

In Response To The Future

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SITE REMEDIATION

PROPOSED REMEDY

**Waites Wharf
Newport, Rhode Island**

7/6/94

Prepared For:

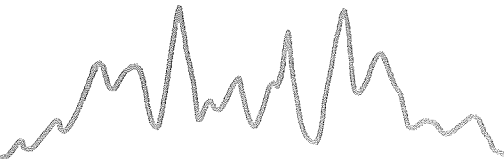
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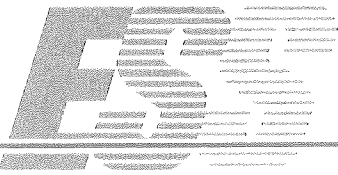


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1.00 INTRODUCTION

At the request of Richard P. Bennett of Licht and Semonoff, **Environmental Science Services (ESS)** has prepared this plan discussing the proposed remedy for the contamination identified on the property known as Waites Wharf, Newport, Rhode Island. The property is currently owned by Newport Coastal Partners; however, the owners have filed for bankruptcy under Chapter 11. Tenant leases on the property are currently under the receivership of Thomas S. Hemmendinger, Esq. of the law firm of Salter, McGowan, Swartz, and Holden.

The purpose of this document can be summarized in the following manner:

- (1) to facilitate a Consent Agreement between the RI Department of Environmental Management and People's Bank concerning the remediation and future sale of the property;
- (2) to provide a plan for the remediation of the property which:
 - is cost-effective
 - is protective of human health and the environment
 - allows for the sale of the property to a prospective buyer
 - allows for future development of the property

2.00 SUMMARY OF PREVIOUS SITE INVESTIGATIONS

2.10 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. Utilities available to the site include public water and sewers, electricity, and natural gas.

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

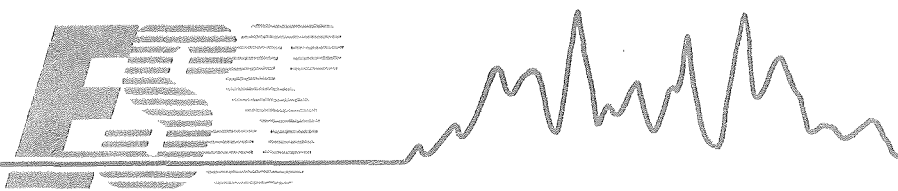
Lot 268 has a total area of approximately 31,900 square feet. Three buildings occupy the property, including the Deck Restaurant, a building used for storage of restaurant supplies, and the Moy Works building.

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.

2.20 Project Background

Environmental Science Services has reviewed the existing data concerning the property known as Waites Wharf. The site has been investigated extensively since 1991 by both TRC Environmental Consultants and Triangle Environmental. Triangle Environmental has described the previous work conducted on the site in a document entitled "Site Investigation Report" dated May 28, 1993. 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.

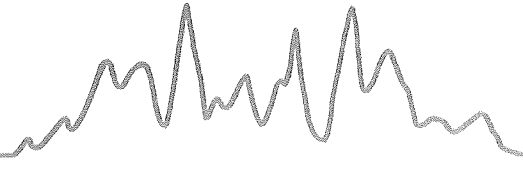
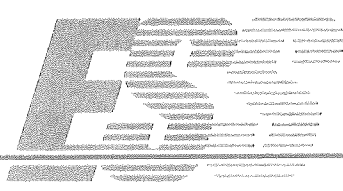
- (2) Two underground storage tanks (USTs) have been identified and located on the project site. These include one waste oil UST of between 1,000 and 4,000 gallons which is at the center of Lot 155, and one 275 gallon #2 heating oil tank on the West side of the Moy Works building. Two 5,000 gallon USTs and one UST of unknown size were reported to have been abandoned on or removed from the property. The existence and location of these tanks has not as yet been verified.

Subsurface investigations were conducted by TRC Environmental Consultants 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 the Remedial Investigation Report.

The monitoring well elevations were surveyed by TRC to allow for the determination of groundwater flow direction. It was determined initially that groundwater flow was in a West/Southwesterly direction. (NOTE: There is some confusion as to the direction of groundwater flow. Triangle Environmental's report indicates that groundwater flows in a Northwesterly direction. Please see the discussion below).

