



**SITE INVESTIGATION REPORT**

**Plat 32, Lots 155 and 268  
Waites Wharf  
Newport, Rhode Island  
prepared for the law firm of  
Licht and Semonoff**



**SITE INVESTIGATION**

**Conducted On**

Assessor's Plat 32, Lots 155 and 268  
Waites Wharf, Newport, R.I.  
Project #9321

**prepared for**

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**issued:**

May 28, 1993

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## **SECTION 1.0 INTRODUCTION**

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At the request of Richard Bennett, Esq. of Licht and Semonoff, Triangle Environmental has prepared this report on the environmental condition of the site owned by Newport Coastal Partners on Waites Wharf, Newport, Rhode Island. The report is based on work previously conducted at the site in February and March of 1992 for People's Bank, Bridgeport, Connecticut.

The scope of work for the current investigation is as follows:

- (1) Review any existing environmental reports and data for the project site.
- (2) Review available historical information on the area encompassing the project site to provide additional information on potential on-site and off-site historical contaminant sources. In addition, Triangle Environmental sought information on the general environmental condition of the area encompassing the project site.
- (3) Review regulatory agency records for information concerning sources of contamination on the project site.
- (4) Review regulatory agency records for information concerning contamination identified on nearby properties, including potential contamination sources which may have caused or contributed to the contamination at the project site.
- (5) Prepare a report with the findings of the investigation, including recommendations for further action, if necessary.

### **1.1 Physical Description of the Site**

The site is located on Waites Wharf in the City of Newport, Rhode Island. The site is composed of two lots, described by the Tax Assessor's office of the City of Newport as Plat 32, Lots 155 and 268.

Lot 155, the northernmost parcel, has a size of approximately 58,300 square feet. A one story wood frame building occupies the lot which houses Anthony's Seafood Restaurant and Harbor Liquor.



Lot 268 has a size of approximately 31,900 square feet. Three buildings occupy the property, including the Deck Restaurant, a building used for storage of restaurant supplies, and the building housing Newport Coastal Partners Realty Company.

The property is bordered to the North by Tallman and Mack Fish and Trap Company and a former Newport Electric Company site between Spring and Howard Wharfs. To the East, the site is bordered by Tallman and Mack Fish and Trap, as well as a blacksmith shop. To the South, the property is bordered by a condominium development on Coddington Landing. The properties to the south were at one time the site of a coal gasification plant owned by Providence Gas Company. West of the project site is Newport Harbor and Narragansett Bay.

## **SECTION 2.0 PROJECT BACKGROUND**

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Previous environmental assessments have noted the following issues of environmental concern based on visual observations and a review of historical information:

- (1) According to RI Department of Environmental Management (RIDEM) records, a 10,000 gallon fuel oil spill occurred on the property in 1984. However, there was no detailed spill report on file for the incident.
- (2) There are four underground storage tanks (USTs) associated with the project site. Two 5,000 gallon USTs and one UST of unknown size were reported to have been abandoned on or removed from the property. It was discovered that the UST of unknown size still exists on the property. In addition, there is a 250 gallon fuel oil tank on the property which is used for heating one of the existing buildings.

Subsurface investigations were conducted in February and March, 1992. The purpose of the initial investigation conducted in February of 1992 was to confirm the existence of suspected subsurface contamination in the soil and groundwater. Eight soil borings were advanced on the project site during the initial investigation, with monitoring wells installed in borings B-1 (MW-1), B-2 (MW-2), and B-3 (MW-3). A site plan showing the locations of the borings and monitoring wells is provided in Appendix A.

The monitoring well elevations were surveyed to allow for the determination of groundwater flow direction. It was determined initially that groundwater flow was in a West/Southwesterly direction.

Soil and groundwater samples were collected and analyzed for total petroleum hydrocarbons and volatile organic compounds by EPA Method 8010/8020 and 601/602. The results are given in the following tables:



**TABLE 1: SOIL SAMPLE ANALYTICAL RESULTS**  
**Total Petroleum Hydrocarbons**

<b>Boring Number</b>	<b>Sample Depth</b>	<b>Result (ppm)</b>
B-1	6-8 FT	370
B-1	15-17 FT	5.8
B-2	5-7 FT	19
B-2	15-17 FT	47
B-3	4-6 FT	8.5
B-3	5-7 FT	2
B-4	5-7 FT	19
B-5	5-7 FT	606
B-6	5-7 FT	480
B-7	5-7 FT	270
B-8	5-7 FT	160



**TABLE 2: SOIL SAMPLE ANALYTICAL RESULTS**  
**Volatile Organic Compounds by EPA Method 8010/8020**  
**(Values Above Detection Limits Only)**

<b>Boring Number</b>	<b>Sample Depth</b>	<b>Benzene (ppb)</b>	<b>Ethylbenzene (ppb)</b>	<b>Toluene (ppb)</b>	<b>Xylenes (ppb)</b>
B-1	6-8'	BDL	8,400	BDL	32,000
B-1	15-17'	BDL	BDL	BDL	44.0
B-4	5-7'	BDL	BDL	BDL	1,160
B-5	5-7'	740	BDL	BDL	BDL
B-6	5-7'	BDL	BDL	BDL	41,100
B-8	5-7'	BDL	6,300	BDL	19,300

Note: BDL = Below the method detection limit.

**TABLE 3: GROUNDWATER SAMPLE RESULTS**  
**Total Petroleum Hydrocarbons**

<b>Monitoring Well Number</b>	<b>Result (mg/l)</b>
MW-1	6.1
MW-2	6.1
MW-3	<2.0



**TABLE 4: GROUNDWATER SAMPLE RESULTS**  
**Volatile Organic Compounds by EPA Method 601/602**  
**(Values Above Detection Limits Only)**

<b>PARAMETER</b>	<b>MW-1 (ppb)</b>	<b>MW-2 (ppb)</b>	<b>MW-3 (ppb)</b>
Methylene Chloride	BDL	260	55
Benzene	300	BDL	BDL
Toluene	5.0	4.5	BDL
Ethylbenzene	42.0	3.0	BDL
Xylenes	104	9.5	BDL

Note: BDL = Below the method detection limit.

Based on the findings of the initial investigation, a second, more extensive subsurface investigation was conducted at the project site. The purpose of the additional investigation was to better define the areal extent of the contamination found in the initial study. The scope of work for the second investigation consisted of a soil gas survey at sixteen sampling points, an electromagnetic survey, advancement of 15 additional soil borings, the installation of three additional monitoring wells, and the collection and analysis of additional soil and groundwater samples. The locations of the additional borings, wells, and soil gas sampling points are included on the site plan in Appendix A.

During the second investigation, the elevations of the monitoring wells were surveyed to aid in the determination of groundwater flow direction. It was determined that the groundwater flow was in a Southeasterly direction. It was concluded that the difference in groundwater flow direction was in relation to tidal fluctuations due to the proximity of the site to Newport Harbor.

By conducting an electromagnetic survey, the location and orientation of the UST containing unknown materials was determined. The location of the UST is depicted on the site plan in Appendix A.

The results of the soil gas survey, as well as the analysis of soil samples, are given in the following tables:



**TABLE 5: SOIL GAS SURVEY RESULTS**

SAMPLING POINT	Vapor Concentration (ppm)	
	W/O Carbon Filter	With Carbon Filter
SG-1	>1,000	900
SG-2	40	11
SG-3	20	3.3
SG-4	ND	ND
SG-5	>1,000	840
SG-6	>1,000	>1,000
SG-7	>1,000	>1,000
SG-8	>1,000	>1,000
SG-9	900	500
SG-10	>1,000	>1,000
SG-11	>1,000	>1,000
SG-12	>1,000	>1,000
SG-13	25	20
SG-14	100	15
SG-15	100	30
SG-16	50	10



**TABLE 6: SOIL SAMPLE TPH ANALYTICAL RESULTS**

<b>Boring Number</b>	<b>Sample Depth</b>	<b>Result (ppm)</b>
SB-1	4-6 FT	90
SB-2	8-10 FT	95
SB-3	6-10 FT	29
SB-4	8-12 FT	22
SB-5	4-8 FT	5,724
SB-5	10-12 FT	10
SB-6	2-6 FT	710
SB-6	8-10 FT	<10
SB-7	2-6 FT	12
SB-7	8-12 FT	20
SB-8	6-10 FT	35
SB-9	4-10 FT	1,300
SB-9	10-12 FT	10
SB-10	6-8 FT	275
SB-10	10-12 FT	10
SB-11	8-12 FT	56
SB-11	12-14 FT	10
SB-12	6-10 FT	18
SB-13	8-12 FT	20.2
SB-13	12-14 FT	12
SB-14	8-12 FT	517
SB-14	12-14 FT	12
SB-15	8-12 FT	810
SB-15	12-14 FT	<10



**TABLE 7: SOIL SAMPLE ANALYTICAL RESULTS**  
**Volatile Organic Compounds by EPA Method 8010/8020**  
**(Values Above Detectable Limits Only)**

<b>Boring Number</b>	<b>Sample Depth</b>	<b>Benzene (ppb)</b>	<b>Ethylbenzene (ppb)</b>	<b>Toluene (ppb)</b>	<b>Xylenes (ppb)</b>
SB-4	6-8'	BDL	BDL	BDL	70
SB-5	15-17'	BDL	800	190	4,200
SB-6	5-7'	BDL	BDL	500	20,000
SB-9	5-7'	BDL	BDL	400	18,000
SB-10	5-7'	48	BDL	BDL	2,600

Note: BDL = Below the method detection limit.

**TABLE 8: SOIL SAMPLE RESULTS FOR SB-15(3)**  
**Polynuclear Aromatic Hydrocarbons by EPA Method 8100**  
**(Values Above Detection Limits Only)**

<b>Parameter</b>	<b>Detected Concentration (ppb)</b>
Acenaphthene	8,900
Acenaphthylene	<1,000
Anthracene	23,000
Benzo(a)anthracene	1,000
Chrysene	<1,000
Fluoranthene	2,500
Fluorene	<1,000
Naphthalene	69,000
Pyrene	4,700



**TABLE 9: SOIL SAMPLE RESULTS  
EIGHT RCRA METALS BY TCLP  
(Values Above Detection Limit Only)**

<b>Soil Boring Number</b>	<b>Sample Depth</b>	<b>Barium (ppm)</b>	<b>Lead (ppm)</b>	<b>Silver (ppm)</b>
SB-1	4-6 FT	1.25	24.5	BDL
SB-2	8-10 FT	1.1	4.95	BDL
SB-3	6-10 FT	0.47	0.56	BDL
SB-4	8-12 FT	0.38	0.38	0.13
SB-15	2-12 FT	0.59	0.58	BDL

In addition to those results reported above, it should be noted that groundwater samples were collected from RW-1, RW-2, RW-3, RW-4, and MW-1. The samples were analyzed for volatile organic compounds by EPA Method 601/602, total eight RCRA metals, PCBs, and total petroleum hydrocarbons. The results of the VOC analysis are presented in the table below.

None of the groundwater samples showed detectable concentrations of PCBs. The levels of heavy metals reported for the samples from all five wells were either relatively low with respect to drinking water standards, or were non-detectable. MW-1 was the only well with a total petroleum hydrocarbons concentration above the detection limit (8.0 mg/l).



**TABLE 10: GROUNDWATER SAMPLE RESULTS  
Volatile Organic Compounds by EPA Method 601/602  
(Detectable Concentrations Only)**

PARAMETER	RW-3 (ppb)	MW-1 (ppb)
Benzene	BDL	BDL
Toluene	BDL	BDL
Ethylbenzene	<1.0	6.0
Xylenes	<1.0	10.0

Note: BDL = Below the method detection limit.

## **SECTION 3.0 REVIEW OF HISTORICAL INFORMATION**

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### **3.1 City of Newport Tax Assessor's Office**

Triangle Environmental personnel reviewed the ownership history of the project site, and several sites in the surrounding area, at the Office of the Tax Assessor, Newport, Rhode Island. Triangle personnel discovered that Lot 268 was formerly owned by Mobil Oil Company from 1964 - 1979, and by D.J. Sullivan Company from 1979 - 1987. Mobil Oil Company is listed as the successor to Socony Mobil Oil Company, which indicates that the site was used for petroleum distribution for some period of time prior to 1964. Newport Coastal Partners acquired the property in 1989.

Lot 155 was owned by Chris-Ann Realty, Inc. from 1966-1986 when it was purchased by Anthony T. Bucolo. Newport Coastal Partners acquired the property in 1989.



Abutting properties which were identified as commercial or industrial in nature included the following:

**Plat 32**

Lots 269,285	Tallman and Mack Fish and Trap Co.
Lots 124, 125	Eastern Ice Company
Lots 76,76.4,77	Newport Electric Corporation (former owners)

**Plat 35**

Lot 204	Prudence Corporation (Providence Gas Company) (former owners)
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### **3.2 Review of Sanborn Fire Insurance Maps**

Triangle Environmental personnel reviewed Sanborn Fire Insurance Maps at the Rhode Island Historical Society Library on 7 May, 1993. Maps were reviewed from the period 1890 - 1956. The earliest maps do not show any buildings or other structures on the site. However, the maps from the 1950s show that Standard Oil Company was operating on Lot 268. The map depicts five above ground storage tanks on the site in the 1950s, two of which are identified as naptha tanks with a capacity of 100,000 gallons each. The other three tanks are not identified as to their contents or capacity. The 1950s map shows three 5,000 gallon fuel oil tanks just across the property line from Lot 268 on Lot 221, as well as large coal storage areas. Large aboveground and underground storage tanks were also identified on the nearby Providence Gas Company, Newport Electric Corporation, and American (Eastern) Ice Company properties. Many of the nearby properties appear to have been engaged in the practice of boat building or repair.

## **SECTION 4.0 REGULATORY HISTORY OF THE PROJECT SITE**

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Triangle Environmental reviewed the following records from the Environmental Protection Agency (EPA) and the Rhode Island Department of Environmental Management (RIDEM) to determine the regulatory history of the project site:



### **EPA Freedom of Information Office**

- Resource Conservation and Recovery Act (RCRA) Notifiers List (a list of hazardous waste generators)
- National Priorities List (Superfund sites)
- Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) List (a list of those sites being investigated as hazardous waste disposal sites)

### **RIDEM Division of Site Remediation**

- City of Newport Incident Response Files
- List of Available Files In Addition To CERCLIS

### **RIDEM Division of Waste Management**

- Files pertaining to Newport Coastal Partners, Mobil Oil Company, and D.J. Sullivan Company

### **RIDEM Oil Pollution/Underground Storage Tank Program**

- Master List of Underground Storage Tank Facilities and Their Associated Tanks
- Closure Log
- Oil Spill Log (1980 - present)

### **RIDEM Division of Groundwater and ISDS**

- Rhode Island Geographical Information System (RIGIS) maps, including the Groundwater Facility Inventory Map and Groundwater Classification Map



The project site is not listed on the RCRA Notifiers List, the National Priorities List, nor the CERCLIS List. In addition, there was no reference to the site on the RIGIS maps nor the List of Available Files in Addition to CERCLIS, and there were no files pertaining to the site in the Division of Waste Management files.

There were two references in the Incident Response Files for the City of Newport concerning the project site:

- (1) A letter dated 25 June, 1985, from Alicia Good of the RIDEM Division of Air and Hazardous Materials to Robert M. Benevides of D.J. Sullivan Oil Company, Waites Wharf, Newport, R.I. requesting generator copies of a manifest number MAA033331. A copy of the manifest showing a shipment of 700 gallons of waste oil was included with the letter.
- (2) A letter dated 12 June, 1987, from Diane L. Badorek of the RIDEM Division of Air and Hazardous Materials to Larry G. Crumpler of the Sullivan Organization, Newport, R.I. concerning the disposition of dredge materials from the S.S. Newport project. The letter referenced analytical results which were provided to the RIDEM that apparently suggested that the dredge material should not be disposed of as a solid waste. No copies of these analytical results were available for review.

Copies of these letters are provided in Appendix B.

The underground storage tanks on the subject property do not appear on the Master List of Underground Storage Tank Facilities and their Associated Tanks, nor are the USTs in the Closure Log. This means that the existing tanks have not been registered or closed in accordance with the RIDEM UST regulations.

There was one reference in the Oil Spill Log pertaining to a 10,000 gallon petroleum spill on the subject property in 1984. However, there was no spill report in the files to provide more detailed information. In addition, the RIDEM official that investigated that spill has since left the RIDEM and moved out of state.



## **SECTION 5.0 REGULATORY HISTORY OF THE SURROUNDING AREA**

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Triangle Environmental personnel also reviewed regulatory agency records concerning abutting and nearby properties. The purpose of this investigation was:

- (1) To determine if there are potential off-site sources of contamination which may have caused or contributed to the contamination reported on the project site during previous investigation; and,
- (2) To determine the types of investigations, response actions, remedial actions, or Consent Agreements which have been initiated, completed, or approved on similar sites along the Newport waterfront.

The records for two nearby sites were reviewed: the Newport Electric Corporation (Spring Wharf), and Providence Gas Company (between Wellington Avenue and Coddington Wharf).

### **5.1 Newport Electric Corporation**

The former Newport Electric Corporation is located between Spring Wharf and Howard Wharf to the North of the project site. Triangle Environmental personnel reviewed the Division of Waste Management files pertaining to this property. No other files were available concerning this site.

Triangle Environmental personnel reviewed the report entitled "Results of the Environmental Property Audit of Newport Electric Corporation Property, Thames Street, Newport, RI" prepared for the Sullivan Organization in April of 1988 by Szepatowski Associates, Inc. The report identified low levels of several contaminants in the groundwater at the site, including chlorinated organic compounds and aromatic hydrocarbons. Soil samples collected at the site were found to contain low levels of similar compounds. In addition, one soil sample was found to contain 4,490 ppm of oil and grease, and two soil samples contained 1 ppm of Polychlorinated Biphenyls (PCBs). The report also references the removal of five underground storage tanks from the property, and the removal of asbestos containing materials and pigeon waste from the buildings on the site. Portions of this report are included in Appendix B.



## 5.2 Providence Gas Company #1 Site

The former Providence Gas Company site is a seven acre parcel of land at the corner of Wellington Avenue and Thames Street. This site is known as "Providence Gas #1". The site is now the location of a condominium development. The site was used as a coal gasification plant from the late 1800s to the mid-1950s. The history of the property is discussed in detail in the Site Investigation (SI) report included in Appendix B.

Environmental studies were conducted at Providence Gas #1 in 1982 by C.E. Maguire, and in 1983 by Goldberg-Zoino Associates (GZA). The studies showed that the soil over much of the site, at a depth of 5-8 feet, was contaminated with polynuclear aromatic hydrocarbons (PNAs) and other oily residues derived from the production of coal gas.

In order to provide for both the development of the property, and protection of human health and the environment, the RI Department of Environmental Management entered into a Consent Agreement with Providence Gas Company and Bay Front Real Estate Company in 1984. The Consent Agreement stipulated that ambient air quality must be maintained at the site throughout the construction process. Furthermore, the RIDEM stipulated that any soil disturbed in such a manner that the total concentration of organic vapors in the ambient air exceeded 10 ppm had to be removed from the site, and be disposed of in a proper manner.

During construction at the site from February of 1985 to September of 1988, approximately 1 million cubic yards of contaminated soil, building debris, and an underground storage tank were excavated and removed from the site for disposal at the Central Landfill in Johnston, RI.

In November of 1986, the USEPA Region 1 Waste Management Division requested that the NUS Field Investigation Team perform a Preliminary Assessment of Providence Gas #1, as required under the provisions of CERCLA for potentially contaminated waste sites. Based on the findings of the Preliminary Assessment, a Screening Site Inspection (SI) was performed by NUS in 1988 and 1989. During the SI, five soil samples were collected at depths of 1-4 feet from various locations at the site. NUS discovered 12 polynuclear aromatic hydrocarbons at concentrations ranging from 4,400 ppb - 45,000 ppb. Cyanide was detected at 9 ppm in one sample. Heavy metals were found in moderately elevated concentrations which exceeded the reported natural concentrations of those metals in regional soils.

Despite the presence of contamination remaining at the site, NUS concluded that, due to the lack of local groundwater and surface water targets, no further action was necessary at the Providence Gas #1 site. EPA has given the site a "No Further Action" status as it appears on the CERCLIS List.

Copies of the Screening Site Inspection report are included in Appendix B. The SI report provides further details concerning the assessment of contamination at Providence Gas #1.



### 5.3 Providence Gas #2 Site

Providence Gas #2 is directly east of, and on the opposite side of Thames Street from, Providence Gas #1. The site was used for storage of coal gas in two underground holding tanks. The site is currently used as a commercial property. A Final Screening Site Inspection (SI) was conducted on the property for EPA by NUS in 1989.

In 1984, the RIDEM found volatile and semi-volatile organic compounds in the soils excavated from the removal of the holding tanks at Providence Gas #2. The range of concentrations for volatile organic compounds was 538 ppb - 46,200 ppb. The range of concentrations for polynuclear aromatic hydrocarbons was 4,800 ppb - 1,200,000 ppb (naphthalene). The soils were considered "non-hazardous" and were disposed of at solid waste landfills in North Kingstown and Johnston, Rhode Island.

Based on the following factors, NUS recommended that no further action be planned for the facility:

- (1) Contaminated soil was excavated and removed from the location of the holding tanks in 1984.
- (2) One of the holding tanks has been removed from the property. The other has been filled with an inert material.
- (3) The remaining contaminated soil is below a "predominantly impervious layer of asphalt and concrete and thus is not readily accessible to direct contact".
- (4) The lack of sensitive environmental receptors.

A copy of the SI report is included in Appendix B. The report provides detailed information concerning the site.



