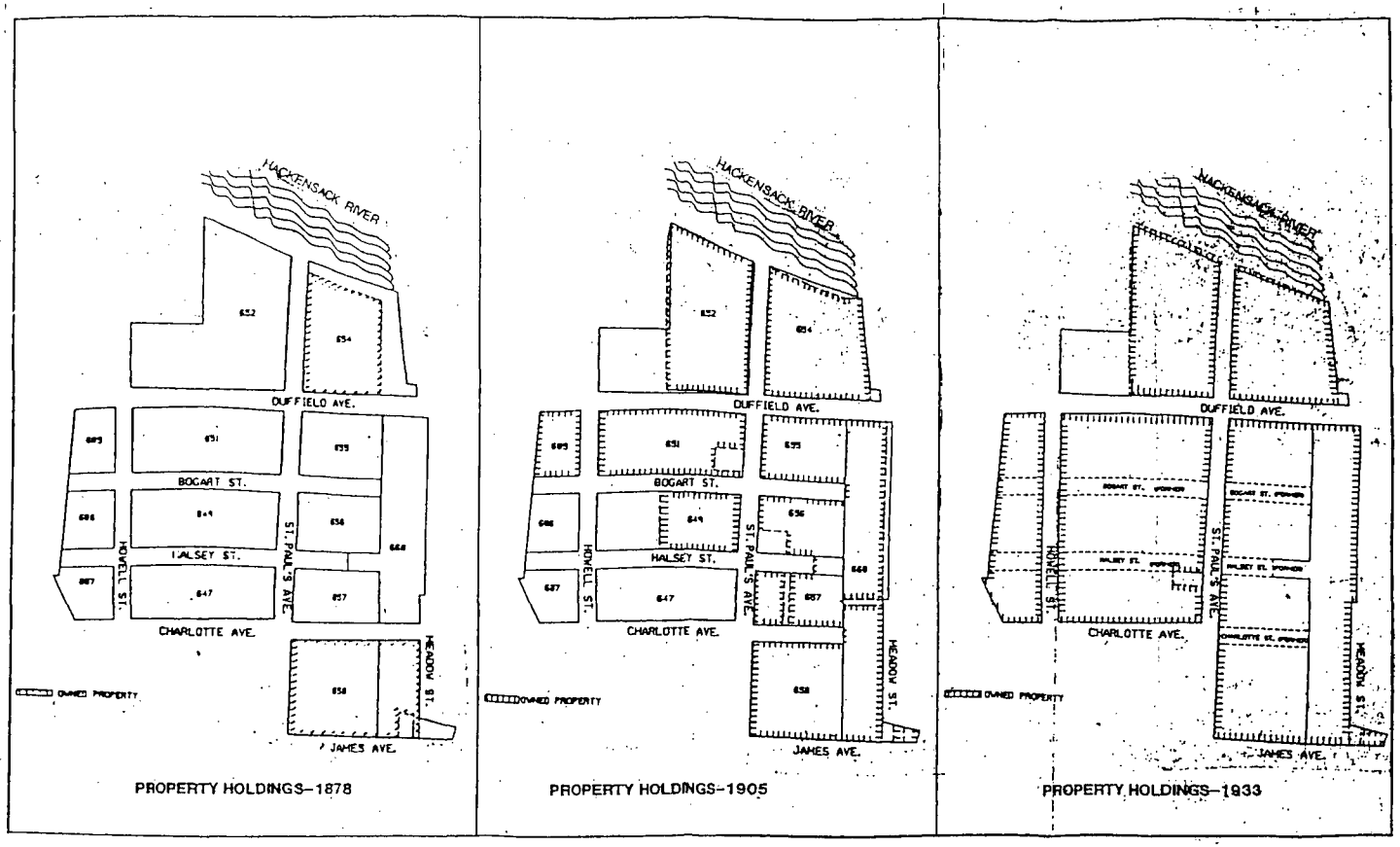
FIGURE 2-3 CURRENT FACILITY LAYOUT
PUBLIC SERVICE ELECTRIC AND GAS CO.
FORMER WEST END GAS WORKS

JERSEY CITY, HUDSON COUNTY, NEW JERSEY

PROJECT NO	S99227B
SCALE	1" = 400'
DATE	2/29/00
FIELD BOOK	
SHEET NO.	1 of 1

Fsite2-3

921000218



SOURCE: "PSE&G FORMER WEST END GAS PLANT, HISTORICAL PROPERTY HOLDINGS 1878-1933", PREPARED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES, APRIL 27, 1998.

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FIGURE 2-6 HISTORICAL SITE BOUNDARIES
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS

JERSEY CITY HUDSON COUNTY NEW JERSEY

DATE 7/13/00

PROJECT NUMBER S99227B

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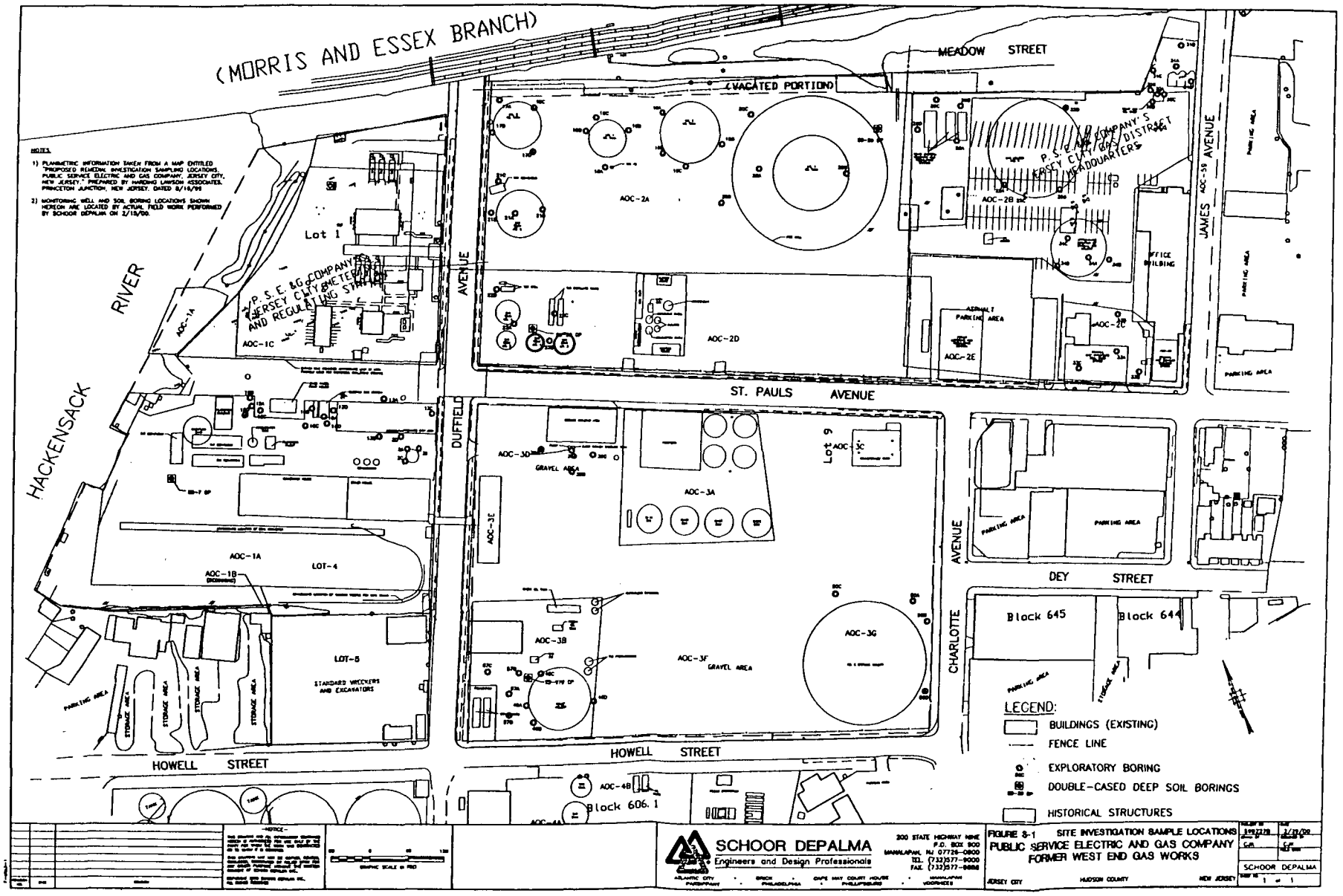
(MORRIS AND ESSEX BRANCH)
MEADOW STREET
(VACATED PORTION)
HACKENSACK RIVER
DUFFIELD AVENUE
JAMES AVENUE
ST. PAULS AVENUE
CHARLOTTE AVENUE
DEY STREET
HOWELL STREET
Lot 1
Lot 9
LOT-4
LOT-5
STANDARD WRECKERS AND EXCAVATORS
P.S.E.&G. COMPANY'S JERSEY CITY METER AND REGULATING STATION
P.S.E.&G. COMPANY'S JERSEY CITY GAS DISTRICT HEADQUARTERS
OFFICE BUILDING
ASPHALT PARKING AREA
PARKING AREA
STORAGE AREA
GRAVEL AREA
Block 645
Block 644
Block 606.1
AOC-1A
AOC-1B
AOC-1C
AOC-2A
AOC-2B
AOC-2C
AOC-2D
AOC-2E
AOC-3A
AOC-3B
AOC-3C
AOC-3D
AOC-3E
AOC-3F
AOC-3G
AOC-4A
AOC-4B
AOC-5B
LEGEND:
BUILDINGS (EXISTING)
FENCE LINE
EXPLORATORY BORING
DOUBLE-CASED DEEP SOIL BORINGS
HISTORICAL STRUCTURES
NOTES:
1) PLANIMETRIC INFORMATION TAKEN FROM A MAP ENTITLED "PROPOSED REMEDIAL INVESTIGATION SAMPLING LOCATIONS, PUBLIC SERVICE ELECTRIC AND GAS COMPANY, JERSEY CITY, NEW JERSEY." PREPARED BY HARDING LAWSON ASSOCIATES, PRINCETON JUNCTION, NEW JERSEY, DATED 8/18/99
2) MONITORING WELL AND SOIL BORING LOCATIONS SHOWN HEREON ARE LOCATED BY ACTUAL FIELD WORK PERFORMED BY SCHOOR DEPALMA ON 2/18/00.
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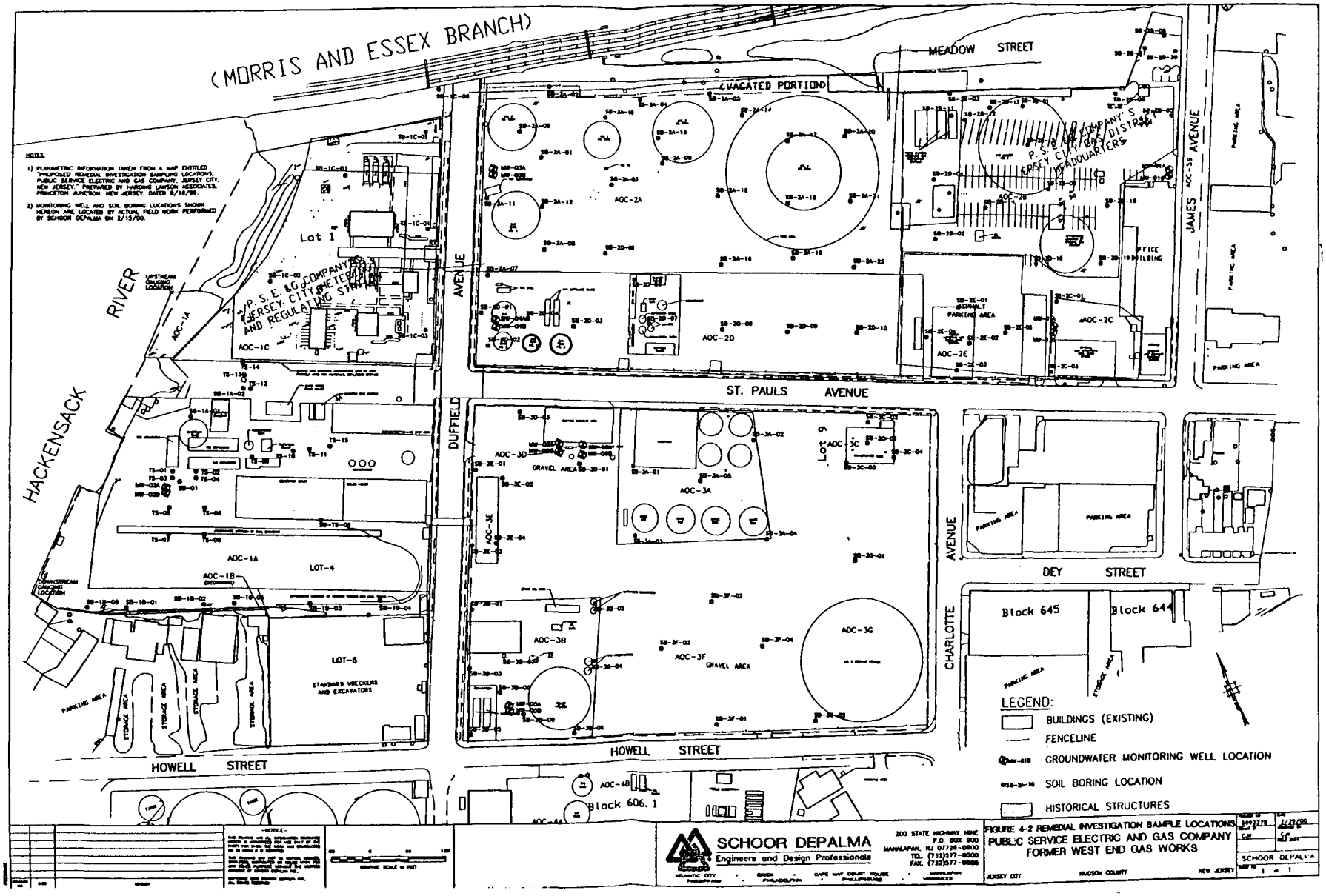
FIGURE 3-1
SITE INVESTIGATION SAMPLE LOCATIONS
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY
HUDSON COUNTY
NEW JERSEY
SCHOOR DEPALMA

921000220

921000221


(MORRIS AND ESSEX BRANCH)
MEADOW STREET
(VACATED PORTION)
HACKENSACK RIVER
DUFFIELD AVENUE
JAMES AVENUE
ST. PAULS AVENUE
CHARLOTTE AVENUE
DEY STREET
HOWELL STREET
Lot 1
Lot 9
LOT-4
LOT-5
AOC-1A
AOC-1B
AOC-1C
AOC-2A
AOC-2B
AOC-2C
AOC-2D
AOC-2E
AOC-3A
AOC-3B
AOC-3C
AOC-3D
AOC-3E
AOC-3F
AOC-3G
AOC-4B
GRAVEL AREA
STANDARD WRECKERS AND EXCAVATORS
PARKING AREA
STORAGE AREA
OFFICE BUILDING
Block 645
Block 644
Block 606.1
LEGEND:
BUILDINGS (EXISTING)
FENCELINE
GROUNDWATER MONITORING WELL LOCATION
SOIL BORING LOCATION
HISTORICAL STRUCTURES
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MANALAPAN, NJ 07726-0900
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FAX. (732)577-8888
FIGURE 4-2 REMEDIAL INVESTIGATION SAMPLE LOCATIONS
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY
HUDSON COUNTY
NEW JERSEY
SCHOOR DEPALMA
1 = 1

921000222

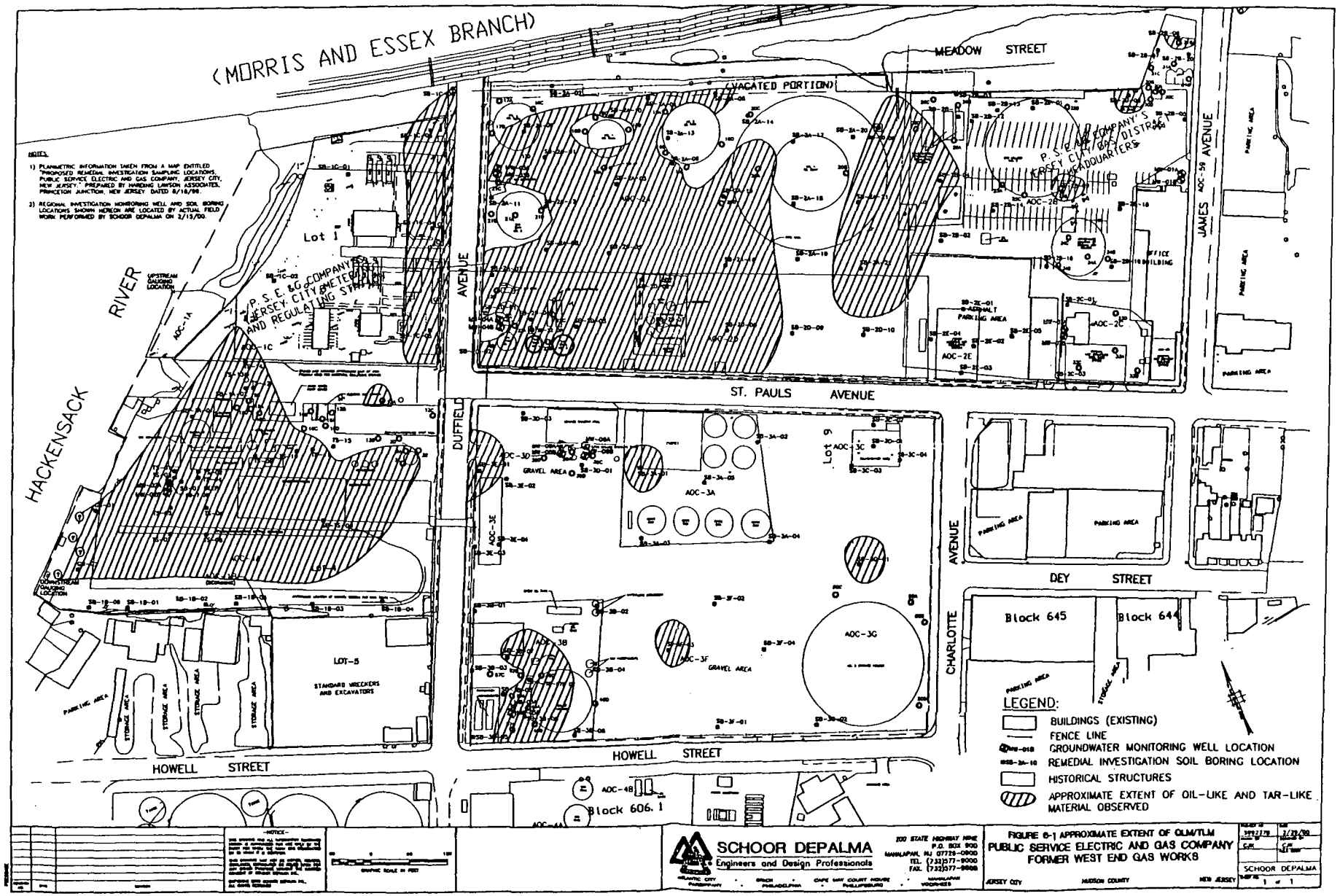
(MORRIS AND ESSEX BRANCH)
MEADOW STREET
(VACATED PORTION)
HACKENSACK RIVER
DUFFIELD AVENUE
JAMES AVENUE
AOC-5B
ST. PAULS AVENUE
CHARLOTTE AVENUE
DEY STREET
HOWELL STREET
Lot 1
Lot 9
LOT-5
STANDARD WRECKERS AND EXCAVATORS
P.S.E. & G. COMPANY'S JERSEY CITY METER AND REGULATING STATION
P.S.E. & G. COMPANY'S JERSEY CITY GAS DISTRICT HEADQUARTERS
OFFICE BUILDING
PARKING AREA
GRAVEL AREA
STORAGE AREA
UPSTREAM GAUGING LOCATION
DOWNSTREAM GAUGING LOCATION
AOC-1A
AOC-1C
AOC-2B
AOC-2C
AOC-2E
AOC-3A
AOC-3C
AOC-3D
AOC-3E
AOC-3F
AOC-3G
AOC-4B
Block 606.1
Block 645
Block 644
LEGEND:
BUILDINGS (EXISTING)
FENCE LINE
GROUNDWATER MONITORING WELL LOCATION
REMEDIAL INVESTIGATION SOIL BORING LOCATION
HISTORICAL STRUCTURES
APPROXIMATE EXTENT OF OIL-LIKE AND TAR-LIKE MATERIAL OBSERVED
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FIGURE 6-1 APPROXIMATE EXTENT OF OLM/TLM
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS
JERSEY CITY
HUDSON COUNTY
NEW JERSEY
SCHOOR DEPALMA

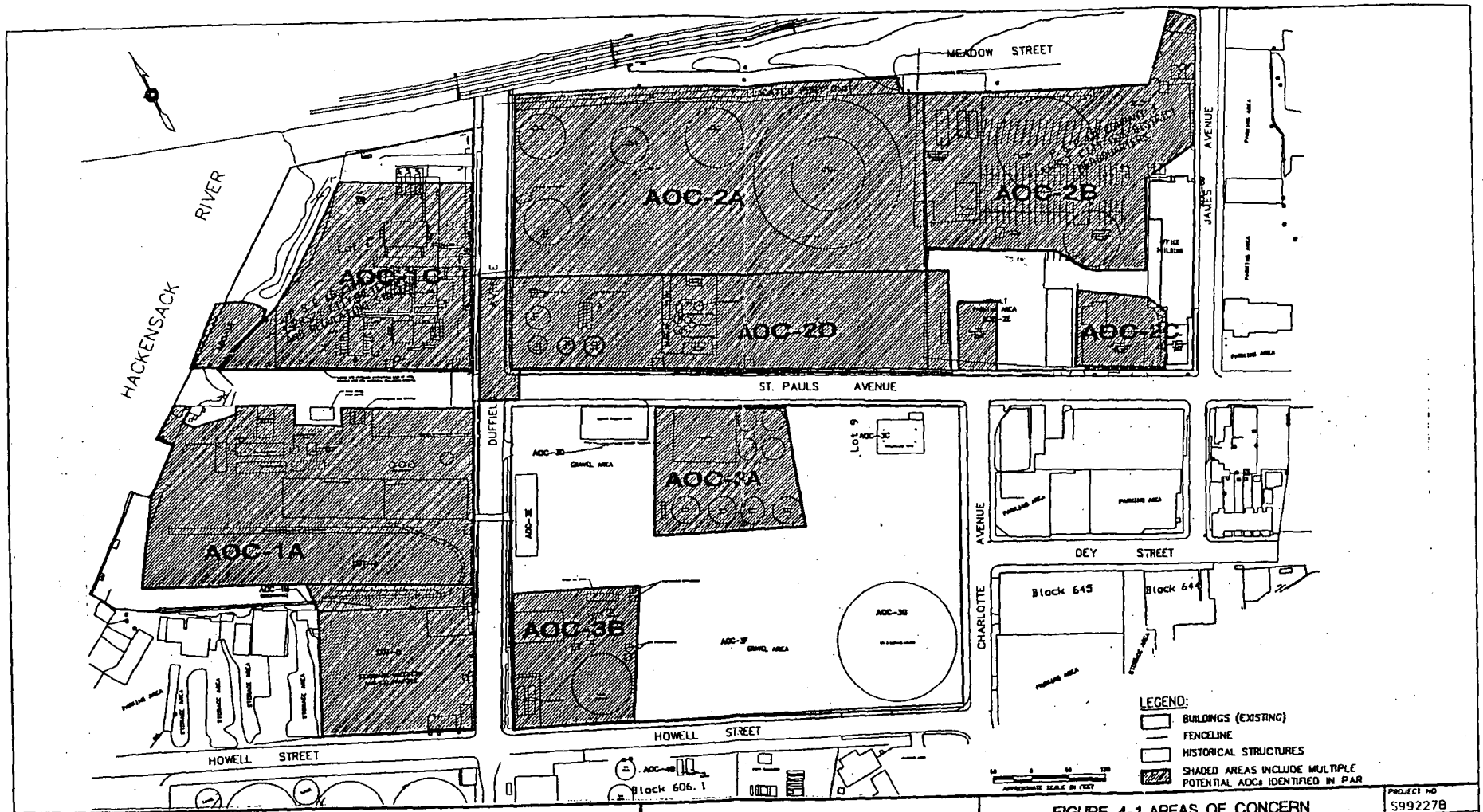

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FIGURE 4-1 AREAS OF CONCERN

PUBLIC SERVICE ELECTRIC AND GAS CO.
FORMER WEST END GAS WORKS

JERSEY CITY, HUDSON COUNTY, NEW JERSEY

PROJECT NO	S992278
SCALE	
DATE	5/9/00
FIELD BOOK	
SHEET NO.	1 of 1

921000223

PRELIMINARY ASSESSMENT REPORT

FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Submitted by:

Public Service Electric and Gas Company
80 Park Plaza
Newark, New Jersey 07102

Prepared by:

Langan Engineering and Environmental Services, Inc.
River Drive Center 1
Elmwood Park, New Jersey 07407

9 June 1998
1476601

BJC000023

PSE&G

921000225

2/96

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
CN 028, TRENTON, NJ 08625-0028

PRELIMINARY ASSESSMENT REPORT

Please refer to the instructions and the Technical Requirements for Site Remediation, N.J.A.C 7:26E-3.1 through 3.2., before completing this form. Answer all questions. Should you encounter any problems in completing this form, we recommend that you discuss the matter with a representative from the Site Remediation Program. Submitting incorrect or insufficient data may cause processing delays and possible postponement of your transaction. Please call (609) 633-7141 between the hours of 8:30 a.m. and 4:30 p.m. to request assistance.

PLEASE PRINT OR TYPE

Date May 1998

Industrial Establishment/Site Name PSE&G Former West End Gas Works

Address 444 St. Paul's Avenue

City or Town Jersey City Zip Code 07301

Municipality Jersey City County Hudson

Lot(s) See Attachment A Block(s) _____

Site Remediation Program Case Number or EPA Identification Number

98-3-18-1022-09

1. Operational and Ownership History from the time the site was naturally vegetated or used as farmland. (Attach additional sheets if necessary).

Name	Operator	From	To
See Attachment A			

Name	Owner	From	To

Revision No:_____
Revision Date:

2A. Provide a brief description of the past operation(s) (e.g.,industrial/commercial) conducted on site by each owner and operator (Attach additional sheets if necessary).

See Attachment B

2B. Include a detailed description of the most recent operations subject to this preliminary assessment (Attach additional sheets if necessary).

See Attachment C

3. Hazardous Substance/Waste Inventory: List all raw materials, finished products, formulations and hazardous substances, hazardous wastes, hazardous constituents and pollutants, including intermediates and by-products that are or were historically present on the site (attach additional sheets if necessary).

Material Name	Typical Annual Usage	Storage Method/ Container Type/Size	Location Reference Keyed to Site Map	To Remain on site? If yes, indicate quantity
See Attachment D				

4. Summary of Wastewater Discharges of Sanitary and/or Industrial Waste and/or sanitary sludges: present and past production processes, including dates, and their respective water use shall be identified and evaluated, including ultimate and potential discharge and disposal points and how and where materials are or were received on-site. All discharge and disposal points shall be clearly depicted on a scaled site map.

A. Discharge Period:

From	To	Discharge Type & Quantity, if known	Discharge/Disposal Point
1868	Unknown	Sanitary	Unknown[1]
Unknown	Present	Sanitary	POTW-JCMUA/PVSC[2]
1869	1985	Treated Industrial Wastewater	Hackensack River

B. Provide a narrative of disposal processes for all process waste streams and disposal points. (attach additional sheets if necessary)

See Attachment E

#5. Please indicate if any of the potential areas of environmental concern listed below in #5A through #5F, as defined in N.J.A.C. 7:26E-1.8, formerly or currently exist at the industrial establishment by indicating Yes or No in the appropriate space as provided.

In accordance with N.J.A.C. 7:26E3.1(c)1.v., a narrative shall be provided for each area of environmental concern describing the **(A)** Type; **(B)** Age; **(C)** Dimensions of each container/area; **(D)** Chemical Content; **(E)** Volume; **(F)** Construction materials; **(G)** Location; **(H)** Integrity (i.e., tank test reports, description of drum storage pad); and **(I)** Inventory control records, unless a Department-approved leak detection system, pursuant to N.J.A.C. 7:1E or 7:14B, has always been in place and there is no discharge history. If sampling is not proposed for any identified area of environmental concern, please explain why it is believed that the area of environmental concern does not contain contaminants above the applicable remediation standards. Submit all necessary documentation to verify this belief. The required narrative need not describe the sampling to be completed; however, it should state that sampling will be completed in accordance with the appropriate section of N.J.A.C.7:26E. Detailed descriptions of all remediation activities shall be described in the site investigation report in accordance with N.J.A.C.7:26E-3.10. Note: If the industrial establishment has multiple locations for one type of area of concern (example: underground storage tanks are located in 3 separate areas of the facility), each area must be discussed separately.

I hereby certify that a diligent inquiry (*) has been conducted to identify all current and historical potential areas of environmental concern and based on the diligent inquiry the areas of environmental concern identified below in question 5A through 5F are the only areas of environmental concern believed to exist at the above referenced industrial establishment.

(*) See the definition of diligent inquiry in the directions for question #5 provided with this Preliminary Assessment form.

NOTES:
(1) Discharge to Hackensack River was common practice from the 1800's to the early to mid 1900's.
(2) JCMUA - Jersey City Municipal Utilities Authority, PVSC - Passaic Valley Sewerage Commissioners.

Area of Concern	Currently/Formerly exists at facility Yes/No	Location Reference Keyed to Site Map	Sampling Proposed Yes/No	Page or Appendix # for Narrative
A. Bulk storage tanks and appurtenances, including, without limitation: **See Attachment F**[1]				
Aboveground Tanks and associated piping	Yes		Yes	
Underground Tanks and associated piping	Yes		Yes	
Silos	No		N/A	
Rail Spurs or Sidings	No		N/A	
Above or below ground pump stations	Yes		Yes	
Sumps	Yes		Yes	
Pits	Yes		Yes	
Rail/Truck loading and unloading areas	Yes		Yes	
Storage pads and areas including Drum and/or waste storage	Yes		Yes	
Surface lagoons and impoundments	No		N/A	
Dumpsters	Yes		No[2]	
Chemical storage cabinets or closets	Yes		No[2]	
B. Drainage systems and areas, including, without limitation: **See Attachment F**[1]				
Floor drains or trenches and piping	Yes		Yes	
Process area sinks and piping which receive process waste	Yes		Yes	
Roof leaders when process operations vent to roof	No		N/A	

Area of Concern	Currently/Formerly exists at facility Yes/No	Location Reference Keyed to Site Map	Sampling Proposed Yes/No	Page or Appendix # for Narrative
Drainage swales and culverts	Yes		Yes	
Storm sewer collection systems	Yes		Yes	
Storm water detention ponds & fire water ponds	No		N/A	
Surface water bodies	No[3]		N/A	
Septic systems, lachfields or seepage pits	No		N/A	
Dry wells	No		N/A	
C. Discharge and disposal areas, including, without limitation: **See Attachment F**[1]				
Waste piles	Yes		Yes	
Landfills or landfarms	Yes		Yes	
Sprayfields	No		N/A	
Incinerators	No		N/A	
Open Pipe Discharges	Yes		Yes[4]	
D. Other areas of concern, including, without limitation: **See Attachment F**[1]				
Electrical Transformers and capacitors	Yes		Yes	
Areas of stressed vegetation	No		N/A	
Underground piping, including industrial process sewers	Yes		Yes	
Compressor vent discharges	Yes		Yes	
Non-contact cooling water discharges	Yes		No	
Discolored areas or spill areas	Yes		Yes	
Active or inactive production wells	No		N/A	

Area of Concern	Currently/Formerly exists at facility Yes/No	Location Reference Keyed to Site Map	Sampling Proposed Yes/No	Page or Appendix # for Narrative
E. Building interior areas with a potential for discharge to the environment, including, without limitation: **See Attachment F**[1]				
Loading or transfer areas	No		N/A	
Waste Treatment areas	Yes		No	
Boiler rooms	No		N/A	
Air vents and ducts	No		N/A	
Hazardous material storage or handling areas	No		N/A	
F. Any other site specific area of concern.				
Storm Sewer Network	Yes		Yes	

NOTES:
(1) Areas of Concern apply only to the operations of the former Manufactured Gas Plant. Current operations of the East Jersey Gas Distribution Headquarters and Jersey City Appliance Service Business Unit are not included under this Preliminary Assessment.
(2) Historic locations could not be identified. Locations for current operations are known but are not part of this Preliminary Assessment.
(3) No surface water bodies located within the property line. Property is located along the Hackensack River. No known impacts to river.
(4) Sampling proposed for on-site piping areas only.

6. Protectiveness of past remedies, Order of Magnitude Analysis

A. Have any areas of environmental concern previously received a No-Further-Action approval from the Department or other equivalent government agency for which no additional remediation is proposed? Yes _____ No __X__ If no, go to question #7. If yes, complete B.

B. In accordance with N.J.S.A 58:10B-13(e) the following evaluation of the protectiveness of past remedies shall be completed for all areas of environmental concern for which no further action was previously approved by the Department or other equivalent government agency and for which no additional remediation is proposed. All final sampling results shall be evaluated to determine if contaminant levels remaining on site are in compliance with current remediation standards. The applicant shall determine:

i. if contaminant levels remaining on site are greater than the current cleanup criteria by an order of magnitude (factor of 10) or more by tabulating all sampling results, including sample location, sample media, field and laboratory identification numbers, and method detection limits, as necessary, and analytical results for all individual contaminants; and

ii. compare each contaminant result to the current remediation criteria.

I hereby certify that the order of magnitude analysis required pursuant to N.J.S.A. 58:10B-13(e) has been completed, since the issuance of a No-Further-Action approval, negative declaration approval or equivalent remediation approval; and

Based on the order of magnitude analysis there has been no discharge of a hazardous substance or hazardous waste, subsequent to the issuance of a No-Further-Action approval, negative declaration approval or equivalent 'remediation approval at the areas of environmental concern listed below and no levels of contamination remain which exceed the current applicable cleanup criteria by more than an order of magnitude.

Please list the areas of concern for which the previous certification applies.

Area of Concern	Location Reference Keyed to Site Map	Area of Concern	Location Reference Keyed to Site Map
1. N/A		9.	
2.		10.	
3.		11.	
4.		12.	
5.		13.	
6.		14.	
7.		15.	
8.		16.	

7. Historical Data on environmental quality at the Industrial Establishment

A. Have any previous sampling results documenting environmental quality of the Industrial Establishment not received a no further action approval from the Department or been denied approval by the Department?

_____ Yes (See Attachment #_____) ____X____ No

B. Have there been any known changes in site conditions or new information developed since completion of previous sampling or remediation? If sampling results were obtained, but are not part of this application, please explain below:

_____

_____

_____

_____

8. Discharge History of Hazardous Substances and Wastes:

A. Have there been any discharges of hazardous substances and wastes?

___X___ Yes (Complete Items B-E) _____No

B. Was the Department notified of the discharge?

_____ Yes _____No (Go to item 8D)

If yes, provide the case #_____

C. Was a no-further-action letter, negative-declaration approval or full-compliance letter issued as a result of the cleanup of this discharge?

_____ Yes (Submit a copy and go to item 9E) _____No

D. Were sample results obtained?

_____ Yes _____ No

If yes, submit the results

E. Provide a description of the discharge and the response and resolution.

See Attachment G

9. Aerial Photographic interpretation for sites larger than two acres from 1932 to present or to the earliest photograph available . Note: You are not required to submit copies of aerial photographs only an interpretation of what was observed during the review. (Attach additional sheets if necessary)

See Attachment H

10. List all federal, state and local environmental permits at this facility, including permits for all previous and current owners or operators, applied for, received, or both (Attach additional sheets if necessary).

Check here if no permits are involved _____

A. New Jersey Air Pollution Control

Permit Number	Certificate Number	Date of Approval or Denial	Reason for Denial (if applicable)	Expiration Date
See Attachment I				

B. Underground Storage Tank Registration Number 0041591*
0041690**

C. New Jersey Pollutant Discharge Elimination System (NJPDES) Permit

Number	Discharge Activity	Date Issued or Denied	Expiration Date	Body of Water Discharged Into
See Attachment J				

D. Resource Conservation and Recovery Act (RCRA) permit # NJD 000768234*
NJD 980533574**

E. All other federal, state, local government permits.

Agency Issuing Permit	Permit #	Type of Permit	Date of Approval or Denial	Expiration Date
NJDEP	45	(note 1)	6-8-43	3-31-86

Notes:

* Former Manufactured Gas Plant
** East Jersey Gas Distribution, current operations not part of this Preliminary Assessment.
(1) Renewal Permit for Approved Physical Connection

11. Summary of enforcement actions (including but not limited to, Notice of Violations, Court Orders, official notices or directives) for violations of environmental laws or regulations (attach additional sheets if necessary):

A. Check here if no enforcement actions are involved ____X____

B. (1) Name and address of agency that initiated the enforcement action

See Attachment K

(2) Date of the enforcement action _____

(3) Section of statute, rule or permit allegedly violated

(4) Type of enforcement action _____

(5) Description of the violation

(6) How was the violation resolved?

12. Site Map

A. In accordance with N.J.A.C. 7:26E-3.2(a) 3.i, submit a scaled site plan, detailing the subject lot and block, property and or leasehold boundaries, location of current and former buildings, fill areas, paved and unpaved areas, vegetated areas, and all areas of concern identified above and all active or inactive wells.

See Attached Drawings

B. Scaled historical site maps and facility as built drawings (if available).

See Attached Drawings

C. A copy of the United States Geologic Survey (USGS) 7.5 minute topographical quadrangle that includes the site and an area of at least one mile radius around the site. The facility location shall be clearly noted. If a portion of the USGS quadrangle is used, the scale, north arrow, contour interval, longitude and latitude with the name and date of the USGS quadrangle shall be noted on the map.

See Attached Drawings

13. List any other information you are submitting or which has been formerly requested by the Department:

Description	Attachment #

CERTIFICATIONS:

A. The following certification shall be signed by the highest ranking individual at the site with overall responsibility for that site or activity. Where there is no individual at the site with overall responsibility for that site or activity, this certification shall be signed by the individual having responsibility for the overall operation of the site or activity.

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 which 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.

Typed/Printed Name _____ Title _____

Signature _____ Date _____

Sworn to and Subscribed Before Me on this _____

Date of _____ 19_____

_____
Notary

B. The following certification shall be signed as follows:

1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official; or
4. For persons other than 1-3 above, by the person with the legal responsibility for the site.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that 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 which 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.