Soil and groundwater samples were collected and analyzed for total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs). Test results revealed the





presence of elevated TPH and VOC concentrations on the Southeastern portion of the site.

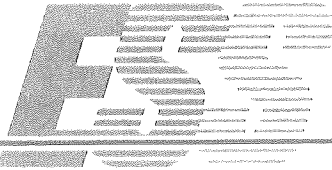
Based on the findings of the initial investigation, a second, more extensive subsurface investigation was conducted by TRC at the project site. The purpose of the additional investigation was to better define the areal extent of the contamination found in the initial study. The scope of work for the 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 (RW-1 through RW-3), 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 the Triangle Environmental Remedial Investigation Report.

During this second investigation by TRC, the elevations of the monitoring wells were surveyed to aid in the determination of groundwater flow direction. It was determined during this study that the groundwater flow was in a Southeasterly direction. Assuming that the TRC data is accurate, the difference in groundwater flow direction may have been due to tidal and/or seasonal fluctuations related to the proximity of the site to Newport Harbor.

TRC conducted an electromagnetic survey to determine the location and orientation of the waste oil UST. The location of the UST is depicted on the site plan in Appendix A.

The results of the TRC soil gas survey indicated high total organic vapor concentrations in the soils on the Southeast and Southwest corners of the site. The results of the soil sample analyses indicated elevated TPH and VOC levels in soils on the Southern half of the site. Two soil samples from the location of the UST in the center of Lot 155 (the waste oil UST) were found to contain lead levels in excess of the Toxicity Characteristic





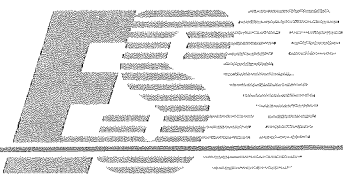
level of 5.0 mg/l. Polynuclear aromatic hydrocarbons were also identified in samples from SB-15, a boring on the Southwestern side of Lot 268.

During the second phase of the TRC investigation, 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. Low levels of aromatic hydrocarbons (benzene, toluene, ethylbenzene, and xylenes or BTEX) were found in RW-3 and MW-1. 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).

Based on a review of the existing data for the site, Triangle Environmental made the following conclusions concerning the environmental condition of the project site in the Site Investigation Report:

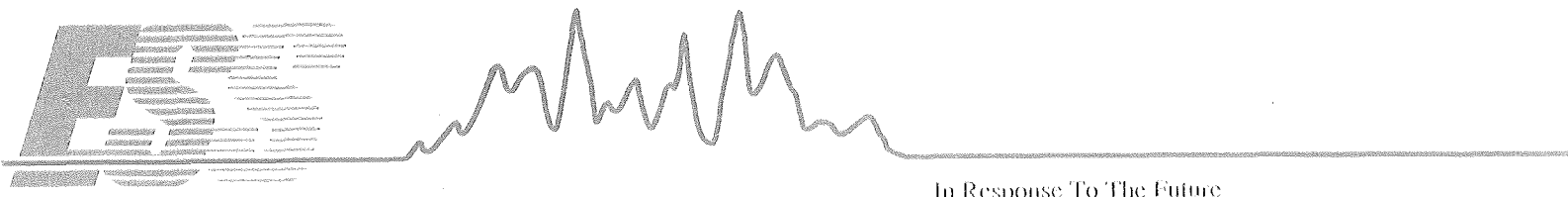
- (1) The project site has been impacted by a release of a petroleum-type material. Contaminants significant to the project site include petroleum hydrocarbons, volatile organic compounds, polynuclear aromatic hydrocarbons, and lead. However, it was not clear at the time what, if any, remediation of these contaminants would be required by the RIDEM.
- (2) The majority of the contamination at the project site is located in the Southeast 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 Southwest 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. This RIDEM has a spill report on file, which suggests that they had full knowledge of its existence since 1984.
- (5) The direction of groundwater flow may vary according to tidal cycle and seasonal fluctuations.
- (6) It was the opinion of Triangle Environmental that tidal fluctuations may provide a flushing mechanism for 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 275 gallon heating oil tank is currently in use, but has most likely exceeded its life expectancy and should be removed. The second tank is a waste oil UST which is currently not in use. The origin of the waste oil has not been determined; however, it is expected that the waste oil is from the maintenance of boats on the waterfront in the past. Triangle personnel measured the depth of the





tank to be 64". Based on this measurement, the capacity of the tank was estimated to be between 1,000 - 4,000 gallons, and the amount of product remaining in the tank is estimated to be 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 significant levels of