## **SECTION 6.0 CONCLUSIONS AND RECOMMENDATIONS**

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Triangle Environmental has reviewed the existing historical, regulatory, and site-specific investigation documents pertaining to the project site. In addition, Triangle Environmental reviewed records pertaining to investigations and remediation on nearby properties. Triangle Environmental has summarized the findings of our review in this report.

### **6.1 Summary and Conclusions**

Based on our experience with environmental issues, and the information reviewed and summarized herein, Triangle Environmental has made the following conclusions concerning the environmental condition of the project site:

- (1) The project site has been impacted by a release of a petroleum-type material. Contaminants significant to the project site include petroleum hydrocarbons, volatile organic compounds, polynuclear aromatic hydrocarbons, and lead. However, it is not clear at this time what, if any, remediation of these contaminants would be required by the RIDEM.
- (2) The majority of the contamination at the project site is located in the Southwest quadrant of the site, and is at an elevation of 4-12 feet below surface elevation. There are also volatile organic vapors in the soil in the Southeast quadrant of the site.
- (3) Contaminants of potential concern at the site appear to be limited to soil and soil vapor matrices. Groundwater, though impacted, does not appear to be significantly contaminated. There has been no evidence of significant floating product in the groundwater at the project site.
- (4) The contamination reported for the project site is consistent with the historical use of the site as an oil terminal and storage area. At least a portion of the contamination may have originated from a 10,000 gallon petroleum release at the site in 1984. A minimum of five aboveground storage tanks, at least two of which stored petroleum naphtha, were located on the site in the early 1950's.
- (5) The direction of groundwater flow varies according to tidal cycle.



- (6) It is the opinion of Triangle Environmental that tidal fluctuations may provide a flushing mechanism to the site. This may account for the absence of contaminants in some portions of the site, especially in groundwater. It is assumed that contaminants flushed to Narragansett Bay would be diluted to a concentration less than the detection limit for that substance, and therefore would not present a significant risk to human health or the environment.
- (7) There are a minimum of two underground storage tanks at the site which have neither been registered nor closed in accordance with the RIDEM regulations. The 250 gallon heating oil tank is currently in use, but has most likely exceeded its life expectancy and should be removed. The second tank was reported to be a 5,000 gallon tank with unknown contents. Triangle personnel measured the depth of the tank to be 64". Based on this measurement, the actual capacity of the tank is between 1,000 - 4,000 gallons, and the amount of product remaining in the tank is between 250 - 900 gallons. The contents have been analyzed by R.I. Analytical Laboratories. The tank appears to contain a mixture of gasoline and motor oil, with no excessive levels of PCBs, chlorinated solvents or leachable (TCLP) lead present. Although there is no evidence to suggest that either of these tanks may be leaking, the tanks should be precision tested.
- (8) There may be two additional abandoned tanks beneath the courtyard in front of Anthony's Restaurant.
- (9) There is currently insufficient evidence to suggest that any of the USTs located on the project site have released their contents to the environment, causing the identified contamination.
- (10) Potential migration pathways at the site include, but are not limited to, the following: volatilization of organic contaminants, adsorption of contaminants onto subsurface soils, flushing of contaminants to the harbor via tidal forces and storms, and leaching of contaminants from soil to groundwater. The later migration pathway does not appear to be significant at this time, based on the existing data. This mechanism may have been significant in the past; however, tidal flushing of the area, especially during storms, may have removed a majority of the contaminants.



Based on our experience with environmental issues, and the reports reviewed concerning abutting or nearby properties, Triangle Environmental has made the following conclusions concerning the environmental condition of the area encompassing the project site:

- (1) There are no sensitive receptors, such as public or private drinking water wells, wetlands, endangered species, or critical habitats in the area of the project site. The contaminants identified at the site may present a risk to aquatic life if discharged to the bay; however, it is assumed that contaminants migrating into the bay would be diluted to a concentration of less than the detection limit, and would therefore not present a significant risk to human health or the environment.
- (2) Groundwater is classified as Class GB; therefore, it is considered to be in a degraded condition by the RIDEM Division of Groundwater and ISDS.
- (3) The closest surface water body is Newport Harbor and Narragansett Bay. Newport Harbor is classified Class SC; therefore, it is considered to be in a degraded condition by the RIDEM Division of Water Resources.
- (4) Based on the apparent direction of groundwater flow, it is not likely that the site could have become contaminated from the former coal gasification plant to the South of the project site.
- (5) The majority of the contamination appears to be confined to the Southern portion of the site. It is not known, based on the existing data, if the site was contaminated from an off-site source to the North. The presence of low levels of methylene chloride in MW-2 and MW-3, which are near the upgradient boundary of the site, suggests that there may have been some minor migration of contamination to the project site from an off-site source.
- (6) Environmental studies at nearby sites have identified similar types and concentrations of contaminants in soils and groundwater as those found on the project site. Remediation at these sites has been confined to those soils disturbed during site development, with the full knowledge and consent of the RI Department of Environmental Management. Contamination is known to remain at these sites, even though the sites have been converted from industrial to residential and commercial uses.



Based on the conclusions stated above, it is the opinion of Triangle Environmental that remediation at the project site might be limited to removal of the existing underground storage tanks and any contaminated soil disturbed during UST removal. The RIDEM may also require removal of soils exhibiting the hazardous waste characteristic for lead, and limited petroleum-contaminated soil removal in well-defined areas. In order to limit the scope of required remedial activities, it is the opinion of Triangle Environmental that further investigation is necessary to properly characterize the extent of contamination for the purpose of preparing a detailed plan for the remediation of specific areas of the site. The remediation plan can be submitted to the RIDEM for the purpose of negotiating a mutually acceptable agreement allowing for the sale and future development of the site.

## **6.2 Recommendations**

In order to define the extent of contamination for the purpose of preparing a remedial action plan, Triangle Environmental makes the following recommendations for further investigation:

- (1) Determine the extent of the lead contaminated soil which is in the area of the 5,000 gallon tank at the center of the property.
- (2) Determine the areal extent of the petroleum contaminated soil, so that remediation can be limited to specific, well-defined areas.
- (3) Determine the effect of tidal fluctuations on groundwater flow and the migration of the reported contaminants.
- (4) Verify the existence or removal of the two 5,000 gallon storage tanks reported to exist on the North side of Anthony's Seafood Restaurant.

Triangle Environmental proposes an investigation of these issues by initiating the following scope of work:

- (1) Using a systematic sampling scheme, soil borings will be advanced throughout the site in areas which will be indicative of the extent of contamination. Selected soil samples will be analyzed for total petroleum hydrocarbons, volatile organic compounds (EPA Method 8240), TCLP lead, polynuclear aromatic hydrocarbons, and total organic vapors (using a photoionization detector and the jar headspace method).



This investigative method will provide adequate data coverage to map contaminant concentrations, and provide the regulatory agencies with an accurate picture of the site during any future negotiations. In addition, increased data coverage can be used to isolate smaller pockets of contaminated materials, which can then be addressed at a reduced cost.

The numbers of soil samples to be analyzed for each parameter of interest is as follows:

TPH	20
VOCs	20
TCLP Lead	10
PNAs	10
Total Organic Vapors	20

- (2) Install monitoring wells in three of the borings along the western boundary of the site to provide adequate data coverage concerning groundwater quality. Collect one round of groundwater samples from the new and existing wells, and analyze the samples for total petroleum hydrocarbons, volatile organic compounds by EPA Method 624, and total lead. The groundwater sample with the highest total lead content should be analyzed for dissolved lead. In addition, three of the well samples will be analyzed for polynuclear aromatic hydrocarbons.
- (3) Survey the locations and elevations of the monitoring wells and the water table at a peak high tide and peak low tide to determine the tidal influence on the site with respect to groundwater flow and contaminant migration. Groundwater samples will be collected on the two occasions for visual observations concerning changes in petroleum contamination levels.
- (4) Using the computer programs SURFER and DESIGNCAD, Triangle Environmental will prepare maps showing the spatial orientation of data collected during the investigation. The maps will include the potentiometric surface of the site with respect to groundwater flow, contaminant concentration gradients, and sampling locations. These maps can be used to locate "hot spots", delineate areas requiring remedial action, and as a negotiation tool with the regulatory agencies.
- (5) Using a metal detection device or a magnetometer, attempt to locate the two 5,000 gallon tanks in the courtyard of Anthony's Restaurant.
- (6) A qualitative/semi-quantitative risk assessment will be conducted to define contaminant migration routes and potential exposure pathways for the site as it exists today, and for future uses of the site as proposed for development.



Upon the completion of the remedial investigation, a report will be prepared which details the scope and findings of the investigation. The data from this report will be used to prepare a remedial alternatives analysis and remedial action plan.

Based on the data collected during the remedial investigation, Triangle Environmental will prepare an analysis of remedial alternatives, including cost estimates for each alternative. In addition, a remedial action plan will be drafted based on the most cost-effective alternative. The plan will be designed as a document which can be submitted to the R.I. Department of Environmental Management and/or the Coastal Resources Management Commission for approval.

The following issues will be addressed in the remedial alternatives analysis:

- (1) Summary of the findings of the remedial investigation.
- (2) Discussion of the migration potential for those contaminants identified, as well as potential risks to human health and the environment.
- (3) Alternatives for remedial action, including the no-action alternative.
- (4) Cost estimates for each potential remedy, based on actual discussions with a minimum of three reputable remediation contractors.

The remedial action plan will be developed after discussions with the client and their legal counsel concerning the most cost-effective remedial alternative.

Triangle Environmental suggests the following time table for completion of the proposed scope of work:

Remedial Investigation	30-60 days
Remedial Alternatives Analysis	15-30 days
Remedial Action Plan	15-30 days



## **SECTION 7.0 LIMITATIONS**

---

Triangle Environmental has based its conclusions and recommendations on visual observations and the review of recorded information during the course of the site investigation. As such, our findings should not be considered scientific certainties, but as probabilities based on our professional knowledge and judgement pertaining to the relevance and importance of the limited data collected during our investigation.

All observations documented in this report were made under conditions existing at the time of this investigation and the previous site investigations. Should changes from existing conditions occur in the future warranting further analysis, they should be brought to the attention of Triangle Environmental for subsequent investigation and documentation. Future discoveries, after review by Triangle Environmental, may merit modification of conclusions stated in this report.

This report was prepared exclusively for Mr. Richard Bennett, Esq. of Licht and Semonoff, and is for the sole use of the client and should not be represented, reproduced, or disseminated without the prior written approval of Triangle Environmental. No warranties other than those expressed in the contract for this project are expressed or implied.



## REFERENCES

### Agency File Review References

Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) List, US Environmental Protection Agency, Site/Event Listing, January, 1993.

Master List of Underground Storage Tank Facilities and their Associated Tanks, Nancy Stanton, RIDEM Oil Pollution/UST Program, February, 1993.

List of Available Files In Addition To CERCLIS, RIDEM Division of Site Remediation, September, 1992.

Oil Spill Log, Nancy Stanton, RIDEM Oil Pollution/UST Program, January, 1980 to present.

Rhode Island Geographic Information System (RIGIS) Maps of the Providence Quadrangle, Joanne Patalano, RIDEM Division of Groundwater and ISDS.

### Regulatory References

Rules and Regulations for Hazardous Waste Generation, Transportation, Treatment, Storage, and Disposal, State of Rhode Island, 1984, as amended, April, 1992.

Regulations for Underground Storage Facilities Used for Petroleum Products and Hazardous Materials, State of Rhode Island, as amended, July, 1992.

Water Quality Regulations for Water Pollution Control, State of Rhode Island, 1988.

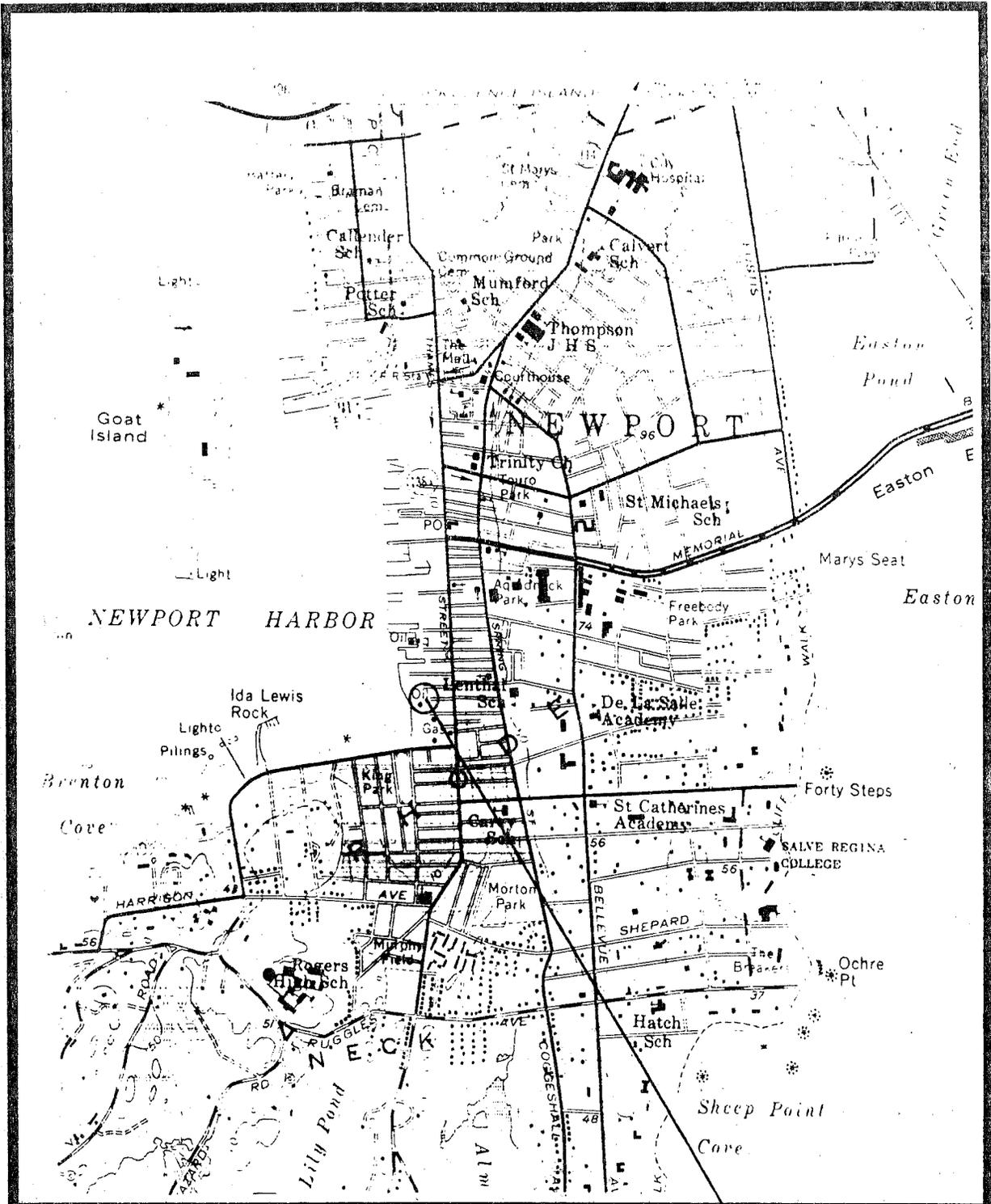
Regulations for the Rhode Island Pollutant Discharge Elimination System, State of Rhode Island, 1984, as amended, February, 1993.

### Site Specific References

Results of the Environmental Property Audit of Newport Electric Corporation Property, Thames Street, Newport, RI, Szepatowski Associates, April, 1988.

Final Site Screening Inspection, Providence Gas #1, Newport, Rhode Island, NUS Corporation, November 15, 1989.

Final Site Screening Inspection, Providence Gas #2, Newport, Rhode Island, NUS Corporation, November 15, 1989.



**TRIANGLE ENVIRONMENTAL**

175 Metro Center Blvd.  
Warwick, R.I. 02886

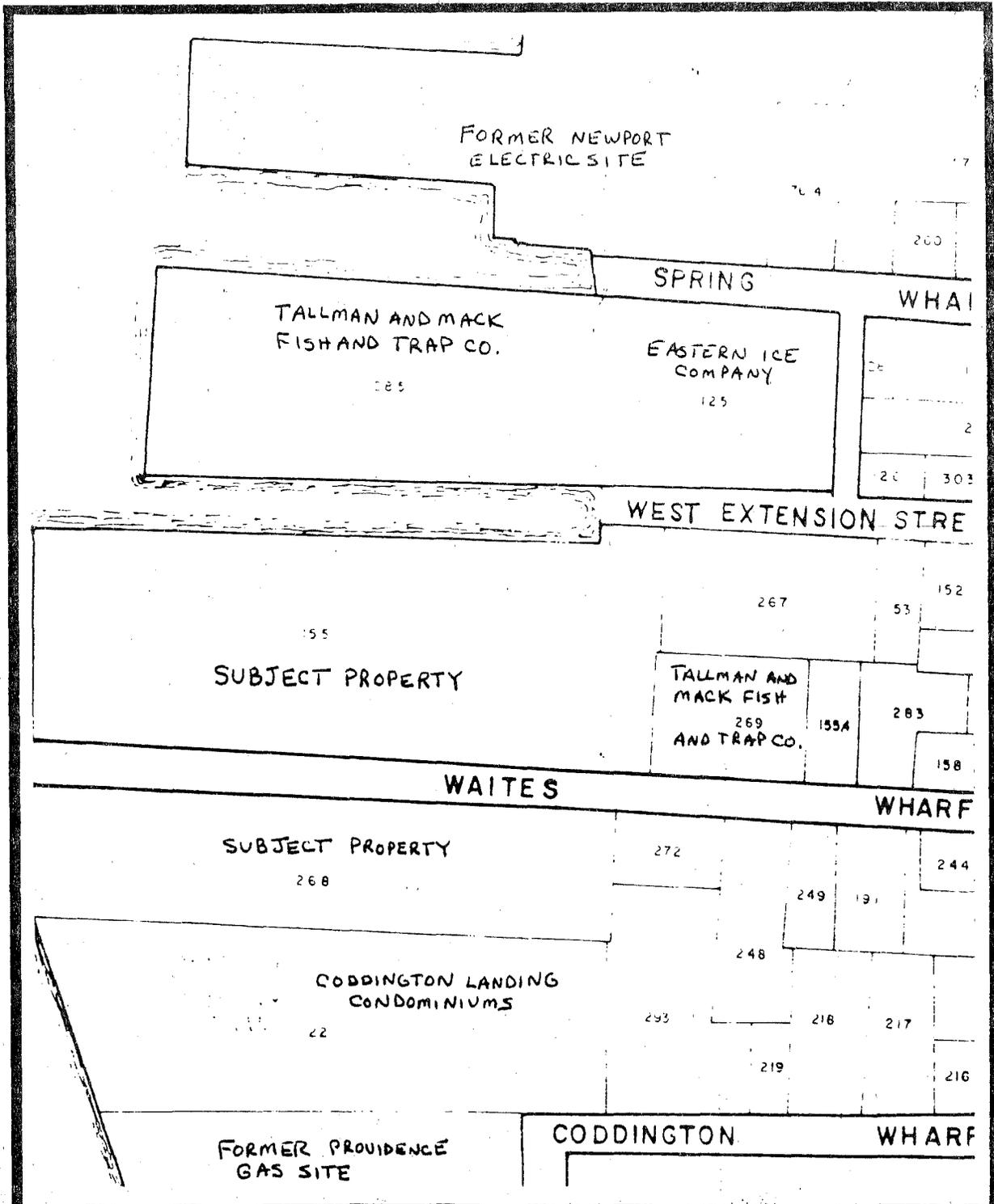
Site Locus

SCALE: 1:24000	APPROVED BY:	DRAWN BY: JET
DATE: 5/20 93		REVISED:

Site Locus, USGS Topographical Map, Newport Quadrangle

Waite's Wharf, Newport, RI	DRAWING NO. 9321 Figure 1
----------------------------	------------------------------

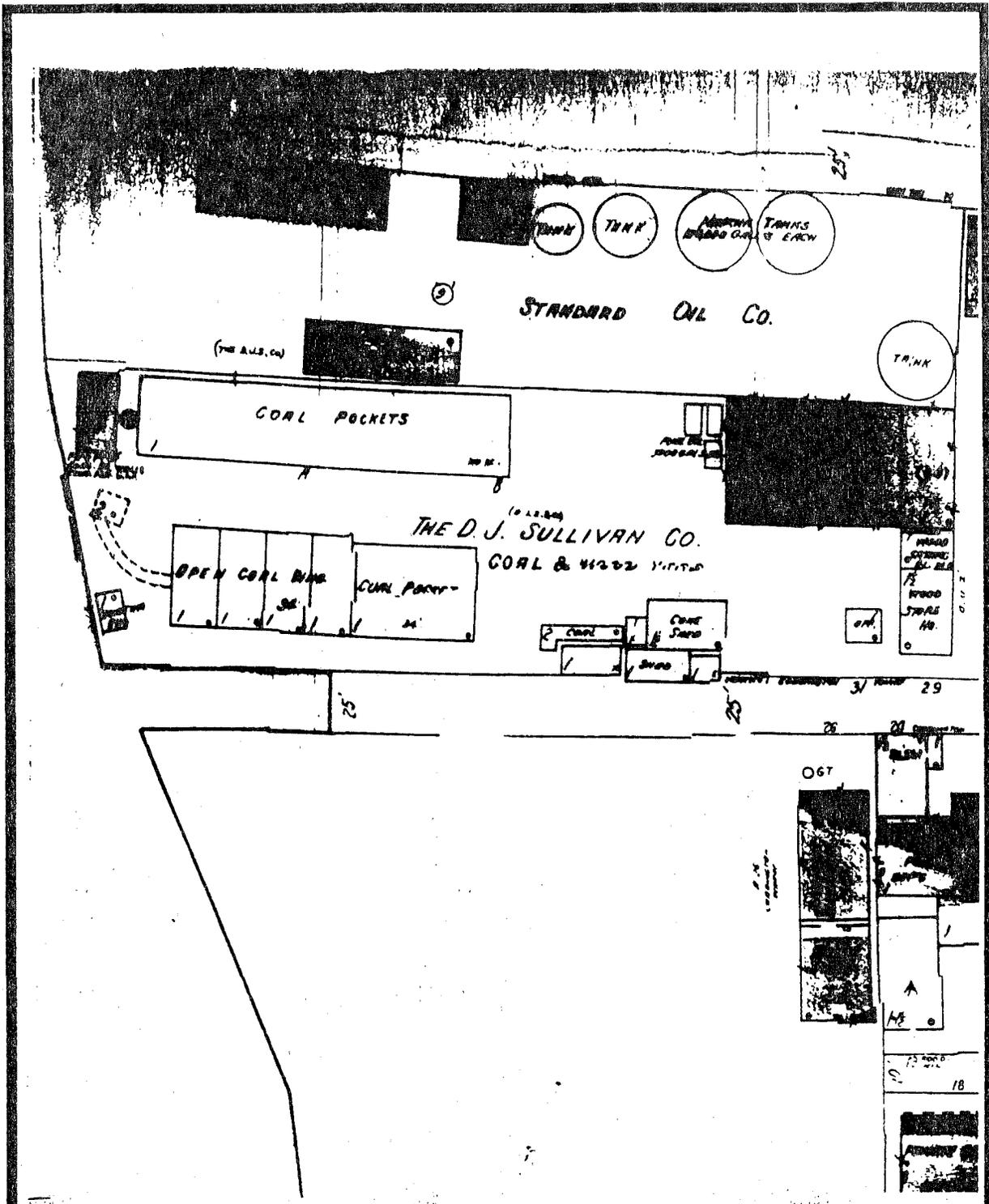




**TRIANGLE ENVIRONMENTAL**  
 175 Metro Center Blvd.  
 Warwick, R.I. 02886

SCALE: 1"=100. FT	APPROVED BY:	DRAWN BY: JET
DATE: 5/20/93		REVISED:
Plat 32, Lots 155 and 268, Including Surrounding Lots		
Waite's Wharf, Newport, RI	DRAWING NO. 9321 Figure 2	





**TRIANGLE ENVIRONMENTAL**  
 175 Metro Center Blvd.  
 Warwick, R.I. 02886

SCALE: NTS	APPROVED BY:	DRAWN BY: JET
DATE: 5/20 93		REVISED:

Sanborn Map, 1950's, Showing Oil Tanks On Subject Property

Waites Wharf, Newport, RI	DRAWING NO. 9321 Figure 3
---------------------------	------------------------------



S.S. Newport Slip

Harbor Liquor

Anthony's Seafood Restaurant

Suspected Location of Two 5,000 Gallon Tanks

Fill For Tank of Unknown Size

Blacksmith

Tallman and Mack Fish and Trap Co.