Typed/Printed Name _____ Title _____

Signature _____ Date _____

Sworn to and Subscribed Before Me on this _____

Date of _____ 19_____

_____
Notary

Division of Responsible Party Site Remediation
Industrial Site Recovery Act

INITIAL NOTICE FEE SUBMITTAL FORM

Case # (if known) _____

Case Name (Active Case) _____

Check drawn from the account of _____ Check/M.O. # _____

Amount Enclosed _____

Please circle the appropriate payment location(s)

1.	General Information Notice	$100.00
2.	Preliminary Assessment Report	$250.00
3.	Site Investigation Report	$500.00
4.	Negative Declaration Review	$100.00
5.	Expedited Review Application*	$250.00
6.	Remediation in Progress Waiver Application*	$250.00
7.	Regulated Underground Storage Tank Waiver Application*	$500.00
8.	Area of Concern Waiver Application*	$200.00
9.	Limited Site Review Application*	$450.00
10.	Applicability Determination Application	$200.00
11.	De minimis Quantity Exemption Application	$200.00
12.	Limited Conveyance Application*	$500.00
13.	Remediation Agreement Application	$1000.00
	Remediation Agreement Amendment Application	$500.00
14.	Confidentiality Claim	$250.00
15.	Remedial Action Workplan Deferral Application*	$750.00

*This fee includes the costs of the Department's review of the General Information Notice required pursuant to N.J.A.C. 7:26B-3.2(a). Any person submitting this fee shall not be required to submit a separate General Information Notice fee.

Note: All applicable fees are due with the submission of each document. A case will remain with the Initial Notice Section up through the submission of a Remedial Investigation Report or the submission of a schedule to implement a Remedial Investigation or Remedial Action at Peril.

DRAWINGS

921000239

MAP REF: JERSEY CITY & WEEHAWKEN, N.J.-N.Y. U.S.G.S. QUADRANGLE MAPS

Langan Engineering and Environmental Services
(201) 794-6900 (215) 348-7101
Elmwood Park, NJ Doylestown, PA

PSE&G FORMER WEST END GAS PLANT

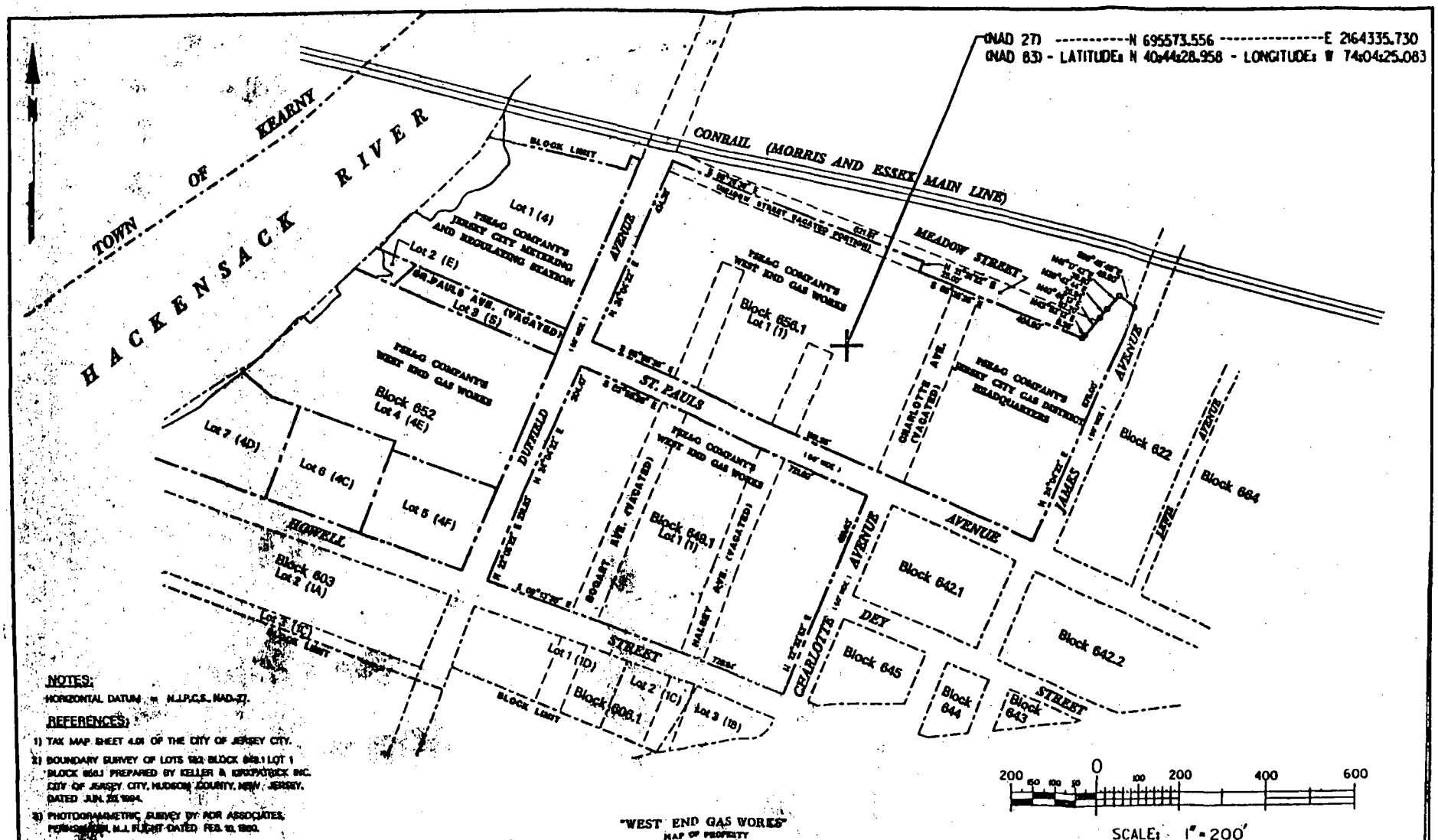
SITE LOCATION MAP

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
1476601	3/25/98	1"=2000'	1

921000240

921000241



NOTES:

HORIZONTAL DATUM = N.J.P.C.S. NAD-27.

REFERENCES:

1) TAX MAP SHEET 4.01 OF THE CITY OF JERSEY CITY.

2) BOUNDARY SURVEY OF LOTS 1&2 BLOCK 649.1 LOT 1 BLOCK 656.1 PREPARED BY KELLER & KIRKPATRICK INC. CITY OF JERSEY CITY, HUDSON COUNTY, NEW JERSEY. DATED JUN. 20, 1994.

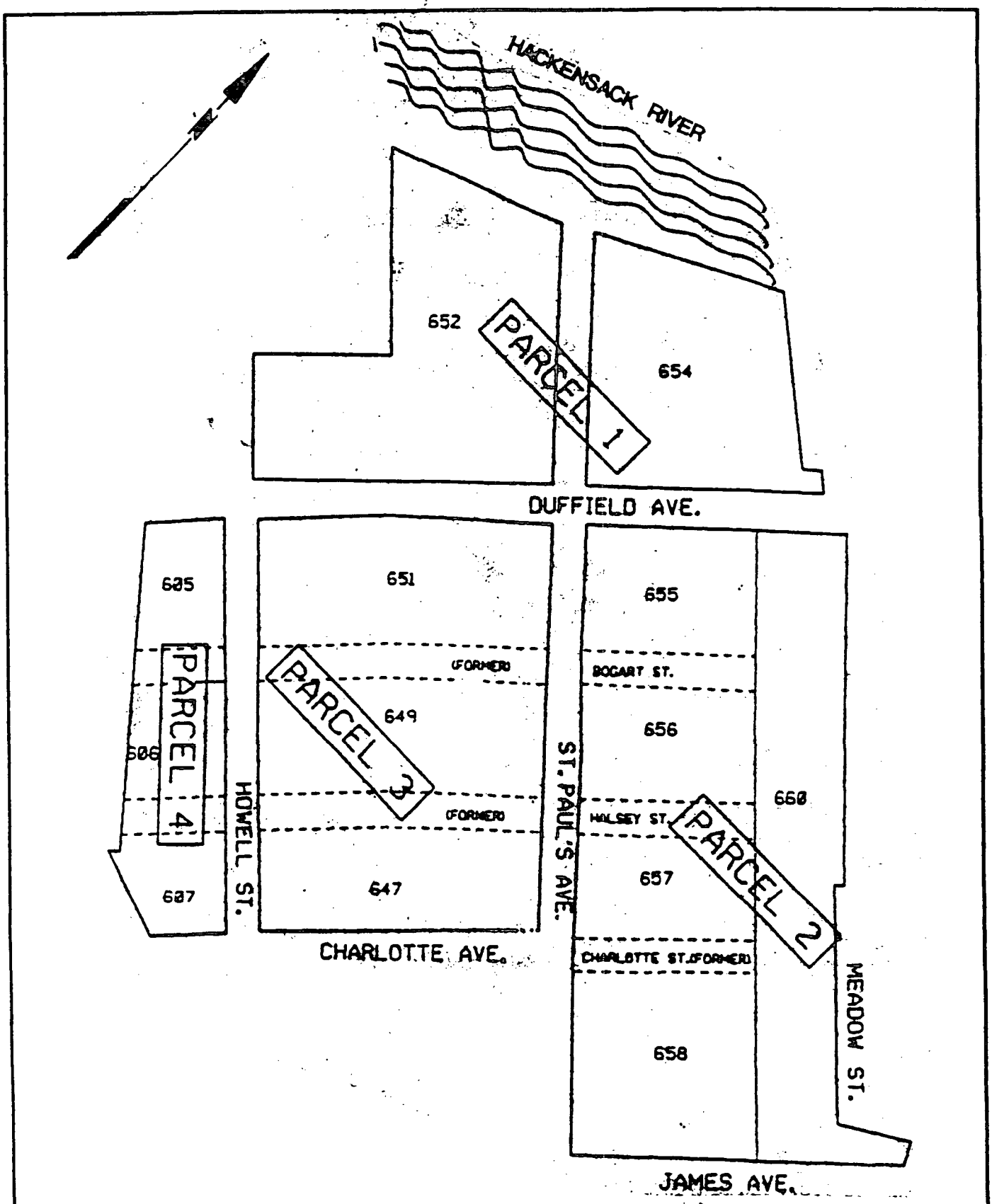
3) PHOTOGRAMMETRIC SURVEY BY ADR ASSOCIATES, PENNSYLVANIA, N.J. FLIGHT DATED FEB. 10, 1980.

"WEST END GAS WORKS"
MAP OF PROPERTY
SITUATED IN THE
CITY OF JERSEY CITY
SCALE 1" = 200'

Langan Engineering and Environmental Services
(201) 794-6900
Elmwood Park, NJ Doylestown, PA. Miami, FL

PSE&G FORMER WEST END GAS PLANT
TAX MAP

JERSEY CITY			NEW JERSEY
Job No. 1476601	Date 4/27/98	Scale AS SHN.	Dwg. No. 2



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Elmwood Park, NJ Doylestown, PA

PSE&G FORMER WEST END GAS PLANT
HISTORIC BLOCK NUMBERS (CIRCA 1894)

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
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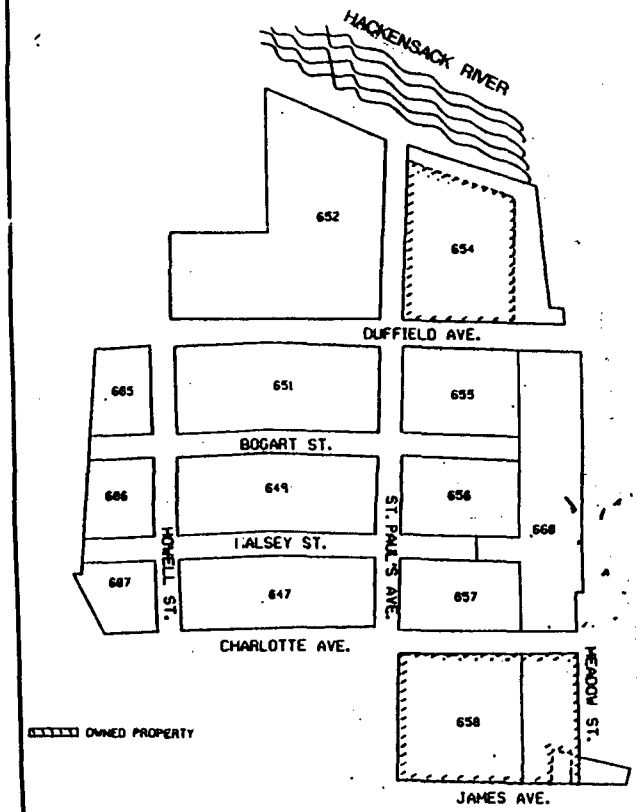
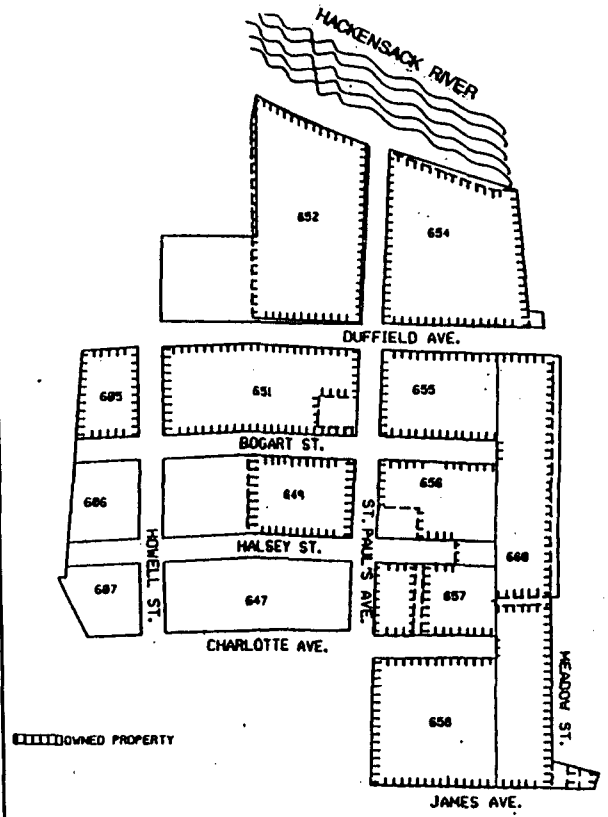
921000242

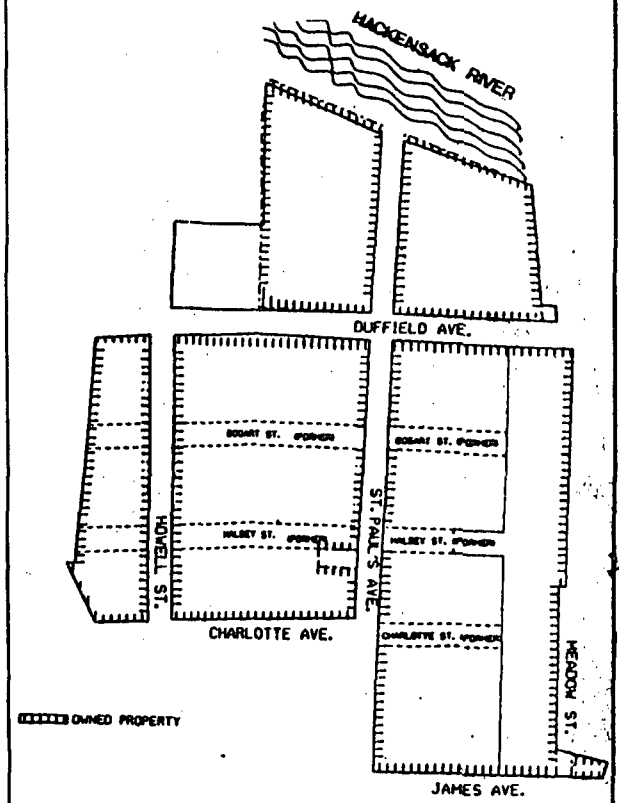
921000243



PROPERTY HOLDINGS-1878



PROPERTY HOLDINGS-1905



PROPERTY HOLDINGS-1933

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PSE&G FORMER WEST END GAS PLANT
HISTORICAL PROPERTY HOLDINGS 1878-1933

JERSEY CITY NEW JERSEY

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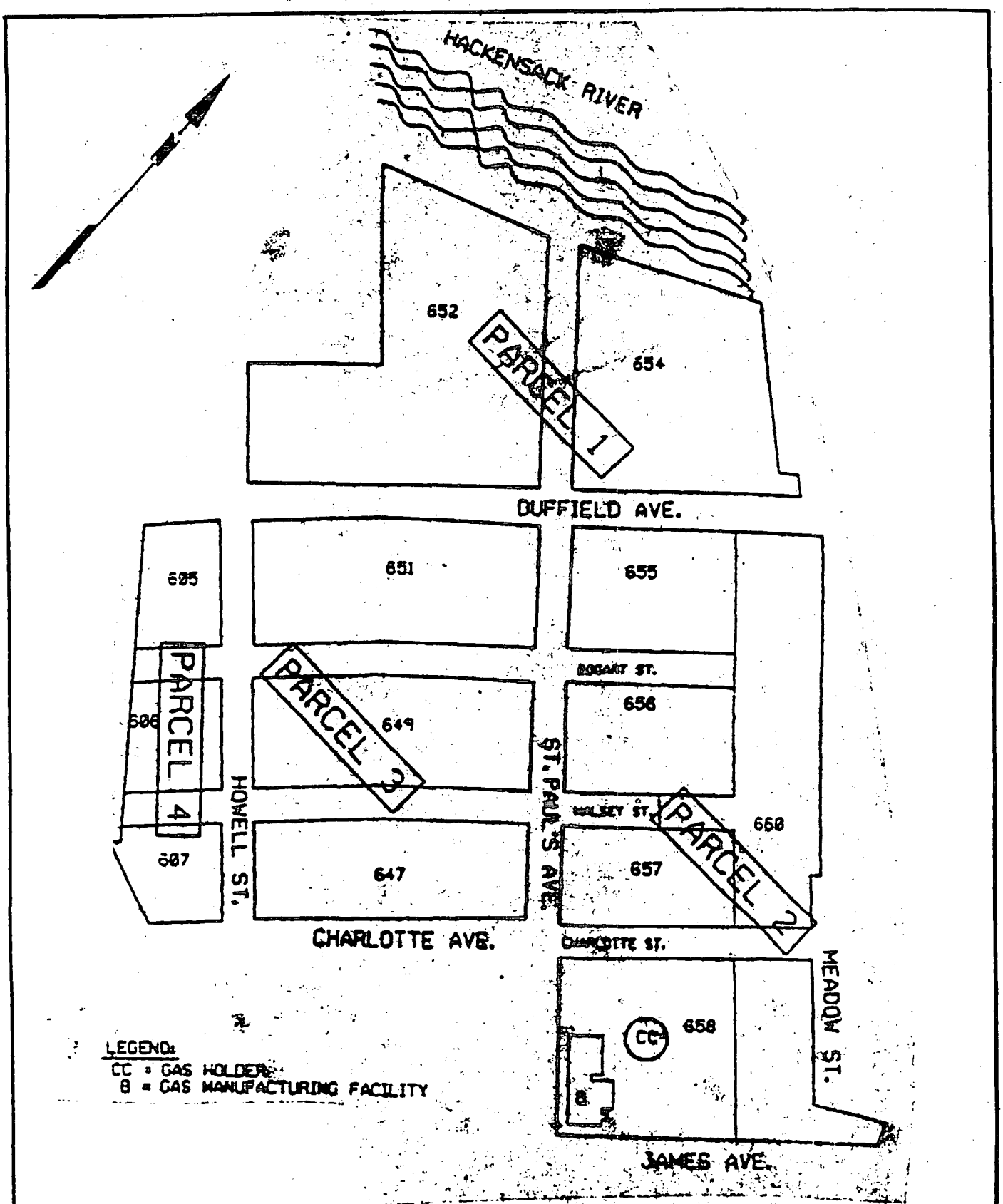

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Elmwood Park, NJ — Doylestown, PA.

Project: [illegible] FORMER WEST END GAS PLANT, FACILITY LAYOUT - [illegible]

JERSEY CITY — NEW JERSEY

Job No.	Date	Scale	Dwg. No.
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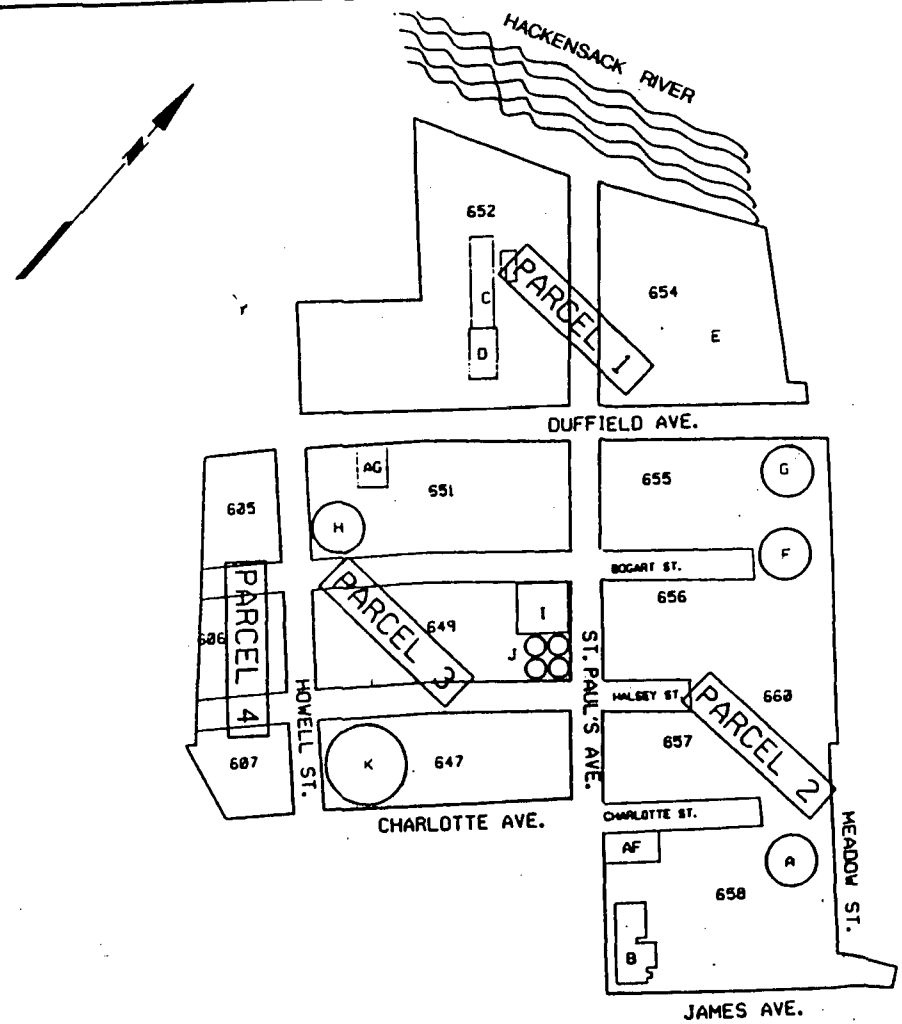
921000244

921000245



LEGEND

A = GAS HOLDER #1
B = GAS DISTRIBUTION HEADQUARTERS
C = GENERATOR HOUSE
D = ENGINE & PUSHER ROOM
E = COAL YARD
F = OIL TANK #1
G = OIL TANK #2
H = GAS RELIEF HOLDER
I = PURIFYING HOUSE
J = PURIFYING BOXES (4)
K = GAS HOLDER #2
AF = GAS METER HOUSE
AG = EXHAUSTER HOUSE

Langan Engineering and Environmental Services
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Elmwood Park, NJ Doylestown, PA. Miami, FL

PSE&G FORMER WEST END GAS PLANT
FACILITY LAYOUT - 1910

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
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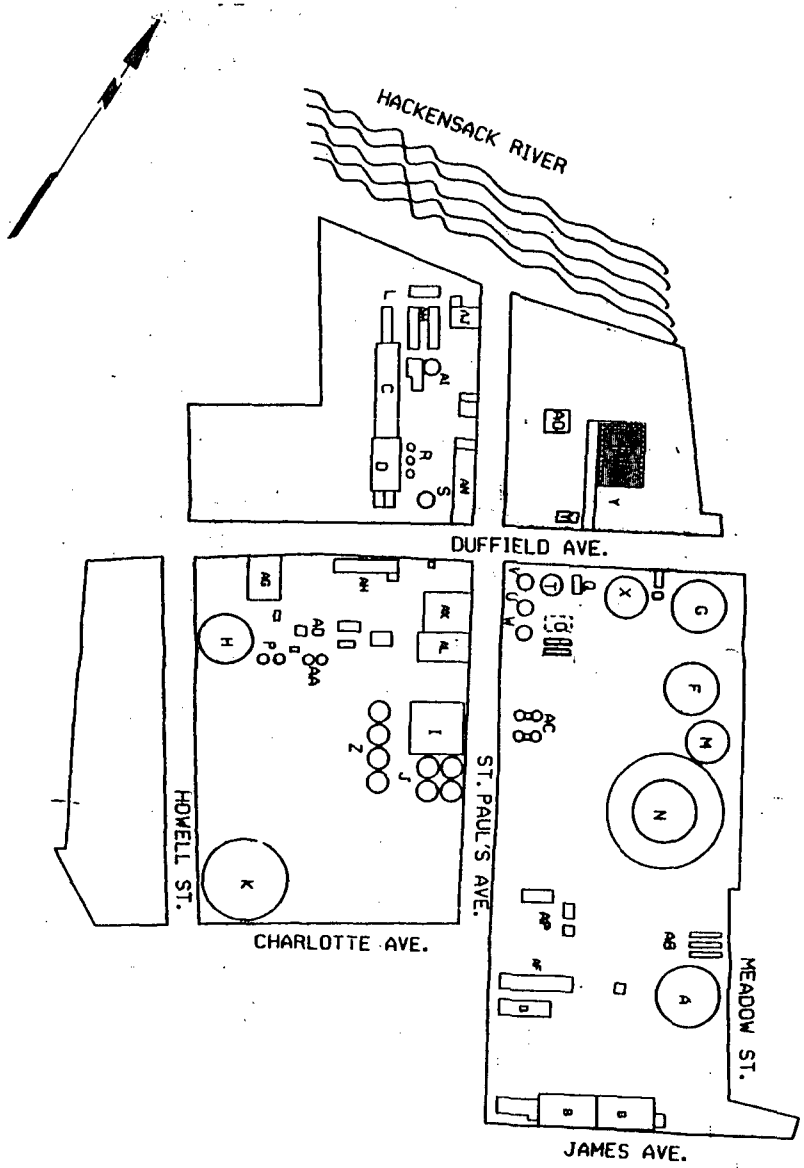

LEGEND

A = GAS HOLDER #1
B = GAS DISTRIBUTION HEADQUARTERS
C = GENERATOR HOUSE
D = BOILER HOUSE
F = OIL TANK #1
G = OIL TANK #2
H = GAS RELIEF HOLDER
I = PURIFYING HOUSE
J = PURIFYING BOXES (4)
K = GAS HOLDER #2
L = BRICK SHED
M = OIL STORAGE TANK #3
N = OIL STORAGE TANK #4
O = SEPARATOR
P = COTTRELL PRECIPITATORS (3)
Q = TAR STILL
R = GAS CONDENSER
S = OIL STORAGE TANK (DAY)
T = TAR STORAGE TANK #4
U = TAR SETTLING TANK #1
V = TAR SETTLING TANK #2
W = TAR SETTLING TANK #3
X = FUEL OIL TANK #5
Y = LIQUIFIED PETROLEUM FAC.
Z = FOUR OXIDE BOXES
AA = NAPHTHALENE SCRUBBERS (2)
AB = METERING & REGULATING STATIONS
AC = TWO CATALYTIC REFORMING SETS
AD = NATURAL GAS REGULATING STATION
AF = GAS METER HOUSE
AG = GARAGE
AH = COMPRESSOR HOUSE
AI = FILTRATION SYSTEM
AJ = FORMER FILTRATION BUILDING
AK = OFFICE
AL = EMPLOYEE BUILDING
AM = TAR SEPARATORS & SEDIMENTATION BASIN
AN = MACHINE SHOP
AO = TRANSCO METERING STATION
AP = ANCILLARY NATURAL GAS FACILITIES

Langan Engineering and Environmental Services
(201) 794-6900
Elmwood Park, NJ Doylestown, PA Miami, FL

PSE&G FORMER WEST END GAS PLANT
FACILITY LAYOUT - 1984

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
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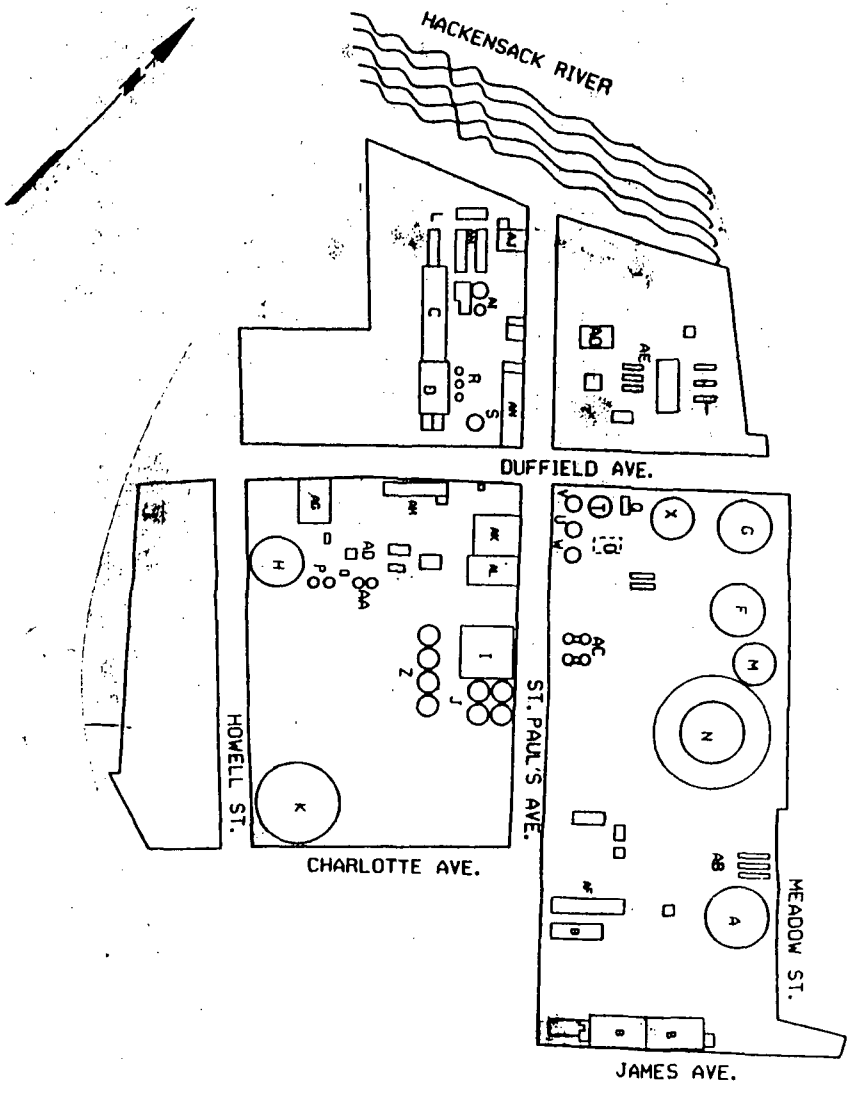
921000246



LEGEND

A = GAS HOLDER #1
B = GAS DISTRIBUTION HEADQUARTERS
C = GENERATOR HOUSE
D = BOILER HOUSE
F = OIL TANK #1
G = OIL TANK #2
H = GAS RELIEF HOLDER
I = PURIFYING HOUSE
J = PURIFYING BOXES (4)
K = GAS HOLDER #2
L = BRICK SHED
M = OIL STORAGE TANK #3
N = OIL STORAGE TANK #4
O = TAR PIT
P = COTTRELL PRECIPITATORS (2)
Q = TAR STILL
R = GAS CONDENSERS (3)
S = OIL STORAGE TANK (DAY)
T = TAR STORAGE TANK #4
U = TAR SETTLING TANK #1
V = TAR SETTLING TANK #2
W = TAR SETTLING TANK #3
X = FUEL OIL TANK #5
Z = OXIDE BOXES (4)
AA = TWO NAPHTHALENE SCRUBBERS
AB = METERING & REGULATING STATIONS (OUT OF SERVICE)
AC = TWO CATALYTIC REFORMING SETS
AD = NATURAL GAS REGULATING STATION
AE = M & R STATIONS
AF = GAS METER HOUSE
AG = GARAGE
AH = COMPRESSOR HOUSE
AI = FILTRATION SYSTEM
AJ = FORMER FILTRATION BUILDING
AK = OFFICE
AL = EMPLOYEE BUILDING
AM = TAR SEPARATORS & SEDIMENTATION BASIN
AN = MACHINE SHOP
AO = TRANSCO METERING STATION

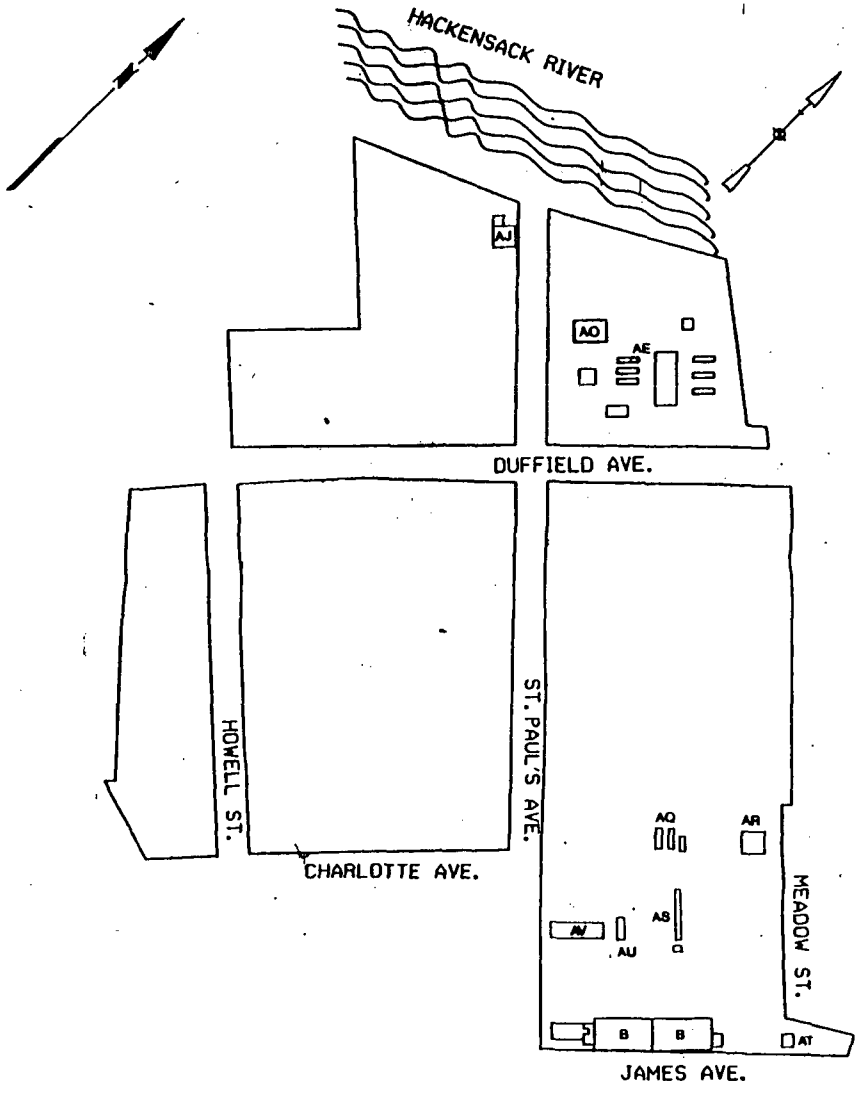
Langan Engineering and Environmental Services
(201) 794-6900
Elmwood Park, NJ Doylestown, PA Miami, FL

PSE&G FORMER WEST END GAS PLANT
FACILITY LAYOUT – 1987

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
1476001	4/27/98	NONE	8

921000247



LEGEND

AE = M&R STATIONS

AJ = FORMER FILTRATION BUILDING

AO = TRANSCO METERING STATION

AQ = ABOVE GROUND STORAGE TANKS

AR = SOIL SCREENING AND STOCK PILE FACILITY

AS = NATURAL GAS FUELING FACILITY

AT = OPEN SOIL STOCK PILE

AU = STORAGE SHED

AV = VEHICLE SERVICE GARAGE

B = GAS DISTRIBUTION HEADQUARTERS

Langan Engineering and Environmental Services
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PSE&G FORMER WEST END GAS PLANT
FACILITY LAYOUT - 1998

JERSEY CITY NEW JERSEY

Job No.	Date	Scale	Dwg. No.
1476601	8/5/98	NONE	9

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ATTACHMENT A

921000249

ATTACHMENT A

WEST END GAS WORKS

Site Location[1]

The West End Gas Works (hereinafter referred to as "Site") was located on the eastern shore of the Hackensack River, between the Wittpenn Bridge and the Conrail Bridge in Jersey City, Hudson County, New Jersey (See Drawing 1).

The Site consists of four separate parcels of land encompassing approximately 33 acres (See Drawing 2). The Site was formerly comprised of numerous blocks and was bisected by several roads (See Drawing 3). These have been consolidated into the configuration presented in Drawing 2.

Parcel 1 (Block 652, Lots 1, 2, 3, 4 and 5) is 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 the Conrail Railroad line, its right of way, and vacated Meadow Street (See Drawing 2).

Parcel 2 (Block 656, Lot 1) is bordered on the northwest by Duffield Avenue, on the northeast by Meadow Street, on the southeast by James Street and on the southwest by St. Paul's Avenue (See Drawing 2).

Parcel 3 (Block 649, Lot 1) 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 (See Drawing 2).

Parcel 4 (Block 606, Lots 1, 2 and 3) is 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 (See Drawing 2).

1. SITE OPERATIONAL AND OWNERSHIP HISTORY

The discussion of Site layout presented herein includes a review of Sanborn maps from the following years: 1896, 1910, 1979, 1986, 1988, 1990, 1993, 1994, and 1995.

The Peoples Gas Light Company of the City of Hudson, which was organized in 1868, constructed the original Site facilities. The original Site was located within the northeastern section of Parcel 1 (Block 654) north of St. Paul's Avenue and on the southern section of Parcel 2 (Block 658) (See Drawing 4). The original gas manufacturing facilities appear to have been limited to the southern section of Parcel 2.

The original Site was enlarged by virtue of acquisition of various properties in multiple transactions between 1903 and 1905 (See Drawing 4).

The remaining portions of Parcel 1, 2, 3 and 4 were acquired throughout the years (See Drawing 4).

[1] Note: Figures referenced herein are presented in the "Drawings" Section of this Preliminary Assessment.

In 1884, the United Gas Improvement Company acquired operational control of the Site by lease. In 1899, the United Gas Improvement Company surrendered its lease to the Hudson County Gas Company.

In 1899, the Peoples Gas Light Company of Jersey City (formerly the Peoples Gas Light Company of the City of Hudson), consolidated with other entities to form the Hudson County Gas Company. In 1903, Public Service acquired by lease the property, plant and franchises of the Hudson County Gas Company. Hudson County Gas Company merged with and into Public Service in 1939.

Based on the foregoing and other currently available information, the Site was constructed and coal gas manufacturing operations commenced in the most southern portions of Parcel 2 after 1868 (See Drawing 5). The original Site facility was enlarged and new gas manufacturing facilities were constructed between 1905 and 1909 (See Drawing 6).