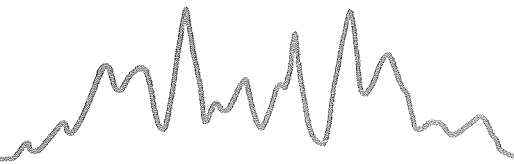
PCBs, chlorinated solvents or leachable (TCLP) lead present. Although there is no evidence to suggest that either of these tanks may be leaking, the steel construction of the tank, coupled with the age of the tank and the saline condition of the groundwater, suggests that these tanks should be removed.

- (8) 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.

- (9) 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.

Triangle Environmental recommended further investigation to determine the extent of the contamination at the site, to be followed by the preparation of a remedial action plan for submittal to the RIDEM for approval. Triangle Environmental conducted a Remedial

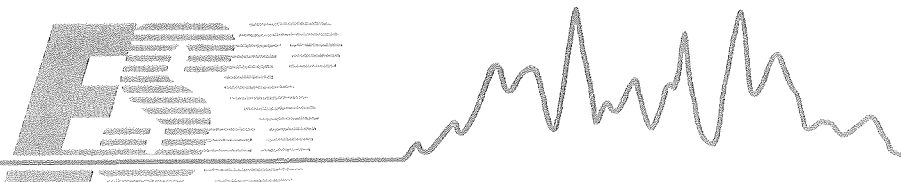




Investigation of the property in April, 1994. The following is a summary of the findings recorded in the Remedial Investigation Report:

- (1) Soils at the site have been impacted by petroleum residuals. Total petroleum hydrocarbons were found in the soils at concentrations ranging from a low of <31.8 to a high concentration of 9,850 mg/kg in Boring SB-03. Between the TRC and Triangle investigations, 42 borings were advanced in which samples were collected for total petroleum hydrocarbons. Out of 55 samples analyzed for TPH, nine had concentrations greater than 1,000 mg/kg, eleven had concentrations between 500 and 1,000 mg/kg, and thirty-four (34) had concentrations less than 500 mg/kg.
- (2) Low levels of benzene, toluene, ethylbenzene, and xylenes (collectively known as total BTEX), ranging from <1 - 34 ppm were found in samples collected from eleven borings by Triangle Environmental. Benzene was not identified in any of the soil samples collected by Triangle Environmental. The most elevated concentrations were found in SB-07, where the concentrations of ethylbenzene and xylenes were 14 and 20 mg/kg, respectively.
- (3) Polynuclear aromatic hydrocarbons (PNAs) were found in soil samples from nine borings by Triangle Environmental. The most elevated PNA levels were found in SB-36, where the concentration of the individual compounds ranged from 11 - 36 mg/kg.
- (4) Three soil samples collected in close proximity to the waste oil UST were found to have TCLP lead levels close to or in exceedance of the Toxicity Characteristic level of 5.0 mg/l. The total lead concentrations in soils surrounding the tank ranged from 411 -1,994 mg/kg. It is expected that background levels of total

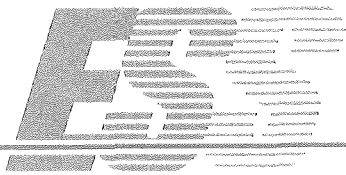




lead in soil on the Newport waterfront will be elevated due to the historical use of these properties for shipbuilding and repair.