Waites Wharf

The Deck Restaurant

Realty Office

Location of 250 Gallon Fuel Oil Tank

Coddington Landing Condominiums

B-2



(MW-2)

B-3



(MW-3)

SB-12



SB-1



SB-2



SB-3



SB-4



(SW-1)

SG-4



SB-5



SB-7



SE-11



SB-10



SB-8



SG-2



SB-9



SB-6



SG-10



SB-14



SG-11



B-4



SG-5



SG-1



B-1



B-6



SG-3



B-7



SG-12



SB-13



SG-15



SB-18



SG-9



B-8



SG-7



(MW-1)



(SW-2)



SG-16



SG-14



(RW-2)



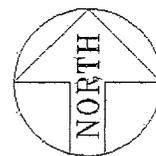
SG-1



B-5



SG-15



TRIANGLE ENVIRONMENTAL

175 Metro Center Blvd.  
Warwick, R.I. 02886

SCALE: 1"=60 FT

DATE: 5/27/93

DRAWN BY: JET

REVISED:

Locations of IRC Soil Borings, Wells, and Soil Gas Survey Points

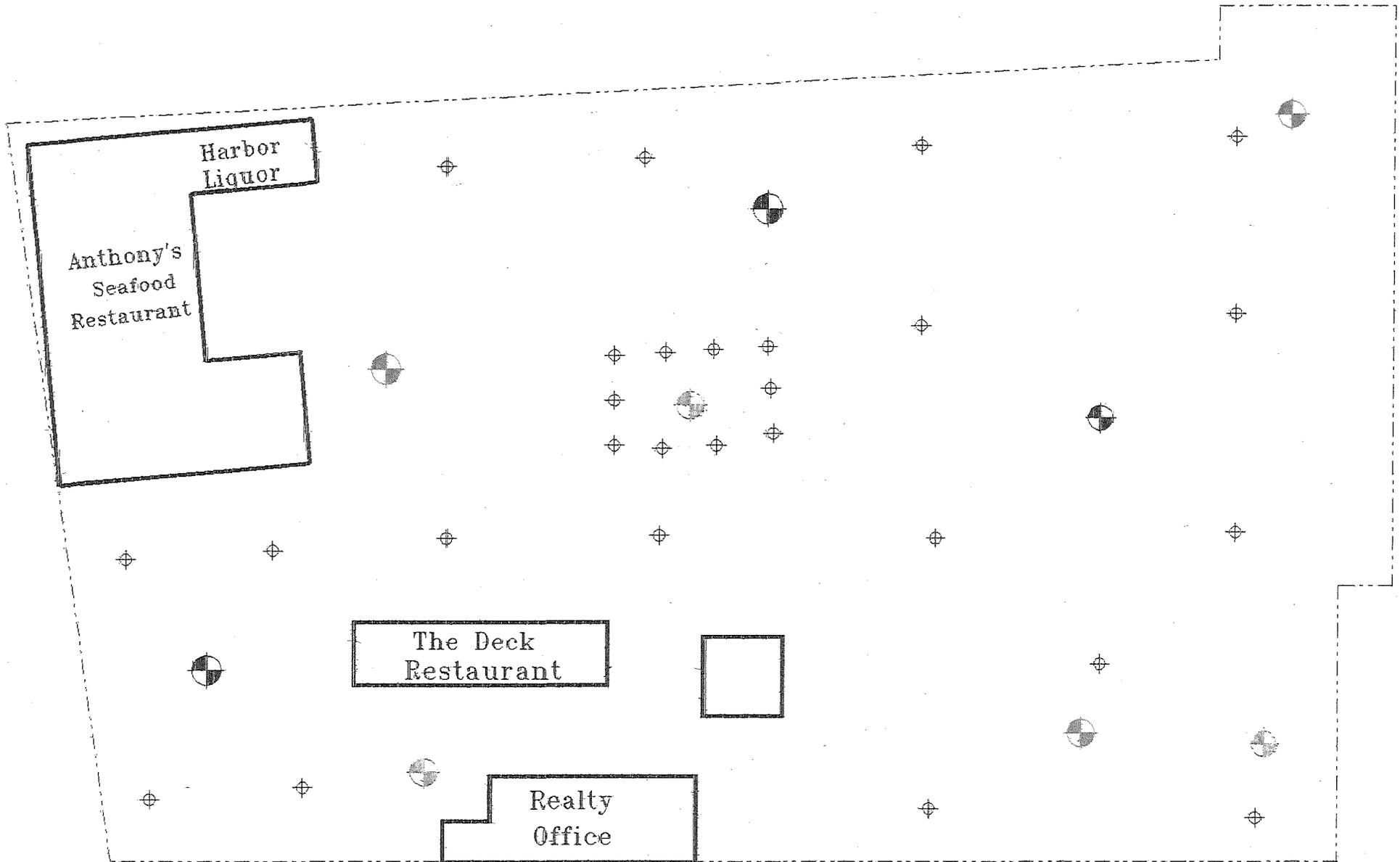
Waites Wharf, Newport, RI

DRAWING NO. 9321

Figure 4

# Proposed Boring and Monitoring Well Locations

(Including Existing Monitoring Wells In Color)





# R.I. Analytical

Specialists in Environmental Services **CERTIFICATE OF ANALYSIS**

Triangle Environmental  
Attn: Mr. Jonathan Twining  
175 Metro Center Blvd., Suite 7  
Warwick, RI 02886

DATE RECEIVED: 05/14/93  
DATE REPORTED: 05/27/93  
P.O. #:  
INVOICE #: F3272

---

**SAMPLE DESCRIPTION:** One (1) oil sample from the UST of unknown capacity, Coastal Partner's Property, Waites Wharf, Newport, RI (Job #9321)

---

Subject sample has been analyzed by our laboratory with the attached results.

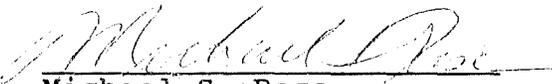
References: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, U.S. EPA, SW-846, July 1982, second edition. Revised December 1987

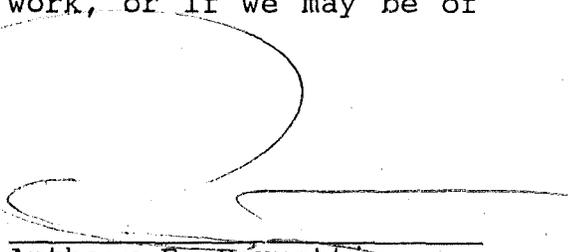
TCLP Procedure, Federal Register, Vol. 55, No. 126, Friday, June 29, 1990.

American Society for Testing and Materials

If you have any questions regarding this work, or if we may be of further assistance, please contact us.

Approved by:

  
Michael S. Rose  
Laboratory Manager

  
Anthony E. Perrotti  
President

tri:cmc

CERTIFICATE OF ANALYSIS

Triangle Environmental  
Date Received: 05/14/93  
Date Reported: 05/29/93  
Invoice #: F3272

Volatile Organic Compounds  
Method #8240

chloromethane  
bromomethane  
vinyl chloride  
dichlorodifluoromethane  
chloroethane  
methylene chloride  
trichlorofluoromethane  
1,1-dichloroethylene  
1,1-dichloroethane  
trans-1,2-dichloroethylene  
chloroform  
1,2-dichloroethane  
1,1,1-trichloroethane  
carbon tetrachloride  
bromodichloromethane  
1,2-dichloropropane  
cis-1,3-dichloropropylene  
trichloroethylene  
trans-1,3-dichloropropylene  
1,1,2-trichloroethane  
dibromochloromethane  
bromoform  
tetrachloroethylene  
1,1,2,2-tetrachloroethane  
chlorobenzene  
2-chloroethyl vinyl ether  
dichlorobenzenes  
benzene  
toluene  
ethylbenzene  
xylenes

Limit of Detection: 5 mg/kg

R.I. ANALYTICAL LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

---

Triangle Environmental  
Date Received: 05/14/93  
Date Reported: 05/29/93  
Invoice #: F3272

---

PARAMETER	RESULTS
<b>Toxicity Characteristic Leaching Procedure:</b>	
Metals:	
Lead	<0.04 mg/l
Flash Point (c/c)	>200 °F
<b>Volatile Organic Compounds (Method 8240):</b>	
benzene	5.5 mg/kg
toluene	23 "
ethylbenzene	6.0 "
xylenes	81 "

Note: A list of volatile organic compounds tested for and their detection limits is attached.

R. I. ANALYTICAL LABORATORIES, INC.

CERTIFICATE OF ANALYSIS

---

Triangle Environmental  
Date Received: 05/14/93  
Date Reported: 05/29/93  
Invoice #: F3272

---

-OIL FINGERPRINT ANALYSIS-

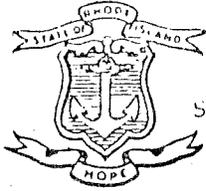
**PROCEDURE:**

The sample was extracted using a methylene chloride extraction procedure. This extract was analyzed via a Perkin Elmer Gas Chromatograph equipped with flame ionization detector (FID). Standards of known gasoline, diesel fuel, kerosene, mineral spirits, No 2,4,6, and bunker C fuel oils were prepared and analyzed in the same manner.

**RESULTS**

The chromatogram produced by the sample shows a pattern of peaks that does not match any of the known standards. The general characteristics of the fingerprint indicate the presence of low, medium and high molecular weight hydrocarbons. The medium molecular weight hydrocarbons show some similarity to #2 fuel oil, while the higher molecular weight hydrocarbons show some similarity to lubricating oil.

R.I. ANALYTICAL LABORATORIES, INC.



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

75 Davis Street  
Providence, R.I. 02908

12 June 1987

Mr. Larry G. Crumpler  
The Sullivan Organization  
P.O. Box 1359  
Newport, RI 02840

Re: Disposal of Dredged Material from Waites Wharf, Newport, RI (S.S.  
Newport Project)

Dear Mr. Crumpler:

During our phone conversation of 11 June 1987, you informed me of the fact that the dredging spoils referenced above were taken to the Bristol Landfill and used as cover material. This procedure is not the recommended method for disposal for this material based upon the analytical results provided to this Department.

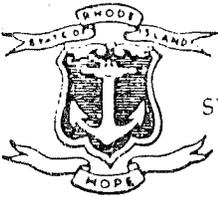
In that it would not be practical at this time to remove the dredging spoils to a licensed solid waste management facility to be disposed of as a solid waste, this action should not be repeated in the future. Should improper disposal occur again, this Department will take the necessary steps to insure that removal and proper disposal of the material is made by the responsible party.

Sincerely,

Diane L. Badorek  
Supervising Sanitary Engineer  
Division of Air & Hazardous Materials

DLB/kz

sullivan/k2



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT  
75 Davis Street  
Providence, R. I. 02908

25 June 1985

Robert M. Benevides  
D. J. Sullivan Oil Company  
Waites Warf  
Newport, RI

Dear Sir/Madam:

I am in receipt of manifest # MA A033331. A review of the manifest indicates that you are in violation of the following requirements.

- 1. The manifest has been completed incorrectly. The incorrect items and/or omissions are highlighted on the enclosed photocopy.
- 2. Copy #6 "Destination State" and/or #7 "Generator State" have not been received by this Department.
- 3. An unauthorized hazardous waste manifest was used. You are required to use the appropriate state Uniform Hazardous Waste Manifest for all hazardous waste shipments.

I request that you return to me, within ten days of receipt of this letter, the correction(s) to the aforementioned violation(s). Continued violation of the rules and regulations may require the Department to initiate administrative proceedings or take other actions in order to enforce the regulation.

If you need assistance, please contact me at (401) 277-2797.

Very truly yours,

Alicia M. Good,  
Engineer  
Division of Air & Hazardous  
Materials

AMG/jap

6150R.

WASTE MANIFESTATION ID NUMBER: RIP00000104433321

1. Generator Name: D.J. SULLIVAN OIL CO. WARE'S WARE NEWPORT RI  
2. Generator Address: 401-277-2777

MA A033331

3. Receiver Name: Clean Harbor Inc. MADU3732250

617585511

4. Receiver Address: Clean Harbor Inc  
PO Box 173 Kingston MASS MADU39322050

5. Material Name and Quantity: Petroleum waste oil 1270 - combustible liquid 001 CT 700 GAL M001

TSS

6. Security and Storage: WASTE OIL AND WATER

7. Generator Signature: Robert M. Benevides

7. Receiver Signature: Robert M. Benevides

8. Date: 10 29 84

9. Generator Name: Ken Norris

9. Receiver Name: Ken Jones

10. Date: 10 29 84

11. Facility Owner or Operator Certificate of Receipt: I hereby certify that I have received the hazardous material described by this manifest except as noted in item 19.

12. Facility Owner or Operator Signature: Scott Day

12. Facility Owner or Operator Signature: Scott Day

13. Date: 10 29 84

For more information on EPA Form 8700-22, call the National Response Center at 1-800-424-8802.



19 CROSBY DRIVE  
BEDFORD MASSACHUSETTS 01730  
617-275-2970

C-583-11-9-93  
November 15, 1989

Final Screening Site Inspection  
Providence Gas #2  
Newport, Rhode Island

TDD No. F1-8804-10  
Reference No. S375RI295I  
CERCLIS No. RID981063696

## INTRODUCTION

The NUS Field Investigation Team (NUS/FIT) was requested by Region 1 U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Screening Site Inspection (SSI) of the Providence Gas #2 site located in Newport, Rhode Island. All tasks were conducted in accordance with Technical Directive Document (TDD) No. F1-8804-10 which was issued to NUS/FIT on April 4, 1988. The NUS/FIT conducted a Preliminary Assessment of this property in 1986. On the basis of information provided in this Preliminary Assessment, the Providence Gas #2 Screening Site Inspection was initiated.

Background information used in the generation of this report was obtained through file searches conducted at the RI DEM offices and the EPA. Information was also collected during an onsite reconnaissance.

This package follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other federal, state, or local regulations. Screening Site Inspections are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supplant more detailed investigations.

## SITE DESCRIPTION

Providence Gas #2 is located at the southeastern corner of Newport Harbor in Newport, Rhode Island (Figure 1). The property is currently owned by Newport Quays One, A Gorham Realty Partnership (RI DEM, 1985a). The property is bordered by Thames Street to the west, Lee Street to the north, McAllister Street to the south, and a residential area to the east (Figure 2). Providence Gas #2 is located in a mixed residential and commercial section of Newport, Rhode Island.

Currently, two three-story and one two-story commercial/residential buildings occupy the property. The three-story buildings are commonly referred to as the "Exchange Building", a residential and commercial complex. The Exchange Building was constructed in 1985 (Round, 1986). The two-story building is not owned by the Newport Quays One/Gorham Realty Partnership. The remaining area is covered with asphalt and concrete except for a thin strip of soil along the southern border of the property (Figure 2). The eastern border of the property is fenced and a section of the northern border is also fenced; however, the majority of the property is not fenced. Site access is encouraged due to the presence of commercial enterprises located on the property.

## SITE ACTIVITY AND HISTORY

The Providence Gas Company operated a coal gasification plant from the late 1800's to the mid-1950's on a parcel of land referred to as Providence Gas #1. Providence Gas #1 is located directly west of Providence Gas #2. Two underground coal gas storage tanks were maintained by the Providence Gas Company at the Providence Gas #2 property (Benick, 1985). During the gasification process, the holding tank was used to cool and condense impure coal gas and coal tar residues settled out to the bottom of the tank. Leaching of coal tar residues from the holding tank is assumed to be the source of contamination at Providence Gas #2. No information was available to describe other activities related to coal gasification which may have occurred at the property.

Prior to the construction of the Exchange Building, a RI DEM compliance order was filed against the owner of the property to remove contaminated soils which remained onsite beyond the date agreed to in an October 22, 1984, Consent Agreement (RI DEM, 1985a). Contaminated soils, building debris and an underground tank were then excavated and disposed of in landfills located in North Kingston, Rhode Island, and the Central Landfill in Johnston, Rhode Island (Dresser, 1989d). RI DEM considered the soils "non-hazardous", but suggested that it be covered with a layer of clean fill to mitigate the odors from the contaminated soils (Stevenson, 1985).

In December 1984, RI DEM investigated the alleged disposal of contaminated soil from the site within 200 to 300 feet of a tributary to a primary drinking water reservoir (Green End Pond in Middletown) for Newport, Middletown, and Portsmouth, Rhode Island (RI DEM, 1985b). RI DEM ordered the removal of these soil piles from this area (Round, 1986). This soil was removed from this property and it is believed to have been used as fill material at the Newport Railroad Museum property in Newport, Rhode Island (Dresser, 1989c).

The compliance order to remove the contaminated soil piles from Providence Gas #2 indicated that the piles were causing an odor problem. The compliance order also directed the owners of Providence Gas #2 to remove the soil piles and the water and oil mixture from an underground 30,000-gallon storage tank which was discovered in the northeast corner of the property during excavation of the property (RI DEM, 1985a). The tank contained a mixture of coal tar residues and water; precipitation was believed to be the source of water in the tank (Haley and Aldrich, 1986). Subsequent complaints to the RI DEM by residents in the area alleged that the potentially contaminated water was being emptied from the holding tank and disposed of in the municipal sewer system, and that a "noxious odor" was emanating from the area. During this pumping operation, a cat fell into the excavated area and subsequently died. Furthermore, the owner of the cat reported that the attending veterinarian believed that the cat's death was brought on by a lethal exposure to a toxic chemical (Lambert et al., 1985).

Efforts made by Newport Quays to contain contamination at Providence Gas #2 include the following. The remaining subterranean holding tank was filled with a sand and gravel mixture which was allowed to absorb the oil and water mixture and the coal tar residue remaining in the tank. This fill material was then removed and disposed of at a landfill located in North Kingston, Rhode Island (Stevenson, 1985). Information concerning the amount of fill material disposed of during this procedure could not be obtained in EPA or RI DEM files. This material was labelled "non-hazardous" by RI DEM prior to its disposal (Stevenson, 1984). Next, the holding tank was filled a second time with sand and gravel, and then covered intact with soil and asphalt. An asphalt parking area currently covers the area where the holding tank is believed to be located (Figure 2; Dresser, 1989a).

## ENVIRONMENTAL SETTING

The overburden in the area is composed primarily of glacial outwash sand, silt, and till deposits which are approximately 20 feet thick. This glacially derived overburden is underlain by bedrock described as shale (GZA, 1983a). The depth to bedrock at the property is undetermined.

Natural surface water run-off from Providence Gas #2 is most likely to the west toward Newport Harbor. However, during the NUS/FIT site reconnaissance, it was observed that the property is relatively flat and covered with asphalt and concrete. Run-off is now directed to three storm drains located on the property. Newport Harbor, the probable receptor of any run-off from Providence Gas #2, lies approximately 0.2 miles west and mildly down slope.

Due to the proximity of Newport Harbor to the property coupled with the low transmissivity of the underlying soils, groundwater is not used as a domestic or industrial water source (GZA, 1983a, 1983b). All of Newport is served by water drawn from public surface water supply sources; this further reduces the potential use of groundwater as a supply source. Furthermore, there are less than five private wells reportedly known to exist within Newport and these wells are used solely for irrigation. The exact locations of these wells are not known (Dresser, 1989b, 1989c).