In 1926 gas manufacturing was discontinued and the Site facilities were placed on a stand-by status until approximately 1941 when they were reactivated. From 1941 until 1964 the Site was used to manufacture gas only during the winter months.

Following the introduction of natural gas into Public Service'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 in order to supplement supplies of natural gas to Public Service customers (See Drawing 7).

In 1985, the Site gas manufacturing facilities were retired from service and the liquefied petroleum air-gas facilities were dismantled.

A Transcontinental Gas Pipeline Corporation natural gas metering and regulating station and a Public Service natural gas metering and regulation station were built on the Site in 1950 and 1953 respectively.

A second Transcontinental Gas Pipeline Corporation natural gas metering and regulating station was built on Site in the late 1960s and later modified in 1986 (See Drawing 8).

Two new Public Service natural gas metering and regulating stations and their associated equipment were added to the Site in 1986.

Block 652, Lots 6 and 7 (Southern corner of Parcel 1) was acquired by Public Service in 1950 and sold by Public Service in 1959 to Standard Wreckers and Excavators, Inc.

Block 606, Lot 2 on Parcel 4 was transferred to the Public Service Electric Department in two transactions in 1952 and 1963. The area is presently used as an electric substation.

Block 606, Lot 1 on Parcel 4 was sold in 1964 by Public Service to Standard Wreckers and Excavators, Inc.

Block 606, Lot 3 on Parcel 4 was sold by Public Service in 1967 to Humble Oil and Refining Company.

At present, activities on site are limited to the natural gas metering and regulating 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 are located on the

western portion of Parcel 2 (Block 656, Lot 1) (See Drawing 9). The East Jersey District Gas Distribution and the Jersey City Appliance Service Business Unit headquarters consists of offices, a fleet of service vehicles, refueling facilities (gasoline, diesel fuel, and natural gas), a service garage and soil stockpiling.

Current information concerning prior owners of the parcels comprising the Site and all related land transfers are contained in the Corporate or Real Estate records which are provided as an insert to Attachment A.

ATTACHMENT B

921000253

ATTACHMENT B
WEST END GAS WORKS

2A. DESCRIPTION OF PAST OPERATIONS 1868 TO 1985

The Site initially produced gas from around 1868 to 1926. Operations were reactivated in 1941 to produce gas during the winter months. Gas manufacturing operations continued until 1985. According to currently available information, the Site utilized the following gas manufacturing processes:

- the coal gas process (1868 to 1904);
- the water gas process (1868 to 1904);
- the carbureted water gas process (1904 to 1926; 1941 to 1964);
- the liquefied petroleum air-gas process (1949 to 1985);
- the reformed natural gas process (1950 to 1964);
- the modified air-jet gas process (1950 to 1964)
- the cold enrichment gas process (1950 to 1964);
- the cyclic catalytic reformed gas process (1954 to 1964); and,
- the oil gas process (1964 to 1985).

In 1868, the coal gas and water gas manufacturing processes were initiated at the Site. The manufacturing process involved the thermal reduction of coal in retorts to distill volatile matter from 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 coal or coke bed, a waste heat boiler and purifiers. These gas manufacturing processes were used at the Site until about 1904.

In approximately 1904, the carbureted water gas process replaced the coal gas and water gas processes. The carbureted water gas process involved the enrichment of the water gas process with a thermally cracked hydrocarbon such as oil. The manufacturing equipment consisted of a generator, carburetor, superheater, waste heat boiler and a wash box. The generator contained the coke bed which was used to produce water gas and provided heat to the carburetor and superheater. Oil was added to the carburetor, vaporized, and the vapors thermally cracked. The thermally cracked hydrocarbons were then fixed into methane, ethane, and other gaseous hydrocarbons in the superheater which was filled with checker bricks. Except for the stand-by period of 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.

In 1949, liquefied petroleum air gas manufacturing was also conducted at the Site. In this process, propane or butane were 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 gas manufacturing facilities in 1985.

In 1950, three additional gas manufacturing processes were used at the Site: the reformed natural gas process, the modified air-jet gas process, and the cold enrichment gas process. 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 modified air-jet gas manufacturing process used natural gas pressure in conjunction with a venturi to aspirate air into the natural gas stream. The heating value of the mixture was modified by controlling the amount of air aspirated. 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. These three gas manufacturing processes continued at the Site until 1964.

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 combustion 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 use of this process continued at the Site up to 1964.

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, and 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 introducted into vaporizers, and thermally cracked. Gases produced in the vaporizers were then fixed in the superheater. The oil gas process continued at the Site until the retirement of the gas manufacturing facilities in 1985.

ATTACHMENT C

921000256

ATTACHMENT C
WEST END GAS WORKS

2B. CURRENT OPERATIONS (1965 TO PRESENT)

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. During the course of MGP operations, natural gas metering and regulating stations were constructed and later upgraded at the Site. Between 1985 and 1995 all surface structures associated with the former MGP operations were razed from the Site.

This Preliminary Assessment is focused on the former Manufactured Gas Plant (MGP) operations only. The current operations conducted on Parcels 1 and 2 are not part of this Preliminary Assessment.

At present, activities on site are limited to the natural gas metering and regulating stations on Parcel 1 (Block 652, Lot 1) and the PSE&G East Jersey District Gas Distribution headquarters and the Jersey City Appliance Service Business Unit are located on the western portion of Parcel 2 (Block 656, Lot 1) (See Drawing 9).

The operations on Parcel 2 consist of offices, a fleet of service vehicles, refueling facilities, a vehicle service garage, a covered soil screening and stockpile facility, an open stockpile area, and a storage shed (See Drawing 9)[1]. The refueling facilities include: two gasoline and one diesel fuel, concrete encased above ground storage tanks and fuel dispensers; and a 25 bay natural gas refueling area.

[1] Note: Figures referenced herein are presented in the "Drawings" Section of this Preliminary Assessment.

ATTACHMENT D

921000258

ATTACHMENT D
WEST END GAS WORKS

3. HAZARDOUS SUBSTANCE/WASTE INVENTORY

Material Name (Trade Name)	Typical Annual Usage	Storage Method/Container Type/Size	Location Reference Keyed to Site Map (Fig. 10)	To Remain on site? If yes, indicate quantity
Coal	*	Open storage	AOC-1, 14	No
Coke	*	Open storage	AOC-1	No
#6 Oil	*	AST	AOC-3, 21	No
Kerosene	*	AST	AOC-17, through 20	No
Manufactured Gas	*	Gasholders, AST	AOC-25, 46, 50	No
Propane	*	AST	AOC-14	No
Butane	*	Unknown	AOC-23	No
Napthalene	*	Scrubber	AOC-42	No
Coal Tar	*	AST	AOC-1, 3,4, 7, 21, 22, 44, 45, 46	No
Clinkers[1]	*	Open storage, temporary staging areas	AOC-1, 31	No
Ammonia Liquors	*	None Known[2]	AOC-7, 35, 36	No
Spent Oxides	*	Open storage, temporary staging areas	AOC-31, 36	No
Ash[1]	*	Open storage, temporary staging areas	AOC-31	No
Gasoline – E1[5]	*	UST/6,000 gallon	AOC-32	No
Gasoline – E2[5]	*	UST/4,000 gallon	AOC-32	No
Gasoline	*	UST/2,000 gallons	AOC-39	No / Removed 6/87
Gasoline	96,000	AST/(2) 6,000 gallons	[6]	Yes / 12,000 gallons
Diesel Fuel – E3[5]	*	UST/1,000 gallon	AOC-32	No
Diesel Fuel	*	AST/4,000 gallon	[6]	Yes / 4,000 gallons
Waste Oil – E4[5]	*	UST/2,000 gallon	AOC-32	No
Waste Oil	*	AST/(2) 250 gallon	AOC-32	Yes / 500 gallon
Unknown – A1[5]	*	UST/2,000	AOC-32	No
Oil	*	UST/500 gallon	AOC-28	No
Meter Oil	*	UST/2,000 gallon	AOC-29	No
Spent Oil	*	UST/35,000 gallon	AOC-42	No
Drip Tanks	*	UST	AOC-55, 56	No
Slop Oil Tank[3]	*	AST/13,500 gallon	AOC-50	No
LP Vaporizer Blowdown	*	UST/250 gallon	AOC-14A	No / Removed 4/86
Motor Oil (Delvac 15W40)	*	55 gallon drum	[4]	No
Oil (B-Cylinder Oil)	*	55 gallon drum	[4]	No
Cleaner (Navee 42)	*	55 gallon drum	[4]	No
Oil (Terrestic 33)	*	55 gallon drum	[4]	No
Oil (Auturbio)	*	55 gallon drum	[4]	No
Oil (Harmony 68)	*	55 gallon drum	[4]	No
Aluminum Sulfate	*	100# Bags (1400# max)	AOC-9	No
Sodium Hydroxide	*	100# bags (400# max)	AOC-5	No
Disodium Phosphate	*	100# Bags (400# max)	AOC-5	No

*historical information unavailable from PSE&G files
AST = Aboveground storage tank UST = Underground storage tank

Notes:
(1) Potentially used as fill throughout the site.
(2) Process waste generated in purifiers and treated in tar separators.
(3) Not identified on drawings but referenced in Public Service tank inventory dated 1 August 1983.
(4) Storage area unknown.
(5) NJDEP UST Registration Tank I.D. numbers (E1, E2, etc.).
(6) Part of current operations and not covered under this Preliminary Assessment.

Raw Materials

The primary raw materials utilized in the referenced gas manufacturing processes at the Site are the following:

Process	Raw Material
Coal gas	Coal
Carbureted water gas	Coal/coke and oil
Reformed natural gas	Coke, oil and natural gas
Modified air-jet gas	Natural gas
Cold enrichment gas	Natural gas
Cyclic catalytic reformed gas	Natural gas, kerosene, propane, butane
Liquified petroleum air gas	Propane
Oil gas	Kerosene

The boilers burned coal and later oil and/or tar.

Manufactured By-Products/Wastes

Available information indicates that the referenced gas manufacturing processes normally produced the following by-products/wastes:

Process	By-Products – Wastes
Coal gas	Tars, light oils, ammonia liquors, coke, and spent oxide
Carbureted water gas	Tars, light oils, clinkers, carbon, and spent oxide
Reformed natural gas	Tar and clinkers
Modified air-jet gas	None
Cold enrichment gas	None
Cyclic catalytic reformed	Spent Catalyst and spent oxide gas
Liquified petroleum air gas	None
Oil gas	Tars, light oils, and spent oxide

Burning of coal in the boilers produced ash and slag.

ATTACHMENT E

921000261

ATTACHMENT E
WEST END GAS WORKS

4B. DISPOSAL PROCESSES

Process wastewater was generated by washing manufactured gas in order to remove heavy organic products such as tars and oil. Prior to 1952, process wastewater was treated through an oily water separator, tar separation equipment and a filtration plant utilizing chemical flocculants and sand and gravel filters. (The tar separation equipment was also used to treat other process wastes such as ammonia liquors produced in the purifiers; drip oils from the compressors and gas line drip legs; and overflow from the gas relief holder water seal.) After treatment, the wastewater was then discharged into the Hackensack River through storm sewers. On rare occasions prior to 1952, the filtration plant was bypassed for brief periods when the volume of process wastewater exceeded the capacity of the treatment equipment.

In 1952, an "Infilco" water processing plant was installed downstream of the tar separation equipment. This plant used a flocculant process to further treat process wastewater prior to discharge.

Until approximately 1964, overflow from water utilized in the gas storage holder seal pots (a combination of rainfall, condensate, rust inhibitors and/or anti-bacterial agents) was discharged into drainage ditches which flowed to the Hackensack River. After that time, the overflow from the seal pots was processed through the tar separation equipment.

In the mid-1970's, the filtration plant discharge was modified and connected to the local sanitary sewer system where effluents discharged to the local POTW.

Non-contact cooling water was discharged into the Hackensack River under a NJPDES permit. Because this water did not come into direct contact with either the gas or process waste streams, it is not considered process wastewater and treatment prior to discharge was not required. Therefore, no investigation is recommended for the non-contact cooling water outfall.

The fate of sanitary wastewater generated onsite from 1868 to the early to mid 1900's is unknown. Common practice at this time was the direct discharge of untreated sanitary wastes to the Hackensack River. Around the mid-1900's, sanitary wastewater was discharged to the local POTW.

The locations of known outfalls for the discharges to the river are shown on Drawing 10.[1] Drawing 10 also indicates the locations of historical outfalls along the river that have been either sealed or filled in. There is a second tar separator located near the No. 5 Tar Tank shown on Drawing A-3921 in Attachment F. That drawing indicates a discharge line or ditch leading from the tar separator to the river. Drawing A-3247 in Attachment F later indicates that this outfall has been abandoned by filling the ditch with crushed stone.

[1] Note: Drawings referenced herein are presented in the "Drawings" Section of this Preliminary Assessment.

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ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
PARCEL 1				
1	Coal Yard	Open storage area	Yes	Ash hopper location, possible ash, clinker and spent checker brick storage area.
2	Open Ditch	Drainage ditch	Yes	Discharge point for site and street storm drains.
3	No. 4 Tar Tank	Aboveground Storage Tank (AST), 50,000 gallon; foundation type unknown	Yes	Boiler house day tank No. 6 oil storage. Possible location of 1969/1970 spill.
4	Condensors	Aboveground process equipment ; foundation type unknown	Yes	Tar condensate produced.
5	Boiler House Area	Aboveground piping	Yes	Exterior aboveground piping supplying No. 6 oil, kerosene, and naphthalene enriched oil to boilers. Potential area of piping leaks.
6	Generator House Area	Underground piping	Yes	Underground piping conveying tar/water emulsion to tar separators.
7	Tar separators, 3 basins	Below ground process equipment, foundation type unknown	Yes	Tar and drip oils separated from process water.
8	Pump House 1 Area	Underground piping	Yes	Underground piping conveying tar and oil.
9	Accelerator Tank and Filtration Plant	AST (unknown capacity) and adjacent building, foundation type unknown	Yes	Process water filtration system, drip oil and tar.
10	Overflow Tank	AST (unknown capacity); Foundation type unknown	Yes	Process waste water containing tar, drip oil.
11	Salt Water Pump House Area	Underground piping	No	Non-contact cooling water only. River water intake.
12	Dock Areas	Concrete, wood, and sheet pile construction	Yes	Fuel oil, kerosene, and tar off-loading and loading areas.
12A	Screen House and Rack Area	Concrete structure; foundation type unknown	No	Non-contact cooling water intake.

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ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
13	Repair/Machine Shop Area	Underground piping	Yes	Use of cutting oils, & degreasers. Oil leak in underground piping late 1950s.
14	Coal Yard	Open storage area, also propane tanks	Yes	Evidence of coke, cinders, and boiler slag observed in vicinity of dock.
14A	LP Vaporizer Blowdown Tank	Underground Tank	Yes	LP Heavy Ends
15	Oily Water Separator	Overflow process tank; Foundation type unknown	Yes	Process waste water containing drip oils. Collection point for floor drain discharges. Discharges occurred on: 7/23/81, 2/3/83, 7/5/85, 4/19/86
16	Electrical Transformer Pads	Foundation type unknown	Yes	Transformers known to contain PCBs. Suspected tar processing and storage area early 1900s.
PARCEL 2				
17	No. 2 Oil Tank	AST, 1 million gallon capacity; foundation type unknown	Yes	Fuel storage tank. Tank rupture early 1940s. Leak from bottom of tank in early 1950s.
18	No. 1 Oil Tank	AST, 592,000 gallon capacity; foundation type unknown	Yes	Fuel storage tank. Also used as tar storage tank in 1942.
19	No. 3 Oil Tank	AST, 2 million gallon capacity, foundation type unknown	Yes	Fuel storage tank. Leaks from pump and piping to diked area of tank: 1/20/83, 2/5/84.
20	No. 4 Oil Tank	AST, 3.4 million gallon capacity; foundation type unknown	Yes	Fuel storage tank. Tar deposits cited southeast of tank. 1940s to 1950s wash box cleans and separator cleans deposited in this area.
21	No. 5 Tar Tank and Tar Separator	AST (1 million gallon capacity); foundation type unknown	Yes	Product storage tank. #6 oil spill to diked area of tank 4/24/86.

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ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
22	Tar Processing Area	6 ASTs, tar still, underground piping, and tar pump; foundation types unknown	Yes	Tar processing, storage, and truck loading. Tar release occurred at this location in 1957 or 1958. Tank bottoms deposited on ground prior to disposal. Tar observed in excavations during various construction and repair activities.
23	Cyclic Catalytic Reforming (CCR) Set	Aboveground process equipment ; foundation type unknown	Yes	Spent Nickel catalyst deposited on ground prior to offsite disposal. Temporary storage area for clinker cinder and ash.
24	PSE&G Metering and Regulating (M&R) Station Area	Aboveground gas distribution equipment; foundation type unknown	Yes	Potential use of mercury meters.
25	Gas Storage Holder No. 1	AST (variable capacity); pile supported slab foundation. Water-seal type, clean closure consisting of clean fill wrapped in high density Polyethylene (HDPE) membrane, asphalt cap.	Yes	Soil outside of clean closure: gas piping oil drip legs; chromate rust inhibitors, oil and tar residues. Drippage from distribution trucks drained to ground between gas holder and railroad right of way and reported drip oil discharge to ground surface (dates not specified).
26	Texas Eastern M&R Station Area	Aboveground gas distribution equipment; foundation type unknown	Yes	Oil-filled natural gas scrubbers.
27	Oil House Area	Building; foundation type unknown	Yes	Potential MGP residuals.
28	Fuel Oil Tank	500 Gallon Oil UST	Yes	Oil storage (present on 1951Site Plan).
29	Meter Oil Tank	2,000 Gallon Meter Oil UST	Yes	Oil storage (present on 1951Site Plan).
30	Paint and Oil Shed	Building; foundation type unknown	Yes	Paint and oil storage.
31	Disposal Area	No known structures	Yes	Area historically used to deposit tar, wash box and separator cleans, ash and clinker.

921000266

ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
32	Vehicle Fueling Area	Multiple USTs (6,000 and 4,000 gallon gasoline USTs, 1,000 gallon diesel UST, 2,000 gallon waste oil UST, 2,000 gallon UST former contents unknown)	Yes	Gasoline storage and dispensing. Location of gasoline spills in 12/26/90 and 6/28/91. Potential contamination from lubricants, degreasers, and fuels. Trench drain and sump along southeast face of garage.
33	Gas Manufacturing Facility (1868 to early 1900s)	Underground; foundation type unknown	Yes	Former coal gas manufacturing facility.
34	Gas Holder (1868 to early 1900s)	AST (variable capacity); foundation type unknown	Yes	Oil and tar residues.
PARCEL 3				
35	Purifiers	Aboveground process equipment; foundation type unknown	Yes	Residues placed on ground adjacent to purifiers prior to disposal. Ammonia liquors generated in purifiers.
36	Oxide Boxes	Aboveground process equipment; foundation type unknown	Yes	Residues placed on ground adjacent to oxide boxes prior to disposal.
37	Recirculating Oil Tank	5,000 Gallon AST; foundation type unknown	Yes	Oil storage.
38	13 kV Switch Yard	Aboveground electrical equipment; foundation unknown	Yes	Transformers potentially containing PCBs.
39	Gasoline Fueling Area	1,500 Gallon Gasoline UST and Gasoline Pump	Yes	Gasoline storage and dispensing.
40	Service Building Area	Building; foundation unknown	No	No known use or storage of hazardous substances.
41	Compressor House Area	Building with basement; foundation unknown	Yes	Drip oil from compressors. Aboveground and underground piping.
42	Naphthalane scrubbers and spent oil UST.	Aboveground and underground process equipment ; foundation types unknown	Yes	Naphthalene-enriched oil byproduct from scrubbers.

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ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
43	Fresh Oil Tank	AST(s) (Note: Two tanks present on 1950 Sanborn map, capacity unknown)	Yes	Product storage. Tar spills reported in this area.
44	Tar Precipitators	Aboveground process equipment; foundation unknown	Yes	Tar precipitated from gas stream.
45	Tar Pit	Underground storage structure; unknown construction type.	Yes	Tar collection pit.
46	Relief Holder	AST 500,000 cu.ft. capacity; pile supported slab; gravel fill	Yes	Gas piping oil drip legs; chromate rust inhibitors, oil and tar residues.
47	Condensor Area	Aboveground process equipment; diked area; foundation unknown	Yes	Tar production.
48	Garage Building/Exhauster Plant Area	Buildings; foundation unknown	Yes	Potential contamination from lubricants, degreasers or fuels.
49	Stockpile Area (Present on 1943 Aerial Photograph)	Open storage area; no known foundation	Yes	Stockpile of unknown material suspected residue from gas production.
50	Gas Storage Holder No. 2	AST (variable capacity); pile supported slab foundation; water-seal type clean closure consisting of clean fill wrapped in HDPE membrane	Yes	Soils outside of clean closure: gas piping oil drip legs; chromate rust inhibitors, oil and tar residues. Reported drip oil discharged to ground surface (unspecified date).
PARCEL 4				
51	Tar Storage Tanks	Vertical ASTs (Present on 1940 Through 1953 Aerial Photographs, capacities unknown); foundations unknown	Yes	Tar storage area.

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ATTACHMENT F
POTENTIAL AREAS OF CONCERN - INVESTIGATION RATIONALE
PSE&G FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

AOC NUMBER[3]	SITE FEATURES[1]	STRUCTURES	INVESTIGATE	RATIONALE
52	Oil Storage Tanks	2 Horizontal Oil ASTs (Present on 1940 Through 1953 Aerial Photographs, capacities unknown) foundations unknown	Yes	Oil storage.
53	Howell Street Electrical Substation	Aboveground utilities; foundations unknown	No	Non-gas production use.
54	Existing Gasoline Service Station	Auto service garage and fuel pumps	No	Non-gas production use.
PARCELS 1, 2, AND 3 / PUBLIC ROADS				
55[4]	Oil Drips, Drip Lines, and Blocking Valves on Yard Piping Not Adjacent to Gas Holders	Aboveground and underground process equipment; foundations unknown	Yes	Drips – collection points for tar and oil. Blocking valves – tar was used to create gas tight seals on these valves.
56[4]	Subsurface Process Piping	Underground process equipment	Yes	Oil and tar conveyance piping, potential contamination from leaks.
57A-C	Misc. Spills and Discharges	Ground surface	Yes	(note 2)
58[4]	Existing Storm Sewer Network	Catch basins and sewer lines	Yes	Reported pathways for various discharges of hazardous substances (note 2).
59[4]	Sanitary Sewer	Underground piping	No	Non-gas production use.

Notes:

(1) All site features are former structures associated with the gas works operations unless noted as existing structures currently used for other purposes (vehicle fueling and maintenance; gas distribution and electrical facilities).
(2) See Attachment G (Discharge History of Hazardous Substances and Wastes) for a description of these locations.
(3) See Figure 10 for the location of each AOC.
(4) PSE&G Drawings A-3247 and A-3921 provide additional information regarding the location of this AOC. PSE&G drawings are provided as an insert to Attachment F.

ATTACHMENT F

921000269

NOTICE ABOUT UNSCANNABLE MAP

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NO.	DATE	DESCRIPTION	CHK'D	CHK'D
3				
2				
1				

REVISION

DRAIN LINES

WEST END GAS PLANT, JERSEY CITY N.J.

PUBLIC SERVICE ELECTRIC & GAS COMPANY
GAS DEPARTMENT

NEWARK, N. J. JULY 9th 1975

SCALE 1" = 50 FT. DRAWN BY K. P. CHECKED BY

APPROVED

AUTH. NO. A-3921

921000270

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PROJECT

PSE&G FORMER WEST END GAS PLANT

JERSEY CITY NEW JERSE

DRAWING TITLE

SITE PLAN AND AREAS OF CONCERN

JOB NO.	1476601	DRAWING NO.
DATE	1 MAY 1998	10
SCALE	1"=50'	
DRN. BY	S.G.	
CHKD. BY	L.S.H.	OF SHEETS

921000271

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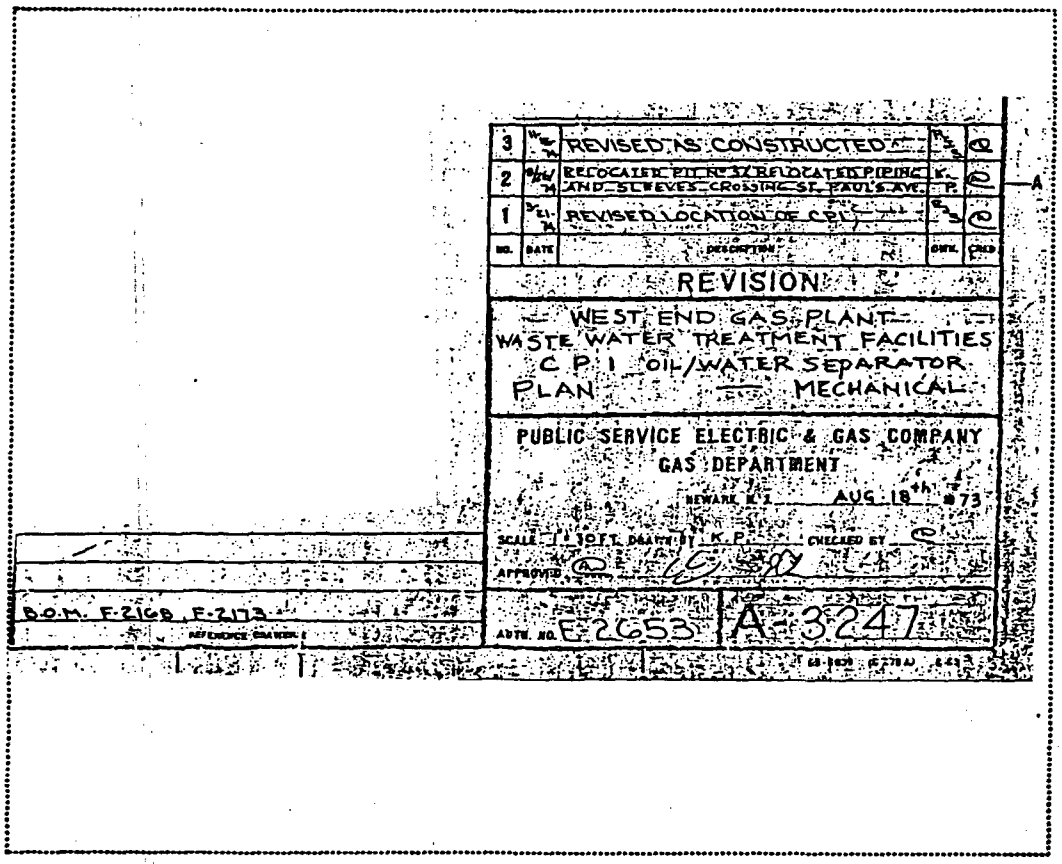

921000272

ATTACHMENT G

ATTACHMENT H
WEST END GAS WORKS

AERIAL PHOTOGRAPHIC INTERPRETATION

Interpretations of the available aerial photographs is presented in chronological order from 1940 through 1995. Available site plans and Sanborn fire insurance maps were referenced in order to identify ground features present on the aerial photographs. Refer to Drawing 2 for the Block and Lot designations used in the following interpretations of available aerial photographs.

1940 Scale: Unknown
Source: PSE&G Archive

Parcel 1
Block 652, Lot 1: No structures are present on this lot.

Block 652, Lot 2: Formerly part of St. Paul's Ave. Barge docked at the west end of the lot. No other structures are evident.

Block 652, Lot 3: Formerly St. Paul's Ave. No structures are present on this lot.

Block 652, Lot 4: The gas generator house; boiler house; machine shop; water filtration system; aboveground storage tank (located along the southern line of Lot 3); and the coal storage yard (located along the southern boundary of the lot) are present.

Block 652, Lot 5: No structures are present on this lot.

Parcel 2
Block 656, Lot 1: Four diked aboveground oil storage tanks are present along the northeast portion of the lot (along Meadow St.). Located in the southern corner of the lot (along St. Paul's Ave and James Ave) are the No. 1 gas holder, gas metering and regulation buildings, pipe shop, pipe shed, chemical engineers building, meter shop, and receiving building. The southeast corner (along James Ave and Meadow St) and the northwestern portion of the lot (along St. Paul's Ave between Charlotte and Duffield Avenues) appear to be vacant.

Parcel 3
Block 649, Lot 1: The No. 2 gas holder and a smaller relief holder are located in the south and west corners respectively. An aboveground gas pipeline runs through the center of the lot (parallel to Howell St.) from the gas holder towards a compressor house located along Duffield Ave. An exhauster house, oil tank, and tar precipitators are located to the north of the gas relief holder. A structure identified as a condensor on PSE&G's 1951 site plan is located to the west of the relief holder (at the intersection of Duffield Ave and Howell St). Four gas purifiers and a purifier house are located on the eastern edge of the lot along St. Paul's Ave. An office/service building stands along St. Paul's and Duffield Avenues. Several unidentifiable structures (possible storage sheds) are located on Lot 1, one between office/service building and purifier house, and two located along the eastern line of Lot 2.

Parcel 4
Block 606, Lot 1: Three vertical tar tanks are present near the center of the lot and are aligned parallel to Duffield Ave. Several unidentifiable structures are located in the

southeastern portion of the lot. These structures are identified as two aboveground oil tanks and two vacant buildings on the 1950 Sanborn map.

Block 606, Lot 2: Lot appears to be vacant.

Block 606, Lot 3: Lot appears to be vacant.

22 December 1943 Scale 1" = 1,000' (enlarged from 1" = 1,667')
Source: Environmental Data Resources, Inc. (EDR)

Parcel 1:
Block 652, Lot 1: Two possible building structures are located in the northeastern corner of the lot. A suspected pile of coal is located along the northeastern line of St. Paul's Ave. (vacated portion).

Block 652, Lot 2: A barge appears to be docked at the west end of lot. No other structures are evident on the lot.

Block 652, Lot 3: No structures are evident on this lot.

Block 652, Lot 4: Insufficient detail to discriminate between storage tanks and buildings. A suspected coal pile is located southwest of the generator house. Substantial modifications to this lot are not evident.

Block 652, Lot 5: This portion of the property appears to be vacant.

Parcel 2:
Block 656, Lot 1: Substantial modifications to the structures on this lot are evident.

Parcel 3
Block 649, Lot 1: Four additional purifier boxes have been added to the lot on the south side of the purifier house. A pile of unknown material is present on the southern portion of the property between the gas holder and the relief holder. No additional modifications are evident.

Parcel 4
Block 606, Lot 1: No significant modifications to the lot are evident.

Block 606, Lot 2: No significant changes to this lot are evident.

Block 606, Lot 3: Contains several unidentifiable structures. These structures correspond to a filling station identified on the 1950 and 1979 Sanborn maps of this lot.

5 December 1953 Scale: 1' = 1000' (enlarged from @ 1" = 1667')
Source: EDR

Parcel 1
Block 652, Lot 1: The two building structures are no longer present in the northeast corner of the lot. Twelve liquid propane tanks and a gas generator house have been added to this lot. The suspected pile of coal is approximately twice as large as the pile present in 1943.

Block 652, Lot 2: A barge is docked at the west end of the lot. No substantial modifications are evident on this lot.

Block 652, Lot 3: Substantial modifications to this lot are not evident.

Block 652, Lot 4: Substantial modifications to the structures present on this lot are not evident.

Block 652, Lot 5: Approximately 60% of this lot is covered by an unknown pile of material.

Parcel 2
Block 656, Lot 1: Changes to the lot include the addition of an oil tank along Duffield Ave, two additional tar tanks along St. Paul's Ave near Duffield, and the addition of a metering and regulating station northwest of the gas holder along Meadow Street. The pipe shop formerly located along St. Paul's Avenue between the metering building and the chemical engineers office has been replaced with a parking lot. The center of Lot 1 along St. Paul's Ave appears to be used as a parking and/or storage area.

Parcel 3
Block 649, Lot 1: Substantial modifications to the structures on this lot are not evident.

Parcel 4
Block 606, Lot 1: Two of the three tar tanks present in 1943 have been removed. No additional changes are evident.

Block 606, Lot 2: The lot appears to have been developed with a PSE&G electrical substation.

Block 606, Lot 3: Substantial modifications to the structures on this lot are not evident.

1961 Scale: Unknown
Source: PSE&G Archive

Parcel 1
Block 652, Lot 1: The pile of unidentified material is no longer present. No additional substantial modifications are evident.

Block 652, Lot 2: Several barges are moored at the west end of the lot. No substantial modifications are evident on this lot.

Block 652, Lot 3: Substantial modifications to this lot are not evident.

Block 652, Lot 4: Substantial modifications to this lot are not evident.

Block 652, Lot 5: The majority of the lot appears to be covered with a pile of unknown material.

Parcel 2
Block 656, Lot 1: A catalytic reforming set an aboveground pipeline (running parallel to St. Paul's Ave) has been added to the southwestern portion of the lot. The storage area located in the center of the lot (identified on the 1953 aerial) has been cleared. No additional modifications to this lot are evident.

Parcel 3
Block 649, Lot 1: A large parking lot has been added to the southern portion of the lot between the gas holder and the relief holder. The condensor is no longer present in the

west corner of Lot 1 (adjacent to the relief holder). No additional modifications to the lot are evident.

Block 649, Lot 2: No substantial modifications are evident on this lot.

Parcel 4
Block 606, Lot 1: All structures have been removed and the lot appears to be vacant.

Block 606, Lot 2: No substantial modifications are evident.

Block 606, Lot 3: No substantial modifications are evident.

21 June 1966 Scale: 1" = 1000' (enlarged from 1" = 1667')
Source: EDR

Parcel 1
Block 652, Lot 1: Substantial modifications are not evident on this lot.

Block 652, Lot 2: Substantial modifications are not evident on this lot.

Block 652, Lot 3: Substantial modifications are not evident on this lot.

Block 652, Lot 4: The unknown pile identified along the south side of the generator house in 1943, 1953, and 1961 is no longer present. No other substantial modifications are evident.

Block 652, Lot 5: The coal pile identified on the 1953 aerial photograph is no longer present. The lot appears to be utilized as a open storage area.

Parcel 2
Block 656, Lot 1: No significant modifications are evident on this lot.

Parcel 3
Block 649, Lot 1: Naphthalene scrubbers and a gas regulating station located northeast of the relief holder are visible on this aerial photograph. Two unidentifiable structures are present in the eastern portion of the property in the area of St. Paul's Ave and the former southeastern line of Halsey Street (vacated).

Block 649, Lot 2: Substantial modifications to this lot are not evident.

Parcel 4
Block 606, Lot 1: All structures have been removed from the lot. The lot appears to be a storage yard.

Block 606, Lot 2: No substantial modifications are evident.

Block 606, Lot 3: No substantial modifications are evident.

29 October 1976 Scale: 1' = 1000', (enlarged from @ 1" = 6500')
Source: EDR (Poor quality aerial photograph, extremely grainy)

Parcel 1
Block 652, Lot 1: A natural gas metering station is present along the southern boundary of the property (northern line of St. Paul's Ave). No additional modifications are evident.

Block 652, Lot 2: No substantial modifications are evident on this lot.

Block 652, Lot 3: No substantial modifications are evident on this lot.

Block 652, Lot 4: Substantial modifications to this lot are not evident.

Block 652, Lot 5: A building has been added to the northwest corner of the lot. No additional modifications are evident.

Parcel 2
Block 656, Lot 1: Substantial modifications to this lot are not evident.

Parcel 3
Block 649, Lot 1: The two unidentified structures located in the eastern portion of the property do not appear to be present. No additional modifications are evident.

Parcel 4
Block 606, Lot 1: Numerous unidentifiable structures are present on the lot.

Block 606, Lot 2: No substantial modifications are evident.

Block 606, Lot 3: No substantial modifications are evident.

1988 Scale: 1' = 80' (Color)
Source: PSE&G

Parcel 1
Block 652, Lot 1: Propane tanks have been replaced by natural gas metering and regulation station which is comprised of four buildings and associated piping, valves, regulators and gas scrubbers.

Block 652, Lot 2: No substantial modifications are evident on this lot.

Block 652, Lot 3: No substantial modifications are present.

Block 652, Lot 4: The lot appears to be unchanged since the 1966 aerial photograph. Possible areas of stained soil are present to the west of the generator house.

Block 652, Lot 5: Two additional buildings are located in the southern corner of the lot and the entire lot is paved. Numerous truck trailers and trucks are parked on the lot.

Parcel 2
Block 656, Lot 1: Standing water and/or darkly stained soil is present around the five oil tanks located in the northern portion of the property. Additional areas of stained soil are present around: the tar still and tar tanks in the west corner of the lot; the catalytic reforming sets; the gas holder; and beneath the aboveground gas pipeline in the approximate center of the lot. No significant modifications to the structures are evident.

Parcel 3
Block 649, Lot 1: The purifier boxes and oxide boxes appear to be partially disassembled. The ground behind the oxide boxes appears to be stained. The northern corner of the parking lot (towards the center of Lot 1) is significantly damaged and contains a pool of water. Electrical transformers are located in the eastern corner of the

lot. Collections of materials (possibly demolition debris) are present in discrete locations in the center third of Lot 1.

Parcel 4
Block 606, Lot 1: The lot appears to be used as a scrap yard. Two additional buildings are present in the southern corner of the lot.

Block 606, Lot 2: No substantial modifications are evident.

Block 606, Lot 3: No substantial modifications are evident.

29 March 1995 Scale: 1"=1000', (enlarged from @ 1" = 3300')
Source: EDR

Parcel 1
Block 652, Lot 1: Additional gas metering and regulating equipment is present in the northeastern and southwestern portions of the lot.

Block 652, Lot 2: No substantial modifications are evident on this lot.

Block 652, Lot 3: No substantial modifications are evident on this lot.

Block 652, Lot 4: All aboveground structures have been razed from the lot. The tar separators and sedimentation basins are still present along the Hackensack River.

Block 652, Lot 5: The lot appears to be used as an equipment storage yard. Materials appear to be stored along the perimeter of the property.

Parcel 2
Block 656, Lot 1: All aboveground storage tanks and associated piping have been razed from the lot. The Gas Metering and Regulation building, garage and offices remain in the southeast portion of Lot 1.

Parcel 3
Block 649, Lot 1: All aboveground structures and associated piping appear to have been razed from the lot. Some foundations and support pads remain visible.

Block 649, Lot 2: No substantial modifications are evident.

Parcel 4
Block 606, Lot 1: A building is located on the western perimeter of the lot along Duffield Ave. Materials appear to be stored along the lot's perimeter.

Block 606, Lot 2: No substantial modifications are evident.

Block 606, Lot 3: No substantial modifications are evident.