The GZA groundwater investigations reported that the local groundwater beneath the property is assumed to be flowing toward the Newport Harbor/Narragansett Bay (GZA, 1983a, 1983b). A potential hazard to the aquatic environment may exist if contaminated groundwater discharges into Newport Harbor. However, it is assumed that potentially contaminated groundwater discharging into Newport Harbor would be diluted to concentrations below detection limits. Providence Gas #2 is located in a densely populated area of Newport and residents in the vicinity of the site have filed numerous complaints regarding odors emanating from the excavated soils (RI DEM, 1985a, 1985b; Lambert, 1985).

The uses of Newport Harbor and the Atlantic Ocean within 15 miles of the Providence Gas #2 property include fishing and numerous recreational uses (Dresser, 1989d).

## RESULTS

NUS/FIT conducted an onsite reconnaissance at the property on November 17, 1988. Observations are provided in a trip report memo to EPA dated December 19, 1988. Because the surface of the site is almost entirely covered by asphalt, concrete and buildings, and is not readily accessible for sampling, EPA decided that NUS/FIT would not sample at this time (Cooley, 1988).

In September 1984, RI DEM collected four soil samples and one water sample at Providence Gas #2. The aqueous sample was taken from water that had collected in the holding tank located at the site. The soil samples were taken from the soil excavated during remediation of the holding tank. These samples were analyzed for organic compounds. The results of the analysis indicated the presence of the following organic compounds:

- chloromethane (158 parts per billion (ppb)) in the aqueous sample
- di-n-butyl-phthalate (130 ppb) in aqueous sample
- benzene (538 ppb) in soil
- toluene (3,790 ppb) in soil
- ethylbenzene (3,270 ppb) in soil
- xylenes (46,200 ppb) in soil
- benzo(b)/benzo(k)fluoranthene (7,700 ppb) in soil
- chrysene/benzo(a)anthracene (8,500 - 88,000 ppb) in soil
- anthracene/phenanthrene (4,800 - 450,000 ppb) in soil
- benzo(a)pyrene (42,000 ppb) in soil
- acenaphthylene (560,000 ppb) in soil
- acenaphthene (55,000 ppb) in soil
- fluoranthene (7,000 - 160,000 ppb) in soil
- pyrene (14,000 - 240,000 ppb) in soil
- naphthalene (26,000 - 1,200,000 ppb) in soil

The results and a full list of compounds analyzed for are included in Attachment A (Rhode Island Analytical Laboratories, Inc., 1984).

On July 2, 1985, Roy Anderson, City of Newport engineer, conducted soil sampling at the Providence Gas #2 site. The samples were analyzed for volatile organic compounds, PCBs, and inorganic elements. The results of these analyses indicated the presence of the following organic compounds in one of the soil samples:

benzene (18,500 ppb)  
toluene (9,240 ppb)  
chlorobenzene (2,690 ppb)  
1,4-dichlorobenzene (1,270 ppb)  
ethylbenzene (840 ppb)  
m - xylene (2,690 ppb)  
p - xylene (1,240 ppb)  
o - xylene (1,710 ppb)

These results are given in Attachment B. The exact location that this sample was collected from is unknown (Lycott Environmental Research, Inc., 1985).

No records were found at RI DEM or local files concerning the collection and analysis of groundwater or air samples at the Providence Gas #2 site.

#### SUMMARY

The Providence Gas #2 site served as a holding or storage area for the coal gasification facility which the Providence Gas Company operated on the western side of Thames Street. Several above-ground tanks and a two subterranean holding tanks occupied the site. Leaching of coal gasification by-products and coal tar from the subterranean tank is considered the source of soil contamination.

Analysis of soil and water samples collected by the RI DEM in September 1984 indicated the presence of volatile and semi-volatile organic compounds. The City of Newport collected soil samples from the site in 1985. Analysis of these samples also indicated contamination of the soil by organic compounds. During construction at the site, contaminated soil was excavated from around the holding tanks and removed from the property. In addition, one of the two underground tanks has been excavated and removed from the property. Furthermore the contaminated material remaining on the property is below a predominantly impervious layer of asphalt and concrete and thus is not readily accessible to direct contact. Based on this information and the lack of local groundwater and surface water receptors of potential contamination from the property, NUS/FIT recommends that no further action be planned for the Providence Gas #2 facility.

A "No Further Remedial Action Planned" (NFRAP) designation means that no further Federal Superfund Remedial Action is anticipated at the identified location.

The NFRAP decision does not necessarily mean that there is no hazard associated with a given location; it means only that based upon information at the time of this study, the location is not judged to warrant further Federal Superfund Remedial Action.

Locations remain in the CERCLIS (Comprehensive Environmental Response Compensation and Liability Information System) database after site evaluations have been completed. This provides EPA with a permanent record of past agency activities at that location. The NFRAP decision may be changed in the future based on additional information which indicates that further Federal Superfund Remedial Action may be appropriate.

Inclusion of a specific location in the CERCLIS database carries no legal or regulatory consequences.

Submitted by:

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Approval: B. Felitti  
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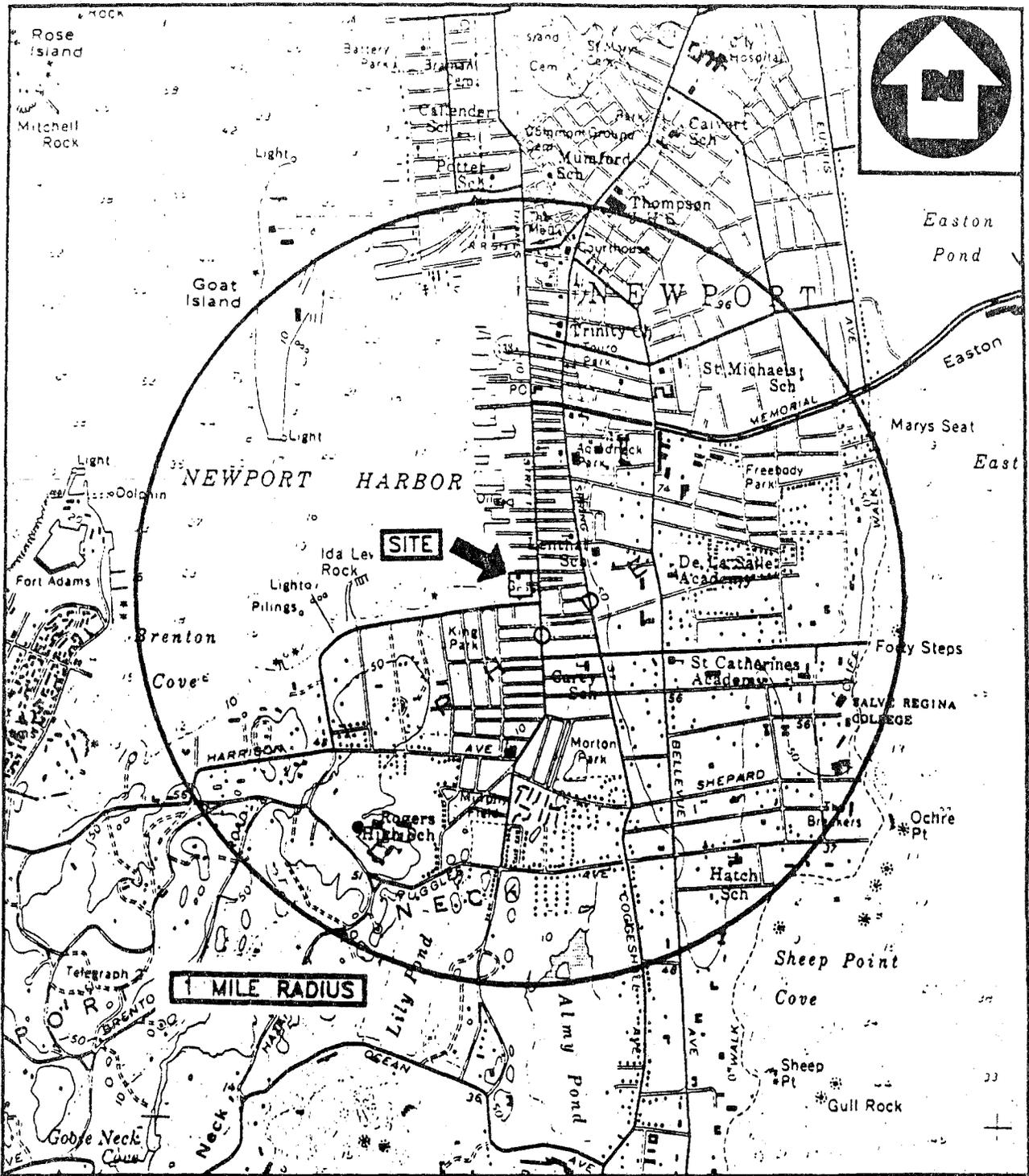
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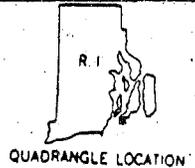
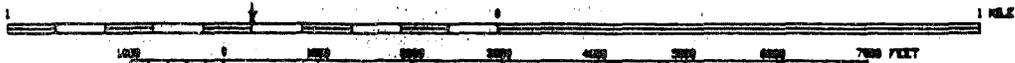
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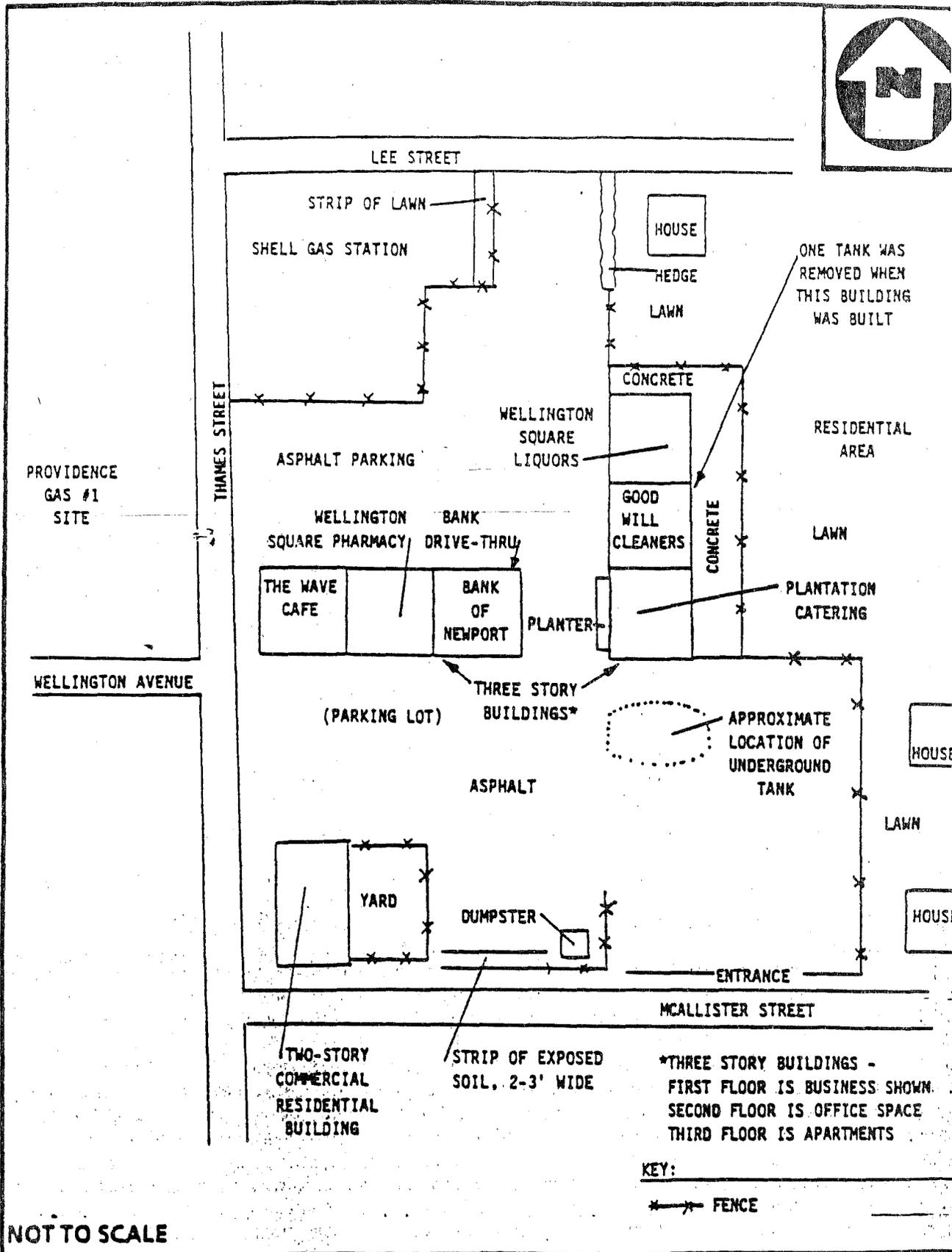
BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLE(S):  
 NEWPORT, R.I., 1957



**LOCATION MAP**  
 PROVIDENCE GAS #1 & #2  
 NEWPORT, R.I.



FIGURE 1



NOT TO SCALE

**SITE SKETCH**  
**PROVIDENCE GAS #2**  
**NEWPORT, RHODE ISLAND**



**FIGURE 2**



19 CROSBY DRIVE  
BEDFORD MASSACHUSETTS 01730  
617-275-2970

C-583-11-9-122  
November 15, 1989

Final Screening Site Inspection  
Providence Gas #1  
Newport, Rhode Island

TDD No. F1-8804-11  
Reference No. S375RI285I  
CERCLIS No. RID981063639

## INTRODUCTION

The NUS Field Investigation Team (NUS/FIT) was requested by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Screening Site Inspection of Providence Gas #1 in Newport, Rhode Island. All tasks were conducted in accordance with Technical Directive Document (TDD) No. F1-8804-11 which was issued to NUS/FIT on April 8, 1988. NUS/FIT performed a Preliminary Assessment of this property in November 1986. On the basis of information provided in this Preliminary Assessment, the Providence Gas #1 Screening Site Inspection was initiated.

Background information used in the generation of this report was obtained through file searches conducted at the Rhode Island Department of Environmental Management (RI DEM) and at the EPA. Information was also collected during NUS/FIT onsite reconnaissance and sampling activities conducted November 17, 1988, and March 14, 1989, respectively.

This package follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other federal, state or local regulations. Screening Site Inspections are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

## SITE DESCRIPTION

Providence Gas #1 encompasses a seven acre parcel of land at the southeastern corner of Newport Harbor in Newport, Rhode Island (Figure 1). The property, owned by the Providence Energy Company, is bordered to the north by Richmond Street and a condominium complex, to the south by Wellington Avenue, to the west by the harbor, and to the east by Thames Street (Figure 2) (Cooley, 1989b). The Providence Gas #1 property is located in a densely populated mixed residential and commercial section of Newport.

NUS/FIT conducted a site reconnaissance at the property on November 17, 1988 to observe onsite conditions. Structures currently on the property include four commercial townhouses, a property management building, three condominium complexes, an in-ground indoor pool, an above-ground outdoor pool, two tennis courts, a shed, and a foundation for a restaurant (Figure 2). The three condominium complexes are built on stilts; the property management building is built on a mounded area. Most of the eastern half of the property is covered by buildings and pavement. The buildings in the southwestern section of the property are surrounded by lawn and pavement. An excavated area, approximately 100' x 35' x 3.5' in size, is located in the northwestern section of the property. Construction supplies and debris are also present in the northwestern section (NUS/FIT, 1988).

In the northwest corner of the property, a chain-link fence extends from the harbor to Richmond Street. This fence restricts access to the Providence Gas #1 property from the Coddington Wharf Condominium Complex (NUS/FIT, 1988). Access to the eastern and southern portions of the property is unrestricted.

The Providence Gas #2 property, which is listed in CERCLIS, is located directly across Thames Street to the east/southeast of Providence Gas #1.

#### SITE ACTIVITY/HISTORY

The Providence Energy Company operated a coal gasification plant at 543 Thames Street from the late 1800's to the mid-1950's. During the gasification process, coal was destructively distilled to produce coal gas. The by-products of this process included coal tar residues, coal oils, and wood shavings from the purification process (NUS/FIT, 1984). The coal tar from this plant was stored in an underground cement tank near the southwestern corner of the site and mixed with coal in an unlined mixing pit located in the same area. Providence Energy Company contracted C.E. Maguire, Inc., and Goldberg, Zoino and Associates (GZA) to conduct site assessment studies of the property prior to initiating plans to commercially develop the property. These field investigations by C.E. Maguire, Inc., and GZA identified portions of fill which were saturated with an oily residue in the southwest quadrant of the site (C.E. Maguire, 1982; GZA, 1983a; 1983b). This contamination has been attributed to the leaching of residues from the mixing pit and the alleged disposal of coal residues in a saltwater pond once located in the southwest portion of the site. In addition to this soil contamination observed in the southwest quadrant, the C.E. Maguire field investigation identified soil contamination over much of the site at depths of five to eight feet. The C.E. Maguire study also noted that the location of soil contamination corresponded to areas where the underground tanks -- which stored coal gas residues-- were formerly located (C.E. Maguire, 1982).

In addition to assessing soil contamination at Providence Gas #1, GZA also examined groundwater contamination via four monitoring wells that were installed at the property in 1983. Analysis of the groundwater indicated the presence of four volatile organic compounds; benzene, toluene, ethylbenzene, and xylene at concentrations varying from 2 ppb to 286 ppb. No heavy metals were found in significant concentrations in any of the four monitoring wells. Furthermore, analyses for EPA priority pollutants failed to identify any other compounds as being present in the groundwater.

From the mid-1950's to the early 1980's the property was an abandoned vacant lot. In the early 1980's, Providence Energy Company sold an interest in the property and established a commercial development partnership with Bay Front Real Estate Company.

Prior to construction at this site in 1984, a consent agreement was entered by Providence Energy Company, Bay Front Real Estate Company, and the Rhode Island Department of Environmental Management (RI DEM, 1984). This agreement stated that its purpose, in part, was to assure that the development of the site would be in accordance with applicable environmental and public health regulations. The main stipulation of the consent agreement was that the ambient air quality had to be maintained at a level where the concentration of organic contaminants present in the air was less than 10 parts per million. Furthermore, if disturbing the contaminated soils caused this limit to be exceeded, then the contaminated soils would be removed from the site. The consent agreement also required Bay Front Real Estate to submit weekly status reports to the RI DEM regarding construction at the site.

A complaint concerning the use of contaminated soil from Providence Gas #1 as "clean fill" at a residential construction site in Jamestown, Rhode Island was filed by the RI DEM in 1985 (RI DEM, 1985). RI DEM found that approximately 30 truckloads of contaminated soil from Providence Gas #1 had been used as "clean fill" at a residential development in Jamestown. Odors and visual signs of contamination were reported by RI DEM personnel (RI DEM, 1985). RI DEM informed the Town of

Jamestown of the situation and the need to remove the soil. This soil was reportedly removed and disposed of at the North Kingston Landfill (Dresser, 1989e).

Construction began at the site in February 1985 and continued until September 1988. During this period, approximately 1 million cubic yards of contaminated soil, building debris, and an underground storage tank were excavated and disposed of in the Central Landfill in Johnston, Rhode Island (Malloy, 1985; Cooley, 1988c). In September 1988, the Providence Energy Company dissolved its partnership with Bay Front Real Estate and terminated Malloy Real Estate, Inc., the general contractor responsible for the construction on the property; all construction on the property ceased at this time (Cooley, 1988b; Dresser, 1989a).

## ENVIRONMENTAL SETTING

The overburden in the area is composed primarily of glacial outwash sand, silt, and till deposits which are approximately 20 feet thick. This glacially derived overburden is underlain by bedrock described as interbedded fine to coarse grained sandstone, lithic graywacke and shale (USGS, 1971). The average depth to bedrock directly underlying the property is 20 to 25 feet (GZA, 1983a).

Natural surface water run-off from the Providence Gas #1 property was most likely to the west toward Newport Harbor, since the harbor lies adjacent to and mildly down-slope of Providence Gas #1. However, during the NUS/FIT site reconnaissances, it was observed that the site is relatively flat and covered with asphalt and concrete. Run-off is now directed to storm drains located in the parking area and under the condominiums on the property (NUS/FIT, 1988).

Due to the proximity of Newport Harbor to the site and the low transmissivity of the underlying soils, groundwater is not used as a domestic or industrial water supply source (GZA, 1983a; 1983b). The entire population of Newport (population 30,000) is served by water drawn from public surface water supply sources located 2.0 miles northeast in Middletown and 7.0 miles northeast in Portsmouth, Rhode Island (Dresser, 1989b). There are fewer than five private wells reported to exist within a four-mile radius of the site; these wells are used solely for irrigation. The Newport Water Department does not know the exact location of these wells (Dresser, 1989b).

A 1983 GZA groundwater investigation reported that the local groundwater beneath the site flows toward the Newport Harbor/Narragansett Bay (GZA, 1983a; 1983b). A potential hazard to the aquatic environment may exist if contaminated groundwater discharges into Newport Harbor; however, it is assumed that potentially contaminated groundwater discharging into Newport Harbor would be diluted to concentrations below detection limits (GZA, 1983a, 1983b). The surface water uses of Newport Harbor and the Atlantic Ocean within 15 miles of Providence Gas #1 include commercial and recreational fishing, boating, and swimming (Dresser, 1989c).