ATTACHMENT I

921000280

ATTACHMENT I
WEST END GAS WORKS

10 A. PERMITS SUMMARY

A. New Jersey Air Pollution Control

Permit/Certificate	Date of Approval	Expiration Date
067262	9/28/83	9/28/88
067263	9/28/83	9/28/88
077728	2/28/87	2/28/92
077729	2/28/87	2/28/92
077730	2/28/87	2/28/92
077731	2/28/87	2/28/92
077732	2/28/87	2/28/92
092607	NA	10/17/93
095916	NA	4/10/94
101720	NA	4/8/96
111846	NA	2/23/97
111848	NA	2/25/97
111851	NA	2/26/97
111850	NA	2/27/97
111847	NA	2/28/97
111849	NA	2/28/97
Local County Air Permit[1]	NA	12/31/00
125433[1]	NA	1/22/01

NA – Not Available

Note:
[1] permits apply to current operations and are not part of the former MGP facilities covered by this Preliminary Assessment.

ATTACHMENT J

921000282

ATTACHMENT J
WEST END GAS WORKS

10 C. PERMITS SUMMARY

C. New Jersey Pollutant Discharge Elimination System (NJPDES) Permit

Permit/Certificate	Date of Approval	Expiration Date
NJ0005550	10/31/80	10/31/85
NJ0000574	3/9/83	4/30/88

Discharge Activity (all permits):
Non-Contact Cooling Water (001)
Storm Water (002)

Body of Water Discharged Into:
Hackensack River

ATTACHMENT K

921000284

921000285

ATTACHMENT G
WEST END GAS WORKS

8. DISCHARGE HISTORY OF HAZARDOUS SUBSTANCES AND WASTES

Date of Discharge	NJDEP Notified?	NJDEP Case #	NJDEP Cleanup Approval?	Sampling Results?	Description and Response	AOC[1] Number
Early 1900's	NA	NA	NA	NA	Tar spills have occurred in the area north of the relief holder	43
					The tar storage and settling tank area northeast of the intersection of St. Pauls and Duffield Avenues.	22
					The area south of St. Pauls Avenue, west of the former machine shop.	16
Early 1940's	NA	NA	NA	NA	No. 2 oil tank ruptured and 500,000 gal of product (kerosene?) spilled into the ground. No information on the extent of the spill, cleanup, or the impacts to soils, groundwater or surface water. Some of the product was contained with ditches.	17
Early 1950's	NA	NA	NA	NA	There was a gas oil leak (quantity not specified) from Tank 2.	17
Late 1950's	NA	NA	NA	NA	A "sizeable" (quantity not specified) fuel oil leak occurred under the machine shop, in the fuel oil line from Tank 5.	13
1957 or 1958	NA	NA	NA	NA	A manhole cover was opened on the No. 2 Tar Settling Tank and 80,000 gal of tar spilled to the ground. PSE&G cleaned up as much tar as possible, but some soils were impacted.	22
Late 1960's	NA	NA	NA	NA	An oil leak (unknown quantity) from the fuel oil day tank covered an area approximately 75 x 75 feet around the tank west of Duffield Avenue between the machine shop and the boiler house.	3
1960 to 1985	NA	NA	NA	NA	Underground oil accumulations have been observed in the area between St. Paul's Ave. and the north property line from Duffield Ave., extending approximately 200 ft to the east.	57A
					Free product (within the range of kerosene to No. 4 fuel oil) has been pumped from manholes in St. Paul's and Duffield Avenues, as well as ground sumps in this area.	57A
1969 or 1970	NA	NA	NA	NA	A leak from the fuel tank for the boiler room released 50,000 gal of oil (kerosene?) to the ground surface. A containment was set up around the tank and PSE&G cleaned up as much as possible.	3
Early 1970's	•	•	•	•	An oil tank owned by the Wellan Oil Co. developed a large leak that inundated the southwest corner of Block 651 of Parcel 3 of the Site. PSE&G cleaned up as much as possible, but soils were impacted.	57B
1976	•	•	•	•	A fuel oil spill at the Wellan Company covered an area of the Site approximately 250 x 150 ft at the intersection of Howell St. and Duffield Ave. the area included the condensers, relief holder, precipitators and garage.	57B

921000286

ATTACHMENT G
WEST END GAS WORKS

8. DISCHARGE HISTORY OF HAZARDOUS SUBSTANCES AND WASTES

Date of Discharge	NJDEP Notified?	NJDEP Case #	NJDEP Cleanup Approval?	Sampling Results?	Description and Response	AOC[1] Number
5/18/78	•	•	•	•	Emergency subsurface electrical work on a local street required dewatering of an oil/water mixture from a manhole to a storm sewer catch basin that led to the Hackensack River. The discharge was contained with booms and pads. About 25 gal of oil was recovered at the river outfall by the cleanup contractor (Coastal Services, Inc.).	57C
7/23/81	•	•	•	•	Approximately 3 gal of a tar/oil water mixture discharged from a leak in the oil/water separator into a sewer line and discharged to the Hackensack River. Sorbent materials (boom and skimmers) were deployed by PSE&G to contain and remove the free product from the river.	15 & 57C
1/20/83	Yes	•	•	•	A leak from a transfer pump on the #3 kerosene tank resulted in approximately 186,000 gal lost from the tank to the diked area surrounding the tank. The spill was contained within the dike and cleanup of the free product was completed by 1/24/83. The USCG confirmed that the river had not been impacted and notified NJDEP.	19
2/3/83	Yes	•	•	•	About 30 gal of kerosene overflowed the diked area from the Oil Residue Tank of the oil/water separator to the surrounding ground surface. Overflow due to heavy rainfall. PSE&G personnel deployed a boom on the adjacent river area to contain a "minute" amount of the kerosene that eventually reached the river. Cleanup completed the same day. PSE&G planned soil sampling in preparation for excavation and disposal of contaminated soils. No information available on the sampling or soil remediation.	15 & 57C
2/5/84	Yes	•	•	•	A crack on a valve on the #3 kerosene tank resulted in a release within the diked area of the tank. Approximately 1,800 gal were contained within the dike. The tank was off-loaded to a river barge in order to repair the valve.	19
7/5/85	Yes	•	•	•	Waste oil spill from a leak from the oil/water separator. About 10 gal discharged to trench that leads to the Hackensack River. Trench soils and river water were impacted by the spill. Spill contained by an oil boom deployed in the river. Cleanup completed same day.	15 & 57C
4/19/86	Yes	•	•	•	Kerosene spill during a water draining operation from a storage tank. About 100 gal were contained within a diked area over rain water. There was no discharge to the river. PSE&G recovered the free product.	19

ATTACHMENT G
WEST END GAS WORKS

8. DISCHARGE HISTORY OF HAZARDOUS SUBSTANCES AND WASTES

Date of Discharge	NJDEP Notified?	NJDEP Case #	NJDEP Cleanup Approval?	Sampling Results?	Description and Response	AOC[1] Number
4/24/86	Yes	•	•	•	#6 fuel oil spill from a valve opened by pump vibration. About 50 gal were contained within a flooded (rainwater) diked area east of #5 Fuel Oil Tank. Cleanup was completed same day using skimmers and pumps. Recovered product sent to oil/water separator.	21
12/26/90	Yes	90-12-26-1122	NA	NA	Spill of approximately 300 gallons of unleaded gasoline. Spill was confined to asphalt paved area and sump (referred to as a "dry well" in PSE&G's files) on the property. Advanced Environmental Technology Corp. (AETC) responded and performed cleanup. All waste gasoline and spill cleanup debris disposed of as hazardous waste.	32
6/28/91	Yes	91-6-28-1541-51	NA	NA	Spill of approximately 120 gallons of unleaded gasoline. Spill was confined to asphalt paved area and sump (referred to as a "dry well" in PSE&G's files) on the property. AETC responded and performed cleanup. All waste gasoline and spill cleanup debris disposed of as hazardous waste.	32
(Unspecified Dates)	•	•	•	•	Drip oil from Gas Holder 1 and 2 was discharged to ground surface. Drippage from distribution drip trucks was drained onto the ground surface between Gas Holder 1 and the railroad property. Other businesses and individuals have historically utilized properties, streets and surface water catch basins in the Site area for disposal of fuel oils and motor oils.	25 & 50 25 58

Notes:

NA - not applicable
• - information not available from PSE&G files
1 - see Figure 10 for the location of each AOC.

ATTACHMENT H

921000289

ATTACHMENT K
WEST END GAS WORKS

11. ENFORCEMENT ACTIONS SUMMARY

Name/Address of Agency that Initiated the Enforcement Action	Date of the Enforcement Action	Section of Statute, Rule or Permit Allegedly Violated	Type of Enforcement Action	Description of Violation	How was the Violation Resolved?
US Coast Guard	7/5/85	33 USC 1321(b)(3) FWPCA	Notice of Violation	Discharge of approximately 10 gal of waste oil to the Hackensack River	Proposed penalty of $500.00
US Coast Guard	7/13/83	33 USC 311(b)(3) FWPCA	Notice of Violation	Small amount of kerosene discharged to the Hackensack River from an overflow of the Oil Residue Tank on 2/13/83.	Proposed Civil Penalty of $200.00
US Coast Guard	4/6/82	33 USC 311(b)(3) FWPCA	Notice of Violation	Discharge of a tar/oil mixture from the oil/water separator to the Hackensack River.	Civil Penalty of $75.00
USEPA	1/6/82	(not referenced)	Deficient Discharge Monitoring Report for NJPDES Permit	A single pH value was reported for Discharge 002 over a three month period ending 10/31/81.	(No information available)
USEPA	4/3/81	(not referenced)	Deficient Discharge Monitoring Report for NPDES Permit	Loading values, minimum values for reported concentrations, pH, flow, and temperature not reported.	Letter from PSE&G dated 4/15/81 to USEPA addressed the deficiencies.
NJDEP	5/14/79	FWPCA	NPDES Compliance Evaluation Inspection and Sampling	1. Excessive oil and grease discharge at DIS 017. 2. Flow not continuously measured and recorded. 3. Incorrect calculation/ reporting for oil and grease of DMR for period ending 12/31/78.	(No information available)
US Coast Guard	9/18/78	33 USC Sect 1321	Notice of Violation	Discharge of oil or oily waste to a storm sewer discharge to the Hackensack River.	Civil Penalty of $5,000.00
USEPA	12/13/77	402 FWPCAA (33 USC 1342)	Notice of Violation	Discharge Monitoring Report dated 9/30/77 reported a value exceeding the NJPDES permit	(No information available)

921000290

Name/Address of Agency that Initiated the Enforcement Action	Date of the Enforcement Action	Section of Statute, Rule or Permit Allegedly Violated	Type of Enforcement Action	Description of Violation	How was the Violation Resolved?
				limitation for temperature.	
USEPA	9/30/76	308 FWPCA	Notice of Violation	Discharge Monitoring Report dated 8/31/76 reported values exceeding the NJPDES permit limitations for oil and grease, total suspended solids and temperature.	(No information available)

SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN – SEDIMENT INVESTIGATION

FORMER WEST END GAS WORKS
JERSEY CITY, NEW JERSEY

Submitted by:

PSEG Services Corporation
80 Park Plaza
Newark, NJ 07102

BJC000031

November 2004

PSEG
Services Corporation

921000292

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B PSEG SC Standard Operating Procedures

921000294

LIST OF ACRONYMS AND ABBREVIATIONS

AM	Ash material
CFR	Code of Federal Regulations
CM	Clinker material
DQO	Data Quality Objective
EPA	Environmental Protection Agency
FSPM	Field Sampling Procedures Manual
GPS	Global positioning system
HASP	Health and safety plan
HLA	Harding Lawson Associates
M&R	Metering and Regulating
MGP	Manufactured Gas Plant
MSL	Mean sea level
NAPL	Non-Aqueous Phase Liquid
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
OM	Oil material
PAH	Polynuclear aromatic hydrocarbon
PID	Photo-ionization detector
PSE&G	Public Service Electric and Gas Company
PSEG SC	PSEG Services Corporation
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCC	Soil Cleanup Criteria
Site	former West End Gas Works
SOP	Standard Operating Procedure
SRI	Supplemental Remedial Investigation
SRIWP	Supplemental Remedial Investigation Work Plan
TM	Tar material
Transco	Transcontinental Gas Pipeline

SECTION 1 INTRODUCTION

1.1 BACKGROUND

The Supplemental Remedial Investigation Work Plan - Sediment Investigation (SRIWP) was prepared by Schoor DePalma, Inc. (Schoor DePalma) for PSEG Services Corporation (PSEG SC), which is conducting remedial investigation (RI) activities at the former West End Gas Works (Site) located in Jersey City, Hudson County, New Jersey on behalf of Public Service Electric and Gas Company (PSE&G). The SRIWP addresses comment letters from New Jersey Department of Environmental Protection (NJDEP) dated April 16, and November 13, 2003 regarding further delineation of contamination in the Hackensack River as a result of former manufactured gas plant (MGP) operations at the Site.

The purpose of the SRIWP is to delineate oil material (OM) and/or tar material (TM) and obtain geotechnical data to support the design and installation of an Interim Remedial Measure to contain/control contamination possibly emanating from the Site (Parcel 1.) During 2004, PSEG SC has performed extensive historical data acquisition and review regarding Site facilities. The historical data was compiled and reviewed to identify the status of each facility as active, abandoned in place, removed, etc. The information was then verified by a field engineer. Appendix A provides a copy of the drawings that have been developed in anticipation of remedial actions.

The Supplemental Remedial Investigation (SRI) is being conducted and reported in accordance with the NJDEP Technical Requirements for Site Remediation specified in New Jersey Administrative Code (N.J.A.C.) 7:26E and the NJDEP Field Sampling Procedures Manual (FSPM) (May 1992).

The SRIWP incorporates data collected during previous investigations of the Site including:

- Preliminary Evaluation and Prioritization of 15 Manufactured Gas Plant Sites prepared by BCM Engineers, dated February 1989,
- Preliminary Assessment Report prepared by Langan Engineering and Environmental Services, Inc., dated June 9, 1998,
- Site Investigation Report prepared by Harding Lawson Associates (HLA), dated April 1999,
- Remedial Investigation Work Plan prepared by HLA, dated October 1999,
- Geotechnical Investigation Report prepared by Schoor DePalma, dated May 22, 2000,
- Remedial Investigation Report (RIR) prepared by Schoor DePalma, dated July 2000, and

- RIR prepared by Schoor DePalma, dated February 2002.

This work is being performed in accordance with the requirements of a Memorandum of Agreement by and between NJDEP and PSE&G dated April 30, 1998. PSEG SC has retained Schoor DePalma as its environmental consultant for preparation of the SRIWP for the sediment investigation.

1.2 PROJECT PERSONNEL

The project manager, facility contact, legal contact, environmental consultant, analytical laboratory and other subcontractors are described below. If any of the principal personnel, contractor or subcontractors identified below change, information on the new personnel, contractor or subcontractor will be submitted to the NJDEP within 10 calendar days of the change.

Project Manager – Craig W. Veprek, PE

Mr. Veprek is responsible for overall project coordination and oversight of work activities. His business address and telephone number are:

PSEG Services Corporation
80 Park Plaza, T-17E
P.O. Box 570
Newark, New Jersey 07102-4194
Telephone: (973) 430-8663

Legal Contact – Chris McAulliffe:

Mr. McAulliffe is responsible for ensuring that project activities and associated documents conform to regulatory requirements. His business address and telephone number are:

PSEG Services Corporation
80 Park Plaza
P.O. Box 570
Newark, New Jersey 07102-4194
Telephone: (973) 430-6298

Environmental Consultant – To be determined:

The environmental consultant for the SRI is responsible for performing technical activities in accordance with the approved SRIWP, supervising field subcontractors, and preparing technical reports.

Analytical Laboratory – To be determined:

A New Jersey-certified laboratory will be selected for sample analysis. The laboratory is responsible for providing analytical services, including laboratory quality assurance and quality control activities.

Other Subcontractors

Other subcontractors for the SRI may include a New Jersey-licensed driller, surveyor and a barge operator.

NJDEP Primary Contact

The primary contact for the NJDEP for the project will be the NJDEP Case Manager, Anthony Cinque.

1.3 REPORT ORGANIZATION

The SRIWP includes the following sections:

- SECTION 1 INTRODUCTION
- SECTION 2 BACKGROUND
- SECTION 3 RESULTS OF PREVIOUS INVESTIGATIONS
- SECTION 4 DATA QUALITY OBJECTIVE PROCESS
- SECTION 5 SCOPE OF WORK
- SECTION 6 REPORTING
- SECTION 7 PROJECT SCHEDULE
- SECTION 8 REFERENCES

The BACKGROUND section (SECTION 2) presents information on the Site location history, and Site description.

The RESULTS OF PREVIOUS INVESTIGATIONS section (SECTION 3) presents a summary of the results of the RI activities completed to date.

The DATA QUALITY OBJECTIVE PROCESS section (SECTION 4) describes the six steps that define the scope of the SRI and development of the data quality objective (DQO) statement.

The SCOPE OF WORK section (SECTION 5) summarizes SRI activities to be conducted at the Site including field investigation activities, associated health and safety activities, and the iterative DQO process.

The REPORTING section (SECTION 6) describes the preparation of the report on the SRI results.

The PROJECT SCHEDULE section (SECTION 7) presents a general overview of the sequence of SRI activities.

A list of REFERENCES is provided in SECTION 8.

The appendices to the SRIWP include piping diagrams and PSEG SC's standard operating procedures (SOP).

SECTION 2 BACKGROUND

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: 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 nine acres).

Parcel 2: 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: 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 (approximately nine acres).

Parcel 4: Bordered on the northwest by Terminal Ventures, Inc. property, on the northeast by Howell Street, on the southeast by Charlotte Avenue, and on the southwest by the Wallis Avenue traffic circle (approximately two acres).

2.2 OPERATING HISTORY

During the period between 1868 and 1869, the Peoples Gas Light Company of Hudson constructed the original MGP in the areas consisting of 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, the gas manufacturing facilities were retired from service. Between 1985 and 1995, the 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. With the introduction of natural gas to PSE&G's system in the mid-1950s,

natural gas metering and regulating (M&R) stations were constructed and later upgraded at the Site. Two natural gas M&R stations are currently active at the Site. The RIR (Schoor DePalma, 2000c) presents a detailed discussion of historical operations and associated facilities.

Current operations onsite are limited to the natural gas M&R stations on Parcel 1, and the PSE&G East Jersey District Gas Distribution headquarters and Jersey City Appliance Service Business Unit that are located on the eastern portion of Parcel 2. 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.

2.3 SITE DESCRIPTION

Parcels 1, 2 and 3 are currently fenced and controlled by PSE&G. Parcel 4 is partially fenced and occupied by a PSE&G electrical substation and other parties. Following is an overview of the current layout of each of the parcels and a discussion of the relieving platform along the Hackensack River.

2.3.1 Parcel 1

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 Transcontinental Gas Pipeline (Transco). The northwestern border of Parcel 1 consists of two relieving platforms and sheet piling along the river. The southern relieving platform is failing.

Several major utilities cross Parcel 1. These include high-pressure gas pipelines operated by PSE&G and Transco, 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.

2.3.2 Parcel 2

The PSE&G East Jersey District Gas Distribution Headquarters and the Jersey City Appliance Service Business Unit currently occupy the southeastern portion of Parcel 2. 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.

2.3.3 Parcel 3

Parcel 3 is currently being remediated in accordance with a separate remedial action work plan.

2.3.4 Parcel 4

An Exxon service station, a PSE&G electric substation and an equipment yard operated by Standard Wreckers and Excavators currently occupy Parcel 4.

2.4 SITE SETTING

2.4.1 Land Use

Land use surrounding the Site is mixed commercial and industrial. The Hackensack River borders the Site on the northwest. Facilities to the southwest of the Site include a Terminal Ventures, Inc. tank farm and Standard Wreckers and Excavators. 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.

2.4.2 Topography and Site Drainage

The topography of the Site is generally level. Surface elevations across the Site range from approximately six 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.

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.

2.4.3 Soils

According to the United States 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 material (AM), clinker material (CM), 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.

2.4.4 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.

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

- Lockatong Formation
- Palisades Intrusion
- Glacial Deposits
- Alluvium

Details regarding the geology and hydrogeology of the Site are presented in the RIR (Schoor DePalma, 2000c).

SECTION 3 RESULTS OF PREVIOUS INVESTIGATIONS

Results of previous investigations were presented in the RIR (Schoor DePalma, 2000c) and the Revised RIR (Schoor DePalma, 2002).

- The Site is underlain by roughly 3.5 to 15 feet of fill material, which typically consists of varying amounts of medium to coarse sand, CM, AM, coal, brick and concrete fragments. Much of the fill material contains several polynuclear aromatic hydrocarbons (PAH), benzene and lead at concentrations above the NJDEP soil cleanup criteria (SCC). Other constituents including styrene and several metals were detected in the fill material at concentrations above the SCC in isolated areas of the Site.

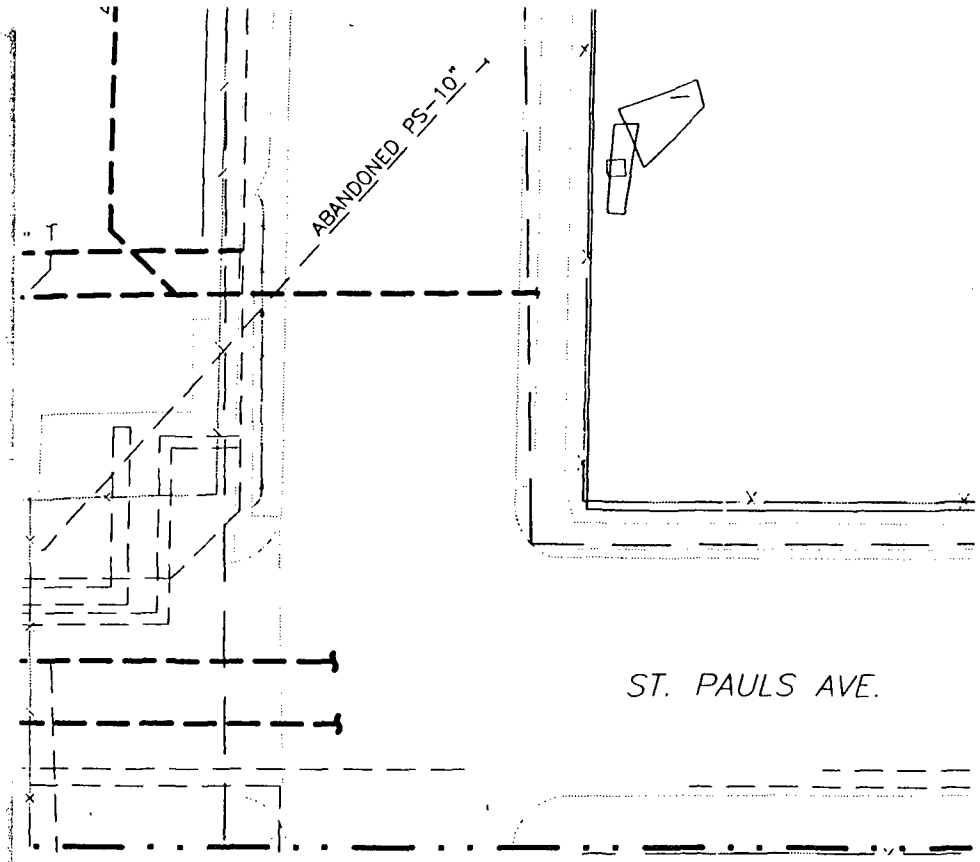
- A layer of peat underlies most of the Site. Evidence from several areas of the Site suggests that the peat layer has been breached and/or partially eroded in isolated areas associated with construction of several onsite structures as well as possible down cutting by historical stream channels.

- Non-aqueous phase liquids (NAPL) were identified across much of Parcel 1, the western half of Parcel 2 and in isolated areas on Parcel 3. The NAPL appears to be generally confined above the peat layer. However, data from two soil borings conducted during a geotechnical investigation (Schoor DePalma, 2000b), suggest that NAPL has migrated to deeper zones near the Hackensack River.

- Benzene appears to be present in ground water across most of the Site. Ground water in Parcel 1 and near the northwestern corner of Parcel 2 has been affected both above and below the peat layer. Ground water above the peat layer in other portions of Parcel 2 and Parcel 3 has been affected. However, the ground water below the peat layer in these areas does not exhibit significant evidence of impact. Ground water samples collected from wells installed during the RI near former underground storage tank areas did not exhibit evidence of impacts other than elevated benzene concentrations, which appear to be present across most of the Site.

- 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. TM was detected in samples from RB-4 and RB-5 located along the edge of the relieving platform.



REFERENCE DRAWINGS FOR WEST END METER STATION PLOT

West End Gas Plant mapping	A-85-1 A-85-2
PSE&G M&R Site Plan	A-5186-0
PSE&G 20" Transmission main	A-5165.9 E-643-5352-D
PSE&G 10" Transmission main	A-3426 C-3335 D-1226681 E-126656
Hess 10" Oil line	AL-643-86-Q C-643-4461 E-643-5352-D E-643-5381-C
TRANSCO (Williams) 24" main	NJG-198 No Number
Jersey City 36" water	No Records
Jersey City 68"x106" Drain	Schematic Only

PALMA
onsultants
GA27926200
ICK • CLINTON • EXTON • KULPSVILLE
JRG • STAFFORD • VOORHEES

1300 ATLANTIC AVENUE, SUITE 801
CITICENTER BUILDING
ATLANTIC CITY, NJ 08401
TEL (609)449-9400
FAX (609)449-9800

PARCEL ONE

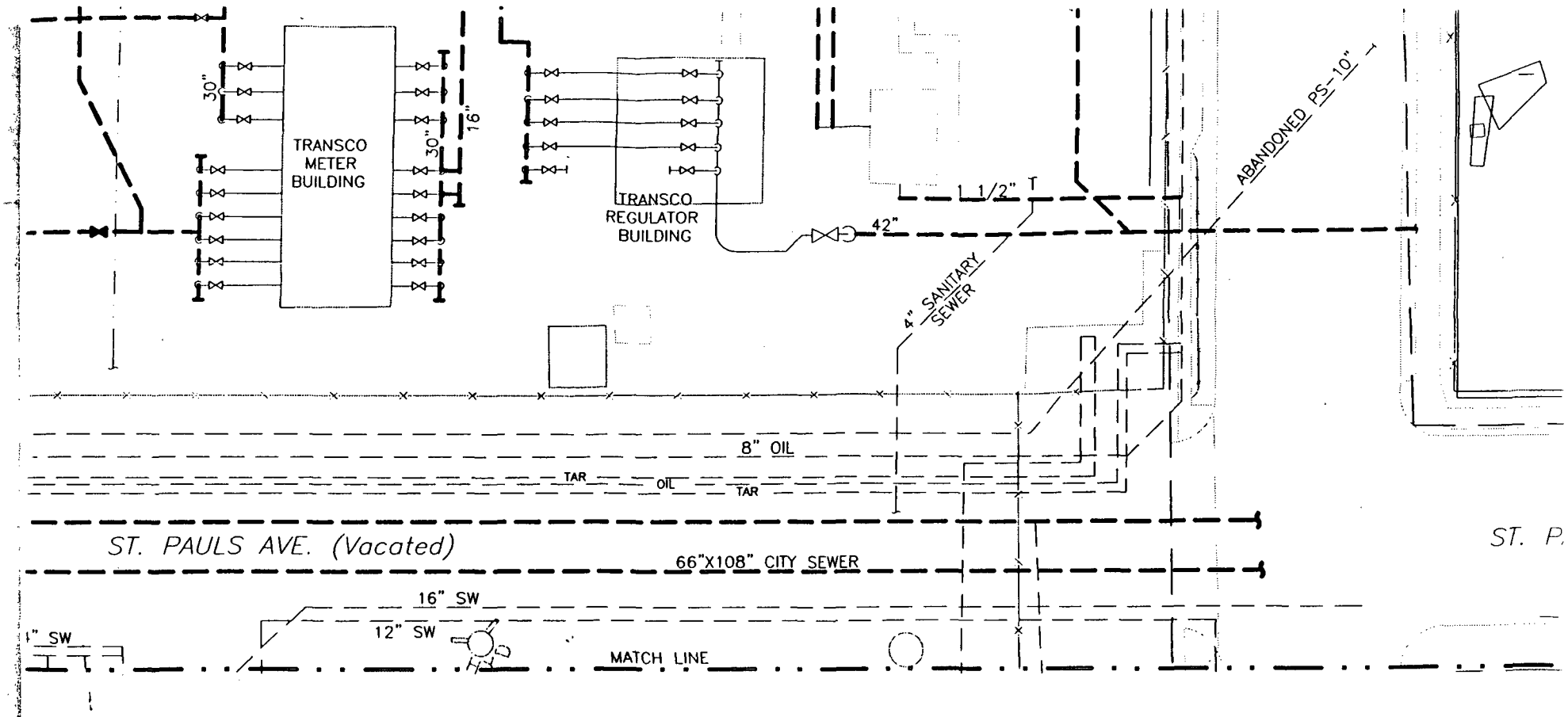
FORMER WEST END GAS PLANT AND HACKENSACK RIVER CROSSING

LOCATION PLAN – PIPING

JERSEY CITY HUDSON COUNTY NEW JERSEY

PROJECT NO S99227B	DATE 06-04-2004
DRAWN BY CL	DESIGNED BY KD, SW
SCALE 1" = 20'	CHECKED BY
SCHOOR DEPALMA	
SHEET NO. 1 of 2	

921000306



EDWARD J. SAWICKI, JR.
PROFESSIONAL ENGINEER, N.J. LIC. NO. 33935

SCHOOR DEPALMA
Engineers and Consultants
Cert. Of Authorization 24GA27926200
MANALAPAN • WHITE PLAINS • ATLANTIC CITY • BRICK • CLINTON • EXTON • KULPSVILLE
PARSIPPANY • PHILADELPHIA • PHILLIPSBURG • STAFFORD • VOORHEES

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CITICENTER BUILDING
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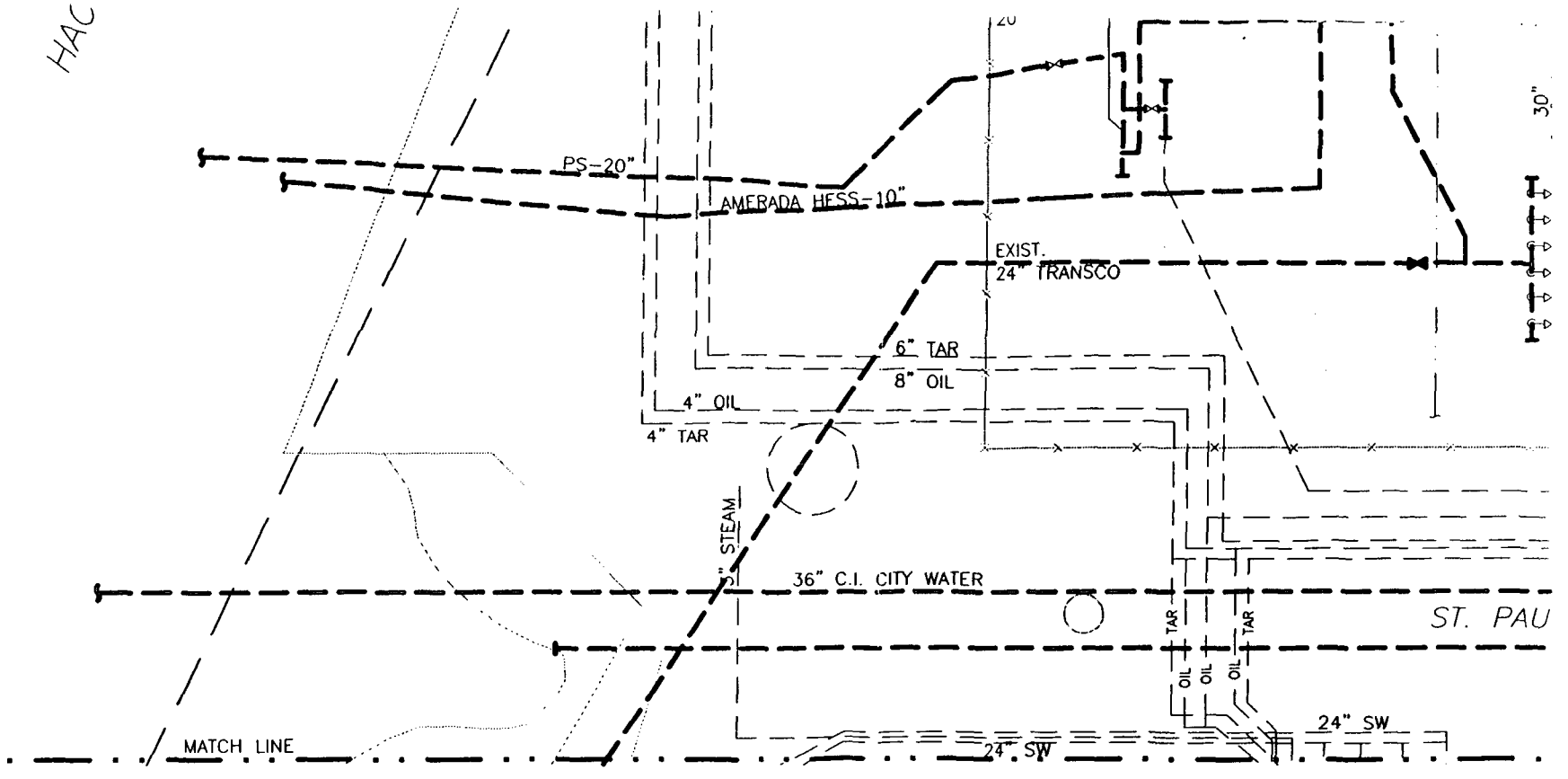

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REVISION NO.	DATE	REVISION

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PROFESSIONAL E

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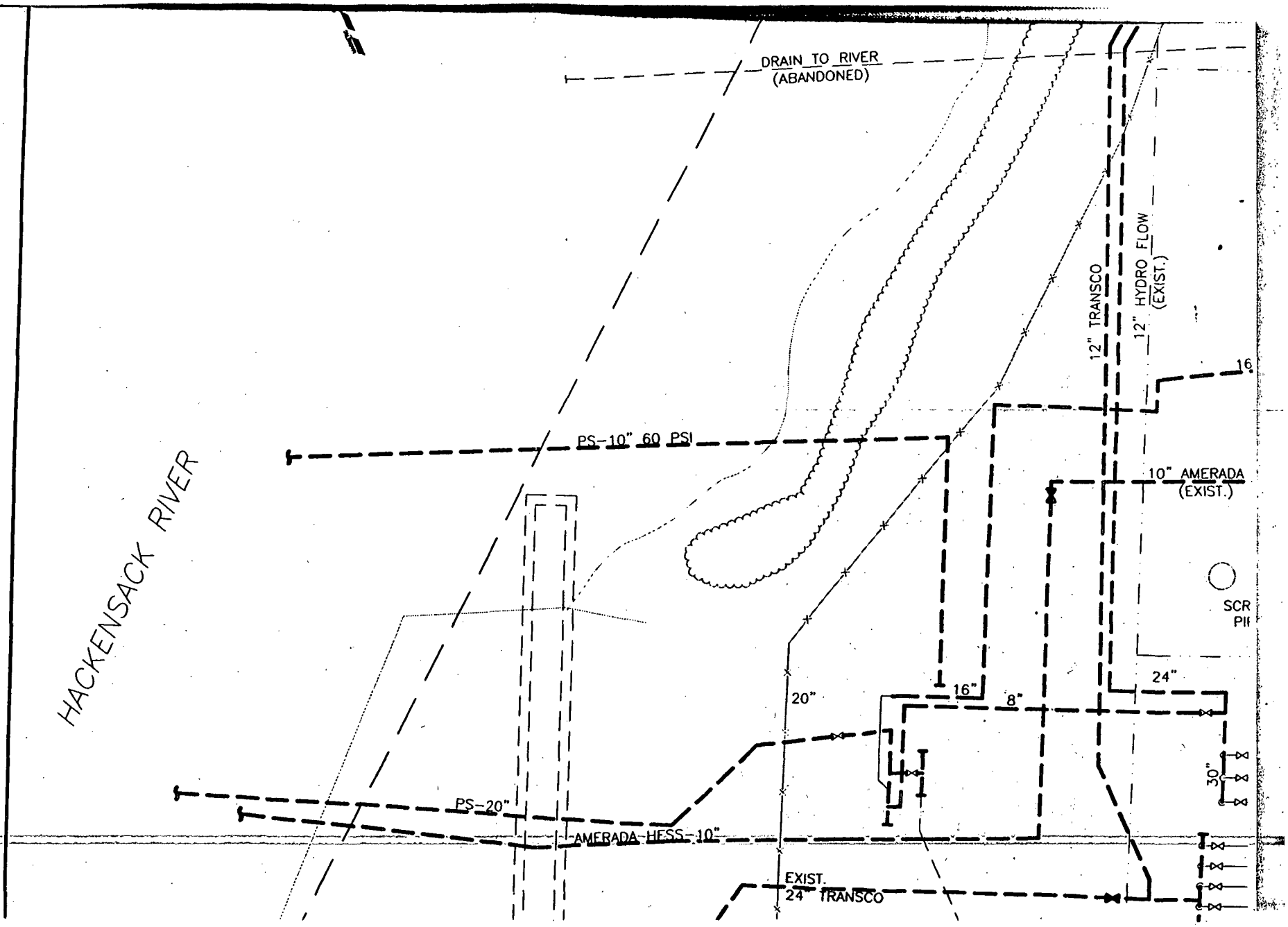
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(ABANDONED)
HACKENSACK RIVER
PS-10" 60 PSI
12" TRANSCO
12" HYDRO FLOW
(EXIST.)
10" AMERADA
(EXIST.)
SCR
PI
16
20"
16"
8"
24"
30"
PS-20"
AMERADA-HESS-10"
EXIST.
24" TRANSCO