## RESULTS

In 1983, Goldberg, Zoino and Associates (GZA) conducted a site assessment of the Providence Gas #1 property. As part of this assessment, GZA collected soil samples at Providence Gas #1 and analyzed the samples for organic compounds, inorganic elements, and polychlorinated biphenyls (PCBs) (Attachment A; GZA, 1983a). Note that only positive results from earlier studies conducted at Providence Gas #1 have been included in the appendices. The results of these analyses indicated the presence of polycyclic aromatic hydrocarbons (PAHs) ranging in concentrations from 23 to 9,600 parts per billion. During this investigation, GZA also installed monitoring wells and sampled the groundwater at the Providence Gas #1 site. These groundwater samples were analyzed for organic, inorganic, pesticide, and PCB compounds (Attachment A; GZA, 1983b). The results of these analyses indicated the presence of PAHs at concentrations ranging from 7 to 810 parts per billion. Trace to low levels (<0.5 to 0.286 ppm) of inorganic elements and volatile organic compounds were detected respectively. No pesticides or PCBs were detected in these samples.

In July 1984, RI DEM personnel collected two soil samples at the Providence Gas #1 property. These samples were analyzed for organic compounds, inorganic elements, and PCBs. The results of these analyses indicated the presence of PAHs and phenols ranging in concentrations from 0.44 to 14.9 parts per million. No inorganic elements, or PCBs were detected in these samples. Furthermore, no volatile organic compounds were detected at concentrations greater than 5.0 ppb (Attachment B; Rhode Island Analytical Laboratories (RIAL), 1984).

In January 1985, RIAL analyzed one soil sample from the Providence Gas #1 property. This sample was analyzed for organic compounds and inorganic elements. The results of these analyses indicated the presence of PAHs, phenols and phthalates at concentrations from 0.71 to 32.89 parts per million (Attachment B; RIAL, 1985).

A soil sampling round was conducted by NUS/FIT I on March 14, 1989. Six shallow soil samples were collected from depths of 1-2 feet below ground surface including a replicate and background sample (Table 1, Figure 2) (NUS/FIT, 1988).

All soil samples were analyzed through the EPA Contract Laboratory Program for full organic and inorganic Superfund List compounds and elements. Sample results for the organic analyses are listed in Attachment C, Table 1. Information regarding organic sample detection limits may be found in Attachment D, Table 1. Analytical results for cyanide are presented in Attachment C, Table 2. Information regarding cyanide sample detection limits may be found in Attachment D, Table 2. Analytical results for inorganics are presented in Attachment C, Table 3. Information regarding inorganic sample detection limits may be found in Attachment D, Table 3. Note that sample results qualified by a 'J' on the tables and in the text are considered approximate due to limitations identified during the quality control review. In addition, organic sample results reported at concentrations below quantitation limits but confirmed by mass spectrometry are qualified by a 'J' and are considered approximate. Inorganic data qualified as 'JB' may be partially or entirely attributed to blank contamination.

#### ORGANIC SAMPLING RESULTS

Volatile organic compounds were not detected in any of the soil samples collected at Providence Gas #1. The following semi-volatile compounds were all detected in the soil collected from sample location SS-01 at approximately or greater than three times the concentration detected in the background sample (SS-04); naphthalene (4600 parts per billion (ppb)), acenaphthylene (6900 ppb), pyrene (45,000 ppb), benzo (g,h,i,) perylene (15,000 ppb), benzo(b)fluoranthene (39,000 ppb), and benzo(k)fluoranthene (39,000 ppb), anthracene (5300 ppb), fluoranthene (29,000 ppb), 2-methylnaphthalene (4400 ppb), fluorene (4400 ppb), phenanthrene (26,000 ppb), and ideno(1,2,3-cd) pyrene (15,000 ppb) (Attachment C, Table 1). The following semi-volatile compounds were detected in the soil sample collected from sample location SS-02 and were not detected in the background sample; bis (2-chloroisopropyl) ether (170 ppb J), benzoic acid (140 ppb J), and diethylphthalate (43 ppb J). Dibenzofuran was detected in the soil samples collected from SS-01 and SS-02 at concentrations ranging from 89 to 950 ppb (J) (Attachment C, Table 1). These semi-volatile organic compounds are all polycyclic aromatic hydrocarbons and are considered to be common contaminants resulting from coal gasification operations (Environmental Research and Technology, 1984). All other semi-volatile organic compounds in samples collected from sampling locations SS-02, SS-03 and SS-03R were detected at concentrations similar to or less than background levels. It should also be noted that analysis of the background sample (SS-04) indicated that this sample was not a pristine sample. Analysis of the background sample detected the presence of numerous polyaromatic hydrocarbons with concentrations ranging between 420 (J) ppb to 12,000 ppb (Attachment C, Table 1).

TABLE 1 - SAMPLE SUMMARY  
Providence Gas #1

Soil samples collected by NUS/FIT on March 14, 1989

<u>Sample Location</u>	<u>Sample #/ Traffic Report</u>	<u>Remarks</u>	<u>Sample Source</u>
SS-01	21460 AP241 MAL156	grab	sample collected 11 feet north of manhole at a depth of 1 foot
SS-02	21464 AP242 MAL157	grab	sample collected 91 feet from harbor and 130 feet from back fence at a depth of 1.5 feet
SS-03	21462 AP243 MAL158	grab	sample collected 35 feet north of condo at a depth of 2 feet
SS-03R	21463 AP244 MAL159	grab	replicate sample of SS-03, collected 35 feet north of condo at a depth of 2 feet
SS-04	21464 AP245 MAL160	grab	sample collected 4 feet from back fence and 17 feet from harbor at a depth of 1 foot. Background sample.
SS-05	21465 AP246	grab	soil trip blank from NUS/FIT

\* Sampling locations may be found on Figure 2.

## INORGANIC SAMPLING RESULTS

Cyanide was detected in sample SS-01 at 9.0 parts per million (ppm); over eight times the sample detection limit. Ferri/ferrocyanide complexes are common by-products of coal gasification operations and are contaminants that are frequently found at former coal gasification facilities (Environmental Research and Technology, 1984).

The CLP inorganic element analysis for soil samples collected from Providence Gas #1 indicated the presence of 23 inorganic elements; however all but antimony were detected at concentration levels below or similar to the levels detected in the background sample. Antimony was detected in the sample collected from sample location SS-01 at 7.8 ppm (J) and it was not detected in the background sample. In order to provide further evaluation of the data, a comparison to regional element concentrations for the state of Rhode Island is presented (USGS, 1984). Note that all inorganic elements naturally occur in soil and that regional concentrations are general or approximate numbers and local variations in concentration may exist for each element.

<u>Element</u>	<u>Range in onsite Samples</u>	<u>Background Location</u>	<u>Regional Value</u>
Antimony	7.8 ppm (J)	---	< 1.0 ppm
Copper	20 - 36 ppm (J)	164 ppm (J)	15.0 ppm
Lead	21 - 88 ppm (J)	177 ppm (J)	15.0 ppm
Nickel	10 - 19 ppm	72 ppm	15.0 ppm
Zinc	52 - 80 ppm (J)	468 ppm (J)	28.0 ppm

The background concentrations for copper, lead, nickel, and zinc are four to sixteen times the regional concentrations reported (USGS, 1984). The discrepancy between local and regional background concentrations may be due to local variations, or contamination of the background location. Potential sources of contamination of the background location (SS-04) were not visibly evident at the time of sampling. However, antimony, copper, lead, and nickel are commonly found at sites where coal gasifier ash has been deposited. Furthermore, zinc is another frequent contaminant at former gasification facilities due to its presence in coal ore and its widespread use as a corrosion inhibitor (Environmental Research and Technology, 1984).

## SUMMARY

The Providence Gas #1 property is the location of a former coal gasification facility which operated at the site from the late 1800's to the 1950's. During the gasification process, coal was destructively distilled to produce coal gas. The production facility was abandoned in the 1950's, at which time all surface structures were razed. The property remained an inactive vacant lot from this time until 1985. In 1985, commercial development began with the construction of commercial townhouses, a property management building, three condominium complexes, an in-ground indoor pool, an above-ground outdoor pool, two tennis courts, a shed and a foundation for a restaurant.

Volatile organic compounds were not detected in the soil samples collected at Providence Gas #1. However, twelve polycyclic aromatic hydrocarbon compounds were detected at concentrations greater than three times the background concentration in the soil from onsite sample locations and of these samples the highest relative concentration of PAHs was detected in soil sample SS-01. Furthermore 9.0 ppm of cyanide was also detected in SS-01. These organic compounds and cyanide complexes have been reported as frequent by-products and residues of the coal gasification process. Efforts to make a valid comparison of inorganic elements contamination between the background

sample and onsite samples were hampered by the fact that the highest concentrations were detected in the background sample. However, regional inorganic concentrations for copper, lead, nickel, and zinc were substantially (four to sixteen times) below those detected in the background sample. The information collected by NUS/FIT during this investigation combined with the data from earlier studies conducted at the facility confirms the presence of contamination at the site. However, due to the lack of local groundwater and surface water targets NUS/FIT recommends that no further action be planned for the Providence Gas #1 facility.

A "No Further Remedial Action Planned" (NFRAP) designation means that no further Federal Superfund Remedial Action is anticipated at the identified location.

The NFRAP decision does not necessarily mean that there is no hazard associated with a given location; it means only that based upon information at the time of this study, the location is not judged to warrant further Federal Superfund Remedial Action.

Locations remain in the CERCLIS (Comprehensive Environmental Response Compensation and Liability Information System) database after site evaluations have been completed. This provides EPA with a permanent record of past agency activities at that location. The NFRAP decision may be changed in the future based on additional information which indicates that further Federal Superfund Remedial Action may be appropriate.

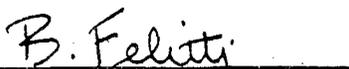
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Submitted By:

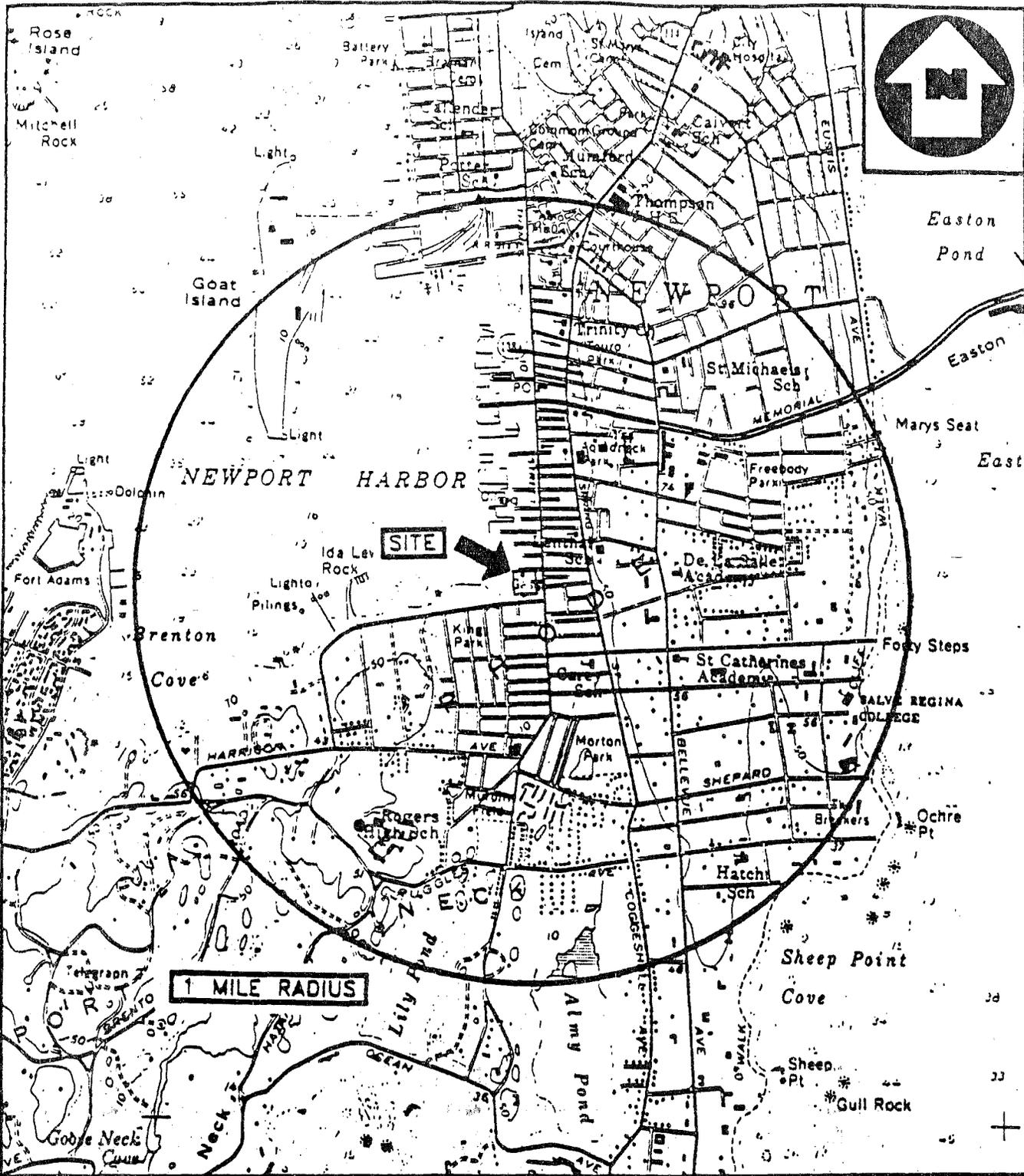


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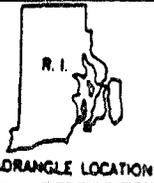
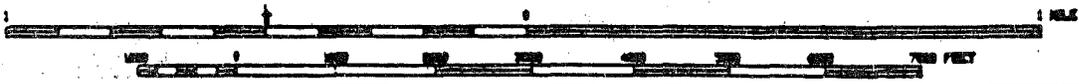
Approval:

  
Barbara Felitti  
Acting FIT Office Manager

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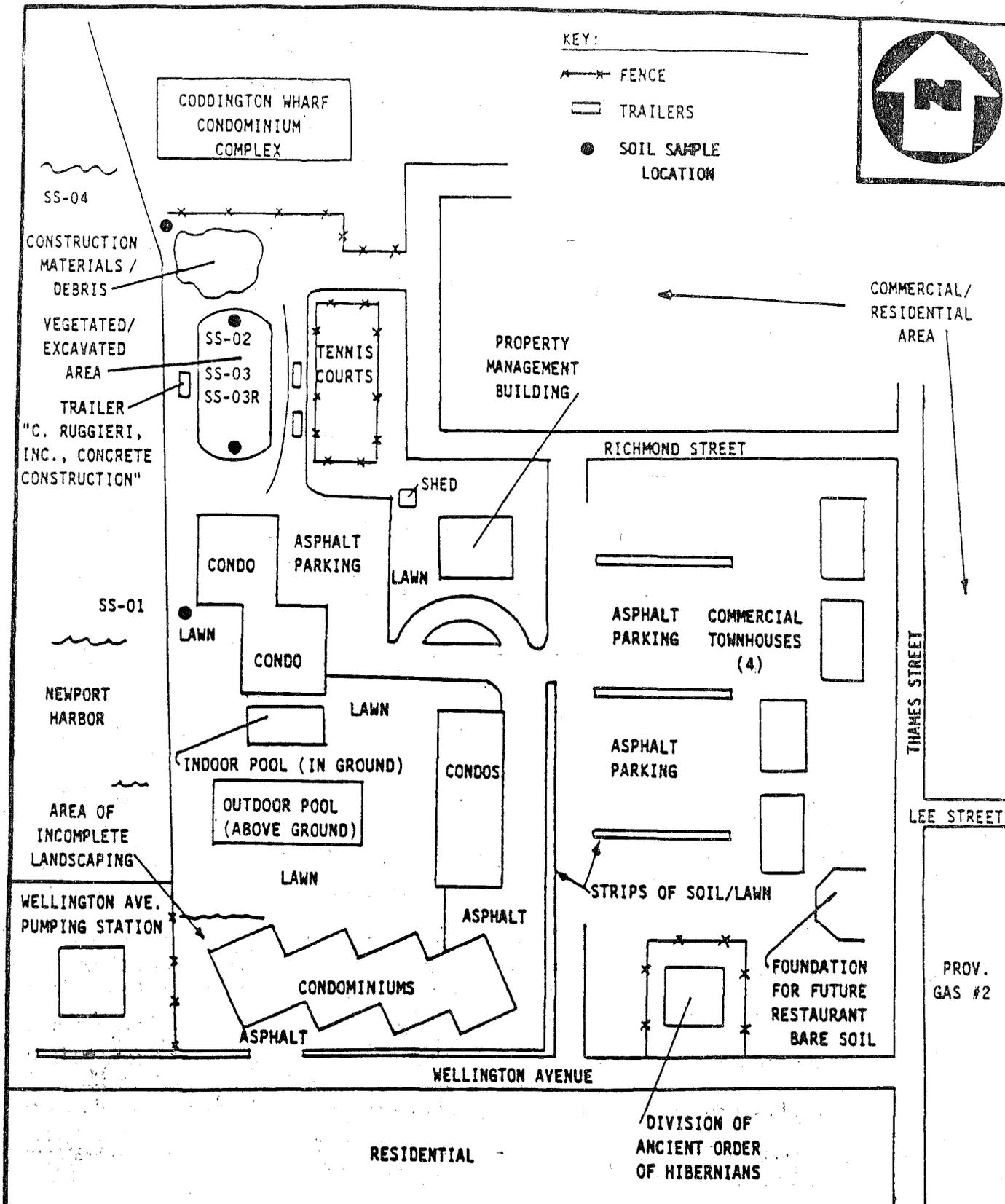
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 NEWPORT, R.I., 1957



**LOCATION MAP**  
**PROVIDENCE GAS #1**  
**NEWPORT, RHODE ISLAND**



**FIGURE 1**



NOT TO SCALE

**SITE SKETCH**  
**PROVIDENCE GAS #1**  
**NEWPORT, RHODE ISLAND**



FIGURE 2

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USGS. 1984. United States Geological Survey. Element concentrations in Soils and other surficial materials of the conterminous United States.

**Attachment A**

ORGANIC COMPOUNDS ASSOCIATED WITH SOIL SAMPLES

Parameter (ng/g)	Bore Holes*			
	1 & 2	3 & 4	8 & 11	9, 12 & 14
<b>Base/Neutral Compounds</b>				
Acenaphthene	ND	110	ND	350
Fluoranthene	89	9,600	1,900	140 2000
Naphthalene	ND	84	2,900	3,100 1780
Bis (2-ethylhexyl) Phthalate	250	ND	180	ND 31000
Benzo(a)anthracene	45	3,500	920	270
Benzo(a)pyrene	ND	7,500	860	120
3, 4-benzo fluoranthene				
benzo(K)fluoranthene	ND	2,800	1,700	ND
Chrysene	23	3,200	1,000	290
Acenaphthylene	ND	390	300	460
Anthracene	ND	2,000	170	100
Benzo(ghi)perylene	ND	550	330	130
Fluorene	ND	920	60	370
Phenanthrene	27	3,600	550	640
d-benzo(a,h)anthracene	ND	ND	40	46
indeno(1,2,3-cd)pyrene	ND	480	230	130
Pyrene	200	6,500	1,400	220
Acid Compounds*	NA	NA	NA	ND

\*NS = Not Sampled, ND - Not Detected

Source: Energy Resources Co. 1982





*R.I. Analytical Laboratories, Inc.*

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET  
WARWICK, R. I. 02888

CERTIFICATE OF ANALYSIS

PHONE: (401) 467-2452

REPORT TO: Providence Gas Company

DATE RECEIVED 10/11/83

9 Connell Highway

DATE REPORTED 10/26/83

Newport, RI 02840

PURCHASE ORDER NO. \_\_\_\_\_

Attn: Mr. William Mullin

R.I.A.L. INV. NO. 8979

SAMPLE DESCRIPTION Four (4) monitoring well samples

On October 11, 1983, samples were collected from the 4 recently installed monitoring wells located at the Wellington Street Site, Newport, RI (see attached sketch). Sampling was performed by Goldberg-Zoino & Associates Inc. personnel and delivered to our laboratory for analysis. Attached are the laboratory results for those parameters requested by the R.I. Department of Environmental Management in their letter of September 16, 1983.

If you have any questions regarding this work or if we may be of further assistance, please contact us.

cc: Mr. Michael Powers

APPROVED BY 

Certificate of Analysis

Providence Gas Company  
 Four (4) Monitoring Well Samples  
 Number 8979  
 October 24, 1983  
 Page -2-

PARAMETER	MW #1	MW #2	MW #3	MW #4
<b>Metals (soluble):</b>				
Arsenic	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l	<0.01 mg/l
Barium	<0.5 "	<0.5 "	<0.5 "	<0.5 "
Cadmium	<0.005 "	<0.005 "	<0.005 "	<0.005 "
Chromium	<0.05 "	<0.05 "	<0.05 "	<0.05 "
Lead	<0.05 "	<0.05 "	<0.05 "	<0.05 "
Mercury	<0.0005 "	<0.0005 "	<0.0005 "	<0.0005 "
Selenium	<0.01 "	<0.01 "	<0.01 "	<0.01 "
Silver	<0.01 "	<0.01 "	<0.01 "	<0.01 "

**Volatile Organic Compounds:**

Benzene	0.002 mg/l	0.008 mg/l	0.286 mg/l	ND
Toluene	ND	ND	0.016 "	ND
ethylbenzene	ND	ND	0.168 "	ND
xylene	ND	ND	0.209 "	ND

**Methodology:** Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020 and Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-05, July 1982.

**Note:** A list of other volatile and semi-volatile organic compounds tested for and their detection limits is attached.

**Certificate of Analysis**

Providence Gas Company  
 Four (4) Monitoring Well Samples  
 Number 8979  
 October 25, 1983  
 Page -3-

PARAMETER	MW #1	MW #2	MW #3	MW #4
<b>Semi-volatile Organic Compounds</b>				
<b>Acid Compounds:</b>	ND	ND	ND	ND
<b>Base/Neutrals Compounds:</b>				
Acenaphthene	ND	ND	0.140 mg/l	ND
Bis(2-ethylhexyl)phthalate	0.390 mg/l	0.370 mg/l	0.024 "	ND
Naphthalene	0.015 "	ND	0.810 "	ND
Fluoranthene	ND	ND	0.007 "	ND
Phenanthrene	ND	ND	0.082 "	ND
Fluorene	ND	ND	0.080 "	ND
Pyrene	ND	ND	0.008 "	ND
<b>Pesticides:</b>	ND	ND	ND	ND
<b>Polychlorinated Biphenyls:</b>	ND	ND	ND	ND

**Methodology:** Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020 and Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA-600/4-82-05, July 1982.

**Note:** A list of other volatile and semi-volatile organic compounds tested for and their detection limits is attached.

CL  
1

**Attachment B**

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State of Analysis

Realty  
 February 26, 1985  
 Number D3049

Page -2-

PARAMETER	RESULTS
pH	5.5 SU
Flash Point (c/c)	>200°F
Characteristic of E.P. Toxicity:	
Arsenic	<0.01 mg/l
Barium	<0.5 "
Cadmium	0.028 "
Chromium	<0.05 "
Lead	<0.05 "
Mercury	<0.0005 "
Selenium	<0.01 "
Silver	<0.01 "
Volatile Organic Compounds:	
benzene	1.14 mg/kg
toluene	0.88 "
ethylbenzene	2.52 "
xylene	5.65 "
Semi-volatile Organic Compounds:	
Acids Extractables:	
4-chloro-3-methyl phenols	3.95 mg/kg
Base/Neutrals Extractables:	
dibenzo(a,h)anthracene	2.38 mg/kg
indeno(1,2,3-cd)pyrene	5.10 "
2-methyl naphthalene	1.48 "
benzo(g,h,i)perylene	1.89 "
benzo(a)pyrene	9.46 "
acenaphthylene	9.05 "
benzo(k)fluoranthene	10.44 "
fluorene	5.92 "
beno(a)anthracene	32.89 "
anthracene/phenanthrene	13.98 "
di-n-butyl phthalate	0.71 "
bis(2-ethylhexyl)phthalate	1.23 "
fluoranthene	21.38 "
pyrene	31.25 "



# K.S. Analytical Laboratories, Inc.

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET  
WARWICK, R. I. 028

## CERTIFICATE OF ANALYSIS

PHONE: (401) 467-24

TO Malloy Realty  
379 Thomas Street  
Newport, RI 02840  
Attn: Mr. James Reilly

DATE RECEIVED 1/24/85  
DATE REPORTED 2/28/85  
PURCHASE ORDER NO. \_\_\_\_\_  
R.I.A.L. INV. NO. E1197

SAMPLE DESCRIPTION One (1) soil sample from Wellington Avenue Site

Subject sample has been analyzed by our laboratory with the following results.

<u>PARAMETER</u>	<u>RESULTS</u>
pH	6.6 SU
Flash Point (c/c)	>200°F
Characteristic of E.P. Toxicity:	
Arsenic	<0.01 mg/l
Barium	<0.5 "
Cadmium	<0.005 "
Chromium	<0.05 "
Lead	<0.05 "
Mercury	<0.0005 "
Selenium	<0.01 "
Silver	<0.01 "
Volatile Organic Compounds:	
benzene	3.88 mg/kg
toluene	1.06 "
ethylbenzene	2.00 "
xylene	6.17 "
Phenolics	<10 ppb

Note: A list of other volatile organic compounds tested for and the detection limits are attached.

Methodology: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, U.S. EPA, SW-846, July 1982, 2nd ed.

If you have any questions regarding this work or if we may be of further assistance, please contact us.

APPROVED BY \_\_\_\_\_



# R.I. Analytical Laboratories, Inc.

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET  
WARWICK, R. I. 02888

PHONE: (401) 467-2452

## CERTIFICATE OF ANALYSIS

REPORT TO R.I. Dept. of Environmental Management DATE RECEIVED 7/25/84  
204 Cannon Bldg., 75 Davis Street DATE REPORTED 9/20/84  
Providence, RI 02908 PURCHASE ORDER NO. 74532  
Attn: Mr. John P. Leo R.I.A.L. INV. NO. D1954

SAMPLE DESCRIPTION TWO (2) samples collected from excavation site  
Providence Gas, Wellington Avenue, Newport, RI

Subject samples have been analyzed by our laboratory with the following results:

<u>PARAMETER</u>	<u>SAMPLE #1</u>	<u>SAMPLE #2</u>
Volatile Organic Compounds	<5 ppb	<5 ppb
Acid Extractables Compounds:		
2-chlorophenol	<1 ppm	14.9 ppm
2-nitrophenol	<1 "	<1 "
phenol	<1 "	1.7 "
2,4-dimethylphenol	<1 "	<1 "
2,4-dichlorophenol	6.0 "	5.9 "
2,4,6-trichlorophenol	<1 "	<1 "
4-chloro-3-methylphenol	6.7 "	6.1 "
2,4-dinitrophenol	<1 "	<1 "
pentachlorophenol	<1 "	<1 "
nitrophenol	<1 "	<1 "

RECEIVED  
 SEP 25 1984  
 LABORATORY

Detection Limit = 1 ppm

<u>Base/Neutral Extractable Compounds:</u>		
naphthalene	<0.1 ppm	<0.1 ppm
acenaphthylene	<0.1 "	<0.1 "
acenaphthene	0.44 "	<0.1 "
fluorene	0.70 "	1.91 "
anthracene/phenanthrene	<0.1 "	4.75 "
fluoranthene	1.03 "	6.30 "
pyrene	2.00 "	10.0 "
chrysene	3.78 "	14.1 "
benzo(b)fluoranthene	1.73 "	3.86 "
benzo(k)fluoranthene	<0.1 "	<0.1 "
benzo(a)pyrene	1.58 "	4.82 "
indeno(1,2,3-cd)pyrene	<0.1 "	<0.1 "
dibenzo(a,h)anthracene	<0.1 "	<0.1 "
benzo(g,h,i)perylene	<0.1 "	<0.1 "

10000 ppm =  
 1 ppm =

APPROVED BY

Anthony E.

Attachment C

TABLE Page 2 of 2  
 PROVIDENCE GAS # 1  
 MARCH 14, 1989  
 CLP EXTRACTABLE ORGANIC ANALYSIS  
 CASE NO. 11594, SDG NO. AP241  
 SOIL ANALYTICAL RESULTS  
 (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03D	SS-04
Sample Number	21460	21461	21462	21463	21464
Traffic Report Number	AP241	AP242	AP243	AP244	AP245
Remarks				Duplicate	Background
SEMI-VOLATILE COMPOUND					
3-Nitroaniline					
Acenaphthene	640 J	94 J	45 J		420 J
2,4-Dinitrophenol					
4-Nitrophenol					
Dibenzofuran	950 J	89 J			
2,4-Dinitrotoluene					
Diethylphthalate		43 J			
4-Chlorophenyl-phenylether					
Fluorene	4400	230 J	120 J	65 J	760 J
4-Nitroaniline					
4,6-Dinitro-2-methylphenol					
N-Nitrosodiphenylamine					
4-Bromophenyl-phenylether					
Hexachlorobenzene					
Pentachlorophenol					
Phenanthrene	28000	1900	950	600	4800
Anthracene	5300	540	240 J	310 J	1300 J
Di-n-butylphthalate					
Fluoranthene	29000	2600	1000	970	7000
Pyrene	45000	3200	1800 J	1300	12000
Butylbenzylphthalate					
3,3'-Dichlorobenzidine					
Benzo(a)anthracene	25000	1700	830	690	9100
Chrysene	24000	1900	840	710	9000
bis(2-Ethylhexyl)phthalate					
Di-n-octyl phthalate					
Benzo(b)fluoranthene	39000	2800	1200	1000	12000
Benzo(k)fluoranthene	39000	2800	1200	1000	12000
Benzo(a)pyrene	21000	1800	860	610	8200
Indeno (1,2,3-cd)pyrene	15000	1000	420	270 J	3000
Dibenz(a,h)anthracene	1500 J	420 J			550 J
Benzo(g,h,i)perylene	15000	980	420	260 J	4500

A blank space indicates that the semi-volatile compound was not detected.

J quantitation is approximate due to limitations identified during the quality control review.

Sample Quantitation Limits for the compounds listed above are reported in Appendix D Table 2.

TABLE / Page 1 of 2  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP EXTRACTABLE ORGANIC ANALYSIS  
 CASE NO. 11594, SDG NO. AP241  
 SOIL ANALYTICAL RESULTS  
 (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04
Sample Number	21460	21461	21462	21463	21464
Traffic Report Number	AP241	AP242	AP243	AP244	AP245
Remarks				Duplicate	Background
Sampling Date	14-MAR-89	14-MAR-89	14-MAR-89	14-MAR-89	14-MAR-89
Extraction Date	21-MAR-89	21-MAR-89	21-MAR-89	21-MAR-89	21-MAR-89
Analysis Date	28-MAR-89	28-MAR-89	28-MAR-89	28-MAR-89	29-MAR-89
SEMI-VOLATILE COMPOUND					
Phenol					
bis (2-Chloroethyl) ether					
2-Chlorophenol					
1,3-Dichlorobenzene					
1,4-Dichlorobenzene					
Benzyl Alcohol					
1,2-Dichlorobenzene					
2-Methylphenol					
bis (2-Chloroisopropyl) ether					
4-Methylphenol		170 J			
N-Nitroso-di-n-propylamine					
Hexachloroethane					
Nitrobenzene					
Isophorone					
2-Nitrophenol					
2,4-Dimethylphenol					
Benzoic acid		140 J			
bis (2-Chloroethoxy) methane					
2,4-Dichlorophenol					
1,2,4-Trichlorobenzene					
Naphthalene	4600	140 J	120 J	61 J	1200 J
4-Chloroaniline					
Hexachlorobutadiene					
4-Chloro-3-methylphenol					
2-Methylnaphthalene	4400	91 J	110 J		790 J
Hexachlorocyclopentadiene					
2,4,6-Trichlorophenol					
2,4,5-Trichlorophenol					
2-Chloronaphthalene					
2-Nitroaniline					
Dimethylphthalate					
Acenaphthylene	6900	340 J	170 J	120 J	2300
2,6-Dinitrotoluene					

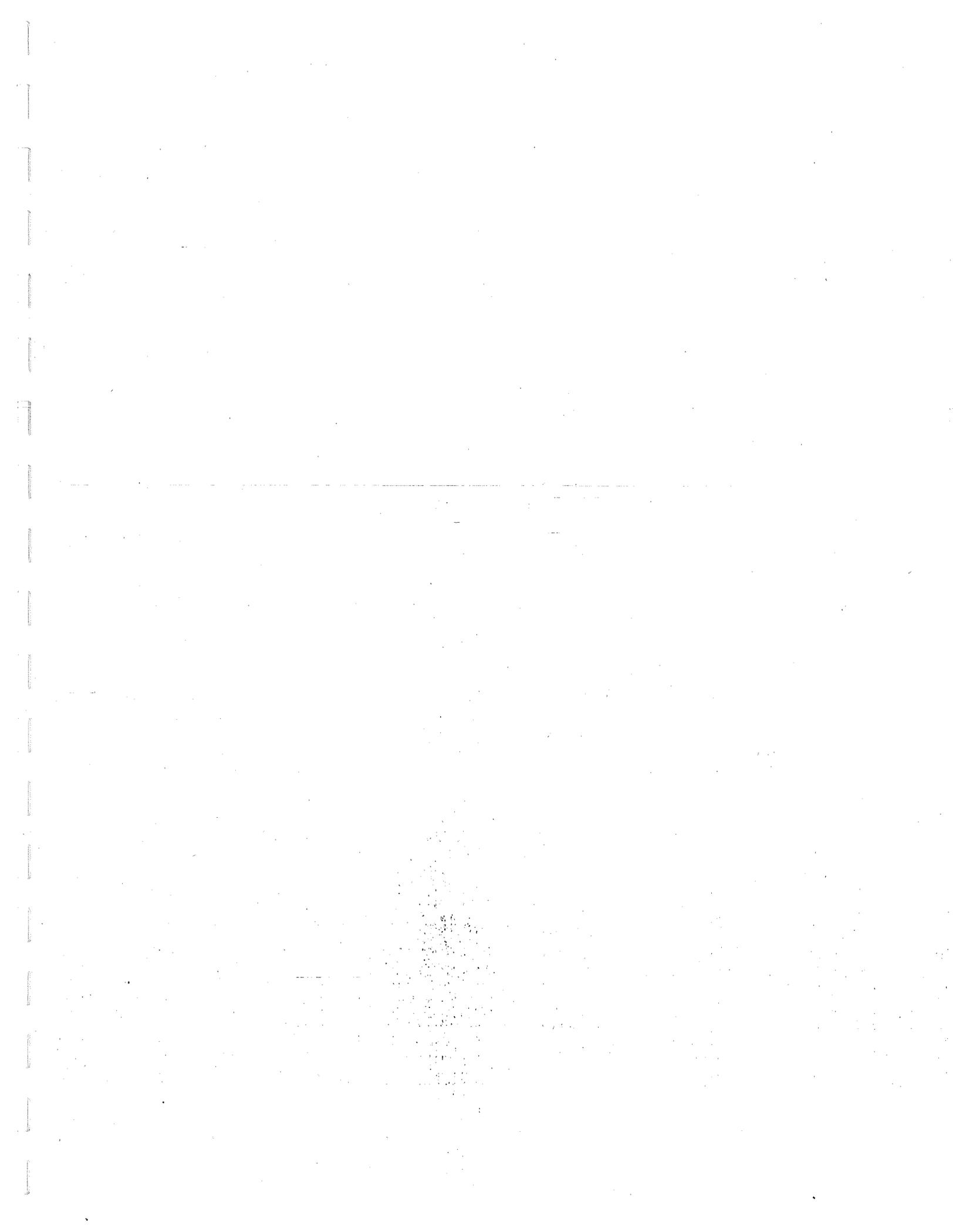


TABLE / Page 1 of 1  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP VOLATILE ORGANIC ANALYSIS  
 CASE NO. 11594, SDG NO. AP241  
 SOIL ANALYTICAL RESULTS (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04	SS-05
Sample Number	21460	21461	21462	21463	21464	21465
Traffic Report Number	AP241	AP242	AP243	AP244	AP245	AP246
Remarks				Replicate	Background	Blank
Sampling Date	14-MAR-89	14-MAR-89	14-MAR-89	14-MAR-89	14-MAR-89	14-MAR-89
Analysis Date	21-MAR-89	24-MAR-89	24-MAR-89	24-MAR-89	24-MAR-89	21-MAR-89
VOLATILE ORGANIC COMPOUND						
Chloromethane						
Bromomethane						
Vinyl Chloride						
Chloroethane						
Methylene Chloride						
Acetone						73 J
Carbon Disulfide						
1,1-Dichloroethene						
1,1-Dichloroethane						
1,2-Dichloroethene (Total)						
Chloroform						
1,2-Dichloroethane						
2-Butanone	R	R	R	R	R	R
1,1,1-Trichloroethane						
Carbon Tetrachloride						
Vinyl Acetate						
Bromodichloromethane						
1,2-Dichloropropane						
cis-1,3-Dichloropropene						
Trichloroethene						
Dibromochloromethane						
1,1,2-Trichloroethane						
Benzene						
trans-1,3-Dichloropropene						
Bromoform						
4-Methyl-2-pentanone						
2-Hexanone						
Tetrachloroethene						1 J
1,1,2,2-Tetrachloroethane						
Toluene						20
Chlorobenzene						
Ethylbenzene						3 J
Styrene						
Xylene (Total)						
Total VOC Concentration (ug/Kg)						97 J

A blank space indicates the volatile organic compound (VOC) was not detected.

J. Quantitation is approximate due to limitations identified during the quality control review.

R. Value is rejected.

Sample Quantitation Limits for the compounds listed above are reported in Appendix D Table 1.

TABLE 2 Page 1 of 1  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP INORGANIC ANALYSIS  
 CASE NO. 11594, SDG NO. MAL156  
 SOIL ANALYTICAL RESULTS  
 (mg/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04				
Sample Number	21460	21461	21462	21463	21464				
Traffic Report Number	MAL156	MAL157	MAL158	MAL159	MAL160				
Remarks				Replicate	Background				
Inorganic Elements									
Aluminum	P 4420	5570	4470	5320	5640				
Antimony	P 7.8 J								
Arsenic	F 8.4 J	7.6 J	4.7 J	5 J	5.4 J				
Barium	P 34.2	24.4	16.5	14.8	38.3				
Beryllium	P 0.4	0.29	0.31	0.3	2.5				
Cadmium	P 1 J				1.8 J				
Calcium	P 3080 J	2960 J	494 J	3870 J	1080 J				
Chromium	P 9.3	9.6	9	16.5	27.7				
Cobalt	P 5.1	8.2	4.8	8	12.8				
Copper	P 31.5 J	27 J	20.3 J	36.3 J	164 J				
Iron	P 12700	16800	11200	15900	21400				
Lead	P 88.5 J	43.9 J	26.3 J	21.3 J	177 J				
Magnesium	P 1470	1980	1960	2020	1820				
Manganese	P 133 J	158 J	84.2 J	114 J	174 J				
Mercury	CV 0.16								
Nickel	P 10.9	19.9	12.5	19.6	72.1				
Potassium	P 608	528	511	455	419				
Selenium	F 0.53 J		0.27 J	0.27 J	0.4 J				
Silver	P 1.2								
Sodium	P 166	159	280	282	186				
Thallium	F 0.45 J								
Vanadium	P 12.2	6.9	8.9	8.2	12.2				
Zinc	P 59.6 J	60.1 J	52 J	80.7 J	488 J				
Cyanide	C NA	NA	NA	NA	NA				

Analytical Method  
 F Furnace  
 CV Cold Vapor  
 C Colorimetric  
 P ICP/Flame AA

NOTE:

A blank space indicates the element was not detected.  
 J Quantitation is approximate due to limitations identified in the quality control review.  
 NA Not Analyzed

Sample Detection Limits for the elements listed above are reported in Appendix Table

**Attachment D**

TABLE / Page 1 of 1  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP VOLATILE ORGANIC ANALYSIS  
 CASE NO. 11592, SDG NO. AP231  
 SOIL SAMPLE QUANTITATION LIMITS (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04	SS-05
Sample Number	21460	21461	21462	21463	21464	21465
Traffic Report Number	AP241	AP242	AP243	AP244	AP245	AP246
Remarks				Replicate	Background	Blank
VOLATILE ORGANIC COMPOUND						
Chloromethane	11	13	12	12	12	10
Bromomethane	11	13	12	12	12	10
Vinyl Chloride	11	13	12	12	12	10
Chloroethane	11	13	12	12	12	10
Methylene Chloride	5	6	6	6	8	7
Acetone	11	13 UJ	12 UJ	12 UJ	12 UJ	10
Carbon Disulfide	5	6	6	6	6	5
1,1-Dichloroethene	5	6	6	6	6	5
1,1-Dichloroethane	5	6	6	6	6	5
1,2-Dichloroethene (Total)	5	6	6	6	6	5
Chloroform	5	6	6	6	6	5
1,2-Dichloroethane	5	6	6	6	6	5
2-Butanone	R	R	R	R	R	R
1,1,1-Trichloroethane	5	6	6	6	6	5
Carbon Tetrachloride	5	6	6	6	6	5
Vinyl Acetate	11	11	12	12	12	10
Bromodichloromethane	5	6	6	6	6	5
1,2-Dichloropropane	5	6	6	6	6	5
cis-1,3-Dichloropropene	5	6	6	6	6	5
Trichloroethene	5	6	6	6	6	5
Dibromochloromethane	5	6	6	6	6	5
1,1,2-Trichloroethane	5	6	6	6	6	5
Benzene	5	6	6	6	6	5
trans-1,3-Dichloropropene	5	6	6	6	6	5
Bromoform	5	6	6	6	6	5
4-Methyl-2-pentanone	11 UJ	11 UJ	12 UJ	12 UJ	12 UJ	10
2-Hexanone	11 UJ	11 UJ	12 UJ	12 UJ	12 UJ	10
Tetrachloroethene	5	6	6	6	6	5
1,1,2,2-Tetrachloroethane	5	6	6	6	6	5
Toluene	5	6	6	6	6	5
Chlorobenzene	5	6	6	6	6	5
Ethylbenzene	5	6	6	6	6	5
Styrene	5	6	6	6	6	5
Xylene (Total)	5	6	6	6	6	5

UJ Quantitation limit is approximated due to limitations identified during the quality control review.  
 R Value is rejected.