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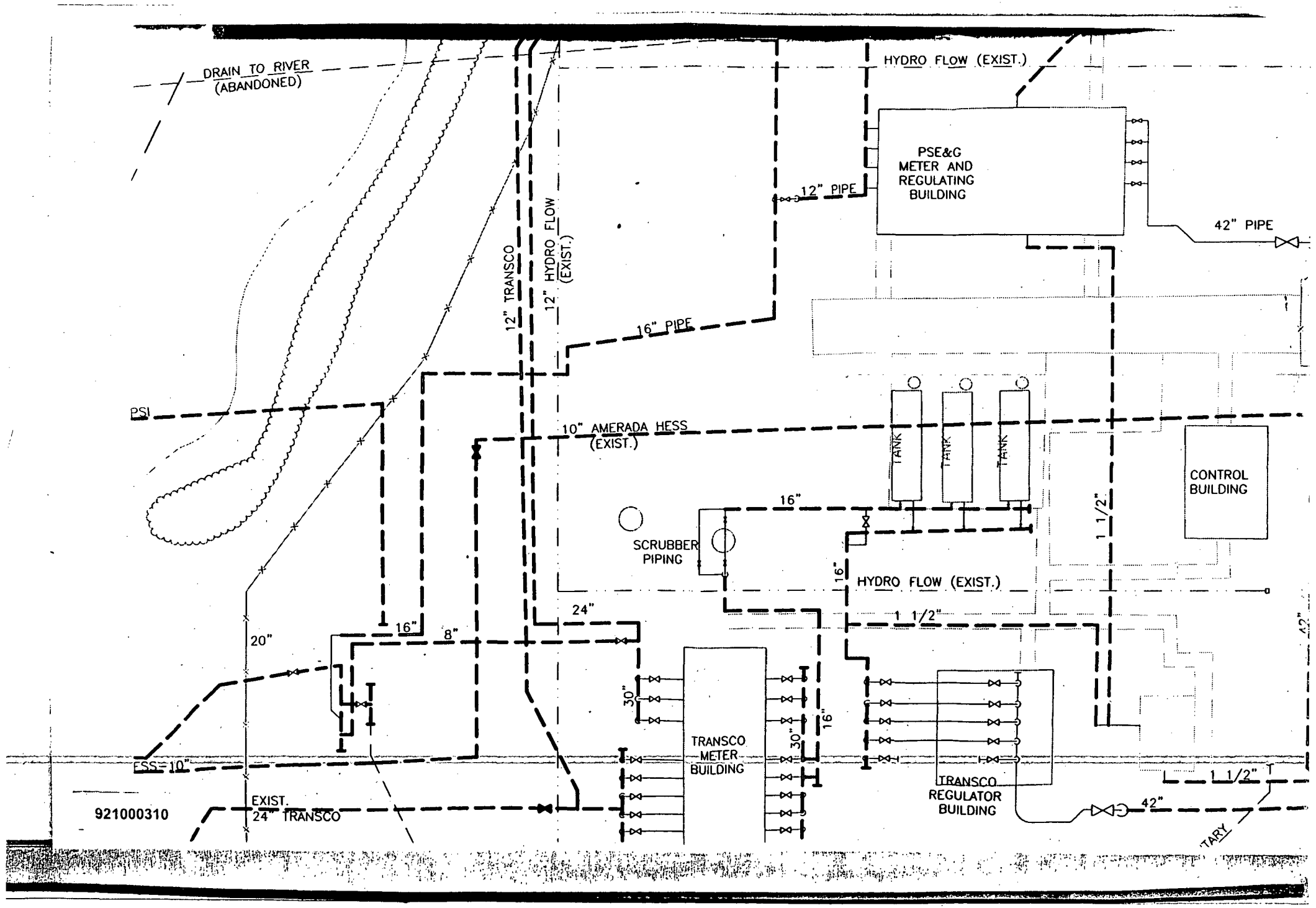
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(ABANDONED)
HYDRO FLOW (EXIST.)
PSE&G
METER AND
REGULATING
BUILDING
12" PIPE
42" PIPE
12" TRANSCO
12" HYDRO FLOW
(EXIST.)
16" PIPE
PSI
10" AMERADA HESS
(EXIST.)
TANK
TANK
TANK
CONTROL
BUILDING
16"
SCRUBBER
PIPING
1 1/2"
16"
HYDRO FLOW (EXIST.)
24"
1 1/2"
20"
16"
8"
30"
TRANSCO
METER
BUILDING
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TRANSCO
REGULATOR
BUILDING
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EXIST.
24" TRANSCO
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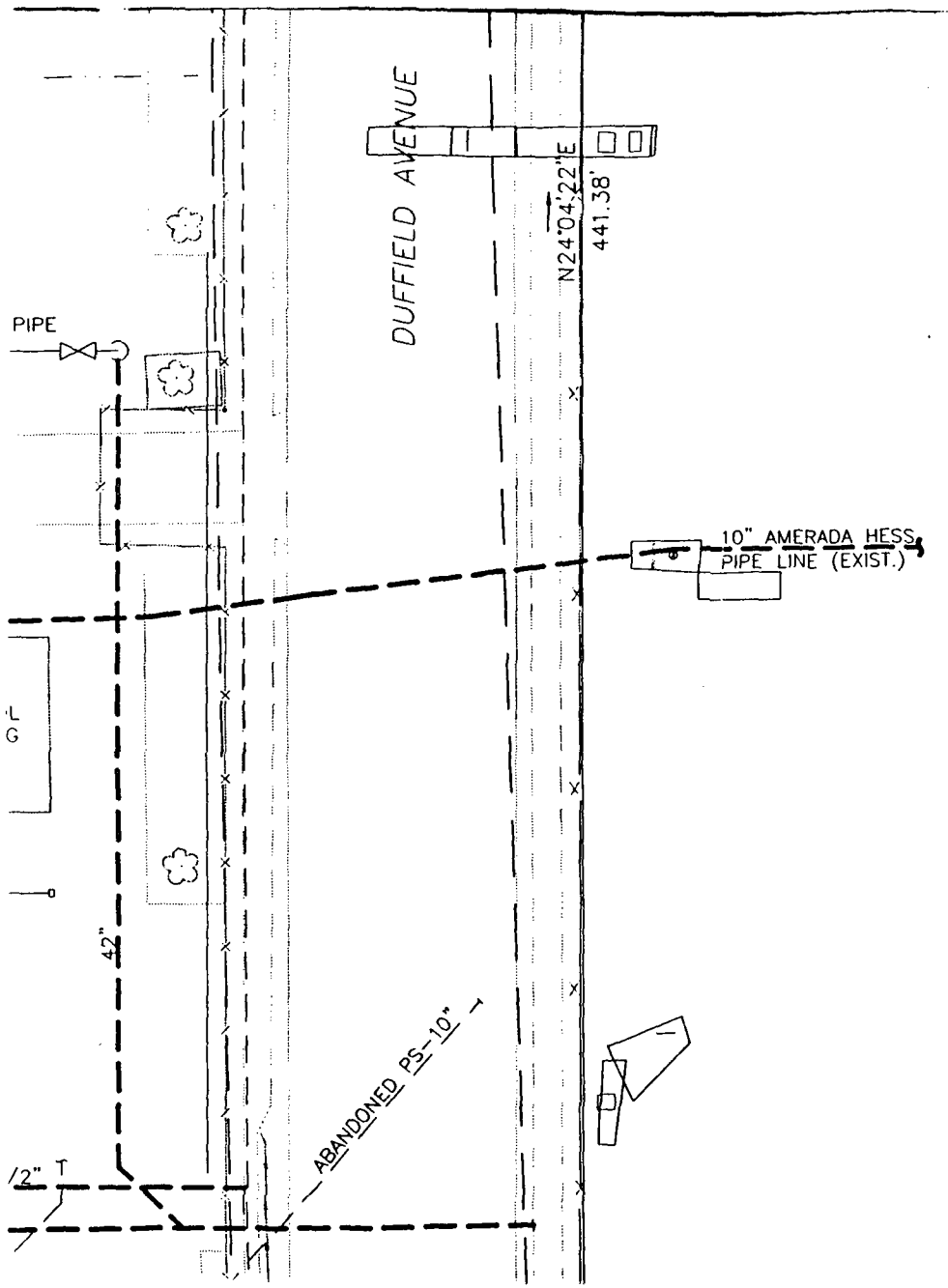

LEGEND:

- LIVE BURIED PIPE
- ABANDONED BURIED PIPE
- DRAIN IN USE
- LIVE ABOVE GROUND PIPE
- FENCE
- LINE CONTINUES
- LINE END
- VALVE
- UTILITY POLE
- TREE
- SELECTED HISTORIC STRUCTURES NOW REMOVED AND GRADED TO LEVEL GROUND.
- SW — SALT WATER

REFERENCE DRAWINGS FOR WEST END METER STATION PLOT

West End Gas Plant mapping	A-85-1 A-85-2
PSE&G M&R Site Plan	A-5186-0
PSE&G 20" Transmission main	A-5165.9 E-643-5352-D
PSE&G 10" Transmission main	A-3426 C-3335 D-1226681 E-126656

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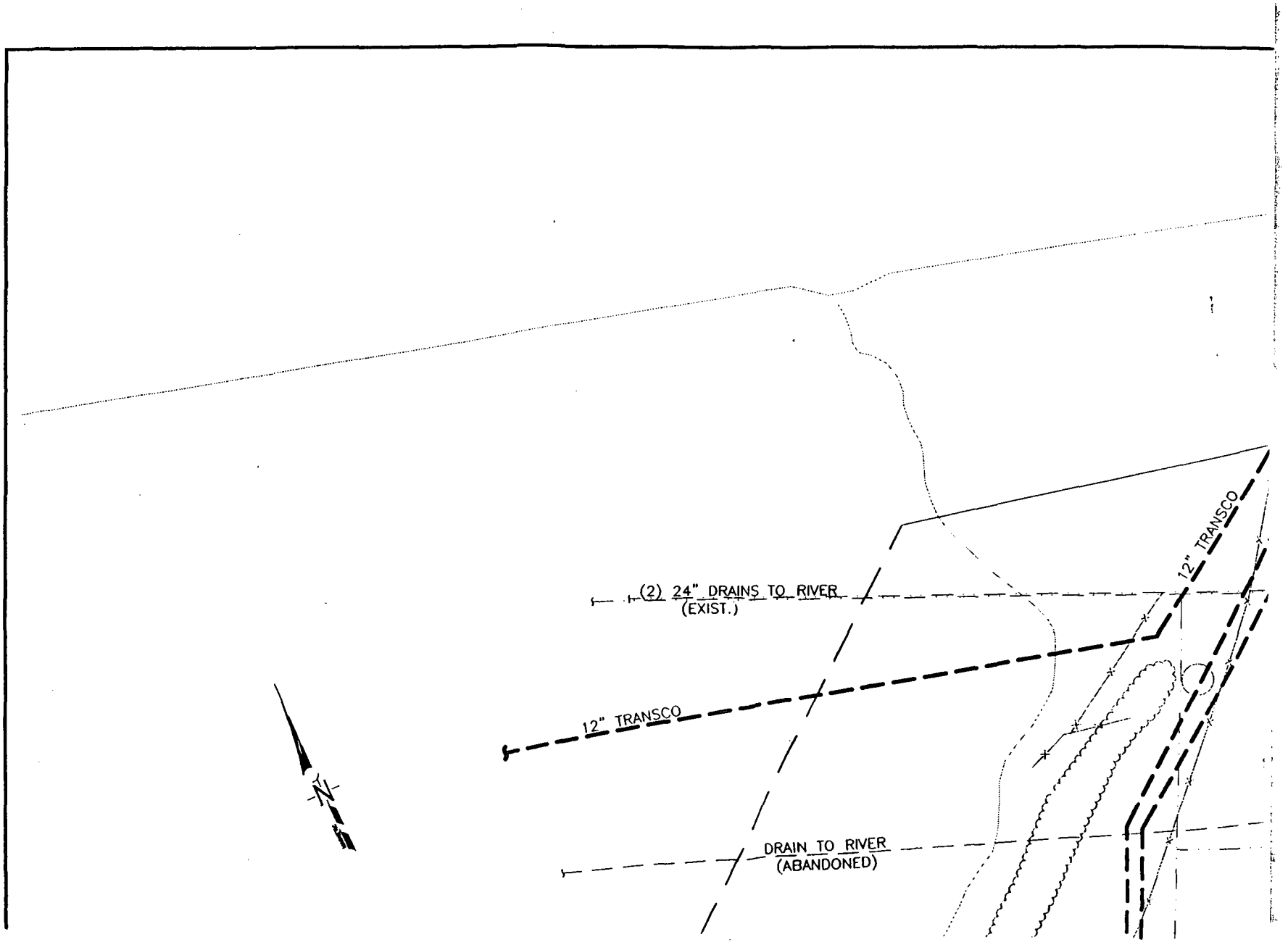
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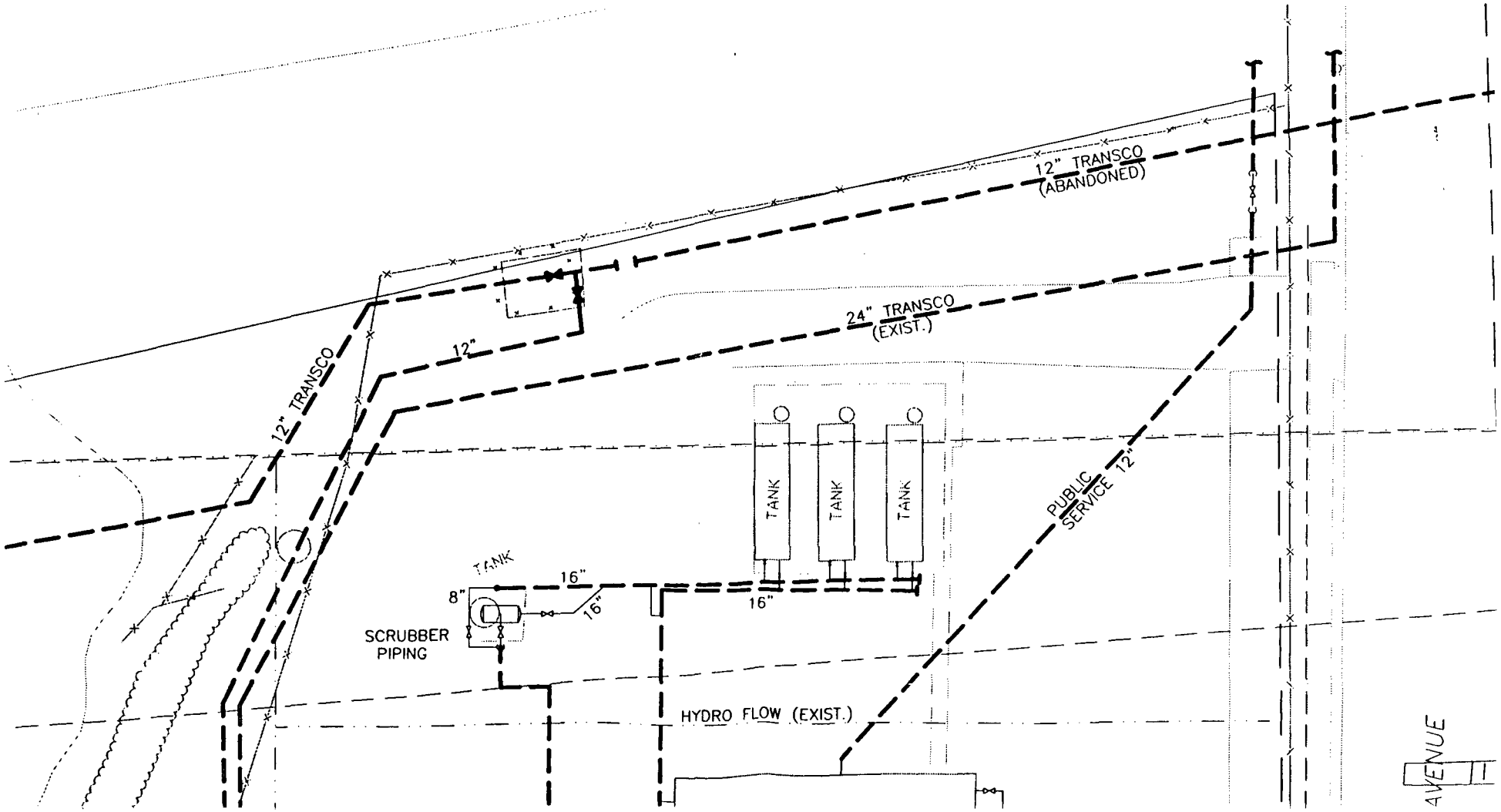
(EXIST.)
12" TRANSCO
12" TRANSCO
DRAIN TO RIVER
(ABANDONED)
N

921000312

921000313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24" TRANSCO
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12"
12" TRANSCO
TANK
TANK
TANK
PUBLIC
SERVICE 12"
TANK
16"
8"
16"
16"
SCRUBBER
PIPING
HYDRO FLOW (EXIST.)
AVENUE

LEGEND:

921000314

APPENDIX A

Permit Identification Form

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

OFFICE OF POLLUTION PREVENTION AND PERMIT COORDINATION

PERMIT IDENTIFICATION FORM

FOR OFFICE USE ONLY

Date Received _____ PIF ID Number _____

Please complete the following using a typewriter or print clearly:

A. PROSPECTIVE APPLICANT INFORMATION

1. Name of Prospective Applicant Mr. Craig Veprek, P.E.

   Company Name PSEG Services Corporation

   Address 80 Park Plaza
   Street No. or PO Box No.

   Newark (City) New Jersey (State) 07102 (Zip Code)

   Tel. No. (973) 430-8663 Fax No. (973) 242-8064

2. Name of Proposed Project Former West End Gas Works Remedial Action

3. Consultant/Contact Person Jason Schindler

   Company Name Schoor DePalma Engineers and Consultants

   Address 200 State Highway Nine, P.O. Box 900
   Street No. or PO Box No.

   Manalapan (City) New Jersey (State) 07726-0900 (Zip Code)

   Tel. No. (732) 577-9000 Fax No. (732) 577-9888

B. PROPOSED PROJECT LOCATION

Street Address St. Pauls Avenue and Duffield Avenue

Municipality(ies) The City of Jersey City County(ies) Hudson County

Zip Code _____ Block No. 649.1 Lot No. 1

652 1,2,3,4,5,6,7

656.1 1

VPM-012
9/2001

921000316

C. GENERAL ACTIVITY DESCRIPTION

1. Project Type ____New Construction ____Renovation/Addition X Additional or New Activity

2. Estimated Beginning Construction Date January 2003

3. Please use this space to describe your proposed project or attach a narrative to your application.

Remedial action of contaminated soil, groundwater and sediment from historical operations of a manufactured gas plant. A detailed description of proposed remedial activities is included in the Remedial Action Work Plan.

We would appreciate the following information to assist you more effectively during the permitting process.

Which Department(s), Bureau(s), and staff have you contacted regarding your proposed project?

NJDEP - Site Remediation Program - Mr. Anthony Cinque - Case Manager

Which permit applications to the Department or other state agencies have you submitted?

None

(Read Statement and Sign Below)

I understand that the filing of this Permit Identification Form (PIF) does not constitute a formal application. The information that I receive in response to the PIF will not prevent the New Jersey Department of Environmental Protection (Department) from requiring additional permits, reviews, certificate, approvals, etc., in the future. I will apply for them by the standard procedures of the Department.

_____ Date

_____ Prospective Applicant's Signature

_____ Prospective Applicant's Name (Please Print)

Please return ten (10) copies of each of the following items:

(a) a description of the proposed project;
(b) the completed Permit Identification Form;
(c) USGS map(s) with the site of the proposed project site boundaries clearly delineated on the map (including the title of the USGS quadrangle sheet from which it was taken)*;
(d) site plans when available; and
(e) a street map

To:

New Jersey Department of Environmental Protection
Environmental Regulation
Office of Pollution Prevention and Permit Coordination
PO Box 423
Trenton, New Jersey 08625-0423

Street Location: 401 East State Street, 3rd Floor East Wing

Telephone Number: (609) 292-3600
Fax Number: (609) 777-1330

*USGS maps may be purchased from:
NJDEP, Maps and Publications, PO Box 420, Trenton, New Jersey 08625-0420
Telephone Number: (609) 777-1038

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I. OFFICE OF POLLUTION PREVENTION AND PERMIT COORDINATION

The Office of Pollution Prevention and Permit Coordination (www.state.nj.us/dep/opppc/) offers project applicants seeking multimedia permits the opportunity to manage their permitting issues through a single point of entry into the Department. A Department project manager will be assigned to projects to conduct a pre-application meeting, clarify permit requirements and issues, coordinate activities among the various Department permitting programs and maintain communication with both the applicant and the permitting programs until the conclusion of the permitting process. Department project management is recommended for new projects requiring multiple permits or major modifications of existing facilities utilizing new or advanced technologies or those which are highly complex and/or highly controversial.

	YES	NO
A. Permit Coordination (609) 292-3600		
Do you wish to have a Department project manager assigned to your permitting activities?	X	
B. Pollution Prevention (609) 777-0518		
Did you complete at least one Form R for a chemical substance regulated under the federal Emergency Planning and Community Right to Know Act (SARA Title III, Section 313) for the last calendar year?		X
If "yes" you are required to prepare a Pollution Prevention Plan for each federal Right to Know substance used or manufactured facility-wide in excess of 10,000 pounds.		
C. Silver & Gold Track for Environmental Performance (609) 777-0518		
Is your facility currently participating in the Silver & Gold Track for Environmental Performance with a signed covenant?		X
D. Small Business Environmental Assistance Program 877-753-1151 or (609) 292-3600		
Approximately 95 percent of all businesses are eligible for assistance. Size standards vary widely depending upon the industry; however, as a general rule, your business is within SBA size limits if it is in manufacturing or wholesaling with fewer than 100 employees.		
Is your facility considered a small business?		X

II. WATERSHED MANAGEMENT (609) 984-0058

A. Program Description

The Division of Watershed Management (DWM) (http://www.state.nj.us/dep/watershedmgt/index.html) administers the Statewide Water Quality Management Planning (WQMP) Program. The WQMP Act states that "all projects and activities affecting water quality in any planning area shall be

developed and conducted in a manner consistent with the adopted areawide plan." The law further specifies that "the commissioner shall not grant any permit which is in conflict with an adopted areawide plan." (N.J.S.A.58:11A). Areawide water quality management (WQM) plans provide information and requirements for water resource protection and wastewater management. These plans will be expanded in the future to include adopted watershed management area plans developed by the Department in partnership with Public Advisory Committees. Under the existing WQMP rules, the Department shall not issue the permit if the Department finds the project or activity to be inconsistent with a WQM plan or the rules (N.J.A.C. 7:15-3.1(a)). The Department conducts a consistency determination (CD) review to ensure that proposed projects or activities do not conflict with the applicable areawide WQM plans.

After a CD review is completed, the Department will find the project to be "consistent", "not addressed", or "inconsistent". A project is "consistent" if it complies with the WQMP rules and the applicable WQM plans. If the planning rules and the WQM plans do not contain provisions regarding or precluding a project, then the project is "not addressed". For projects that are determined to be "consistent" or "not addressed", the Department will either issue a written CD to the applicant or issue the permit. A finding of "inconsistent" means that the project conflicts with the rules and/or the areawide WQM plans. In order to resolve a finding of "inconsistent", an applicant may either revise the project to conform with the WQM plans and rules, apply for a WQM amendment, or appeal the Department's finding of inconsistent. Since CD reviews are considered part of the permit review process, an appeal of a Department CD must be pursued as an appeal of the permit decision, in accordance with the statutes and rules that govern the particular permit.

The WQMP rules were recently revised to increase the planning and environmental assessment requirements for new or expanded discharges to groundwater of more than 2,000 gallons per day. This includes residential development of 6 or more units on individual subsurface sewage disposal systems. Please refer to N.J.A.C. 7:15-8 for more information on these new requirements and N.J.A.C. 7:15-8.2(c) for exemption criteria.

B. General Questions Relating to Water Quality and Watershed Management Planning

The Division of Watershed Management is interested in evaluating projects for consistency with applicable areawide WQM plans and WQMP rules and its potential impacts on watershed management planning. The following questions will assist the Department in determining the applicability of these programs to your proposed project.

	YES	NO
1. *Will your project or activity generate wastewater?*	X	

2. Name of treatment facility where wastewater generated by your proposal is expected to be treated:

   Name: On site pre-treatment. Discharging treated effluent to the Passaic Valley Sewerage Commissioners.

3. *Is this facility existing or proposed?* Existing X Proposed ____
4. Type of wastewater disposal: Ground water ____ Surface water X

5. Type of proposed water supply source: Ground water_____ Surface water X

6. Name of Associated Purveyor: United Water Company

7. Name of source waterbody or aquifer: Two reservoirs; Jersey City Reservoir, Split Rock Reservoi

8. Location of diversion (Municipality and street, if applicable): Jersey City, Duffield Avenue

A Map of New Jersey's Watershed Bureaus and Management Areas is included as Attachment A. For additional information please contact the Bureau in which your proposed project is located:

Northwest Region	633-3812
Northeast Region	633-1179
Lower Delaware Region	633-1441
Raritan Region	633-7020
Atlantic Coastal Region	984-6888

III. LAND USE MANAGEMENT

Land Use Management administers the permit programs associated with the Waterfront Development Act, the Wetland Act of 1970, the Coastal Area Facility Review Act (CAFRA), the Flood Hazard Area Control Act (Stream Encroachment), the Freshwater Wetlands Protection Act, and the Riparian Lands Management Program.

A. Land Use Regulation Program (http://www.state.nj.us/dep/landuse/index.html)

For some projects requiring permits issued by the Land Use Regulation Program, a determination is required to assure that the projects approved or authorized do not conflict with the Statewide and Area-wide Water Quality Management Plans and regulations.

1. Coastal Area Facility Review Act (CAFRA) Permit – A CAFRA Permit is needed for certain types of residential, commercial, industrial, and public developments within the coastal area described in the Act. Municipalities within the coastal area (CAFRA) are listed in Attachment B.

	YES	NO
Is your development geographically located in the CAFRA area? If "Yes," please answer the following questions, consulting CAFRA, N.J.S.A. 13:19-1 et seq., and the Coastal Permit Program Rules, N.J.A.C. 7:7-1 et seq., for definitions of activities for which a permit is required, and for exemptions.	X	

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	YES	NO
a. CAFRA regulates all development on a beach or dune.		
Is your project located on a beach or dune?		X
b. CAFRA regulates the first house or other development within 150 feet of the mean high waterline of a tidal water, beach or dune. However, if there is an existing "intervening development" (for example, a house) between a proposed project and the water, beach or dune, then CAFRA applies only to: residential developments with three or more units, not single-family or duplex homes; commercial development with five or more parking spaces, and to all public and industrial development.		
Is your development described in this paragraph?	X	
c. Beyond the 150-foot area but still within the CAFRA zone, residential developments of 25 or more units, commercial developments with 50 or more parking spaces or equivalent paved area and all industrial and public developments are subject to permit review.		
Is your development described in this paragraph?		X
d. In urban coastal municipalities known as "qualifying municipalities," the development threshold is slightly higher in areas greater than 500 feet from the mean high waterline of tidal waters, beach or a dune. In these areas, a permit is required for residential developments of 75 or more units and commercial developments with 150 or more parking spaces or equivalent paved area. (The list of "qualifying municipalities" changes annually, based on tax and population statistics. Please call (609) 292-1237 for the current list.)		
Is your development described in this paragraph?		X
e. The addition of one or more parking spaces, dwelling units or equivalent to a development constructed after September 19, 1973, which results in a total exceeding the regulatory threshold, is regulated.		
Does your proposed project involve the expansion/addition of parking spaces, dwelling units or equivalent to an existing development which was constructed after September 19, 1973?		X

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	YES	NO
f. *Does your project include road or sanitary sewer construction greater than 1,200 linear feet?*		X

g. If the project is located in the Pinelands National Reserve, the Pinelands Commission will comment on the project's consistency with the intents, policies and objectives of Section 502 of the National Parks and Recreation Act of 1978 and the Pinelands Protection Act of 1979 in accordance with N.J.A.C. 7:7 E-3.44. These comments will be taken into account by the Department in its review of the CAFRA permit application.

2. Waterfront Development Permit – A Waterfront Development Permit is needed for developments proposed within any tidal waterway of the State and lands lying thereunder up to and including the mean high waterline. Examples of projects that need a waterfront development permit include docks, wharfs, piers, bulkheads, bridges, pipelines, cables, pilings, filling, dredging or removing of sand or other materials.

For development outside the CAFRA area, the Waterfront Development Law regulates not only activities in tidal waters, but also the area adjacent to the water extending from the mean high waterline to the first paved public road, railroad, or surveyable property line. At a minimum, the zone extends at least a 100 feet, but no more than 500 feet, inland from the tidal water body. Within this zone the Department must review construction, reconstruction, alteration, expansion, or enlargement of structures, excavation, and filling. However, this part of the law does not apply within the Hackensack Meadowlands Development District.

Does your proposed project involve waterfront development?	X	

Note: Developments subject to the Waterfront Development Law may also require a tidelands instrument.

3. Coastal Wetlands Permit – A Coastal Wetlands Permit is needed to excavate dredge, fill or erect structures on coastal wetlands as delineated in maps promulgated by the Department pursuant to the Wetlands Act of 1970.

Does your proposed project involve any of the activities described on coastal wetlands?		X

4. Freshwater Wetlands – The Freshwater Wetlands Protection Act seeks to protect freshwater wetlands. State open waters (waters of the United States which are not wetlands) and upland areas up to 150 feet from wetlands serve as buffers from random, unnecessary or undesirable alteration or disturbance.

a. Letter of Interpretation (LOI) – There are four types of LOIs:

1. verifying the limit of freshwater wetlands and their resource value classification on any size property;
2. delineating freshwater limits for properties which are smaller than one acre;
3. identifying the presence or absence of a wetlands footprint on a one acre portion of a larger tract; and
4. acknowledging the presence or absence of wetlands on any size tract

b. *Statewide General Permit* – A Statewide General Permit allows limited types of activities to be performed in freshwater wetlands and State Open Waters, provided specific permit conditions are met. General Permit activities include maintenance of existing structures, utility lines, minor road crossings, stormwater outfalls, and filling of isolated wetlands. In general, no more than one acre of freshwater wetlands or State Open Waters can be disturbed. Authorization is required from the Land Use Regulation Program before proceeding with an activity permitted under a Statewide General Permit.

c. Freshwater Wetlands Individual Permit – A Freshwater Wetlands Individual Permit is needed when activities proposed do not fall within any General Permit category or the activities encompass more than one acre of fill.

d. Transition Area Waivers – A transition area waiver or buffer is required adjacent to freshwater wetlands of exceptional or intermediate resource value (N.J.A.C. 7:7A-6.1). There are three types of transition area waivers:

1. reduction in width;
2. modification in shape; and
3. partial elimination (N.J.A.C. 7:7A-7.1(c))

A transition area waiver is required for many activities conducted in transition areas. Authorization is required from the Land Use Regulation Program before proceeding with an activity permitted under a Statewide General Permit.

	YES	NO
Will you have project activities within 150 feet of a wetland?		X

5. Stream Encroachment Permit

Does your project/facility include the construction, installation or alteration of any structure or permanent fill along, in, or across the stream channel or 100-year flood plain of any stream (N.J.A.C. 7:13)?	X	
Will there be any alteration of the stream itself?		X

6. Water Quality Certificate – All projects requiring a Federal permit for the discharge of dredged or fill material into State waters and/or their adjacent wetlands also require the State Water Quality Certification which ensures consistency with State water quality standards.

	YES	NO
Does your project require a Federal permit for the discharge of dredged or fill material into State waters and/or their adjacent wetlands?		X

7. Tidelands Instruments – Tidelands, also known as riparian lands, are all those lands now, or formerly, flowed by the mean high tide of a natural waterway. These lands are State owned or State claimed to be owned. Activities on State owned tidelands require a tidelands grant, lease or license. Activities at or below mean high water may require a waterfront development permit.

Does your project require the use of tidelands?		X

8. *Does your project involve dredging, port or marina development or redevelopment of a former marina or port site? (The site may be either the CAFRA or Waterfront Development Permits are issued by the Office of Dredging and Sediment Technology. See page ## under Site Remediation.)*

		X

For the following permits: CAFRA, Freshwater Wetlands, Coastal Wetlands, Waterfront Development Permits, Water Quality Certificates; or Stream Encroachment Permits please refer to the listing below for the county in which the site of concern is located. (All numbers are 609 area code.)

	Permits	Stream Encroachment
Atlantic	984-0162	984-0162
Bergen	633-9277	984-0194
Burlington	984-0162	984-0162
Camden	633-6755	984-0162
Cape May	633-6755	984-0162
Cumberland	633-6755	984-0162
Essex	633-9277	984-0194
Gloucester	633-6755	984-0162
Hudson	633-6755	984-0194
Hunterdon	777-0454	633-9277
Mercer	777-0454	984-0194
Middlesex	633-6574	984-0194
Monmouth	984-0184	984-0162
Morris	633-9277	984-0194
Ocean	292-8262	984-0162
Passaic	292-8262	984-0194
Salem	984-0184	984-0162
Somerset	633-6574	633-9277
Sussex	633-6574	633-9277

Union	777-0454	984-0194
Warren	777-0454	633-9277
Tidelands	292-2573	

B. Pinelands Commission (609) 894-9342

The Pinelands Commission (http://www.state.nj.us/pinelands), an independent State agency, is responsible for implementing the land use management plan for the Pinelands region which covers portions of seven southern New Jersey counties: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean.

	YES	NO
1. *Is your project located in one of the municipalities listed in Attachment C and within the Pinelands area?* (See map title "Pinelands Area Jurisdiction Boundaries") If "Yes," please answer Question 2.		X
2. *Have you completed an application for development with the Pinelands Commission or have you received written confirmation that no application is necessary?* If "Yes," please attach the documentation received from the Pinelands Commission regarding the proposed development.		X
3. In the Pinelands Area, a Freshwater Wetlands Permit is needed only for the discharge of dredge or fill material in wetlands.		
Does your project involve dredging or filling?		X

If "Yes," please note that the Pinelands Commission will issue the Freshwater Wetlands Permit if the following conditions are met:

The activity requires an application to the Pinelands Commission under the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.) and the activity falls within a General Permit category under the Freshwater Wetland Protection Act Rules (N.J.A.C. 7:7A-1.1 et seq.).

The Pinelands National Reserve was designated by the State under the Pinelands Protection Act of 1979 (N.J.S.A. 13:18A-11). Development in the Pinelands Area is subject to the requirmeents of the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.) which is administerted by the New Jersey Pineleands Commission. The Pinelands Area is composed of the Preservation Area and the Protection Area which were also designated under the Pinelands Protection Act. The Preservation Area is the heart of the Pinelands Area and is especially vulnerable to environmental degradation. As a result, the standards for development are more stringent in the Preservation Area than in the Protection Area.

(See Attachment C for Maps of Pinelands and the list of municipalities within the area.)

C. Delaware and Raritan Canal Commission (609) 397-2000

The Delaware and Raritan Canal Commission (http://www.dandrcanal.com/drcc/), within the Department, reviews development applications proposing projects within its jurisdictional zone which includes the Canal Park and the lands adjoining the canal banks and encompassing all municipalities within which development could have an impact on the Canal Park.

	YES	NO
Is your project/facility located in one of the municipalities listed in Attachment D, within the area indicated on the attached map titled "D&R Canal Review Area?"		X

D. Hackensack Meadowlands Development Commission(HMDC) (201) 460-1700

The HMDC (http://www.hmdc.state.nj.us) is responsible for regulating activities within the 19,730-acre district. The Commission has a professional staff which carries out its adopted master plan and regulations. The following municipalities are within the HMDC jurisdictional area:

Bergen County:

Carlstadt Borough
East Rutherford Borough
Little Ferry Borough
Lyndhurst Township
Moonachie Borough
North Arlington Borough
Ridgefield Borough
Rutherford Borough
South Hackensack Township
Teterboro Borough

Hudson County:

Jersey City
Town of Kearny
North Bergen Township
Town of Secaucus

A zoning map of the HMDC jurisdiction is included as Attachment E.

1. *Is your project located in one of the municipalities within the HMDC jurisdictional area?*	X	
2. *Have you completed an application for development with the HMDC or have you received written confirmation that no application is necessary?* If "Yes," please attach the documentation received from the HMDC regarding the proposed development.	X	

E. Green Acres Program (GAP) (609) 984-0631

When a local unit accepts GAP (http://www.state.nj.us/dep/greenacres/) funding for the acquisition or development of parkland, the funded parcels and facilities and all other lands

held by the local unit for conservation and recreation purposes come under GAP jurisdiction. Any disposal or change in use of these lands for other than conservation or recreation purposes is a diversion. Diversions require prior approval through GAP by the Commissioner of the Department and the State House Commission.

The GAP also acquires state owned lands administered by the Division of Fish, Game and Wildlife and the Division of Parks and Forestry.

	YES	NO
1. *Is your project located on lands which are currently or formerly owned by a municipality, county, or the state, or does the project directly impact such lands?* If "Yes," for municipal or county lands please contact the local unit and answer Question 2. For state owned impacted lands, contact the GAP as described below.	_____	X

To answer this question please review the following list of items to check for the possibility of a GAP encumbrance.

a. Green Acres Contract or Agreement;
b. Recreation and Open Space Inventory;
c. Deed, Easements, Restrictions as to Land Use;
d. Current and Past Land Use;
e. Local Unit Actions such as Resolutions, Ordinances, Dedications, Expenditures, Permits or Approvals etc., for Conservation or Recreation Uses; and
f. Official Map, Master Plan Information

2. *Has the local unit ever received GAP funds?*	_____	_____
3. *If "Yes", did the local unit hold the project lands for conservation or recreation purposes at the time of GAP funding?*	_____	_____

If you would like GAP to review its files, please send a letter identifying the block and lot, intended use, and a general and specific site locator map using the USGS topographic quadrangle, tax map, and site plans to:

Green Acres Program
Bureau of Legal Services and Stewardship
PO Box 412
Trenton, New Jersey 08625-0412

IV. AIR QUALITY PERMIT PROGRAM

The Air Quality Permit Program (http://www.state.nj.us/dep/aqpp/) ensures the citizens of New Jersey an environment which is as free from unacceptable levels of air pollution as possible. It evaluates new sources, reviews air quality modeling and risk assessments, evaluates

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applications for all new or modified equipment which emits air contaminants, oversees the measurement of contaminant emissions and issues permits for equipment which is subject to federal air pollution control rules.

	YES	NO
A. New Source Review (609) 292-6716		
Will the project/facility use any of the new or modified equipment and/or control apparatus listed below?	____	X
1. Commercial fuel burning equipment with a maximum rated heat input of 1,000,000 BTU per hour or greater to the burning chamber;	____	X
2. Equipment which has the potential to emit any of the toxic substances listed below at a rate greater than 0.1 pound per hour (45.4 grams per hour);	____	X

"Group 1 TXS," means an air contaminant that is found on the list of Group I TXS at N.J.A.C. 7:27-17.3, which is incorporated by reference herein:

Name	CAS Number
Benzene (Benzol)	71-43-2
Carbon tetrachloride (Tetrachloromethane)	56-23-5
Chloroform (Trichloromethane)	67-66-3
Dioxane (1,4-Diethylene dioxide)	123-91-1
Ethylenimine (Aziridine)	151-56-4
Ethylene dibromide (1,2-Dibromoethane)	106-93-4
Ethylene dichloride (1,2-Dichloroethane)	107-06-2
1,1,2,2-Tetrachloroethane (sym Tetrachloroethane)	79-34-5
Tetrachloroethylene (Perchloroethylene)	127-18-4
1,1,2-Trichloroethane (Vinyl trichloride)	79-00-5
Trichloroethylene (Trichlorethene)	79-01-6

"Group 2 TXS," means an air contaminant that is found on the list of Group 2 TXS at N.J.A.C. 7:27-17.3, which is incorporated by reference herein, together with all amendments and supplements. As of June 12, 1998, the following is the complete list of Group 2 TXS:

Name	CAS Number
Methylene chloride (Dichloromethane)	75-09-2
1,1,1-Trichloroethane (Methyl chloroform)	71-55-6

3. Dry cleaning equipment;	____	X
4. A surface cleaner which uses a cleaning solution containing five percent or more VOCs, HAPs, or a VOC and HAP combined and which is:		

	YES	NO
a. An unheated open top surface cleaner with a top opening of greater than six square feet (0.56 square meters) or a capacity greater than 100 gallons;		X
b. A heated open top surface cleaner;		X
c. A conveyorized surface cleaner; or		X
d. A stationary spray cleaning or surface stripping operation using one half gallon or more of cleaning solution in one hour;		X
5. Equipment used in a graphic arts operation which includes newspaper, lithographic, gravure, flexographic, letterpress, and screen printing, in which the quantity of ink, fountain solution, or cleaning material used by a source in any one hour is equal to or greater than one half gallon;		X
6. Any tank or vessel which has the capacity of more than 100 gallons and which is used:		
a. In etching, pickling, or planting; or		X
b. In chromium electroplating or chromium anodizing;		X
7. A transfer operation involving gasoline or other VOCs regulated under N.J.A.C. 7:27-16.3 or 16.4, or a marine tank vessel loading or ballasting operation regulated under N.J.A.C. 7:27-16.5, if the operation is required to have a control device other than bottom fill or submerged fill;		X
8. Stationary storage tanks which have the capacity in excess of 10,000 gallons and which are used for the storage of liquids, except water, or distillates of air;		X
9. Stationary storage tanks which have a capacity in excess of 2,000 gallons and which are used for the storage of a VOC or mixture of VOCs having a vapor pressure or sum of partial pressures of 0.02 pound per square inch absolute (1.0 millimeters of mercury) or greater at standard conditions;		X
10. Tanks, reservoirs, containers and bins which have a capacity in excess of 2,00 cubic feet and which are used for the storage of solid particles;		X
11. Stationary material handling equipment using pneumatic, bucket or belt conveying systems from which emissions occur;		X
12. Equipment used in a surface coating operation including, but not limited to, spray and dip painting, roller coating, and electrostatic depositing, in which the quantity of coating or cleaning material used by a source in any one hour is equal to or greater than one half gallon of liquid;		X

	YES	NO
13. Any equipment used for the burning of noncommercial fuel, crude oil or process by-products in any form;		X
14. An incinerator, except an incinerator which serves a one or two family dwelling; or which serves a multi-occupied dwelling containing six or fewer family units, one of which is occupied by the owner of the dwelling;		X
15. Equipment which is used for treating groundwater, industrial wastewater, or municipal wastewater with a solids content of less than two percent by weight as it enters the equipment (typical operations performed by this type of equipment include, but are not limited to, air stripping, aeration, digestion, thickening, flocculating, surface impounding, and dewatering), if the equipment does either of the following:		X
a. Treats or handles influent which has one of the following:		
1. A total concentration of VOCs and Group 2 TXS in the influent of 3,500 parts per billion by weight (ppbw) or more; or		X
2. A total Group 1 TXS concentration in the influent of 100 ppbw or more; or		X
b. Discharges more than 50 pounds per hour of sludge. For the purposes of this paragraph, wastewater with a solids content of two percent by weight or greater is considered sludge;		X
16. Equipment used for treating waste soils or sludges, including municipal solid wastes, industrial solid wastes or recycled materials, if the influent to the equipment has a solids content of two percent by weight or greater. Typical operations performed by this type of equipment include, but are not limited to, soil cleaning, composting, pelletizing, grit classifying, drying, and transfer station operations. However, this shall not include an area used as a temporary storage area, such as a concrete pad or a roll-off container, provided that the area is not also used for treatment;		X
17. Equipment used for the purpose of venting a closed or operating dump, sanitary landfill, hazardous waste landfill, or other solid waste facility, directly or indirectly in to the outdoor atmosphere including, but not limited to, any transfer station, recycling facility, or municipal solid waste composting facility;		X
18. Any control apparatus serving equipment for which a permit and certificate is required pursuant to this section; and		X

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	YES	NO
19. Equipment in which the combined weight of all raw materials used, excluding air and water, exceeds 50 pounds in any one hour, except for equipment excluded from permit requirements under 3 through 18 above.	____	X

B. Operating Permits (609) 633-8248

1. *Does the facility emit or have the potential to emit a Hazardous Air Pollutant (HAP) in an amount which equals or exceeds the amounts listed below?* The calculation of potential to emit shall include fugitive emissions, as defined by N.J.A.C. 7:27-22.1	____	X

Air Contaminant	Threshold
Carbon Monoxide	100 tons per year
PM-10	100 tons per year
TSP	100 tons per year
Sulfur Dioxide	100 tons per year
Oxides of Nitrogen	25 tons per year
VOC	25 tons per year
Lead	10 tons per years
Any other air contaminant	100 tons per year

The calculation of potential to emit shall include fugitive emissions only if the facility falls into one or more of the following categories:

i. Coal cleaning plants (with thermal dryers);
ii. Kraft pulp mills;
iii. Portland cement plants;
iv. Primary zinc smelters;
v. Iron and steel mills;
vi. Primary aluminum ore reduction plants;
vii. Primary copper smelters;
viii. Municipal incinerators capable of charging more than 250 tons of refuse per day;
ix. Hydrofluoric, sulfuric, or nitric acid plants;
x. Petroleum refineries;
xi. Lime plants;
xii. Phosphate rock processing plants;
xiii. Coke oven batteries;
xiv. Sulfur recovery plants;
xv. Carbon black plants (furnace process);
xvi. Primary lead smelters;
xvii. Fuel conversion plant;
xviii. Sintering plants;
xix. Secondary metal production plants;
xx. Chemical processing plants;
xxi. Fossil-fuel boilers (or combination thereof) totaling more than 250 million BTUs per hour heat input;

xxii. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

xxiii. Taconite ore processing plants;
xxiv. Glass fiber processing plants;
xxv. Charcoal production plants;
xxvi. Fossil-fuel fires steam electric plants or more than 250 million BTUs per hour heat input; or
xxvii. All other stationary source categories regulated by a standard promulgated under 42 U.S.C. 7411, Standards for Performance for New Stationary Sources. However, for a facility in this category, fugitive emissions need only be included when calculating the potential to emit those air contaminants which EPA has regulated for that stationary source category.

	YES	NO
2. *Does the facility emit or have the potential to emit any of the air contaminants listed below in a an amount which equals or exceeds the threshold amount for that contaminant?*		
3. *Is the facility an affected Title IV facility, as defined at N.J.A.C. 7:27-22.1?*		X
4. *Does the facility have any source operation in a source category designated by EPA?* (EPA is authorized to designate source categories as subject to operating permit requirements pursuant to 40 CFR 70.3(a)(5).)		X
5. *Does the facility have a solid waste incineration unit which combusts municipal waste and which has a combustion capacity greater than 250 tons of municipal waste per day?*		X
6. *Does the facility's owner or operator elect to obtain an operating permit in lieu of obtaining operating certificates from New Source Review?*		
7. *Is the facility a non-major facility for which EPA completed rulemaking, requiring an operating permit for that category of non-major facilities pursuant to 40 CFR 70.3(b)1 or 2?*		X

V. WATER SUPPLY PROGRAM

The **Water Supply Program** (http://www.state.nj.us/dep/watersupply/) is responsible for programs that assure adequate and safe supplies of drinking water. The Bureau of Safe Drinking Water includes the permitting of public water supply facilities, the water supply rehabilitation loan program and the establishment of safe drinking water standards. The Bureau of Water Allocation is responsible for the permitting of surface and ground water diversions in excess of 100,000 gallons per day and the well permit program. It also implements the critical area aquifer program in areas of the state in which aquifers have been overstressed.

A. Water Allocation (609) 292-2957

	YES	NO
1. Permit to Divert Surface or Subsurface Waters (Non-agricultural)		
Does your project/facility include the diversion of more than 100,000 gallons per day of water for more than 30 days in a 365-day period from surface or groundwaters for non-agricultural purposes?		X
2. A New Jersey licensed well driller of the proper class and permit to drill wells is required for the installation of any dewatering wells/well point system. A water allocation diversion permit may also be required depending on the amount and duration of water to be diverted on a temporary basis during the construction of the project.		
Does your project/facility involve any temporary dewatering, as part of construction (e.g., foundation work or utility construction) of more than 100,000 gallons per day for more than 30 days in a 365-day period?		X

B. Well Drilling (609) 984-6831

1. Well Drilling Permit		
Does your project include the drilling, boring, coring or excavating of a well which will be used for any of the following purposes, including but not limited to: dewatering, domestic, fire, geothermal, heat pump, industrial, injection, irrigation, livestock, oil and gas exploration, water supply, public community water supply, public non-community water system, recharge, test, boring/probe hole, cathodic protection, gas vent, monitoring/observation, piezometer, or recovery? If "Yes," a l;icensed well driller must apply for a well permit.	X	
2. A New Jersey licensed well driller of the proper class and permit to drill wells is required for modification to the physical construction of the well itself (i.e., well deepening or a new screen). While a permit is not required for the sealing of any abandoned well, a New Jersey licensed well driller who is certified to seal wells is the only individual who can perform such work.		
Does your project include the modification, abandonment or sealing of any wells?	X	

C. Safe Drinking Water (609) 292-5550

	YES	NO
1. *Will your project receive its potable water supply by development of, or connection to, a Public Non-Community Water System i.e. system serving 25 or more people per day at least 60 days of the year?* If "Yes," approval or certification is required from either a county or local health department.	_____	X
2. *Will your project receive its potable water supply by development or, or connection to, individual non-*public water *systems involving the development of 50 or more realty improvements?* If "Yes," submit a plan to the Bureau of Safe Drinking Water for their approval.	_____	X
3. *Will your project receive its potable water supply by development of, or connection to, a Public Community Water System serving 25 or more year-round residents?* If "Yes," check one or more of the applicable statements below:	_____	X

_____Develop or modify a water supply (well or intake structure);

_____Develop or modify a pumping station;

_____Develop or modify a treatment plant;

_____Develop or modify a water distribution system consisting of more than 15, but less than 50 service connections, or requiring a daily demand of more than 6,000 gallons; or

_____Develop or modify a water distribution system consisting of 50 or more service connections, or requiring more than 1,500 linear feet of water main.

_____Use of any non-potable water supply (process or cooling water)

VI. WATER QUALITY

To protect the state's waters, the **Division of Water Quality** (http://www.state.nj.us/dep/dwq/) implements the New Jersey Pollutant Discharge Elimination System (NJPDES Program), administers financial assistance programs for wastewater treatment facilities, and administers the Treatment Works Approval, Capacity Assurance, and Sewer Ban Programs. The Municipal Finance and Construction Permitting Element is responsible for administration of a number of state and federally funded programs for the planning, design, and/or construction of wastewater, drinking water, and stormwater/nonpoint source management programs. The Watershed Permitting Element is responsible for the NJPDES Program which protects New Jersey's ground and surface water quality by assuring the proper treatment and discharge of wastewater (and its residuals) and stormwater from various types of facilities and activities. To accomplish this, permits are issued limiting the mass and/or concentration of pollutants which may be discharged into ground water, streams, rivers, and the ocean. The types of regulated facilities can range from very small users such as campgrounds, schools, and shopping centers to larger industrial and municipal wastewater dischargers.

For some projects requiring permits issued by the Watershed Permitting Element, a determination is required to assure that projects approved or authorized do not conflict with the Statewide and Areawide Water Quality Management (WQM) Plans and Regulations. Please refer to Watershed Management on Page 1.

A. Engineering/Administration and Management, North and South

Treatment Works Approvals (TWAs) are a type of construction permit wherein the division evaluates the proposed treatment plant's design and its ability to meet the effluent standards specified in the NJPDES permit. They are issued after a discharger has obtained a NJPDES permit. The TWA process involves assessing the design of new sewer lines and other wastewater conveyance facilities (force mains, pumping stations, etc.) as well as evaluating downstream conveyance and treatment capacity.

	YES	NO
1. *Does your project involve the construction or upgrade of a municipal or industrial wastewater treatment facility?*		X
2. *Does your project involve the construction or upgrade of wastewater conveyance facilities (sewer extensions, pumping stations, force mains, holding tanks, and various treatment plant components)?*	X	
3. *Does your project contain any of the following:*	X	
a. Gravity or pumped connection serving more than two buildings, or the design flow exceeding 8,000 gallons per day;	X	
b. Construction of a sewer along an easement through more than two properties, a roadway or Public right-of-way;	X	
c. Operation of a municipal wastewater collection system (sanitary);		X
d. Construction/operation of a wastewater holding tank or a flow equilization tank.	X	
4. *Will the project involve connection to a municipal sewer system that is currently under a sewer connection ban?* If "Yes," you may apply for a sewer ban exemption)		X

For additional information please contact the following offices (all numbers are within the 609 area code):

	North (Serving Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Passaic, Somerset, Sussex, Union, and Warren Counties)	South (Serving Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Monmouth, Ocean, and Salem Counties)
Engineering	292-6894	984-6840
Planning and Design	292-5563	633-1169
Construction Control	633-1180	292-3025

TWAs	633-1180	633-1169
Combined Sewer Overflow	292-5563	984-6840
Capacity Assurance	633-1180	633-1169
Sewer Bans	633-1180	633-1169
Sewer Ban Exemptions	633-1180	633-1169

B. <u>Point Source Permitting – Regions 1 and 2</u> (609) 633-3869 Region 1
(609) 292-4860 Region 2

The Bureaus of Point Source Permitting 1 and 2 regulate facilities discharging domestic and industrial wastewater directly into surface waters of the state as part of the NJPDES program. The regional structure of the two bureaus was established to facilitate watershed permitting. The regional boundaries are based on the state's 20 watershed management areas and 5 water regions. Region 1 includes the Upper Delaware and Passaic regions and the northern portion of the Atlantic Coastal region. Region 2 includes the Raritan and Lower Delaware regions and the southern portion of the Atlantic Coastal region. A map of the regions is included as Attachment F.

	YES	NO
1. *Does your facility discharge any of the following types of wastewater as a point source discharge into a surface waterbody (rivers, streams, lakes, ponds, or mosquito ditches [or storm sewers, wetlands areas, or any other conveyance which ultimately enters one of these entities])?*	_____	X
2. *Will your facility discharge municipal or industrial wastewater to surface water?* If "Yes," new discharges or expansions of existing discharges require a Water Quality Management Plan Amendment.	_____	X
3. *Will your wastewater ultimately be discharged to the following receiving waters or their tributaries in Region 1?*	X	_____

_____Sanitary/domestic wastewater;
_____Non-contact cooling water;
_____Contact cooling water;
_____Process related wastewater;
_____Wastewater from an industrial treatment system;
_____Remediated groundwater (treated or untreated);
_____Miscellaneous (filter backwash, boiler blowdown, floor drains, wash water or other); or
_____Stormwater commingled with <u>any</u> of the above discharges

Upper Delaware River (above the head of tide at Trenton, River Mile 133.4, the Trenton-Morrisville Toll Bridge)
Wallkill River
Passaic River
Hudson River
Hackensack River
Raritan River
Navesink River

Shrewsbury River
Atlantic Ocean above the Mullica River

	YES	NO
4. *Will your wastewater ultimately be discharged to the following receiving waters or their tributaries in Region 2?*	____	X

Lower Delaware River (below the head tide at Trenton, River Mile 133.4, Trenton-Morrisville Toll Bridge)
Delaware Bay
Upper New York Bay
Newark Bay
Arthur Kill
Kill Van Kull
North and South Branches of the Raritan River
Mainstream Raritan River
Atlantic Ocean from the Mullica River, south

C. NonPoint Pollution Control

The Bureau of NonPoint Pollution Control (BNPC) is responsible for protecting and preserving the state's groundwater resources through the issuance of NJPDES Discharge to Groundwater Permits and is responsible for permitting industrial facilities and municipalities under NJPDES for discharges of stormwater to waters of the state.

1. Groundwater Section (609) 292-0407

This Program does not issue NJPDES-DGW permits for remediation operations.

The following definitions should be used to assist in identifying discharge activities:

Subsurface disposal system is any contrivance which introduces wastewater directly to the subsurface environment, such as, but not limited to: septic systems, recharge beds, trench systems, seepage pits, and dry wells.

Injection/recharge wells are constructed such that they are deeper than they are wide, receive effluent via gravity flow or pumping, and include dry wells and seepage pits.

Overland flow is the introduction of wastewater to the ground surface, over which the wastewater travels and eventually percolates or evaporates.

Industrial wastewater is any wastewater or discharge which is not sanitary or domestic in nature, including non-contact or contact cooling water, process wastewater, discharges from floor drains, air conditioner condensate, etc.

1. *Will the project/facility have a sanitary wastewater design flow which discharges to groundwater in excess of 2,000 gallons per day?*	____	X
2. *Will the project/facility generate a discharge to groundwater of industrial wastewater in any quantity?*	____	X

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	YES	NO
3. *Will the project/facility involve the discharge to groundwater by any of the following activities or structures, or include as part of the design any of these activities or structures?*	_____	X

Please indicate which:

____Upland CDF (Dredge Spoils)
____Overland Flow
____Landfill
____Subsurface Impoundment
____Spray Irrigation
____Subsurface Disposal System (UIC)
____Infiltration/Percolation Lagoon

Please specify the source of wastewater for every structure identified above (e.g., floor drains of garage to subsurface disposal system for industrial wastewater):

_____
_____
_____
_____

Please specify lining materials for each lined structure identified as being used by the proposed project and give its permeability in cm/sec (e.g., 8-inch thick concrete lined evaporation pond at 10^{-7} cm/sec):

_____
_____
_____
_____

Alternate Design Septic Systems – The Realty Improvement Act empowers the Department to prevent pollution of the waters of the state by establishing standards for the proposed location, design, construction, installation, alteration and maintenance of individual subsurface sewage disposal systems for facilities with a design flow less than 2,000 gallons per day.

Does your project/facility include an individual subsurface sewage disposal system design for a facility with a design flow less than 2,000 gallons per day which does not strictly conform to the State's standards?	_____	X

50 or More Realty Improvement Subdivision Certifications – No subdivision approval shall be granted by any municipal or other authority in the State to cover 50 or more realty improvements until Department has certified that the proposed water supply and sewerage facilities for realty improvements comply with applicable State standards. The Department will review an application only after the local board of health or planning board has stated that it will grant subdivision approval.

Does your project involve 50 or more realty improvements?	_____	X

2. Stormwater Section (609) 633-7021

	YES	NO
1. *Is your facility assigned one of the following Standard Industrial Classification (SIC) Codes?*		X

10	28(except 283, 285)	373	45
12	29	40	5015
13	311	41	5093
14	32(except 323)	42(except 4221-25)	5171
24(except 2434)	33	43	
26(except 265, 267)	3441	44	

(To determine your SIC Code see the box "Industry Code" on your New Jersey Department of Labor Quarterly Contribution Report. If not yet assigned, see Attachment G in this document.)

or

2. *Is your facility one of the following?*

(a)	Hazardous waste storage, treatment, or disposal facility (including those interim or permitted under Subtitle D of RCRA);		X
(b)	Landfill, land application site, or open dump that receives or has received any industrial waste;		X
(c)	Steam electric power generating station;		X
(d)	Treatment works treating domestic sewage or sewage sludge for a population of greater than 100,000 people;		X
(e)	Construction activity including clearing, grading, and excavation which disturbs 5 acres or more of land, or *is part of a single plan of development or sale that is* greater than 5 acres; or	X	
(f)	Subject to stormwater effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards		X

or

3. *If you have one of the following SIC Codes, does stormwater come in contact, in any way, with material handling equipment or activities, raw materials, products, industrial machinery or waste products?*			X

20	265	31(except 311)	38
21	267	323	39
22	27	34(except 3441)	4221
23	283	35	4222
2434	285	36	4225
25	30	37(except 373)	

If your facility meets any of the above conditions, then you must apply for a permit to discharge stormwater to the surface waters of the State unless:

(i) All your stormwater from the site is discharged to a sanitary or combined sewer (one that carries sanitary wastewater and stormwater to a municipal treatment plant)

or

(ii) The faciltity has an existing NJPDES permit for all of its discharges of stormwater to surface water;

or

(iii) All industrial activity has ceased and no "significant material" remains exposed to stormwater.

If exemptions to (i) or (iii) above are met, or a facility in Question 3 has no exposure of industrial materials or activities to stormwater, then a non-applicability form must be submitted.

Please fill in SIC Code_____

D. Pretreatment and Residuals (609) 633-3823

		YES	NO
1.	*Will the project involve the discharge of industrial/commercial wastewater, either alone or combined with sanitary sewage, to a publicly owned treatment works (POTW)?* If "Yes," go to Question 2.	X	
2.	*Is the POTW a delegated local agency (See Attachment H)?* If "Yes," contact the POTW to determine if a permit is required. If "No," or "Unsure," contact Pretreatment and Residuals.	X	
3.	*Will the project involve land application of sewage sludge?*		X
4.	*Will the project involve processing of sewage sludge and/or the distribution of sludge derived products from processes such as composting, alkaline stabilization, heat drying, or pelletilization?*		X
5.	*Will the project involve the use of phragmites reed beds for sewage sludge management?*		X

	YES	NO
6. *Will the project involve the storage and/or transfer of sewage sludge?*		X
7. *Will the project involve the distribution and land application of food processing residuals and/or food processing vegetative waste?*		X

VII. SOLID AND HAZARDOUS WASTES

The **Division of Solid and Hazardous Waste** (http://www.state.nj.us/dep/dshw/) is responsible for evaluating the design and operation of solid waste, hazardous waste and recycling facilities to ensure such activities are protective of our state's natural resources and the health and quality of life of its citizens. This is accomplished through the implementation of the permit and approval requirements adopted by the Department pursuant to the Solid Waste Management Act. The Division reviews and approves facility designs and operating plans, evaluates construction and monitoring reports and oversees closure and post-closure care activities at regulated facilities. Such facilities include solid waste (landfills, incinerators, and transfer stations) operations, hazardous waste (storage/treatment, incinerators, and land disposal) operations and recycling (bulky materials, vegetative materials, used oil and discarded consumer electronics) operations.

A. Solid Waste Management (609) 984-5940

1. *Will the project include the construction and/or operation of a facility for any of the following solid waste activities as defined at N.J.A.C. 7:26-1 et seq.?* If "Yes," check the appropriate item(s) below.		X

_____Landfilling
_____Resource Recovery
_____Incineration
_____Heat recovery form waste
_____Composting
_____Closing of an existing landfill
_____Landfill development for beneficial use
_____Recycling
_____Materials Recovery
_____Medical waste treatment and/or disposal
_____Transfer station
_____Disruption of a closed or existing landfill
_____Intermodal Container Facility
_____Other (describe)_____

2. *Is your project included in the county solid waste management plan of the county in which you plan to construct and operate the facility?*		X
3. *Will you be engaged in the act of picking up solid, chemical, medical or liquid waste and/or the transporting of such waste (i.e., being a collector/hauler/transporter of such waste)?*		X
4. *Will the project involve beneficial use of any waste or materials?*		X

B. Recycling Management (609) 984-5940

	YES	NO
1. *Will your project include recycling activities as defined at N.J.A.C. 7:26A-1 et seq.?* If "Yes," check the appropriate item(s) below.	_____	X

_____Used Oil transfer and/or processing
_____Grass Composting
_____Leaf Composting
_____Other residual processing/recycling
_____Brush, tree parts processing/recycling
_____C&D processing/recycling
_____Contaminated soil processing/recycling
_____Other composting(describe)_____

2. *Is your project included in the county solid waste management plan of the county in which you plan to construct and operate the facility?*	_____	X

C. Hazardous Waste Engineering and Transfer Facilities (609) 292-9880

1. *Will the proposed activity involve the generation of any hazardous waste as defined in40 C.F.R.Part 261?*	_____	X

If "Yes," check the maximum amount to be generated:

_____<100 kg/month
_____>100 kg/month but <1,000 kg/month
_____>1,000 kg/month

If "Yes," check the mode(s) of accumulations, if applicable:

_____Containers
_____Drip pads
_____Tanks
_____Containment buildings
_____Other (describe)_____

2. *Will the proposed activity involve the on-site treatment, storage, or disposal of hazardous waste as defined in 40 C.F.R. Parts 260-270?*	_____	X

If "Yes," briefly describe storage, treatment or disposal:

_____
_____
_____
_____

If "Yes," check appropriate item(s):

X Hazardous wastes will not be accepted from off-site source(s)
_____Hazardous wastes will be accepted from off-site inter-company source(s)
_____Hazardous wastes will be accepted from off-sire intra-company source(s)
_____Total on-site capacity to handle hazardous waste at any one time will be greater than *the equivalent of 250,000 gallons*

VIII. RELEASE PREVENTION

The **Release Prevention Program** implements the New Jersey Community Right to Know and Superfund Amendments and Reauthorization Act (SARA) Title III programs which gather information on the use, storage and release of toxic chemicals to the environment. It is also responsible for implementation of the Toxic Catastrophe Prevention Act (TCPA).

A. Toxic Catastrophe Prevention Act (TCPA) Program

http://www.state.nj.us/dep/enforcement/relprev/tcpa/ (609) 633-7289

	YES	NO
1. *Will any processes at this site handle, use, store, manufacture, or generate, at any time, any of the Extraordinarily Hazardouus Substances (EHSs) listed in Part A, B, or C of Table 1 of N.J.A.C. 7:31-6.3 which is included as Attachment I?* If "Yes," proceed to Question 2.		X
2. *Will any processes at this site handle, use, manufacture, or store at least the threshold quantity established for that EHS, or does it generate within one hour, at least the threshold quantity for that EHS in Part A, B, or C of Table 1 of N.J.A.C. 7:31-6.3?*		X

If "Yes," then list below each process with each EHS and the quantity planned, in pounds. Include storage vessels such as all stored shipping containers and tank cars.

_____

_____

_____

_____

_____

B. Discharge Prevention (DPCC) Program

http://www.state.nj.us/dep/enforcement/relprev/dpcc/fsdpcc.htm (609)633-0610

Definitions: N.J.A.C. 7:1E-1.6

"Major Facility" means all facilities, located on one or more contiguous or adjacent properties, owned or operated by the same person, having total combined storage capacity of:

(1) 20,000 gallons or more for hazardous substances other than petroleum or petroleum products;
(2) 200,000 gallons or more for hazardous substances of all kinds; or
(3) an appropriate equivalent measure as defined at N.J.A.C. 7:1E-1.6 for hazardous substances which are not commonly measured by volume.

A vessel shall be considered a major facility only when hazardous substances are transferred between vessels.

"Transmission Pipeline" means new and existing pipe and any equipment, facility, rights-of-way, or building used or intended for use in the transportation of a hazardous substance by a pipeline and having a throughput capacity of 140 gallons per minute (530 liters per minute) or greater. This term does not include the transportation of a hazardous substance through onshore production or flow lines, refining, or manufacturing facility, or storage terminals or implant piping systems associated with those facilities. Any pipe used or intended for use in the transportation of a hazardous substance which is not a transmission pipeline will be considered an in-facility pipe. A transmission pipeline is not a major facility.

	YES	NO
Is your facility now, or will the construction project cause your facility to be, designated as a "Major Facility" or "Transmission Pipeline"? If "Yes," then you need to submit a plan for approval.	_____	X

IX. PESTICIDE CONTROL (609)530-4070

The Pesticide Control Program (http://www.state.nj.us/dep/enforcement/pcp/) enforces federal and state laws and regulations regarding pesticides.

1.	*Will the facility be involved in the manufacture or formulation of pesticides?*	_____	X
2.	*Will the facility/project involve research on or the experimental use of pesticides?*	_____	X
3.	*Will the project result in the application of pesticides to aquatic sites?*	_____	X

X. RADIATION PROTECTION (609) 984-5636

The Radiation Protection Program (http://www.state.nj.us/dep/rpp/index.htm) works to reduce exposure to unnecessary radiation.

1.	*Will the operation receive, acquire possess, own, use, transfer, store, dispose of, distribute, produce or transport radioactive materials or waste?*	_____	X
2.	*Is the operation licensed by the U.S. Nuclear Regulatory Commission, or the State of New Jersey, to conduct any of the activities listed in Question 1?*	_____	X
3.	*Will the operation discharge radioactive materials or waste into the air, into water, onto soil or into a sewer pipe?*	_____	X
4.	*Will the operation be involved with the use of any of the following radiation producing machines?*	_____	X

_____Particle accelerator
_____Analytical x-ray

_____Medical x-ray
_____Dental x-ray
_____Radiation therapy
_____Radio frequency or microwave heated, sealer or industrial oven
_____Other (describe)_____

XI. SITE REMEDIATION

Publicly Funded (609) 984-3081
Responsible Party (609)984-1688

The Site Remediation Program (http://www.state.nj.us/dep/srp/index.htm) protects public health and the environment by implementing remedial activities utilizing public funds; oversees the cleanup of sites being remediated by both responsible and other parties; and acts as lead agency for emergency and spill activities related to hazardous substances and wastes.

	YES	NO
1. *Is this a site remediation project?*	X	

2. If this is a site remediation project, please provide the following information:

a. Case Manager's Name Mr. Anthony Cinque
b. Bureau Responsible Party
c. Telephone Number (609) 633-1416
d. Case Number 98-03-18-1022-09

3. *Will a NJPDES/DGW permit be necessary for remedial activities?*		X
4. *Is this project a potential Brownfields Redevelopment project as defined in the Brownfield and Contaminated Site Remediation Act N.J.S.A. 58:10B-12?* If "Yes," please call (609) 292-1250.		X

A. Underground Storage Tanks (609) 292-8761

1. *Does the project/facility include any existing or proposed underground storage tank (UST) systems which contain or contained (a) any hazardous substances or (b) hazardous wastes of any quantity which are regulated pursuant to N.J.S.A. 58:10A-21 et seq.?*		X
2. *If a regulated UST exists or is proposed, do you have an UST registration number?* If "No," apply for a registration number as per N.J.A.C. 7:14B-2.		X
3. *Do you intend to remove or abandon in place any existing UST system?* If "Yes," apply for a Closure Plan Approval as per N.J.A.C. 7:14B-9.		X

As of December 22, 1993, owners and operators of all federally regulated UST systems must have begun leak detection monitoring of their UST systems. All existing, regulated UST systems must have approved upgrades by December 22, 1998, which include corrosion protection, spill prevention, and overfill protection. Any federally regulated UST systems, installed after December 21, 1988, must meet all of the above stated requirements before being put into service.

All existing UST systems containing hazardous substances other than petroleum products and waste oil must be secondarily contained by December 22, 1998. All new systems (those installed after December 21, 1998) containing hazardous substances other than petroleum products and waste oil must be secondarily contained upon installation.

	YES	NO
Does the existing or proposed regulated UST system meet the secondary containment upgrade and monitoring requirements as outlined above? If "No," apply for either a Closure Plan Approval or an Upgrade Permit.		X

B. Office of Dredging and Sediment Technology (609) 292-1250

The Office of Dredging and Sediment Technology (ODST) is responsible for all waterfront development dredging applications and all applications dealing with ports, maritime commerce, and Water Certifications dealing with disposal of dredged materials.

1. *Does the project involve dredging and/or disposal of dredged materials?*		X
2. *Does the project include marina development or support facilities at legally existing or operational commercial marinas?*		X

XII. NATURAL RESOURCES

A. Division of Fish and Wildlife (609) 292-2965

The Division of Fish and Wildlife (http://www.state.nj.us/dep/fgw/) is responsible for protecting the state's endangered and non-game species as well as managing its game animals. It also coordinates recommendations from technical experts on the impacts of various types of development on wildlife and protects their habitat.

1. *Does your proposed project involve the shut-off or draw-off of the waters of any pond, stream or lake, or the placing of a screen in a pond, lake or stream?* If "Yes," cal Freshwater Fisheries at (908) 236-2118 for a Water Lowering Permit Application.		X
2. *Does your project involve the collecting, transporting or handling of any fish, marine fish, or shellfish?* If "Yes," call Permits Management at (609) 292-2966 for a Scientific Collecting Permit Application.		X

	YES	NO
3. *Does your project involve the stocking or aquaculture of any freshwater fish, marine fish, or shellfish?* If "Yes," call Freshwater Fisheries at (908) 236-2118 or Marine Fisheries Administration at (609) 292-2083 for a Stocking Permit Application.	_____	X

B. Dam Safety (609) 984-0859

The Dam Safety Program (http://www.state.nj.us/dep/nhr/engineering/damsafety/) regulates the construction and maintenance of dams in order to ensure their safety.

Will your project/facility involve the construction, repair or modification of a dam which impounds water on a permanent or temporary basis and that raises the water of a river or stream more than five feet?	_____	X

XIII. HISTORIC PRESERVATION (609) 984-0140

The Historic Preservation Office (http://www.state.nj.us/dep/hpo/) is responsible for the identification, evaluation and protection of historic resources.

1. *Will the project have any federal involvement?* If "Yes," please check appropriate category.	_____	X

_____Funds _____Certificate _____Loan
_____License _____Authorization _____Permit
_____Superfund _____Financial Guarantees

Name agencies and source:

_____
_____
_____

2. *To the best of your knowledge, will the project require a permit(s) from the Department's Land Use Regulation Program?* If "Yes," please name the permit(s):	_____	X

_____
_____
_____
_____

3. *Will the project be funded in any part by state, county or municipal funds?* Identify source and type.	_____	X

_____
_____
_____

921000350

	YES	NO
4. *Is the project all, or in part, an undertaking by (a) state, county or municipal government or by (b) an agent or lessee or state, county or municipal government?* If "Yes," please explain involvement:	____	X
5. *Will the project be financed through the New Jersey Wastewater Treatment Trust or Fund?*	____	X
6. *Is there a State of National Register property within ¼ mile of the site?*	____	____
7. *Does the project involve any modification, removal, or demolition of a building, structure, or machinery over 50 years old?*	____	X
8. *Has a professional architectural or archaeological survey ever been undertaken at any time in the project area?* If "Yes," identify the survey title, surveyor, and date of survey if known.	____	X

XIV. OFFICE OF COASTAL PLANNING AND PROGRAM COORDINATION
(609) 292-2662

The **Office of Coastal Planning and Program Coordination** coordinates Departmental review and the issuance of comments on al environmental impact statements for major projects required by the National Environmental Policy Act and the Governor's Executive Order on environmental assessment.

1. *Are State or Federal funds to be used in the design or construction of the proposed project?*	____	X
2. *Are any federal permits required for the proposed project (e.g., Clean Water Act Section 404 permit)?*	____	X
3. *If federal funds are to be used, of a federal permit required, was an environmental assessment or environmental impact statement prepared, or will one be prepared, for the proposed project pursuant to the National Environmental Policy Act?*	____	X

	YES	NO
4. *If State funds are to be used for construction and estimated construction costs exceed $1 million, was an environmental assessment or environmental impact statement prepared, or will one be prepared for the proposed project pursuant to New Jersey Executive Order No. 215?*		X

XV. INNOVATIVE ENVIRONMENTAL TECHNOLOGY (609) 984-5418

The Office of Innovative Technology and Market Development (http://www.state.nj.us/dep/dsr/oit.html) is working with several other state environmental agencies to establish an interstate reciprocity program for environmental technology performance verifications and data. This office can provide assistance if your technology is new to New Jersey but has been used or demonstrated in another state that has reciprocal agreement with New Jersey (CA, IL, MA, NY, and PA). Once used in the State this office can also provide assistance in accessing markets in other states.