TABLE 2 Page 1 of 2  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP EXTRACTABLE ORGANIC ANALYSIS  
 CASE NO. 11594 , SDG NO. AP241  
 SOIL SAMPLE QUANTITATION LIMITS  
 (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04
Sample Number	21460	21461	21462	21463	21464
Traffic Report Number	AP241	AP242	AP243	AP244	AP245
Remarks				Duplicate	Background
SEMI-VOLATILE COMPOUND					
Phenol	3600	420	400	400	1900
bis (2-Chloroethyl) ether	3600	420	400	400	1900
2-Chlorophenol	3600	420	400	400	1900
1,3-Dichlorobenzene	3600	420	400	400	1900
1,4-Dichlorobenzene	3600	420	400	400	1900
Benzyl Alcohol	3600	420	400	400	1900
1,2-Dichlorobenzene	3600	420	400	400	1900
2-Methylphenol	3600	420	400	400	1900
bis (2-Chloroisopropyl) ether	3600	420	400	400	1900
4-Methylphenol	3600	420	400	400	1900
N-Nitroso-di-n-propylamine	3600	420	400	400	1900
Hexachloroethane	3600	420	400	400	1900
Nitrobenzene	3600	420	400	400	1900
Isophorone	3600	420	400	400	1900
2-Nitrophenol	3600	420	400	400	1900
2,4-Dimethylphenol	3600	420	400	400	1900
Benzoic acid	18000	2000	1900	1900	9300
bis (2-Chloroethoxy) methane	3600	420	400	400	1900
2,4-Dichlorophenol	3600	420	400	400	1900
1,2,4-Trichlorobenzene	3600	420	400	400	1900
Naphthalene	3600	420	400	400	1900
4-Chloroaniline	3600	420	400	400	1900
Hexachlorobutadiene	3600	420	400	400	1900
4-Chloro-3-methylphenol	3600	420	400	400	1900
2-Methylnaphthalene	3600	420	400	400 UJ	1900
Hexachlorocyclopentadiene	3600	420	400	400	1900
2,4,6-Trichlorophenol	3600	420	400	400	1900
2,4,5-Trichlorophenol	18000	2000	1900	1900	9300
2-Chloronaphthalene	3600	420	400	400	1900
2-Nitroaniline	18000	2000	1900	1900	9300
Dimethylphthalate	3600	420	400	400	1900
Acenaphthylene	3600	420	400	400	1900
2,6-Dinitrotoluene	3600	420	400	400	1900

TABLE 2 Page 2 of 2  
 PROVIDENCE GAS # 1  
 MARCH 14, 1989  
 CLP EXTRACTABLE ORGANIC ANALYSIS  
 CASE NO. 11594, SDG NO. AP241  
 SOIL SAMPLE QUANTITATION LIMITS  
 (ug/Kg)

Sample Location	SS-01	SS-02	SS-03	SS-03R	SS-04
Sample Number	21460	21461	21462	21463	21464
Traffic Report Number	AP241	AP242	AP243	AP244	AP245
Remarks				Duplicate	Background
SEMI-VOLATILE COMPOUND					
3-Nitroaniline	18000	2000	1900	1900	9300
Acenaphthene	3600	420	400	400 UJ	1900
2,4-Dinitrophenol	18000	2000	1900	1900	9300
4-Nitrophenol	18000	2000	1900	1900	9300
Dibenzofuran	3600	420	400	400	1900
2,4-Dinitrotoluene	3600	420	400	400	1900
Diethylphthalate	3600	420	400	400	1900
4-Chlorophenyl-phenylether	3600	420	400	400	1900
Fluorene	3600	420	400	400	1900
4-Nitroaniline	18000	2000	1900	1900	9300
4,6-Dinitro-2-methylphenol	18000	2000	1900	1900	9300
N-Nitrosodiphenylamine	3600	420	400	400	1900
4-Bromophenyl-phenylether	3600	420	400	400	1900
Hexachlorobenzene	3600	420	400	400	1900
Pentachlorophenol	18000	2000	1900	1900	9300
Phenanthrene	3600	420	400	400	1900
Anthracene	3600	420	400	400	1900
Di-n-butylphthalate	3600	2200	1900	1500	2000
Fluoranthene	3600	420	400	400	1900
Pyrene	3600	420	400	400	1900
Butylbenzylphthalate	3600	420	400	400	1900
3,3'-Dichlorobenzidine	7200	840	790	800	3800
Benzo(a)anthracene	3600	420	400	400	1900
Chrysene	3600	420	400	400	1900
bis(2-Ethylhexyl)phthalate	3600	420	400	400	1900
Di-n-octyl phthalate	3600	420	400	400	1900
Benzo(b)fluoranthene	3600	420	400	400	1900
Benzo(k)fluoranthene	3600	420	400	400	1900
Benzo(a)pyrene	3600	420	400	400	1900
Indeno (1,2,3-cd)pyrene	3600	420	400	400	1900
Dibenz(a,h)anthracene	3600	420	400	400	1900
Benzo(g,h,i)perylene	3600	420	400	400	1900

UJ Quantitation limit is approximated due to limitations identified during the quality control review.

TABLE 2 Page 1 of 1  
 PROVIDENCE GAS #1  
 MARCH 14, 1989  
 CLP INORGANIC ANALYSIS  
 CASE NO. 11594, SDG. NO. MAL156  
 SOIL SAMPLE DETECTION LIMITS  
 (mg/Kg)

Sample Location		SS-01	SS-02	SS-03	SS-03R	SS-04				
Sample Number		21460	21461	21462	21463	21464				
Traffic Report Number		MAL156	MAL157	MAL158	MAL159	MAL160				
Remarks					Replicate	Background				
Percent Solids		91.6%	83.3%	83.7%	83.8%	88.2%				
Inorganic Elements		Instrument Detection Limits (ug/L)								
Aluminum	P	65	11.2	13.3	12.5	13.1	12.4			
Antimony	P	39	6.7	8.0 UJ	7.5UJ	7.9UJ	7.4 UJ			
Arsenic	F	1.7	0.3	0.4	0.4	0.4	0.4			
Barium	P	19	3.3	3.9	3.7	3.8	3.6			
Beryllium	P	1	0.2	0.2	0.2	0.2	0.2			
Cadmium	P	5	0.9 UJ	1.0	1.0 UJ	1.0 UJ	1.0			
Calcium	P	302	51.9	62.0	58.2	61.1	57.5			
Chromium	P	8	1.4	1.6	1.5	1.6	1.5			
Cobalt	P	12	2.1	2.5	2.3	2.4	2.3			
Copper	P	6	1.0	1.2	1.2	1.2	1.1			
Iron	P	14	2.4	2.9	2.7	2.8	2.7			
Lead	P	1.2	4.1	43.9	1.2	1.2	0.5			
Magnesium	P	274	47.1	56.2	52.8	55.4	52.2			
Manganese	P	2	0.3	0.4	0.4	0.4	0.4			
Mercury	CV	0.2	0.1	0.1	0.1	0.1	0.1			
Nickel	P	14	2.4	2.9	2.7	2.8	2.7			
Potassium	P	246	42.3	50.5	47.4	49.8	46.9			
Selenium	F	1.2	0.2	0.3	0.3	0.3	0.2			
Silver	P	7	1.2	1.4	1.3	1.4	1.3			
Sodium	P	207	35.6	42.5	39.9	41.9	39.4			
Thallium	F	2.3	0.5	0.5	0.5	0.5	0.5			
Vanadium	P	9	1.5	1.8	1.7	1.8	1.7			
Zinc	P	20	3.4	4.1	3.9	4.0	3.8			
Cyanide	C	NA	NA	NA	NA	NA	NA			

Analytical Method  
 F Furnace AA  
 P ICP/Flame AA  
 C Colorimetric  
 CV Cold Vapor

NOTE:

UJ The detection limit is approximated due to limitations identified in the quality control review (data validation).  
 NA Not Analyzed.





ELEMENT	CERCLIS CODE (No. of positions)	DESCRIPTION	ENTRY
---------	------------------------------------	-------------	-------

II. ONLY FOR SITE WITH HRS

Type of  
Facility of  
Source

C137(1)

- B = Chemical Plant
- C = City Contamination
- L = Landfill
- M = Manufacturing Plant
- N = Military Facility
- F = Other Federal Facility
- T = mines/tailings
- P = Lagoons
- A = Abandoned/Midnight dumping

If unknown,  
Type of Waste  
Present

- R = Radioactive Waste
- J = Inorganic Waste
- \*TBD = Organic Waste
- I = Other Industrial Waste
- D = Dioxin

If unknown,  
Type of Receptor  
Affected

- V = Waterways/river
- H = Housing Area
- W = Drinking Water Wells
- \*TBD = Ecological Receptors
- O = Other

Abstract

C201(240)

Site Description

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Site Name: 1700122222  
 CERCLIS No.: RID981063037  
 TDD No.: FI-8804-11  
 Reference No.: \$375R128\$E

NPL ELIGIBILITY CHECKLIST

	YES	NO	COMMENTS
Are the wastes onsite considered hazardous as defined in CERCLA?	✓		
*Sites covered by other authorities:			
Are the hazardous materials at the site solely petroleum products (gasoline, oil, natural gas)?		✓	
Is the contamination at the site caused solely by pesticides that were applied using an accepted practice?		✓	
If the release is into public or private drinking water systems, is it due to deterioration of the system through ordinary use?		✓	
Is the release from products which are part of the structure, and result in exposure within residential, business, or community structures?		✓	
Did the release result in exposure to people solely within a work place?		✓	
Does the facility have an Underground Injection Control permit under the Safe Drinking Water Act?		✓	
Is the release the result of the normal application of fertilizer?		✓	
Does the release involve naturally occurring substances in their unaltered form?		✓	
Does the contamination at the site consist solely of radioactive materials generated by Department of Energy/Atomic Energy Commission activities?		✓	
Is the contamination at the site caused solely by coal mining operations?		✓	
Does the facility have a permit from EPA or the U.S. Army Corps of Engineers (under the Marine Protection, Research, and Sanctuaries Act) to dispose of dredged materials in ocean waters?		✓	

Site Name: Providence Gas  
 CERCLIS No.: RID981063639  
 TDD No.: F1-8804-11  
 Reference No.: \$375RI28\$I

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
<b>*Other issues of site definition:</b>			
Is the site defined solely as a contaminated well field?	---	✓ ---	-----
Is the site currently owned or operated by a federal agency, or has it been in the past?	---	✓ ---	-----
Is the site a municipal landfill?	---	✓ ---	-----
-- Check if there is documentation of industrial waste disposed of.			
Does the waste consist of a "special waste" such as fly ash?	---	✓ ---	-----
-- Check if there is documentation of a hazardous component to the waste.			
Does the facility have an NPDES permit?	---	✓ ---	-----
Check if the facility has a history of permit violations.			
Is the facility subject to ambient air quality standards under the Clean Air Act?	---	✓ ---	-----
Does the facility have a permit under the Clean Air Act?	---	✓ ---	-----
<b>*RCRA status</b>			
Has the facility notified as a RCRA generator?	---	✓ ---	-----
Has the facility ever had RCRA interim status or a RCRA permit?	---	✓ ---	-----
If yes, check any that apply:			
-- The facility is a small quantity generator.	---		-----
-- The facility is a "non-notifier" or "protective filer" (identified as such by EPA or the state).	---		-----

CERCLIS No.: RI 6981063639  
EOD No.: FI-8804-11  
Reference No.: \$375RI 28 \$I

\*RCRA status (continued)

- The owner of the facility is bankrupt, or the owner has filed for protection under bankruptcy laws (if known). ---
- A RCRA compliance order or notice of violation has been issued for the facility at some time. ---  
The order or notice concerned:
  - conditions that posed a hazard (i.e. a release of contamination to the environment) OR ---
  - administrative violations (i.e. recordkeeping or financial requirements). ---
- Some RCRA enforcement action is currently pending at the facility. ---
- A RCRA permit has been denied or interim status has been revoked for the facility. ---  
The permit or interim status was revoked:
  - because of conditions at the facility that posed a hazard OR ---
  - because the facility failed to meet an administrative requirement (i.e., failed to file an acceptable Part B permit application). ---
- A closure plan has been requested or submitted for the facility under RCRA. ---
- A closure plan has been approved for the facility under RCRA. ---
- The facility is closed and currently monitoring under RCRA regulations. ---



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 2 - WASTE INFORMATION

IDENTIFICATION  
01 STATE RI 02 SITE NUMBER D981063639

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES <small>(Check all that apply)</small>	02 WASTE QUANTITY AT SITE <small>Measures of waste quantities must be used</small>	03 WASTE CHARACTERISTICS <small>(Check all that apply)</small>
<input checked="" type="checkbox"/> A SOLID <input type="checkbox"/> B POWDER FINES <input checked="" type="checkbox"/> C SLUDGE <input type="checkbox"/> D OTHER _____ <small>Specify:</small>	<input type="checkbox"/> E SLURRY <input checked="" type="checkbox"/> F LIQUID <input checked="" type="checkbox"/> G GAS TONS unknown CUBIC YARDS unknown NO OF DRUMS unknown	<input checked="" type="checkbox"/> A TOXIC <input type="checkbox"/> B CORROSIVE <input type="checkbox"/> C RADIOACTIVE <input checked="" type="checkbox"/> D PERSISTENT <input checked="" type="checkbox"/> E SOLUBLE <input type="checkbox"/> F INFECTIOUS <input checked="" type="checkbox"/> G FLAMMABLE <input checked="" type="checkbox"/> H IGNITABLE <input type="checkbox"/> I HIGHLY VOLATILE <input type="checkbox"/> J EXPLOSIVE <input checked="" type="checkbox"/> K REACTIVE <input type="checkbox"/> L INCOMPATIBLE <input type="checkbox"/> M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	unknown		
OLW	OILY WASTE	unknown		coal and coal tar from
SOL	SOLVENTS	unknown		coal gasification process.
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
SOL	benzene	71-43-2	groundwater	31,000	ppb
SOL	ethylbenzene	100-41-4	groundwater	9,700	ppb
SOL	toluene	108-88-3	groundwater	15,000	ppb
SOL	xylene	1330-20-7	groundwater	20,000	ppb
OCC	acenaphthene	83-32-9	soil	9,050	ppb
OCC	fluoranthene	206-44-0	soil	21,380	ppb
OCC	naphthalene	91-20-3	soil	3,100	ppb
OCC	benzo(a)anthracene	56-55-3	soil	3,500	ppb
OCC	benzo(a)pyrene	50-32-8	soil	7,500	ppb
OCC	benzo(ghi)perylene	191-24-2	soil	550	ppb
OCC	chrysene	218-01-9	soil	3,200	ppb
OCC	acenaphthylene	208-96-8	soil	460	ppb
OCC	anthracene	120-12-7	soil	2,000	ppb
OCC	fluorene	86-73-7	soil	920	ppb
MES	chromium	7440-47-3	soil	0.29	ppm
IOC	cyanide	151-50-8	soil	8,300	ppm

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)

Note: Maximum concentration of hazardous substances reported. Other compounds detected. Refer to references below for complete listing.

- CE Maguire, Inc. 1982. Site Evaluation, Wellington Place Development, July.
- RI Analytical Laboratories, Certificate of Analysis, 7/29/85, 2/28/85, 9/20/84.

SAI

SZEPATOWSKI ASSOCIATES INC. ENVIRONMENTAL CONSULTANTS & PLANNERS

SAI

July 7, 1988

Mrs. Beverly Migliorri  
Rhode Island Department of  
Environmental Management  
Division of Air & Hazardous Materials  
291 Promenade Street  
Providence, Rhode Island 02908

Re: Final Cleanup Report on the Newport Electric Company Property

Dear Beverly,

Szepatowski Associates Inc. (SAI) commenced the cleanup of the Newport Electric Company property at 449 Thames Street, Newport, Rhode Island on May 12, 1988. Since then the solvent and acid contaminated soil has been removed and the pigeon waste has been cleaned off of the metal winding staircase and adjacent walls. James Bryer, an SAI Haz-Mat trained engineer monitored the cleanup work at the site.

An "Asbestos Abatement Plan" has been filed with the Rhode Island Department of Health. Once the plan is approved the asbestos covered pipes in the old power generating building will be properly disposed of.

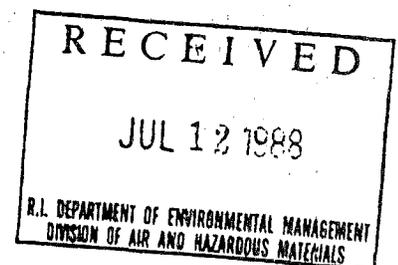
Please call me if you have any questions.

Sincerely,  
SZEPATOWSKI ASSOCIATES INC.

Barbara  
Barbara A. Szepatowski  
President/Principal Engineer

BS/mt

cc: Jonathen Barres



## INTRODUCTION

An environmental property audit was conducted of the Newport Electric Corporation Property (Plat 32, Lots 76, 76-4, 77, 256, 260) located on Thames Street, Newport, Rhode Island by Szepatowski Associates, Inc. (SAI) during February, March and April 1988. The audit was completed for the Sullivan Organization, 580 Thames Street, Newport, Rhode Island. Figure 1 shows the location of the property under consideration.

The purpose of SAI's audit was to determine the property's state of environmental compliance and health for the purchase of the property and to satisfy the bank's requirements for a mortgage closing.

The audit examined past and present compliance with air and water quality, underground storage tanks, PCB's, hazardous waste, and asbestos regulations to determine any liabilities which may exist for the bank or the new property owners. SAI also investigated whether freshwater wetlands or any endangered plants exist on the site.

Any unknown factors or information not located during the inspections of the property and research of existing Federal, State, County or City records or hidden by past or present owners could not be used as deciding factors in the judgement of the environmental health of the premises. This report discusses all of the findings of the environmental investigation. The results of this environmental audit are determined to be accurate and complete to the best of the author's professional knowledge.

**SAI**

**SZEPATOWSKI ASSOCIATES INC. ENVIRONMENTAL CONSULTANTS**

**SAI**

Due to tidal fluctuations, SAI does not consider the concentrations of the volatiles or the small amounts of asbestos to be extremely hazardous for the property's intended use. Water supply to the property is public and therefore drinking water standards do not apply. SAI spoke with staff of DEM's Air and Hazardous Materials Division concerning the site. Although DEM will not require a cleanup of the site, SAI recommends the removal and disposal of the following areas of asbestos, soil and concrete to prevent future liability problems:

- all of the asbestos in the buildings
- transformer pads in the contaminated area
- approximately 2,000 square feet of soil immediately surrounding the transformer pads to a depth of one (1) foot
- and 175 square feet of the soil around the pump house to a depth of three (3) feet. Since no serious levels of contaminants were detected in the monitoring wells, the depth of soil removal should not exceed three (3) feet. The soil areas should be backfilled with clean material.

One additional non-regulatory problem should be noted for the site; the upper floor of the main building and the tower staircase have large amounts of pigeon waste. This material has been found to be high in bacteria and extremely dangerous to humans. Cleanup and decontamination of these areas should be completed only with the use of protective equipment. Anyone entering these areas should use extreme caution and follow "good personal hygiene" after leaving these areas until this waste can be removed.

TABLE 3

## SAI SAMPLE ANALYSIS RESULTS

## Results of Monitoring Well Samples

VOLATILE ORGANIC	Limit	MW1	MW2	MW3	MW4	MW6
1,1,1-Trichloroethane	200ppb	ND	ND	ND	ND	1ppb
Ethylbenzene	NL	ND	ND	4ppb	ND	ND
Tetrachloroethylene	NL	ND	2ppb	3ppb	ND	ND
Toluene	NL	ND	9ppb	3ppb	ND	ND
Xylenes	NL	ND	55ppb	16ppb	ND	ND
PCB's	1ppb	<1ppb	<1ppb	<1ppb	<1ppb	<1ppb

The detection limit for all of the chemical constituents is 1 ppb.

The limits are those specified by the Drinking Water Standards.  
NL indicates no upper limit.

## Results of Soil Samples

VOLATILE ORGANIC	SS1*	SS2*	SS3*	S4*
Methyl Chloride	ND	380 ppb	ND	560 ppb
Tetrachloroethylene	ND	120 ppb	ND	140 ppb
Chlorobenzene	ND	ND	320 ppb	ND
Toluene	ND	ND	ND	160 ppb
Xylenes	150 ppb	ND	ND	610 ppb
Chloroform	ND	430 ppb	ND	540 ppb
Aroclor 1260 (PCB)	ND	ND	1 ppm	1 ppm
Oil and Grease	4,490 ppm			
pH		5.6		
Acidity		228 ppm		

Acidity calculated as CaCo3

## Location of soil samples:

- SS1 - Between oil tanks
- SS2 - Near old hydrochloric acid tank
- SS3 - Soil near transformer pad
- SS4 - Concrete from transformer pad

## FIRE

Other than the major fire which occurred in 1860, the local fire department had no record of recent fire activity at the site. The site does not appear to have any fire damage.

## RHODE ISLAND HAZARDOUS SUBSTANCE LAW

In July of 1983, the Rhode Island "Right to Know" Law (83-H-5104A) became effective. In May of 1986, a Federal Right to Know Law, The Hazardous Communication Standard, 29 CFR 1910.1200, went into effect. These laws require that employers provide their employees with information concerning the chemical makeup and health effects of "designated substances" in their work place.

The buildings on the site are presently unoccupied so the site does not fall under this regulation. No past violations of either the Federal or State Right to Know laws were noted in the files of Rhode Island Department of Labor for Newport Electric.

## PCB TRANSFORMERS AND CAPACITORS

No PCB transformers or capacitors were found on the site or in the buildings. A phone conversation with Ed Gosling of Newport Electric confirmed that none of the utility poles on the property have PCB transformers or capacitors. Appendix C contains a copy of the call report to Ed Gosling.

26 July 1983 100-20

Page 6

# East Bay Journal

Obituaries	
TV programs	
CLASSIFIED ADS	
Comics	1

misty-eyed  
that should  
want to cry

...ing that the experience  
...been a total waste because  
...aid.

QUESTION confronting all  
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## Thames St. test pits prove acceptable

By ROBERT CORRIEA  
Journal-Bulletin Staff Writer

NEWPORT — No additional pockets of hazardous material were unearthed yesterday at the Wellington Square construction site on Thames Street, allowing the developers to finally finish excavation of the lot.

"Two test pits were dug," said John Hartley, a senior engineer for the state Department of Environmental Management who monitored the site throughout the day. "Neither of the test pits showed any high levels of contaminated soils."

Workers will now lay stones and sand at the base of the excavated area, pour the foundation for a three-story building and back-fill the soil into the opening, Hartley said. The fill then will be covered by a layer of clean fill to prevent odors from seeping from the soil, he said.

"Once this excavation is complete, the only (other excavation) they'll be doing is laying utility lines," Hartley said. "And that will be in areas already excavated."