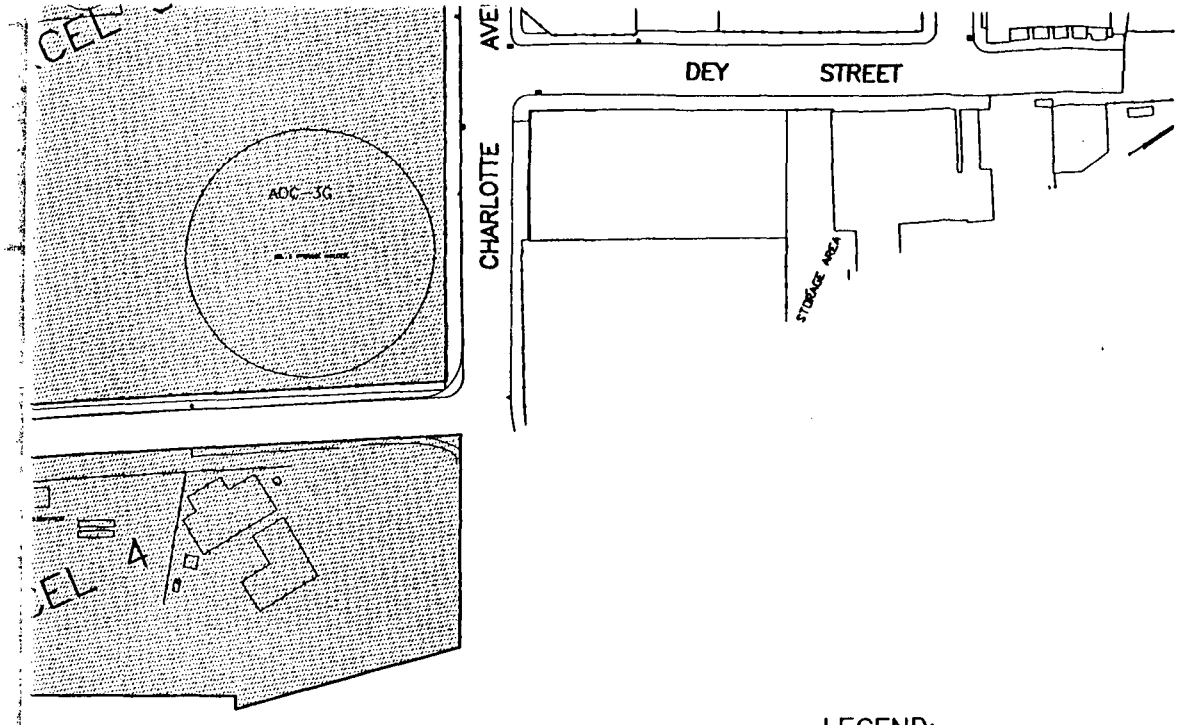
1. *Have you used or demonstrated this technology in any of the following states: CA, IL, MA, NY, or PA?*		X
2. *Are you looking into expanding you market into any of the following states: CA, IL, MA, NY or PA?*	X	
3. *Has your technology been verified or certified by a third party technology verification/certification organization or another state?* If "Yes," which organization.		X

_____

_____

_____

921000352



LEGEND:

MW-01A MONITORING WELL

SCHOOR DEPALMA
Engineers and Consultants

200 STATE HIGHWAY NINE
P.O. BOX 900
MANALAPAN, NJ 07726-0900
TEL. (732)577-9000
FAX. (732)577-9888

ARMONK • ATLANTIC CITY • BRICK • CLINTON • EXTON • KULPSVILLE
ANY • PHILADELPHIA • PHILLIPSBURG • STAFFORD • VOORHEES

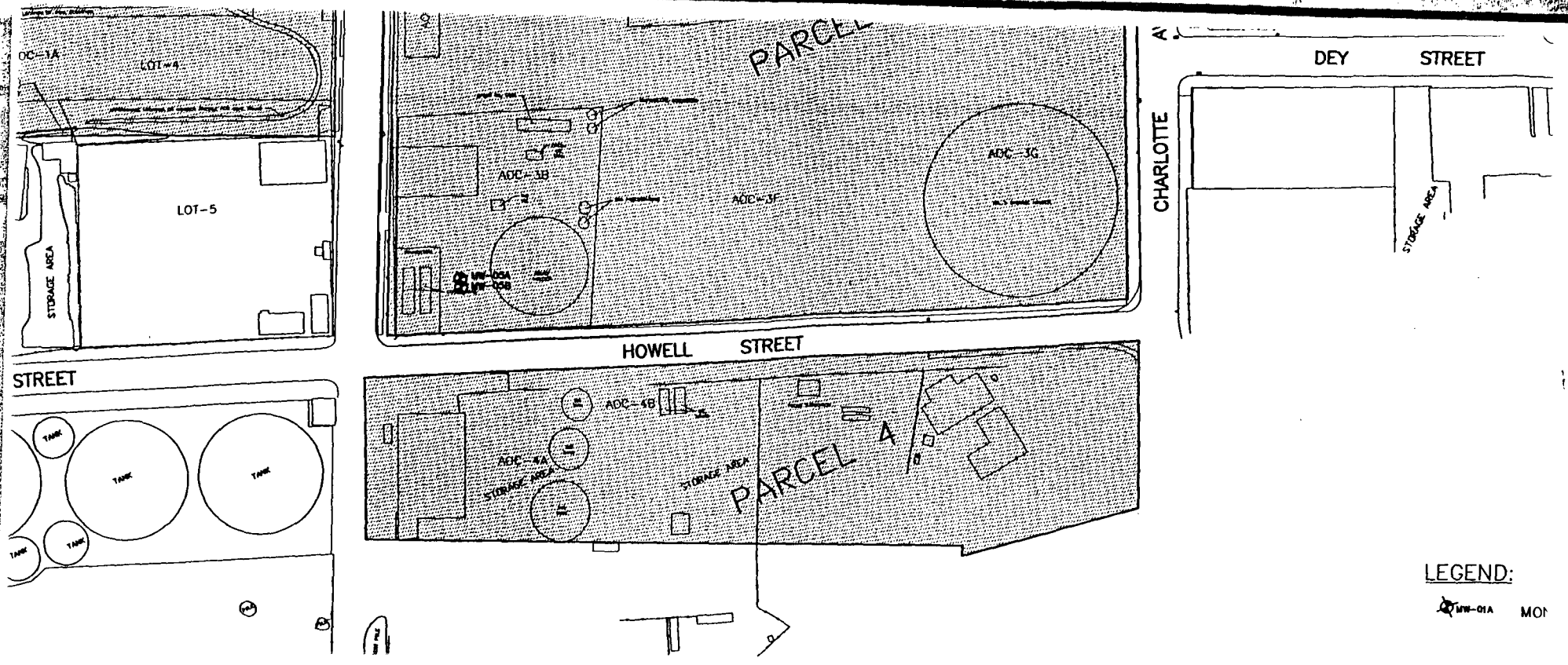
FIGURE 2-2: SITE MAP

PUBLIC SERVICE ELECTRIC AND GAS COMPANY
FORMER WEST END GAS WORKS

JERSEY CITY HUDSON COUNTY NEW JERSEY

PROJECT NO S99227B	DATE 10/10/03
DRAWN BY DDE	DESIGNED BY JS
SCALE 1"= 90'	FIELD BOOK
SCHOOR DEPALMA	
SHEET NO. 1 of 1	

921000353



90 180
SCALE IN FEET

SCHOOR DEPALMA
Engineers and Consultants

200 STATE HIGHWAY NINE
P.O. BOX 900
MANALAPAN, NJ 07726-0900
TEL. (732)577-9000
FAX. (732)577-9888

MANALAPAN • ARMONK • ATLANTIC CITY • BRICK • CLINTON • EXTON • KULPSVILLE
PARSIPPANY • PHILADELPHIA • PHILLIPSBURG • STAFFORD • VOORHEES

PUBLIC

JERSEY CITY

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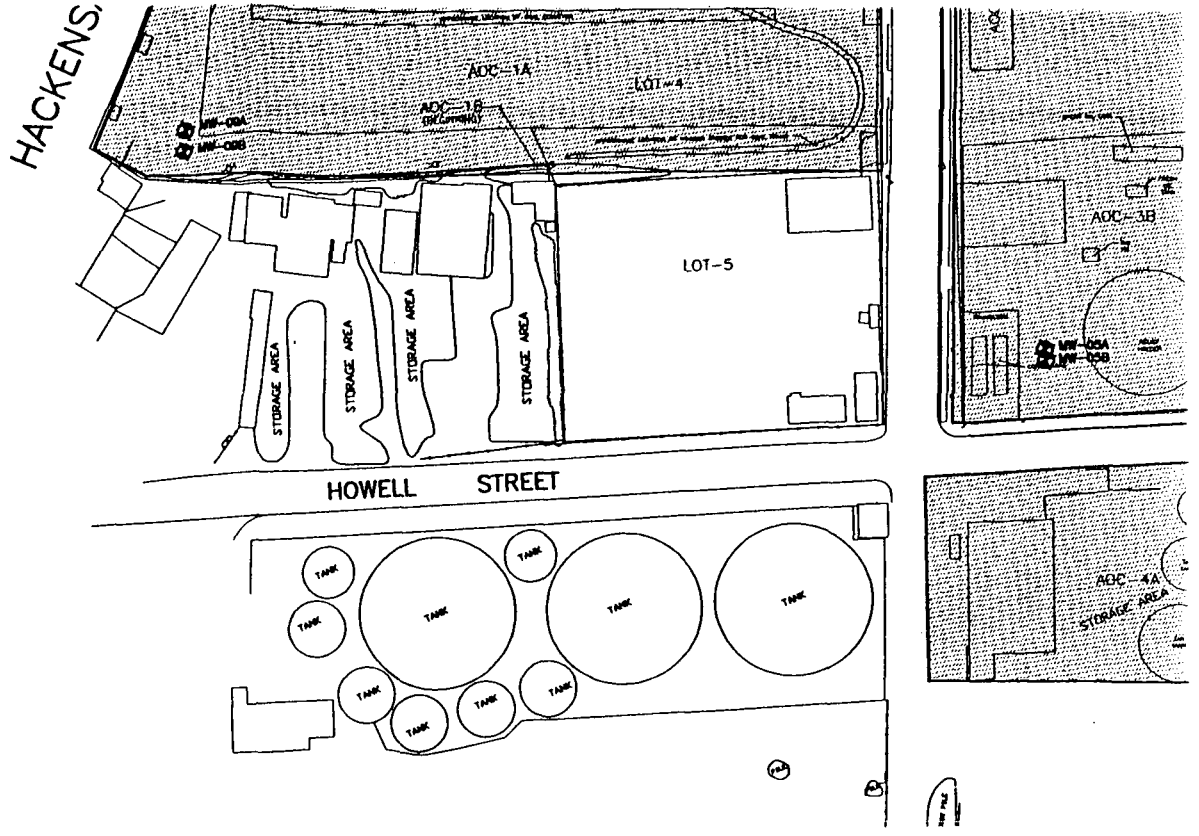

REVISION NO.	DATE	REVISION
1	12/2/03	REVISED EXTENT OF PARCEL 4 AREA

-NOTICE-

THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS AUTHORIZED FOR USE ONLY BY THE PARTY FOR WHOM THE WORK WAS CONTRACTED OR TO WHOM IT IS CERTIFIED.

THIS DRAWING MAY NOT BE COPIED, REUSED, DISCLOSED, DISTRIBUTED OR RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF SCHOOR DEPALMA INC.,

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GRAPHIC SCALE IN FEET

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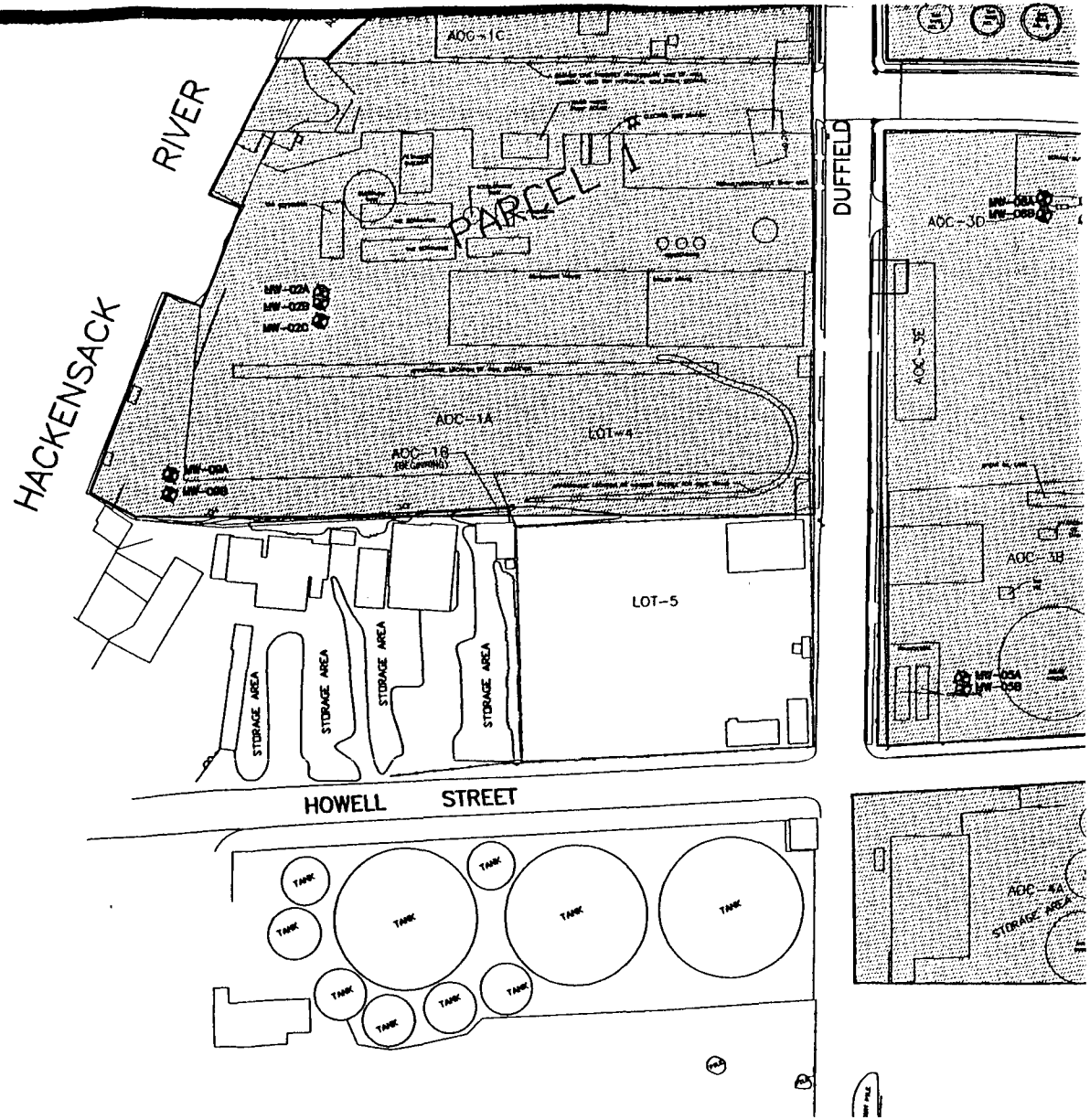
HACKENSACK RIVER
PARCEL 1
DUFFIELD
AOC-1C
AOC-1A
AOC-1B
LOT-4
LOT-5
AOC-3D
AOC-3E
AOC-3B
AOC-4A
STORAGE AREA
STORAGE AREA
STORAGE AREA
STORAGE AREA
HOWELL STREET
TANK
TANK
TANK
TANK
TANK
TANK
TANK
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TANK
TANK
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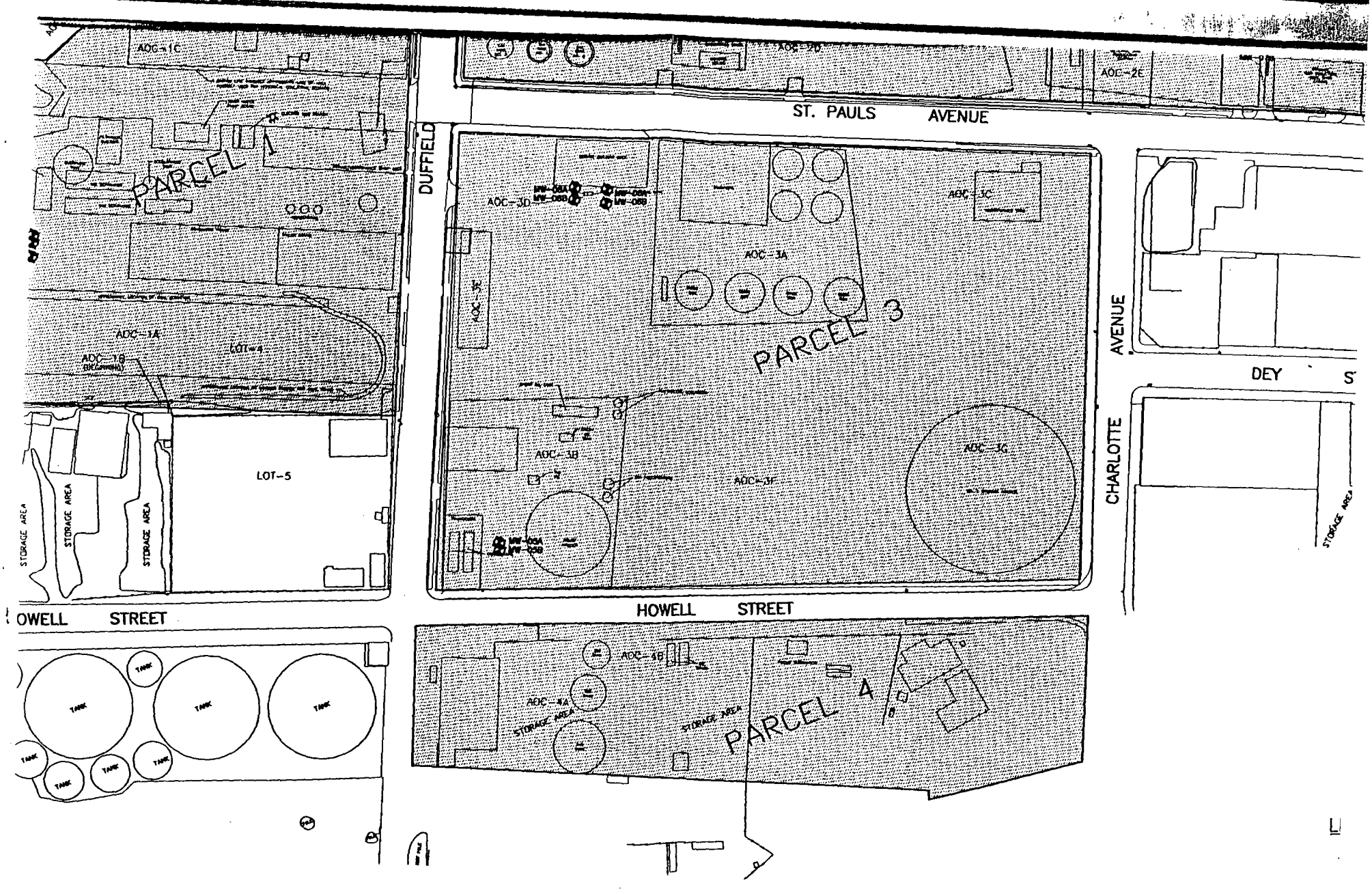
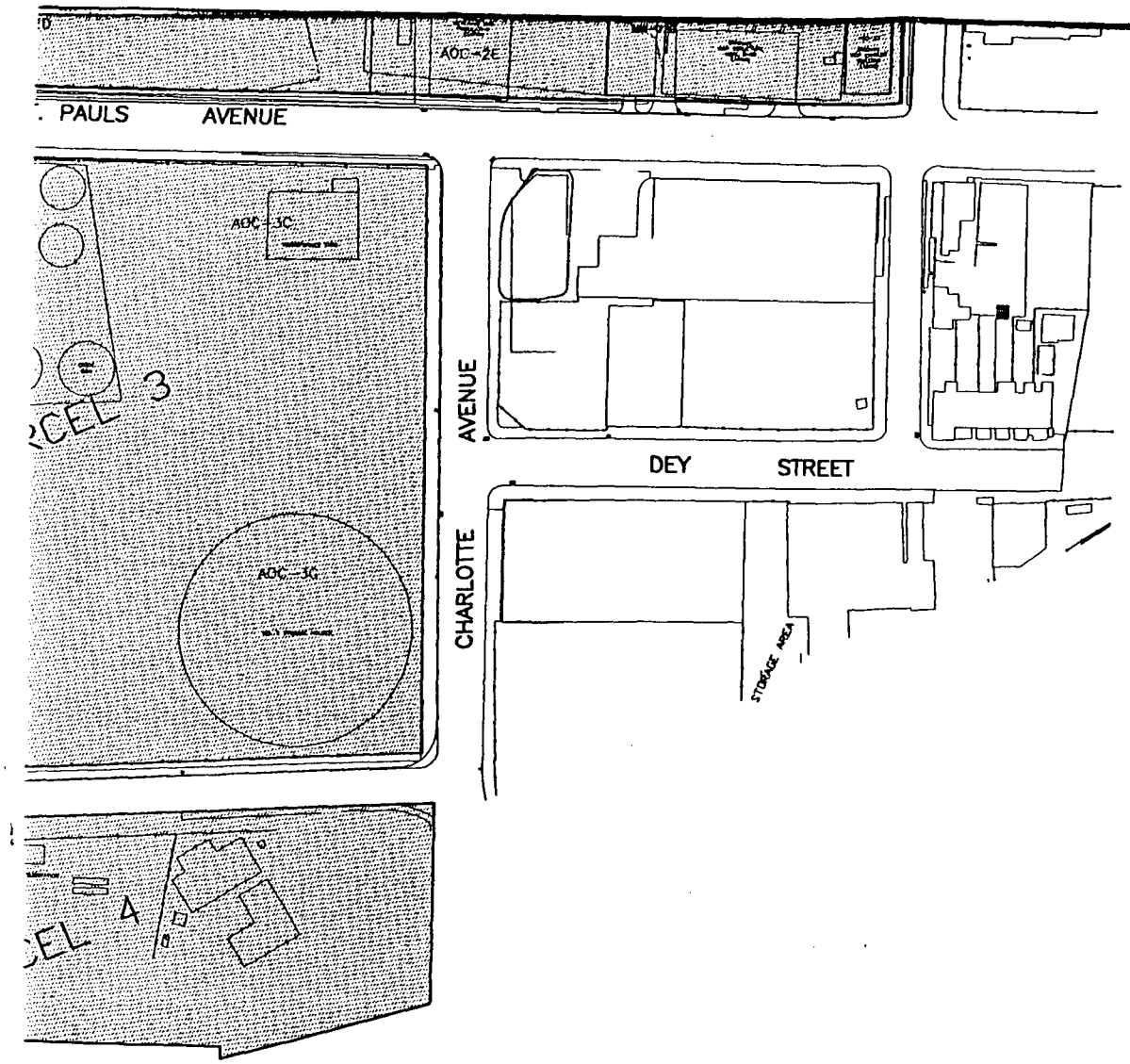
TANK

921000356


AOC-1C
PARCEL 1
AOC-1A
AOC-1B
(BEGINNING)
LOT-4
LOT-5
STORAGE AREA
STORAGE AREA
STORAGE AREA
HOWELL STREET
TANK
TANK
TANK
TANK
TANK
TANK
DUFFIELD
AOC-2D
AOC-2E
ST. PAULS AVENUE
AOC-3D
MW-08A
MW-08B
MW-09A
MW-09B
AOC-3A
AOC-3C
PARCEL 3
AOC-3B
AOC-3F
AOC-3G
MW-06A
MW-06B
HOWELL STREET
AOC-4B
AOC-4A
STORAGE AREA
STORAGE AREA
PARCEL 4
AVENUE
DEY
CHARLOTTE
STORAGE AREA

921000357

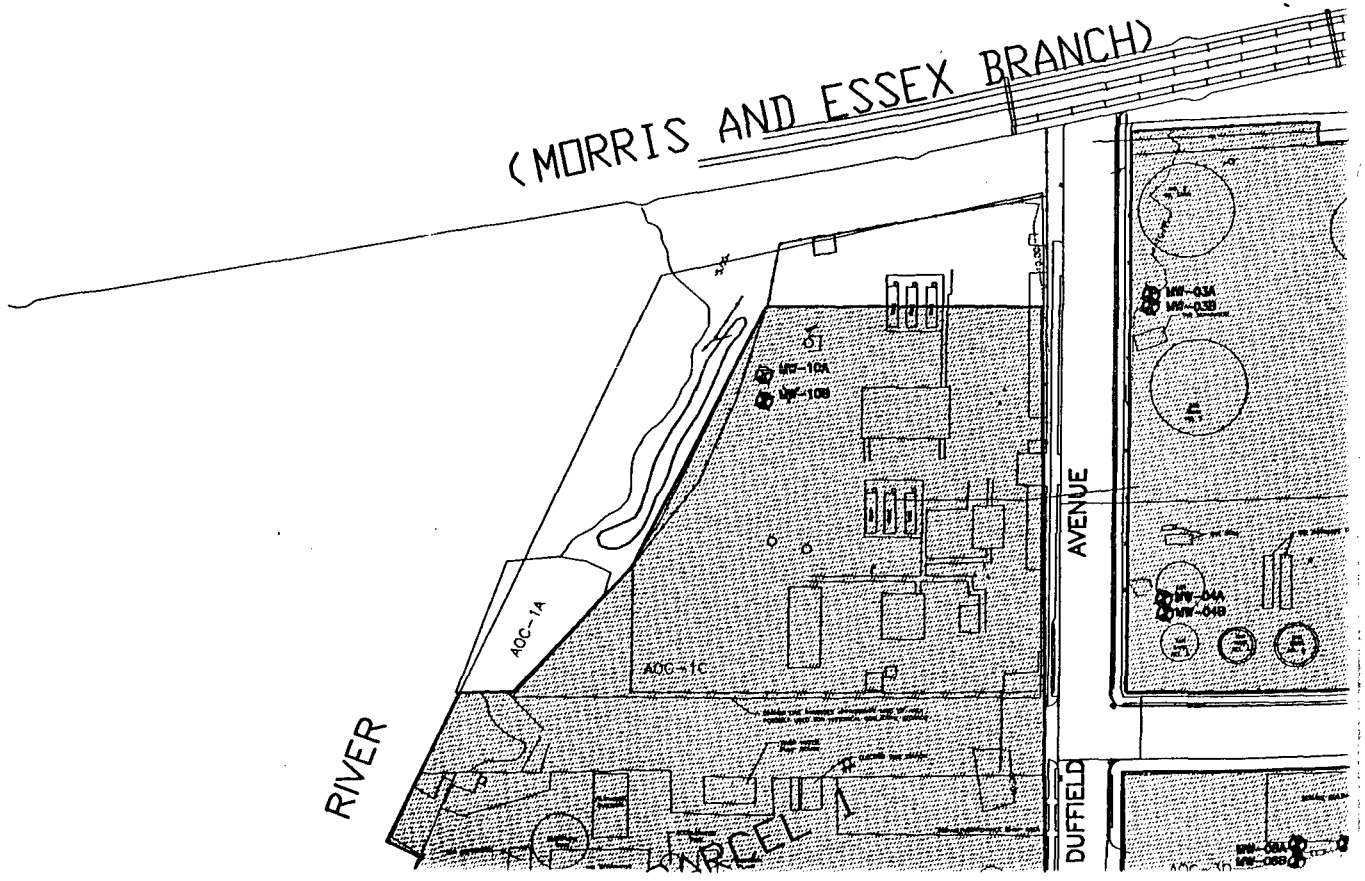


LEGEND:

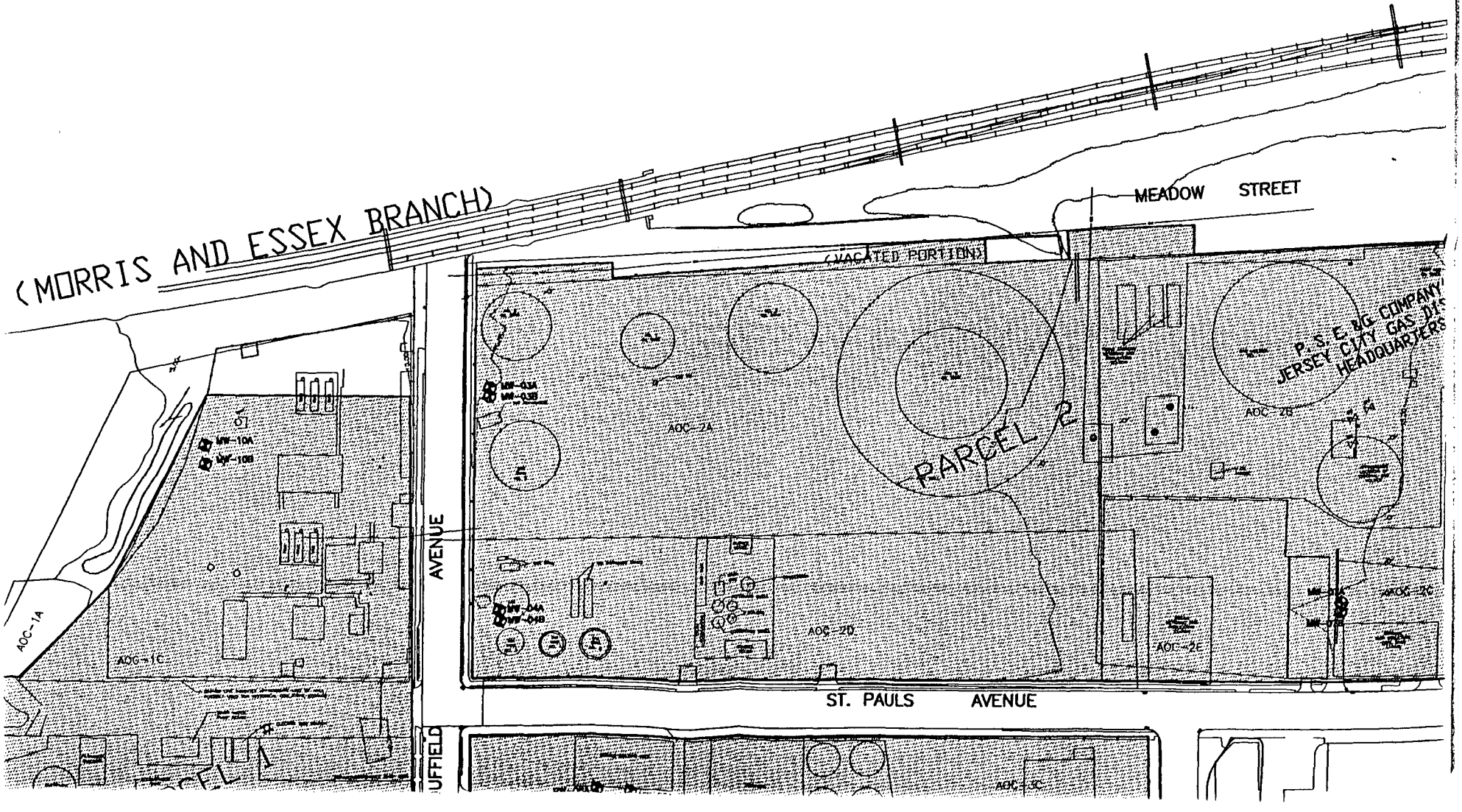
MW-01A MONITORING WELL

921000358

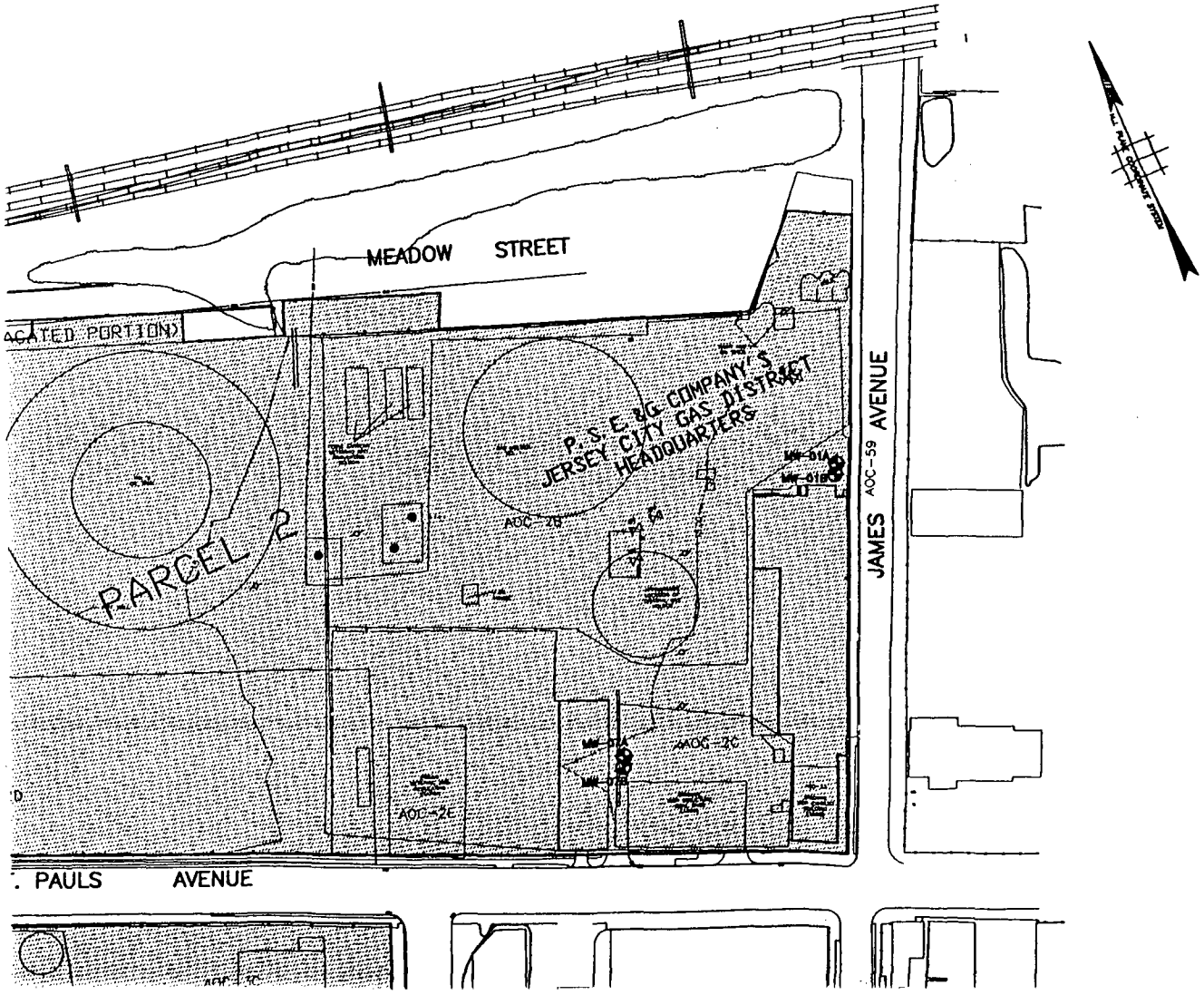
921000359


(MORRIS AND ESSEX BRANCH)
RIVER
AOC-1A
AOC-1C
MW-10A
MW-10B
DUFFIELD
AVENUE
MW-03A
MW-03B
MW-04A
MW-04B
MW-06A
MW-06B
PARCEL

921000360


(MORRIS AND ESSEX BRANCH)
MEADOW STREET
(VACATED PORTION)
PARCEL 2
P.S.E.&G. COMPANY
JERSEY CITY GAS DIS
HEADQUARTERS
AOC-2A
AOC-2B
AOC-2C
AOC-2D
AOC-2E
AOC-1A
AOC-1C
AOC-3C
MW-10A
MW-10B
AVENUE
ST. PAULS AVENUE

921000361


MEADOW STREET
ACATED PORTION)
PARCEL 2
P.S.E.&G. COMPANY'S
JERSEY CITY GAS DISTRICT
HEADQUARTERS
AOC-2B
AOC-2C
AOC-2E
AOC-59
JAMES AVENUE
. PAULS AVENUE

921000362

Environment, Health & Safety
80 Park Plaza, T17A, Newark, NJ 07102-4194
tel: 973.430.7000

PSEG
Services Corporation

Mr. Joseph Beckmeyer, PE, Chief Engineer
Jersey City Municipal Utilities Authority (JCMUA)
555 Route 440
Jersey City, NJ 07302

MAY 12 RECD

ATTN: Chris Piersa

PUBLIC SERVICE ELECTRIC & GAS COMPANY (PSE&G)
FORMER WEST END GAS WORKS
BLOCK 649.1, LOT 1; BLOCK 652, LOT 4; BLOCK 656.1, LOT 1
TWA PERMIT #04-0392
REQUEST FOR CONSENT FOR FLOW INCREASE

Dear Mr. Piersa:

Due to the time sensitive nature of this project, we respectfully request your expeditious attention of our request.

Enclosed please find a copy of the information that PSE&G will be submitting to the NJDEP for a modification to our existing TWA approval (#04-0392). The submission to the NJDEP will be made once we have secured the consent of the JCMUA and the PVSC. The WQM-003 form has been prepared for your review, signature, and consent. The details of our request are described below. The enclosures are as follows:

- TWA-1 form;
- WQM-003 form ***(please review and sign at each of the "sign here" tabs)***;
- WQM-006 form with a letter from the certifying engineer stating that the existing treatment works has sufficient capacity for the flow increase;
- A copy of the original TWA permit.

PSE&G is currently performing Site remediation of the above-referenced parcels under a Memorandum of Agreement, dated April 30, 1998 between PSE&G and the New Jersey Department of Environmental Protection (NJDEP). The NJDEP Site Remediation Program case number is 98-03-18-1022-09. This Site remediation project is intended to improve the existing environmental conditions and to accommodate future land use proposals, primarily the NJDOT Wittpenn Bridge project which is anticipated to begin in 2005.

Currently, all approvals are in place to divert up to 100,000 gallons per day (70 gallons per minute) of groundwater. Due to unexpected high volumes of groundwater to be diverted, we will be applying to the New Jersey Department of Environmental Protection (NJDEP) for a

modification to our existing TWA permit, referenced above, to increase the allowable diversion volume to 233,333 gallons per day (162 gallons per minute). The first step in our modification request to the NJDEP is to have the consent of the JCMUA for this increase.

Please feel free to contact John Dobi at (973) 430-8036 or Jason Fichter at (973) 430-8741 should you require anything further.

Very truly yours,

Raymond A. Tripodi
Manager, Licenses and Permits

RAT/JD/jlf

CC:	Dave Koury	T17
	Mark Nyhan	T-17
	Raymond A. Tripodi	T-17H
	Jason L. Fichter	T-17
	Ronald Tkach	T-17
	John Dobi	T-17
	L&P File	98.EM.LH
	Anthony Cinque	NJDEP Case Mgr, Soil Remediation Group

Revision 2/97

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Quality

TREATMENT WORKS APPROVAL PERMIT APPLICATION

—Refer to Instructions on Page 4 and Provide All Applicable Information. Please Print or Type.—

1. APPLICANT/OWNER*

Name: PSE&G
Telephone: Raymond A. Tripodi 973-430-8832
Permanent Legal Address: 80 Park Plaza T17, Newark, NJ 07102
City or Town: Newark
State: NJ
Zip Code: 07102

* *Applicant/Owner should be the eventual owner of the proposed Treatment Works.*

2. LOCATION OF ACTIVITY

Name of Facility/Site: Former West End Gas Works
Street Address/Location: St. Paul's Ave & Charlotte Ave
Lot No.: 1;4;1
Block No.: 649.1;652;656.1
City or Town: Jersey City
State: NJ
Zip Code: 07305
Municipality: Jersey City
County: Hudson

3. NEW JERSEY LICENSED PROFESSIONAL ENGINEER

Name: Gerard M. Coscia
N.J. License No.: 31107
Name of Firm, if employee: Langan Engineering
Mailing Address: River Drive Center 1
City or Town: Elmwood Park
State: NJ
Zip Code: 07407
Telephone: 201-794-6900
Telefax: 201-794-6917

4. ESTIMATED CONSTRUCTION COST AND APPLICATION FEE

N/A(refer to original TWA approval - no changes are proposed to handle the additional flows.)

A. Cost of treatment works proposed in this application $ 0
(attach a breakdown of the cost of all items related to the construction of the proposed treatment works)

B. Application Fee $ 112.50 (1/4 of the original permit fee)
(in accordance with N.J.A.C. 7:1C-1.5 et seq., made payable to Treasurer, State of NJ, Environmental Services Fund)

921000366

5. OTHER REQUIRED PERMITS

If any of the following applications have been submitted for this project, provide the applicable information.

Permit Type	Application Status: Pending (check one)	Application Status: Approved* (check one)	Application Date (or Application No.)
• Treatment Works Approval		XXX	04-0392
• Exemption From Sewer Ban			
• Water Quality Management Plan Amendment			
• CAFRA			
• Stream Encroachment			
• Freshwater Wetlands			
• Tidal or Coastal Wetlands			
• Waterfront Development			
• NJPDES (DSW, DGW or SIU)			
• Pinelands Certificate			
• Delaware & Raritan Canal Commission			
• Hackensack/Meadowlands Commission			
• Other Related Approvals			

(* - If any of the above applications were approved, please provide a copy of the approval with this application)

6. PROJECT DESCRIPTION (Brief Description of Proposed Treatment Works and Intended Use)

PSE&G is currently performing site remediation of the above-referenced parcels under a memorandum of agreement (4/30/98) between PSE&G and the NJDEP. The case # is 98-03-18-1022-09. The original TWA permit allowed a maximum discharge of 100,000gpd. This modification application is being submitted to request the maximum discharge be increased to 233,333gpd. The existing treatment works has sufficient capacity for the additional flows.

7. APPLICANT'S AGENT (Optional)

N/A I, _____
(Applicant/Owner's Name)

authorize to act as my agent/representative in all matters pertaining to my application the following person:

Name _____ Position _____

Address _____ City _____

State _____ Zip Code _____ Telephone _____

Signature of Agent _____ Date _____ Signature of Applicant/Owner _____ Date _____

8. PROPERTY OWNER'S CERTIFICATION

I hereby certify that I, PSE&G
(Property Owner's Name)

owns the property identified in this application. As owner, I grant permission for the activity to be permitted under this application and authorize the Department of Environmental Protection to conduct on-site inspections, if necessary. If the construction activity will take place in an easement, I certify that with this application, I presently have or will obtain permission of the property owner(s) prior to initiation of construction of this proposed treatment works.

Morton A. Plawner 5-9-05
Signature of Owner Date

Name Morton A. Plawner Position VP & Treasurer, PSE&G

9. STATEMENT OF PREPARER OF PLANS, SPECIFICATIONS AND ENGINEER'S REPORT AND/OR ABSTRACT

N/A (refer to original TWA approval - no changes are proposed to the treatment works.

I hereby certify that the engineering plans, specifications, and engineer's report and/or abstract applicable to this project comply with the current rules and regulations of the Department of Environmental Protection with the exceptions as noted.

Signature of Engineer _____ Date _____

Name _____

Professional Engineer's Embossed Seal

Position _____

921000368

10. PROPER CONSTRUCTION AND OPERATION CLAUSE

I, the Applicant/Owner, N/A, agree that the treatment works will be properly constructed and operated in accordance with the engineering plans, specifications and conditions under which approval is granted by the Department of Environmental Protection.

Signature of Applicant/Owner Date (refer to original TWA approval and subsequent WQM-005).

Name Position

11. CERTIFICATION BY APPLICANT/OWNER

I certify, under penalty of law, that the information provided in this application and the attachments is true, accurate, and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment.

Raymond A. Tripodi

Signature of Applicant/Owner Date 5/9/05

Name Raymond A. Tripodi Position Manager, Licenses & Permits

INSTRUCTIONS FOR COMPLETING FORM TWA - 1

This form should accompany all Treatment Works Approval permit applications.

1. **General Information** - (items #1 through #4, #6) Complete the requested applicant and project information.
2. **Other Required Permits** (item # 5) - Please list all permits issued for the subject project (in addition to the permits being applied for at this time).
3. **Signatures** (items #7 through #11) - All signatures must comply with N.J.A.C. 7:14A-2.4 and N.J.A.C. 7:14A-22.8. Where indicated under items #1, #10 and #11, the applicant/owner should be the eventual owner of the proposed treatment works. Item #8 shall be completed by the owner of the property.

Should you need assistance in completing the application, please call the appropriate phone number listed below:

• **Bureau of Administration and Management** (609) 633-1208 Municipal Treatment Works, Industrial Treatment Works, Sewer Extension, Sewer Ban Exemption, Subsurface Disposal Systems	• **Bureau of Non-Point Pollution Control** (609) 292-0407 Alternate Design Septic Systems (design flow less than 2,000 GPD)

921000369

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Quality

STATEMENTS OF CONSENT

A supplement to the TWA-1 or NJPDES-1 Forms

General Information

Applicant/Owner/Operator: PSE&G

Location of Work Site: St. Paul's & Charlotte Ave

Name of Project/Facility: Former West End Gas Works

Type of permit application (TWA, NJPDES/SIU): Treatment Works Approval - Modification

NJPDES Permit Number (if applicable): N/A

A-1 Consent By Governing Body**

(Consent by the municipality in which the project is located.)

As an authorized representative of the governing body, I hereby certify that the

Jersey City Municipal Utilities Authority
(Name of Municipality or Municipal Authority)

consents to the submission of the above listed application to the Department of Environmental Protection for approval. I further certify that the project as proposed conforms with the requirements of all municipal ordinances.

Signed* _____ Date _____

Type Name and Position _____

* *Cite authorization to sign for the governing body*

Resolution# _____ Dated _____

(Submit the resolution with the application. If no such resolution granting authority to sign exists, the Governing Body's full resolution, consenting to the project, must be submitted with the application.)

** *Note*

For most Treatment Works Approval (TWA) applications, this section may be omitted if a sewerage entity (for example, sewerage authority, utilities authority, municipal utilities authority, joint meeting, etc.) has responsibility for regulating the construction and operation of wastewater treatment and conveyance facilities within the municipality. In such cases, the governing body consent requirement may be satisfied by completing Section A-2. Applicants for TWAs for industrial/commercial facilities discharging pursuant to NJPDES/DSW or DGW permits must complete section A-1.

A-2 Consent by Sewerage Authority**

As an authorized representative of this agency, I hereby certify that the

Jersey City Municipal Utilities Authority
(Name of Agency)

consents to the submission of the above listed application to the Department of Environmental Protection for approval. I further certify that the project as proposed conforms with the requirements of this agency.

Signed* _____ Date _____

Type Name and Position _____

* Cite authorization to sign for the agency

Resolution# _____ Dated _____
(Submit the resolution with the application. If no such resolution granting authority to sign exists, the Governing Body's full resolution, consenting to the project, must be submitted with the application.)

** Note
For TWA applications, this section must be completed when a sewerage entity (for example, sewerage authority, utilities authority, municipal utilities authority, joint meeting, etc.) has responsibility for regulating the construction and operation of wastewater treatment and conveyance facilities within the municipality.

A-3 Consent by Owner of Wastewater Treatment Facility**

(For NJPDES/SIU applications only)

As an authorized representative of this agency, I hereby certify that the

N/A
(Name of Agency)

consents to the submission of the above listed application to the Department of Environmental Protection for approval. I further certify that the project as proposed conforms with the requirements of this agency and the agency agrees to accept wastewater from the project for treatment.

Signed* _____ Date _____

Type Name and Position _____

* Cite authorization to sign for the agency

Resolution# _____ Dated _____
(Submit the resolution with the application. If no such resolution granting authority to sign exists, the Agency's full resolution, consenting to the project, must be submitted with the application.)

** Note
For NJPDES/SIU applications, this section must be completed when the owner of the receiving wastewater treatment plant is different that the entity listed under A-2.

B. Certification by Wastewater Conveyance System Owner**

By agreeing to accept wastewater from the project, I (we) hereby certify that to the best of my (our) knowledge the wastewater conveyance system, into which the project proposed under this application will connect, has adequate capacity in accordance with N.J.A.C. 7:14A-1.9 ("Adequate conveyance capacity"). Furthermore, I (we) am (are) not aware of inadequate conveyance capacity conditions in any portion of the downstream facilities necessary to convey the wastewater from this project to the treatment plant.

Name of Municipality or Authority: Jersey City Municipal Utilities Authority

Signed* _____ Date _____

Type Name and Position _____

*** Cite authorization to sign for the governing body**

Resolution# _____ Dated _____

(Submit the resolution with the application. If no such resolution granting authority to sign exists, the governing body's full resolution, consenting to the project, must be submitted with the application.)

** Note

1. For TWA applications, this section must be completed by the owner/operator of the wastewater conveyance system into which the project named herein will directly connect.
2. For NJPDES/SIU applications, this section must be completed when the owner/operator wastewater conveyance system into which the project named herein will directly connect is different that the entity listed under A-3.

C. Certification by Wastewater Treatment Facility Owner**

(For TWA applications that include a sewer connection/extension.)

I (we) hereby certify that the committed flow* to the**

Passaic Valley Sewerage Commissioners Treatment Plant

(Name of Wastewater Treatment Plant)

does not exceed the presently permitted design capacity and with the additional flow proposed by this application, the permitted design capacity is not anticipated to be exceeded. I (we) further certify that the treatment plant is currently complying with its conventional and non-conventional NJPDES permit requirements (see N.J.A.C. 7:14A-22.17(b)-(d), percent removal and toxicity requirements excluded from this certification) as determined by a rolling average of the three most recent monthly discharge monitoring reports that were required to be submitted to the Department as of this date, and based upon my (our) assessment of all information pertinent to this permit request, is anticipated to continue to do so with the additional flow from this project.

Accepted for Treatment by _____

(Name of Treating Authority)

Signed* _____ Date _____

Type Name and Position _____

Name of project and/or location: Former West End Gas Works - Jersey City

*** Cite authorization to sign for the governing body**

Resolution# _____ Dated _____

(Submit the resolution with the application. If no such resolution granting authority to sign exists, the governing body's full resolution, consenting to the project, must be submitted with the application.)

** For TWA applications, this section must be completed by the owner of the wastewater treatment facility receiving the wastewater identified in this application.

*** For the purposes of this certification, committed flow means the sum of the 1) actual metered flow, 2) flow from DEP approved TWA applications (not yet operational), and 3) flow from locally approved projects that do not require DEP approval.

Additional Information (For TWA Applications)

1. Approvals, permits, service contracts, or other reservations of flow capacity issued or agreed to by any participating municipality or sewerage agency do not constitute the required approval of the DEP.

2. For computation of actual flow at the receiving wastewater treatment plant, the average flow processed by the facility for the three (3) month period immediately preceding the submission of the application shall be used. Pursuant to the NJPDES regulations (N.J.A.C. 7:14A), no application shall be submitted to the DEP if the wastewater treatment facility is not meeting its discharge permit requirements.

Lack of Consent*

1. The affected sewerage authority or municipality must consent to the application or submit comments to the DEP within 60 days of the applicant's request for consent. Prior to the expiration of the 60-day period to respond to a request for a written statement of consent, the municipality or sewerage authority may request a 30-day time extension.

2. Any document issued by a sewerage authority or municipality which is a tentative, preliminary, or conditional approval shall not be considered a statement of consent.

3. When the affected sewerage authority or municipality does not consent to a project, it shall state all reasons for rejection or disapproval in a resolution and send a certified copy of the resolution to the DEP.

4. When the affected sewerage authority or municipality expressly denies a request for a written statement of consent for a project, the permit application may be determined by the DEP to be incomplete for processing; or in the alternative, the DEP may review the reasons for denial. Any such reasons shall be considered by the DEP in determining whether to issue a draft permit in accordance with N.J.A.C. 7:14A-15.6, or a Treatment Works Approval or sewer connection approval in accordance with N.J.A.C. 7:14A-22.

5. When the affected sewerage authority or municipality does not issue a written statement of consent in accordance with (1) above, or a denial in accordance with (3) above, the DEP, upon receipt of proof that the applicant has delivered to the affected agency a written request for a statement of consent, shall review the reasons therefore, if known on the basis of reasonably reliable information. Any such reasons shall be considered by the DEP in determining whether to issue a draft permit in accordance with N.J.A.C. 7:14A-15.6, or a Treatment Works Approval in accordance with N.J.A.C. 7:14A-22. The DEP, may in its discretion, deem the application to be incomplete pending the expiration of the time period set forth in (1) above.

* This section has been excerpted from the NJPDES regulations for guidance purposes only. Please refer to N.J.A.C. 7:14A-22.8(a)3 for the complete requirements concerning statements of consent.

Notice: False statements, representations, or certifications, in any application, record, or document are subject to fines and penalties as set forth in the Water Pollution Control Act (N.J.S.A. 58:10A-10F 2 and 3.

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.O. Box 402, TRENTON, NJ 08625-0402

PERMIT TO CONSTRUCT AND OPERATE* TREATMENT WORKS

*Local Agency approval required prior to operation

The New Jersey Department of Environmental Protection grants this approval in accordance with your application, attachments accompanying same application, and applicable laws and regulation.

PERMIT NO.	ISSUANCE DATE	EXPIRATION DATE	DESIGN FLOW
04-0392	06/24/2004	06/23/2006	.1 M.G.D.

NAME AND ADDRESS OF APPLICANT
PSE & G Corporation
80 Park Plaza Mailcode T 17
Newark NJ 07102

LOCATION OF ACTIVITY
Jersey City
Hudson County

This permit grants permission to:
Construct and operate 25 feet of 8 inch PVC sanitary sewer line, sewage pump station and 250 feet of 4 inch hose (force main) to convey treated groundwater at the PSEG's former West End Gas Works, located in Jersey City.

According to the plans entitled:
"Final sewer conveyance plan Public Service Electric and Gas Company (Former West End Gas Works), Block 647, 649 and 651, in the City of Jersey City, Hudson County, New Jersey, one sheet 1 of 1, dated December 9, 2003, prepared by Schoor DePalma Engineers."

and according to the specifications entitled:
"Specifications sanitary sewer construction for PSEG Former West End Gas Works, Blocks 647, 649 and 651, Jersey City, Hudson County, New Jersey, dated December 2003, prepared by Schoor DePalma Engineers."

Prepared by: Shirish N. Shah

APPROVED by the Department of Environmental Protection

William Machotka, P.E., Section Chief

Gautam R. Patel, Chief
Bureau of Financing and Construction Permits

This permit is also subject to special provisos and general conditions stipulated on the attached three (3) page(s) which are agreed to by the permittee upon acceptance of the permit.

921000374

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

David T. Gockel, P.E., P.P.
George E. Derrick, P.E.
George P. Kelley, P.E.
Michael A. Semeraro, Jr., P.E.
Nicholas De Rose, P.G.
Andrew J. Ciancia, P.E.
George E. Leventis, P.E.
Rudolph P. Frizzi, P.E.
Ronald A. Fuerst, C.L.A.

Roger A. Archabal, P.E.
Gregory L. Biesiadecki, P.E.
Gerard M. Coscia, P.E.
Colleen Costello, P.G.
Michael E. Cotreau, P.E.
Gregory M. Elko, P.E.
Michael M. Goldstein
Cristina M. Gonzalez, P.E.
Sam B. Ishak, M.C.S.E.
William G. Lothian, P.E.
John J. McElroy, Jr., Ph.D., P.E.
John D. Piante, P.E.
Alan R. Poeppel, P.E.
Joseph E. Romano, P.L.S.
Leonard D. Savino, P.E.
Steven Ueland, P.E.
Gerald J. Zambrella, C.E.M

Jorge H. Berkowitz, Ph.D.
Richard Burrow, P.E.
David J. Charette, P.W.S.
Steven Ciambruschini, P.G., L.E.P.
Daniel D. Disario, P.E.
Edward H. Geibert, M.S.
Christopher M. Hager, P.E.
Joel B. Landes, P.E.
Matthew E. Meyer, P.E.
R. S. Murali, M.S.
Richard R. Steiner, P.E.

10 May 2005

Mr. Michael Talpas
Supervising Environmental Engineer
New Jersey Department of Environmental Protection
Division of Water Quality
Bureau of Administration and Management
401 East State Street – 3rd Floor
P.O. Box 425
Trenton, NJ 08625

Re: Public Service Electric and Gas Company
Former West End Gas Works
Blocks 647, 649 and 651
Jersey City, New Jersey
Job No. 1898401

Dear Mr. Talpas:

The existing treatment works conveyance system currently in place on-site has adequate capacity to handle the proposed flow of 233,333 GPD from the construction dewatering activities occurring on site.

If you have any questions regarding this project, please do not hesitate to contact our office.

Sincerely,

Langan Engineering and Environmental Services, Inc.

JOSEPH BYRA

Joseph Byra
New Jersey Professional Engineer

Gerard M. Coscia
New Jersey Professional Engineer

JB\GMC:mc

NJ Certificate of Authorization No: 24GA27996400
C:\Data4\1898401\Office Data\Correspondence\talpas 051005.doc

River Drive Center 1 Elmwood Park, NJ 07407 T: 201.794.6900 F: 201.794.0366 www.langan.com
Elmwood Park, NJ • Doylestown, PA • Miami, FL • New Haven, CT • New York, NY • Philadelphia, PA • Trenton, NJ

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Quality

ENGINEER'S REPORT for DOMESTIC TREATMENT WORKS APPROVAL APPLICATIONS

INSTRUCTIONS

- Complete all applicable sections and certifications.
- Justifications for any exceptions from the regulations at N.J.A.C. 7:14A - 23 et seq. must be submitted. (Additional sheets may be attached if necessary.)
- All supplemental information required to be submitted along with this engineer's report must be signed, sealed, and dated by a professional engineer, licensed to practice in the State of New Jersey.
- **For Treatment Works other than collection and/or conveyance, please attach a separate Engineer's Report in accordance with N.J.A.C. 7:14A - 23.5.**

GENERAL INFORMATION

Applicant: PSEG Services Corporation Municipality: Jersey City

Project Name: Former West End Gas Works County: Hudson County

Name of Receiving Sewage Treatment Plant: Passaic Valley Sewerage Commissioners

NJPDES Permit Number: NJ0021016

Effluent Receiving Waters: Passaic River

Scope of Project: PSEG Services Corporation proposes a temporary groundwater recovery and treatment system at PSEG's Former West End Gas Works located in Jersey City, Hudson County. The proposed treatment system will convey treated groundwater to the JCMUA Sanitary Sewer System. The treated groundwater will then be sent to the PVSC Treatment Plant for final Treatment.

Contributory Flow: *For assistance in completing this chart, refer to N.J.A.C. 7:14A - 23.3.*

Establishment Type		Number of Measurement Units		Gallons per Day per Unit		Projected Flow (G.P.D.)
Construction Dewatering		1	X	233,333	=	233,333
			X		=	
			X		=	
			X		=	

Combined Projected Flow: 0.233 M.G.D.
Existing Contributory Flow (if any): – M.G.D.
TOTAL FLOW: 0.233 **M.G.D.**

921000376

1. WASTEWATER CONVEYANCE SYSTEMS

(A) GRAVITY SEWER SYSTEMS

Diameter (inches)	Total Length (feet)	Material Type	"n" Value	Max. MH Spacing (feet)	Min. Slope (%)	Max. Velocity (ft/sec)	Max. Capacity (M.G.D.)
8"	25'	PVC	0.011	N/A	2.0	4.1	1.30

1.	What is the minimum cover (as measured from the top of the pipe to the grade elevation) provided along the entire sewer line?	9.5 ft.		
2.	What is the infiltration and/or exfiltration limit for testing purposes (gallons per inch of pipe per mile per day)?			
		YES	NO	N/A
3.	Are sewers within 100 feet of a public water supply well or a below-grade reservoir?		X	
4.	Are sewers located at least 10 feet horizontally from potable water lines and/or at least 18 inches below potable water lines and in separate trenches, including crossings?	X		
5.	Are sewers crossing streams located within 10 feet of a stream embankment encased in concrete?			X
6.	Is a drop pipe provided for sewers entering manholes above the manhole invert wherever the difference in elevation is two feet or more?			X
7.	Are all manholes located more than 100 feet from a public water supply well or a below-grade reservoir?			X
8.	Are watertight covers used where street elevations are less than 10 feet above the North American Vertical Datum of 1988 and/or where the top of a manhole may be flooded by street runoff or high water?			X
9.	Are the sanitary sewers designed to carry at least twice the estimated average projected flow when flowing half full?	X		
10.	Have adequate provisions been made for the ventilation of manholes?	N/A		
11.	If siphons are part of this project, are they in conformance with N.J.A.C. 7:14A - 23.7?			X
12.	Are the immediate downstream sewer lines constructed?	X		

(B) PUMPING SYSTEM: Submit a Pump Station Design Report, which should include, at a minimum, the basis for the following: (a) pump selection; (b) sizing of force main and velocity calculations;(c) total dynamic head; (d) pump station performance curve and (e) wet well detention time.

Average daily flow:	233,333	GPD	Surface area of wet well:	N/A	ft^2
Peaking factor:	NA		Wet Well Detention Time :	N/A	minutes
Peak design flow:	233,333	GPD	TDH of pump:	120 ft. @ 162 GPM	ft
Number of pumps:	1				
Design capacity of pump station (with the largest pump out of service):				NA	GPM

921000377

1. WASTEWATER CONVEYANCE SYSTEMS

(B) PUMPING SYSTEM (continued)

FORCE MAINS

Diameter (inches)	Length (feet)	Material Type	Velocity (ft/sec)
4"	1070'	Elastometric Polyurethane	4.1
		Fire Hose @ Grade	

1.	What is the minimum cover (as measured from the top of the pipe to the grade elevation) provided along the entire force main?	Hose (At Grade) ft
2.	Specify the method of screening at the pumps.	50 mm
3.	Where is the ultimate location of the alarm for high water conditions, power failures, and mechanical breakdowns?	N/A
4.	Specify the type of back-up power source provided.	N/A

		YES	NO	N/A
5.	Is adequate light and ventilation provided at the pump station?			X
6.	Are air and/or vacuum release valves provided on the high points of the force main?	X		
7.	Are adequate freshwater wash-down facilities provided?			X
8.	If a domestic water service connection will be utilized for wash-down purposes, is it protected by a backflow prevention device?			X
9.	Are shut-off valves on suction and discharge piping and check valves on discharge lines provided?	X		
10.	Is the base of the pump station wet well sloped toward the pump suction?			
11.	Does the alarm system provide for competent assistance on a 24 hour basis?			X
12.	Is the pump station adequately protected from flooding?	X		
13.	Is the dry well provided with a sump pump?			X

I am a professional engineer licensed by the New Jersey Board of Professional Engineers and Land Surveyors to practice in New Jersey. I certify that the proposed treatment works, as designed, meets the requirements of N.J.A.C. 7:14A - 23 et seq., other than the exceptions as noted.

I hereby certify that the information provided in this engineer's report and attachments hereto, is true, accurate, and complete. Exceptions attached [YES , NO]?

Signature of Engineer: Gerard M. Coscia

Professional Engineer's Embossed Seal

Name and Date: (Print or Type) Gerard M. Coscia, PE 5/10/05

Firm Name: Langan Engineering and Environmental Services

921000378

2 DOMESTIC WASTEWATER TREATMENT AND/OR RESIDUAL FACILITIES

Is the following information submitted with this engineer's report?		YES	NO
1.	A complete description of the selected wastewater treatment system.		
2.	For the modification of an existing system which has not previously been granted a treatment works approval (TWA), the capacities of the existing units and a brief description of the operation of each, and a statement concerning which units are existing and which are proposed at the time of the application. If there exists a previously issued TWA approval for the subject facility, submit the date of issuance and the TWA number.		
3.	Hydraulic profiles of the flow of wastewater through the system.		
4.	A unit by unit mass balance for all discharge parameters.		
5.	The ultimate disposal location of all effluent.		
6.	The basis and computations for average and peak flow requirements.		
7.	The expected composition of the influent and effluent from the treatment system including the average, maximum and minimum values of the pollutant parameters specified in the facility's NJPDES permit/DAC.		
8.	An evaluation of the quantity and quality of any and all residuals generated and projected to be generated, including a hydraulic profile and unit by unit mass balance for the flow of residuals through the system.		
9.	Documentation of adequate storage and handling facilities for residuals.		
10.	Provisions for the ultimate management of residuals.		
11.	Details of flow monitoring and control, alarm systems, auxiliary power, storage facilities for treatment chemicals and wastes, and plans for bypassing units during construction or maintenance.		
12.	The basis and computations for the projected wastewater flow.		
13.	A fully executed Licensed Operator Grading Form.		

I am a professional engineer licensed by the New Jersey Board of Professional Engineers and Land Surveyors to practice in New Jersey. I certify that the proposed treatment works, as designed, are adequate to meet all applicable final NJPDES/DAC permit limitations contained in the current NJPDES Discharge Permit/DAC No. _____. In addition, I certify that the proposed treatment works, as designed, meets the requirements of N.J.A.C. 7:14A - 23 et seq., other than the exceptions as noted.

I hereby certify that the information provided in this engineer's report and attachments hereto is true, accurate, and complete. Exceptions attached [YES , NO]?

Signature of Engineer* _____

Professional Engineer's Embossed Seal

Name and Date: _____
(Print or Type)

Firm Name: _____

** This certification may not be completed until the effective date of the associated final NJPDES Discharge Permit or DAC.*

PIPE CAPACITY CALCULATIONS

8" PVC @ 2.0% SLOPE

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$Q = \frac{1.49}{0.011}(0.349)(0.167)^{2/3}(0.02)^{1/2}$$

$$Q = 2.02 \text{ CFS}$$

$$A = \pi r^2 = \pi\left(\frac{4}{12}\right)^2$$

$$A = 0.349 \text{ FT}^2$$

$$R = \frac{r}{2} = \frac{D}{4} = \frac{\frac{8}{12}}{4}$$

$$R = 0.167 \text{ FT}$$

$$2.02 \frac{\text{FT}^3}{\text{s}} \times \frac{60 \text{ s}}{1 \text{ min}} \times \frac{7.48 \text{ gal}}{1 \text{ FT}^3} = 904.5 \text{ gpm}$$

$$904.5 \frac{\text{gal}}{\text{min}} \times \frac{60 \text{ min}}{1 \text{ hr}} \times \frac{24 \text{ hrs}}{1 \text{ da}} = 1{,}302{,}480 \text{ gal/da}$$

$$= 1.30 \text{ MGD}$$

8" PVC HAS ADEQUATE CAPACITY TO DISCHARGE PROPOSED FLOW OF 233,333 gal/da

$$V_{@\text{ PROP. FLOW}} = \frac{1.49}{n} R^{2/3} S^{1/2}$$

$$\frac{Q_{PROP}}{QF} = \frac{233{,}333}{1{,}302{,}480} = 0.18$$

FROM HYDRAULIC ELEMENTS CHART

$$\frac{d}{D} = 0.285$$

$$\frac{V_{PROP}}{V_F} = 0.71$$

$$V_{FULL} = \frac{1.49}{n} R^{2/3} S^{1/2} = \frac{1.49}{0.011}(0.167)^{2/3}(0.02)^{1/2}$$

$$V_{FULL} = 5.77 \text{ FT/s}$$

$$V_{PROP} = 0.71(5.77 \text{ FT/s}) = 4.1 \text{ FT/s}$$

WEST END GAS WORKS	BY JB	DATE 5-10-2005	PROJ. NO. 1898401
	CKD.	DATE	SHEET 1 OF

Langan
Engineering and Environmental Services, Inc.

921000380

PUMP CALCULATIONS

$$233{,}333 \frac{gal}{da} \times \frac{1\ da}{24\ hr} \times \frac{1\ hr}{60\ min} = 162\ gpm$$

THE PORTABLE PUMP BEING UTILIZED ON-SITE IS A GORMAN-RUPP 80 SERIES PUMP MODEL 84A2-B WITH A 20 HP MOTOR.

FROM PUMP CURVE FROM MANUFACTURER

TDH = 80 FT @ 648 gpm

TDH = 120+ FT @ 162 gpm

$$TDH_{REQ} = H_{FRICTION} + H_{STATIC\ HEAD} + H_{MINOR\ LOSSES}$$

$$H_{FRICTION}/1000\ FT = \left[\frac{147.85\ Q}{C D^{2.63}}\right]^{1.852} \quad \text{(HAZEN-WILLIAMS)}$$

WHERE Q = FLOW (gpm)

C = HAZEN WILLIAMS COEFF. OF ROUGHNESS

D = FORCE MAIN DIAMETER (IN)

$$H_{FRICTION}/1000\ FT = \left[\frac{147.85(162)}{150(4)^{2.63}}\right]^{1.852} = 14.1\ FT/1000\ FT = 0.0141\ FT/FT$$

LENGTH OF FORCE MAIN = 1070 FT ±

$$H_{FRICTION\ (TOTAL)} = 1070\ FT\ (0.0141\ FT/FT) = 15.0\ FT$$

$H_{STATIC\ HEAD} \approx 2$ FT

NEGLECTING MINOR LOSSES ≈ 0 FT

$TDH_{REQ} = 15.0 + 2 + 0 = 17$ FT

EXISTING PUMP IS ADEQUATE

$$V_{FORCE\ MAIN} = \frac{Q}{A} = \frac{162\ gpm\left(\frac{1\ FT^3}{7.48\ gal}\right)\left(\frac{1\ min}{60\ s}\right)}{\pi\left(\frac{2}{12}\right)^2} = 4.1\ FT/s$$

✓ OK

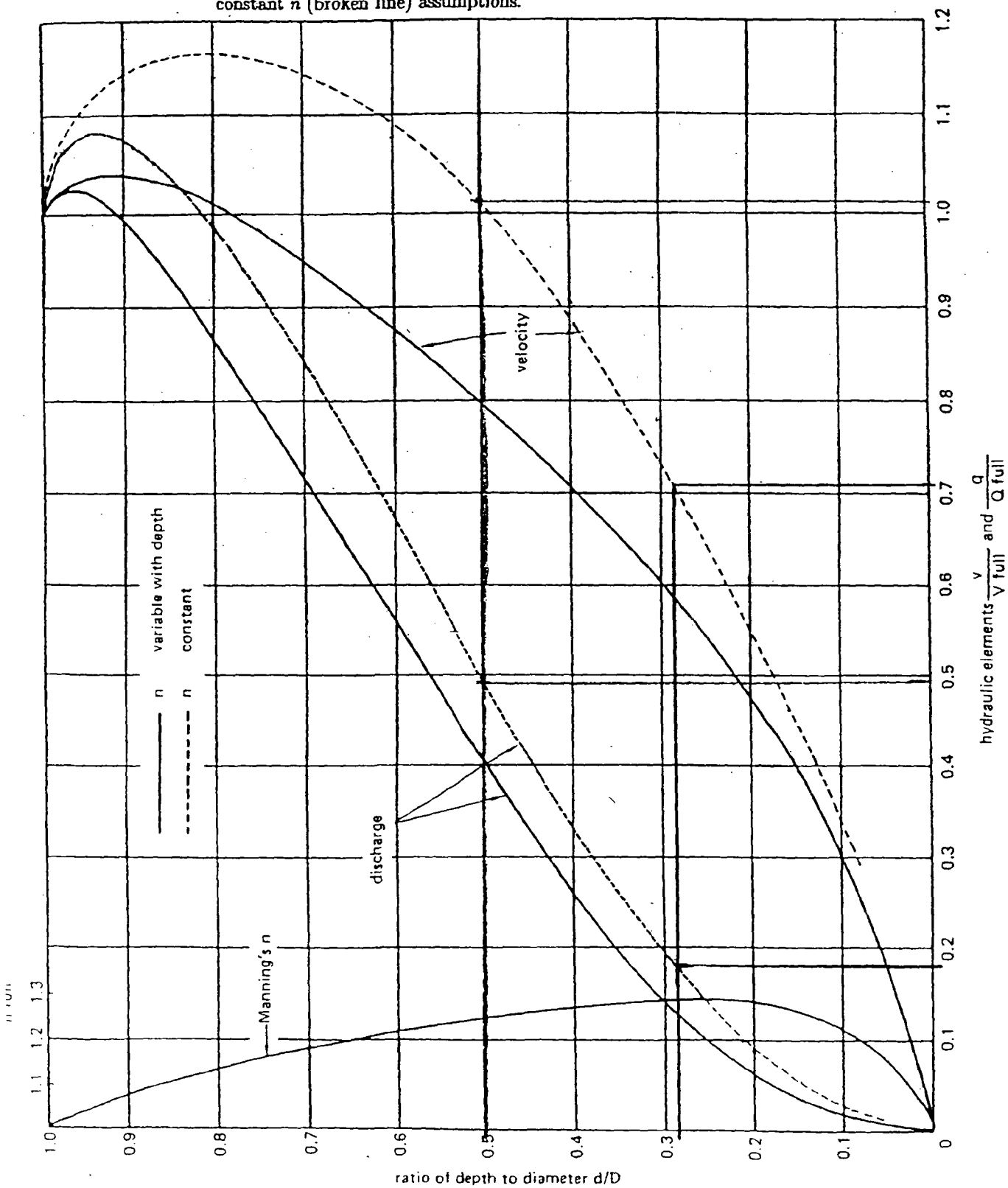
WEST END GAS WORKS	BY JB	DATE 5-10-2005	PROJ. NO. 1898401
	CKD.	DATE	SHEET 2 OF

Langan
Engineering and Environmental Services, Inc.

921000381

Appendix C: Circular Channel Ratios

Experiments have shown that n varies slightly with depth. This figure gives velocity and flow rate ratios for varying n (solid line) and constant n (broken line) assumptions.



921000382

Potw Pump

POTW PUMP

921000383

HAYES PUMP, INC.
66 Old Powder Mill Road
West Concord, MA 01742-4696
Tel. (978) 369-8800 Fax. (978) 369-8461

M-00895-0B02
February 27, 1985
Rev.B

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WITH PARTS LIST

GORMAN-RUPP PUMPS

80 SERIES PUMP

MODEL

84A2-B

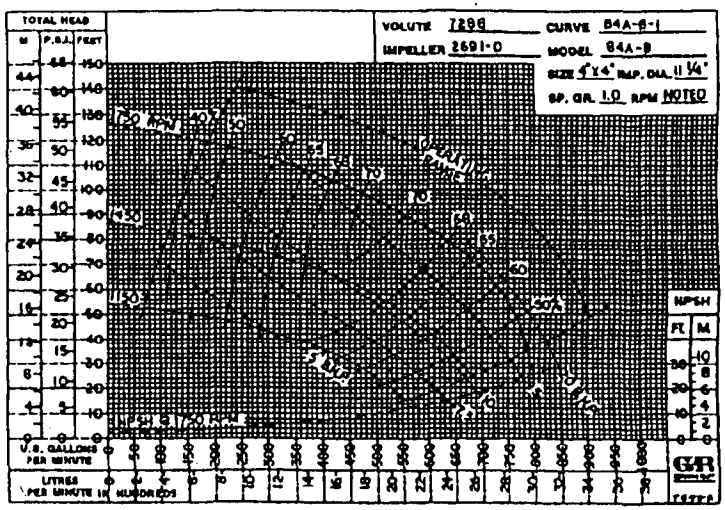
INCLUDING: /FM

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO
GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA Printed in U.S.A.

© Copyright by the Gorman-Rupp Company

PUMP MAINTENANCE AND REPAIR - SECTION E

MAINTENANCE AND REPAIR OF THE WEARING PARTS OF THE PUMP WILL MAINTAIN PEAK OPERATING PERFORMANCE.



*STANDARD PERFORMANCE FOR PUMP MODEL 84A2-B

*Based on 70°F clear water at sea level with minimum suction lift. Since pump installations are seldom identical, your performance may be different due to such factors as viscosity, specific gravity, elevation, temperature, and impeller trim.

If your pump serial number is followed by an "N", your pump is NOT a standard production model. Contact the Gorman-Rupp Company to verify performance or part numbers.

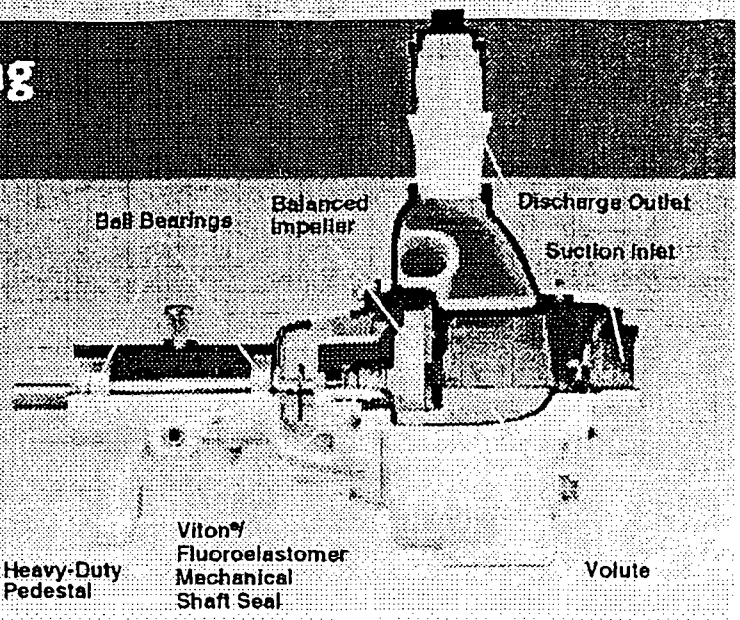
921000384

Heavy-Duty Self-Priming 80 SERIES Pumps

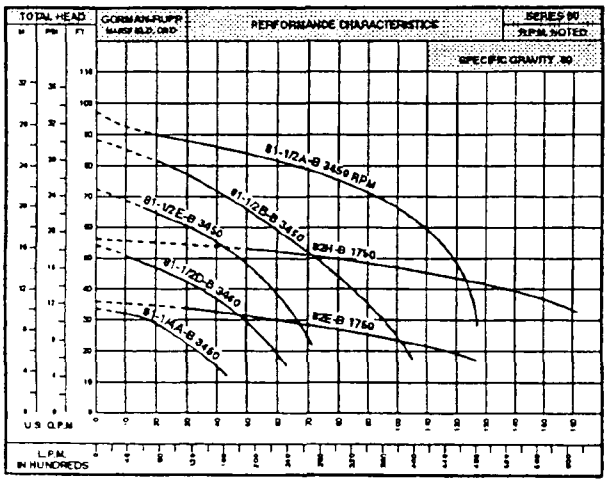
orman-Rupp 80 Series pumps are designed for non-stop workloads. The straight-in suction design of these high-efficiency pumps guarantees quick, positive self-priming and allows them to operate at higher suction levels than most other self-priming centrifugal pumps.

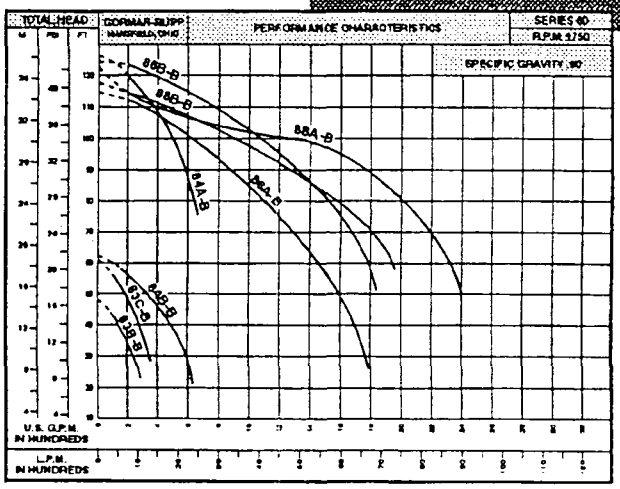
Liquid enters directly into the impeller eye. A suction check valve prevents in-line return flow when the pump is shut off. And, because 80 Series pumps have few moving parts, maintenance is minimal. 80 Series pumps are available with self-lubricated mechanical shaft seals.

Pumps are available in gray iron and other special metals. Sizes from 1-1/4" to 8" (30 mm to 200 mm), capacities to 2100 gpm (133 lps), heads to 210 feet (64 m).



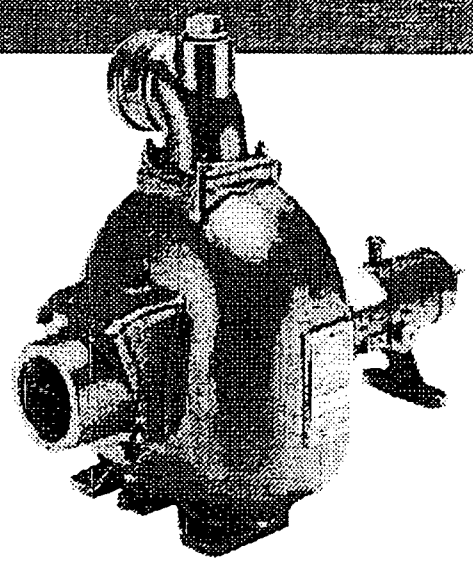
Performance





Specifications

Model	Size	Seal Elastomer	Materials of Construction: Volute	Impeller	Wearplate	Max. RPM
81-1/4A3-B	1-1/4" (30 mm)	Viton®	Gray Iron	Bronze	Gray Iron	3600
81-1/2A3-B	1-1/2" (40 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
81-1/2B3-B	1-1/2" (40 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
81-1/2E3-B	1-1/2" (40 mm)	Viton®	Gray Iron	Bronze	Gray Iron	3450
81-1/2D3-B	1-1/2" (40 mm)	Viton®	Gray Iron	Bronze	Steel	3600
82E3-B	2" (50 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
82H3-B	2" (50 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
83A3-B	3" (75 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
83B3-B	3" (75 mm)	Viton®	Gray Iron	Gray Iron	Steel	3450
83C3-B	3" (75 mm)	Viton®	Gray Iron	Gray Iron	Steel	1750
84A3-B	4" (100 mm)	Viton®	Gray Iron	Gray Iron	Steel	1750
84B3-B	4" (100 mm)	Viton®	Gray Iron	Gray Iron	Steel	1750
86A3-B	6" (150 mm)	Viton®	Gray Iron	Gray Iron	Gray Iron	1750
86B3-B	6" (150 mm)	Viton®	Gray Iron	Gray Iron	Gray Iron	1750
88A3-B	8" (200 mm)	Viton®	Gray Iron	Gray Iron	Gray Iron	1750
88B3-B	8" (200 mm)	Viton®	Gray Iron	Gray Iron	Gray Iron	1750



921000385