Yesterday's developments ended excavation work for the second

### DEM allows finish of excavations, finds no high levels of tainted soil

building on the site. Work was delayed for weeks by two stop-work orders from the DEM after two pockets of contaminated soil were unearthed.

Excavation was first halted late last month, when workers unearthed a large, brick-lined tank that once held gas and coal tar. Under a DEM deadline, the contaminated fill was trucked from the site and construction resumed.

A second smaller pocket of contaminated fill was unearthed a little over two weeks ago and work was stopped again. Work was resumed yesterday only after the DEM reviewed and approved a plan to deal with the toxic chemicals buried on the property.

The site, at Thames and McAllister streets, was a former waste burial ground for a coal gasification plant that had stood across the street. Chemicals buried at the site include benzene, toluene and xylene, potentially hazardous in concentrated doses.

DEM officials have said that at no point have the chemicals been found in concentrations that can be considered hazardous.

"It has been a difficult case for us because the material is not a hazardous waste. It's been regulated as a solid waste," Hartley said. "The material is like a driveway sealer. The same composition."

For several months neighbors have complained that excavation for the first of the two, three-story buildings to be built at the site has stirred up petroleum-like odors. The complaints heightened after construction on the second building, at the back of the lot, unearthed the large chemical burial tank.

An air quality engineer hired by the contractor to monitor odor readings was at the site yesterday.

"The levels haven't been bad today at all," said Paul Ullucci of Rhode Island Analytical Laborato-

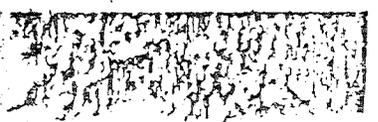
ries, Warwick, who has monitored the site regularly for the contractors. He added, though, that "It's difficult to define what bad is. (The smell) has been more of a nuisance than a health hazard."

The highest odor level that Ullucci has recorded on the site is five parts per million, he said. Experts generally agree that 10 parts per million is about the most to which a person can be safely exposed, he said.

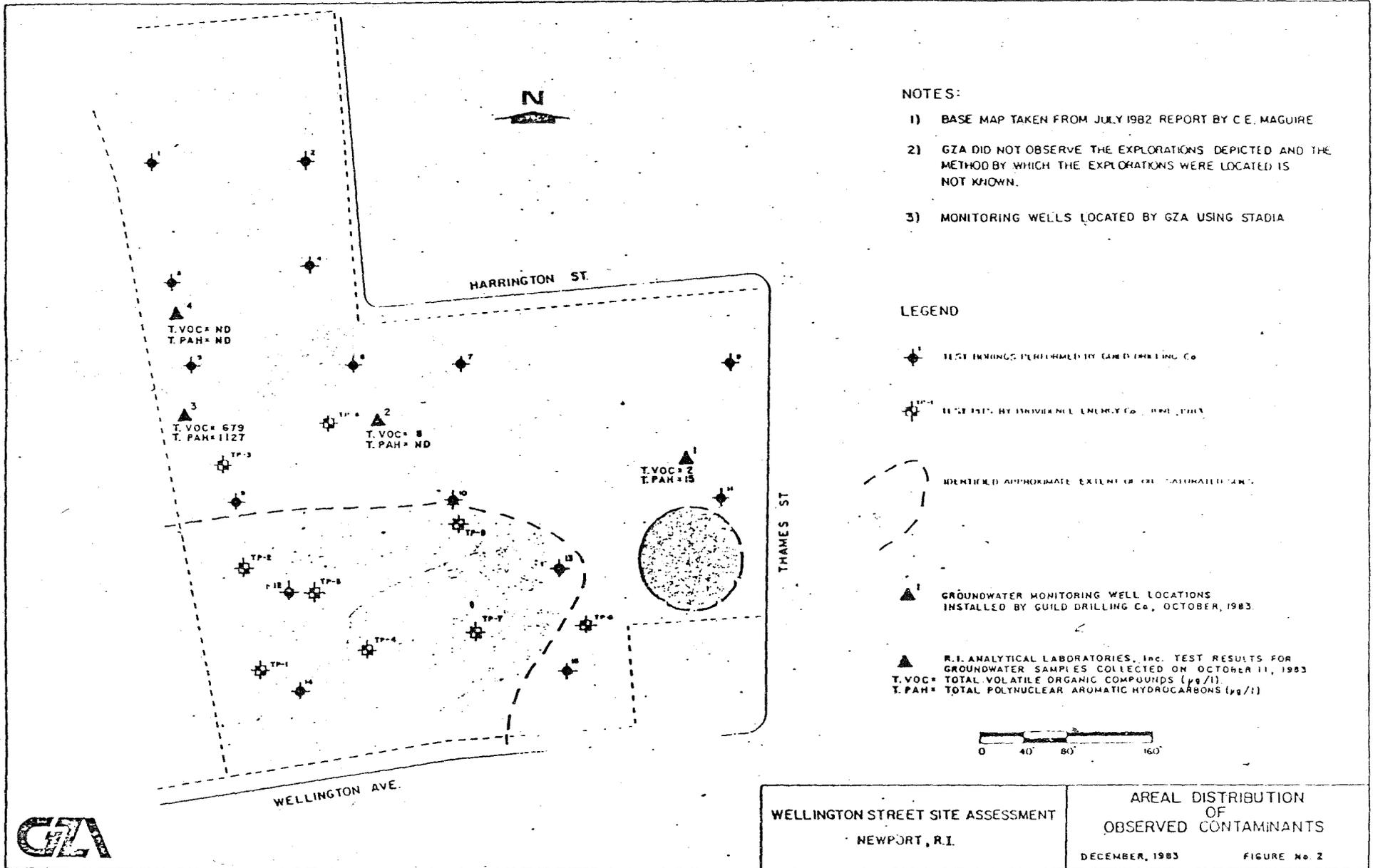
The highest reading recorded yesterday was one part per million, he said.

Although yesterday's work finished excavation for the second building, it may not be the last excavation at the site. Old maps of the area show another, even larger chemical tank on the site. Plans have been altered to avoid any construction at that tank, which could extend under a portion of McAllister Street, Ullucci said.

But DEM has been discussing with the property owners, Newport Quays One, the possibility of removing the contaminated soil completely from the site, Hartley said.



FILE NO P-5333



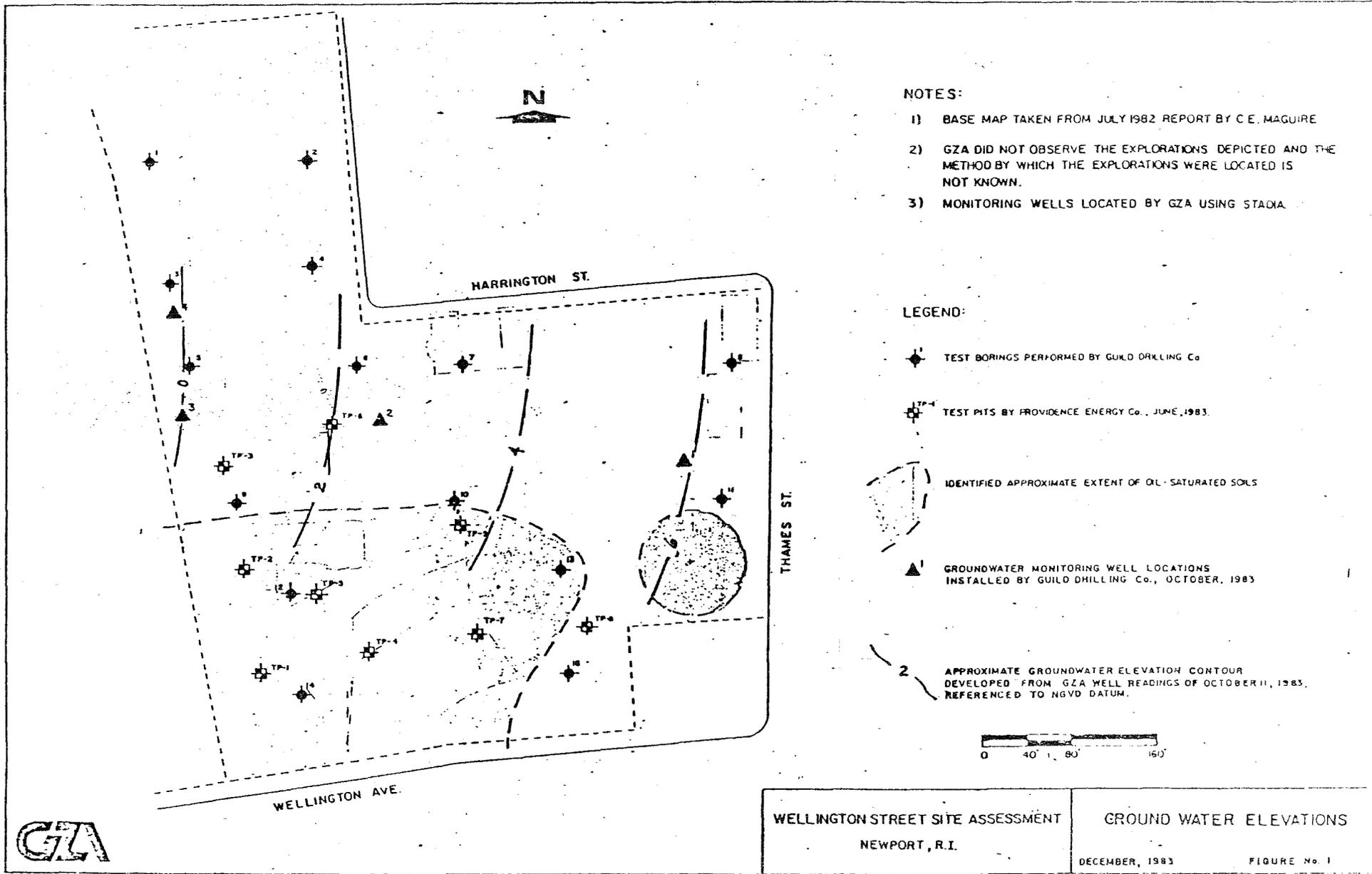
WELLINGTON STREET SITE ASSESSMENT  
 NEWPORT, R.I.

AREAL DISTRIBUTION  
 OF  
 OBSERVED CONTAMINANTS  
 DECEMBER, 1983      FIGURE No. 2

from Wellington Street Site  
 Newport, Rhode Island  
 Field Studies  
 Reported by GZA Dec '83

APPENDIX A

FILE NO. P-5335



From: Wellington Street Site  
Newport, Rhode Island  
Field Studies

Providence Gas #1

Newport, R.I.

## GB Area

The GB areas were delineated based on Fig. 2 of the Wellington Street report by BZA. These two sites represent a plume (SW corner of property) and the location of a gas tank and they outline the extent of the oil-saturated soils. One well, No. 12, within the plume has shown very high concentrations of benzene ( $\sim 31,000$  ppb). Although most of this soil was excavated, there is still some questions as to "how clean" this site is presently. In the consent agreement between <sup>Bay Front Real Estate Co.</sup> (Mallory Realty) and JDM, there is not mention of clean-up of the site to drinking water standards, the concern was on the contaminated soil whether it was hazardous or solid waste. Also, groundwater analyses of three wells (~~VOC's and PHA's~~) from September 1987 (RIAL) indicate the presence of VOC's and PHA's was detected (one of the wells had  $\sim 600$  ppb of benzene). Therefore, the plume and the gas tank site were used for the delineation of the GB areas based on this information.

**SAI**

SZEPATOWSKI ASSOCIATES INC. ENVIRONMENTAL CONSULTANTS & PLANNERS

**SAI**

*file*

July 7, 1988

Mrs. Beverly Migliorri  
Rhode Island Department of  
Environmental Management  
Division of Air & Hazardous Materials  
291 Promenade Street  
Providence, Rhode Island 02908

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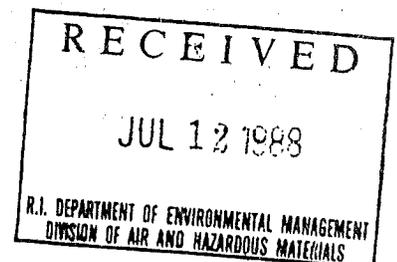
Please call me if you have any questions.

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SZEPATOWSKI ASSOCIATES INC.

*Barbara*  
Barbara A. Szepatowski  
President/Principal Engineer

BS/mt

cc: Jonathen Barres



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An environmental property audit was conducted of the Newport Electric Corporation Property (Plat 32, Lots 76, 76-4, 77, 256, 260) located on Thames Street, Newport, Rhode Island by Szepatowski Associates, Inc. (SAI) during February, March and April 1988. The audit was completed for the Sullivan Organization, 580 Thames Street, Newport, Rhode Island. Figure 1 shows the location of the property under consideration.

The purpose of SAI's audit was to determine the property's state of environmental compliance and health for the purchase of the property and to satisfy the bank's requirements for a mortgage closing.

The audit examined past and present compliance with air and water quality, underground storage tanks, PCB's, hazardous waste, and asbestos regulations to determine any liabilities which may exist for the bank or the new property owners. SAI also investigated whether freshwater wetlands or any endangered plants exist on the site.

Any unknown factors or information not located during the inspections of the property and research of existing Federal, State, County or City records or hidden by past or present owners could not be used as deciding factors in the judgement of the environmental health of the premises. This report discusses all of the findings of the environmental investigation. The results of this environmental audit are determined to be accurate and complete to the best of the author's professional knowledge.

Due to tidal fluctuations, SAI does not consider the concentrations of the volatiles or the small amounts of asbestos to be extremely hazardous for the property's intended use. Water supply to the property is public and therefore drinking water standards do not apply. SAI spoke with staff of DEM's Air and Hazardous Materials Division concerning the site. Although DEM will not require a cleanup of the site, SAI recommends the removal and disposal of the following areas of asbestos, soil and concrete to prevent future liability problems:

- all of the asbestos in the buildings
- transformer pads in the contaminated area
- approximately 2,000 square feet of soil immediately surrounding the transformer pads to a depth of one (1) foot
- and 175 square feet of the soil around the pump house to a depth of three (3) feet. Since no serious levels of contaminants were detected in the monitoring wells, the depth of soil removal should not exceed three (3) feet. The soil areas should be backfilled with clean material.

One additional non-regulatory problem should be noted for the site; the upper floor of the main building and the tower staircase have large amounts of pigeon waste. This material has been found to be high in bacteria and extremely dangerous to humans. Cleanup and decontamination of these areas should be completed only with the use of protective equipment. Anyone entering these areas should use extreme caution and follow "good personal hygiene" after leaving these areas until this waste can be removed.

TABLE 3

## SAI SAMPLE ANALYSIS RESULTS

## Results of Monitoring Well Samples

VOLATILE ORGANIC	Limit	MW1	MW2	MW3	MW4	MW6
1,1,1-Trichloroethane	200ppb	ND	ND	ND	ND	1ppb
Ethylbenzene	NL	ND	ND	4ppb	ND	ND
Tetrachloroethylene	NL	ND	2ppb	3ppb	ND	ND
Toluene	NL	ND	9ppb	3ppb	ND	ND
Xylenes	NL	ND	55ppb	16ppb	ND	ND
PCB's	1ppb	<1ppb	<1ppb	<1ppb	<1ppb	<1ppb

The detection limit for all of the chemical constituents is 1 ppb.

The limits are those specified by the Drinking Water Standards.  
NL indicates no upper limit.

## Results of Soil Samples

VOLATILE ORGANIC	SS1*	SS2*	SS3*	S4*
Methyl Chloride	ND	380 ppb	ND	560 ppb
Tetrachloroethylene	ND	120 ppb	ND	140 ppb
Chlorobenzene	ND	ND	320 ppb	ND
Toluene	ND	ND	ND	160 ppb
Xylenes	150 ppb	ND	ND	610 ppb
Chloroform	ND	430 ppb	ND	540 ppb
Aroclor 1260 (PCB)	ND	ND	1 ppm	1 ppm
Oil and Grease	4,490 ppm			
pH		5.6		
Acidity		228 ppm		

Acidity calculated as CaCo3

## Location of soil samples:

- SS1 - Between oil tanks
- SS2 - Near old hydrochloric acid tank
- SS3 - Soil near transformer pad
- SS4 - Concrete from transformer pad

## FIRE

Other than the major fire which occurred in 1860, the local fire department had no record of recent fire activity at the site. The site does not appear to have any fire damage.

## RHODE ISLAND HAZARDOUS SUBSTANCE LAW

In July of 1983, the Rhode Island "Right to Know" Law (83-H-5104A) became effective. In May of 1986, a Federal Right to Know Law, The Hazardous Communication Standard, 29 CFR 1910.1200, went into effect. These laws require that employers provide their employees with information concerning the chemical makeup and health effects of "designated substances" in their work place.

The buildings on the site are presently unoccupied so the site does not fall under this regulation. No past violations of either the Federal or State Right to Know laws were noted in the files of Rhode Island Department of Labor for Newport Electric.

## PCB TRANSFORMERS AND CAPACITORS

No PCB transformers or capacitors were found on the site or in the buildings. A phone conversation with Ed Gosling of Newport Electric confirmed that none of the utility poles on the property have PCB transformers or capacitors. Appendix C contains a copy of the call report to Ed Gosling.



# R.I. Analytical Laboratories, Inc.

SPECIALIZING IN ENVIRONMENTAL ANALYSIS

231 ELM STREET  
WARWICK, R. I. 02888

## CERTIFICATE OF ANALYSIS

PHONE: (401) 467-2452

REPORT TO: Szepatowski Associates, Inc.

DATE RECEIVED 4/18/88

Attn: Barbara Szepatowski

DATE REPORTED 4/21/88

23 Narragansett Avenue

PURCHASE ORDER NO. \_\_\_\_\_

Jamestown, RI 02835

R.I.A.L. INV. NO. H2525

SAMPLE DESCRIPTION Twelve (12) samples labelled Newport Electric, Thames Street,  
Newport, RI

Subject samples have been analyzed by our laboratory with the attached results.

Methodology: Test Methods for Evaluating Solid Waste, Physical/  
Chemical Methods, U.S. EPA, SW-846, September 1986,  
Third edition.

Guidelines Establishing Testing Procedures For The  
Analysis of Pollutants, 40CFR, Part 136, July 1986.

NIOSH Manual of Analytical Methods, U.S. Department  
of Health and Human Services, 3rd., February 1984,  
Method 7400 - Counting Rule A.

If you have any questions regarding this work or if we may be of further assistance, please contact us.

page 1 of 5

APPROVED BY \_\_\_\_\_

  
Anthony E. Perrotti

# Certificate of Analysis

Szepatowski Associates, Inc  
 Date Received: April 18, 1988  
 Date Reported: April 21, 1988  
 Number H2525  
 page 2 of 5

PARAMETER	MW #1	MW #2	MW #3	MW #4	MW #6	SS #1
pH	---	---	---	---	---	---
Acidity	---	---	---	---	---	---
Oil & Grease	---	---	---	---	---	4,490
Volatile Organic Compounds:						
methylene chloride	ND	ND	ND	ND	ND	ND
chloroform	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	ND	ND	1 ppb	ND
tetrachloroethylene	ND	2 ppb	3 ppb	ND	ND	ND
chlorobenzene	ND	ND	ND	ND	ND	ND
toluene	ND	9 "	3 "	ND	ND	ND
ethylbenzene	ND	ND	4 "	ND	ND	ND
xylene	ND	55 "	16 "	ND	ND	150
Polychlorinated Biphenyls:						
Aroclor 1260	---	---	---	---	---	---

PCB Detection Limit: 1 ppm

Note: A list of volatile organic compounds tested for and their detection limits is attached.

RI ANALYTICAL LABORATORIES, INC.

**Certificate of Analysis**

Szepatowski Associates, Inc  
 Date Received: April 18, 1988  
 Date Reported: April 21, 1988  
 Number H2525  
 page 3 of 5

PARAMETER	SS #2	SS #3	S-1	S-2	S-3	S-4
pH	5.6 SU	----	----	----	----	----
Acidity	228 ppm	----	----	----	----	----
Dil & Grease	----	----	----	----	----	----
Volatile Organic Compounds:						
methylene chloride	380 ppb	ND	----	----	----	560 ppb
chloroform	430 "	ND	----	----	----	540 "
1,1,1-trichloroethane	ND	ND	----	----	----	ND
tetrachloroethylene	120 "	140 ppb	----	----	----	ND
chlorobenzene	ND	320 "	----	----	----	ND
toluene	ND	ND	----	----	----	160 "
ethylbenzene	ND	ND	----	----	----	ND
xylene	ND	ND	----	----	----	610 "
Polychlorinated Biphenyls:						
Aroclor 1260	----	1 ppm	----	----	----	1 ppm
PCB Detection Limit: 1 ppm						

Note: A list of volatile organic compounds tested for and their detection limits is attached.

RI ANALYTICAL LABORATORIES, INC.

Certificate of Analysis

Szepatowski Associates, Inc  
Date Received: April 18, 1988  
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page 4 of 5

PRIORITY VOLATILE ORGANIC COMPOUNDS

benzene  
bromoform  
bromomethane  
carbon tetrachloride  
chlorobenzene  
chloromethane  
dibromochloromethane  
chloroethane  
2-chloroethylvinyl ether  
chloroform  
bromodichloromethane  
dichlorobenzenes  
1,1-dichloroethylene  
1,1-dichloroethane  
1,2-dichloroethane  
1,2-dichloropropane  
1,3-dichloropropene (cis & trans)  
dichlorodifluoromethane  
ethylbenzene  
methylene chloride  
1,1,2,2-tetrachloroethane  
tetrachloroethylene  
toluene  
trans-1,2-dichloroethylene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
trichloroethylene  
trichlorofluoromethane  
vinyl chloride  
xylenes

WATER  
SAMPLE

SOIL  
SAMPLE

Detection Limit:

1 ppb

100 ppm

RI ANALYTICAL LABORATORIES, INC.