- (5) Based on jar headspace total organic vapor data, elevated soil vapor concentrations were found in soils throughout Lot 268, in the roadway of Lot 155, and surrounding the 5,000 gallon waste oil UST on Lot 155. The highest concentration reported was 1,297 ppm from a depth of 8-10 feet below grade in SB-4. SB-4 is located within 5 feet of the waste oil UST.
- (6) The heaviest lead and petroleum contamination in soil was found at depths ranging from 4-12 feet below surface elevation.
- (7) Groundwater samples from nine wells indicated that the groundwater has been impacted in isolated areas by dissolved petroleum residuals. Elevated total petroleum hydrocarbons levels were reported in TW-3, TW-4, and TW-5, where the concentrations ranged from 33.7 - 97.9 mg/l. However, the concentrations of BTEX and PNAs reported in the groundwater from all nine wells were either very low or non-detectable. Total BTEX levels in groundwater ranged from $< 1 - 23 \mu\text{g/l}$. PNAs were only identified in monitoring well TW-5, where the concentrations of naphthalene and phenanthrene were 110 and 21 $\mu\text{g/l}$, respectively.
- (8) The concentration of total lead in the nine groundwater samples collected ranged from $< 0.04 - 14.0 \text{ mg/l}$. The highest concentrations were found in TW-1. Monitoring wells TW-3, TW-4, and TW-5 were selected for soluble lead analysis, as these samples were visually identified as the most turbid and containing the most petroleum contamination. The level of soluble lead ranged from 0.06 - 0.71 mg/l.





- (9) At the time of the Triangle investigation, groundwater was determined to flow in a Northwesterly direction during both the low and high tides. The depth to groundwater ranged from 4-6 feet.

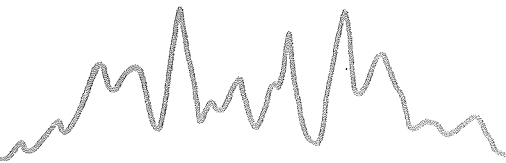
It was the opinion of Triangle Environmental that there are at least three possible sources of the contamination encountered at the site. These are:

- (1) historical releases associated with the use of the property as an oil terminal prior to 1987, including a 10,000 gallon fuel oil release in 1984 which was reported to and monitored by the RIDEM;
- (2) the waste oil UST at the center of the parking lot, and the 275 gallon fuel oil UST on the West side of the Moy Works building; or,
- (3) a combination of the above releases.

If the direction of groundwater flow is predominantly to the Northwest, as determined by Triangle Environmental, then the bulk of the contamination at the site may be due to historical releases on Lot 268. The contamination may be as a result of the 10,000 gallon petroleum release in 1984. Assuming a Northwesterly groundwater flow direction, it appears, based on the data collected at the site, that a contamination plume may have migrated as far North as the waste oil UST, and as far West as the property boundary.

If the direction of groundwater flow is predominantly to the Southeast/Southwest, as determined by TRC Environmental Consultants, then a large portion of the contamination at the site may be due to a leaking waste oil UST at the center of the site. Assuming a Southwesterly flow direction, a plume from the UST may have migrated as far as the





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Southwest corner of the site. However, it should be reiterated that there is not tightness testing data on the tank to confirm that it is leaking.

In the Southeast corner of the site, soil vapors in excess of 50 ppm were found just below surface elevation in the 0-2 foot samples. In the South-central and Southeast corners of the site, and in the location the waste oil UST, elevated soil vapor concentrations were, in general, found below four feet of depth. This distribution pattern suggests that there may have been a surficial petroleum release in the Southeast corner of the site which migrated to the North and West toward Narragansett Bay in the direction of the groundwater flow determined by Triangle Environmental.

Petroleum hydrocarbons are found in soils across the entire length of Lot 268, which is the Southernmost parcel. The heaviest concentrations of total petroleum hydrocarbons were found in SB-26, SB-28, and SB-35 in the Southeast corner of the site, and in SB-23 located near the center of the parcel.

Petroleum hydrocarbons in soils on Lot 155 are limited to the roadway, and the soils adjacent to and South of the waste oil UST. The heaviest concentrations of total petroleum hydrocarbons on Lot 155 were found in MW-3 and SB-12. The soil sample analyzed from SB-12 was from the 0.5-2 foot interval, suggesting that there may have been a surficial spill in this area at some time in the past. This is supported by the fact that the 0.5-2 foot sample had a total organic vapor concentration of 47.7 ppm, with the remaining samples from that boring having a total organic vapor concentration of < 15 ppm.

Low concentrations of BTEX and PNAs were found in soil samples from both parcels. The highest levels were recorded in the Southeast corner of the site.





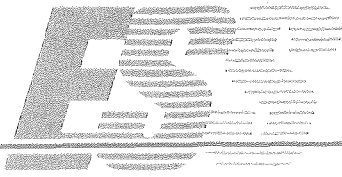
Based on visual observations made at the site, the vertical distribution of petroleum residuals is similar to that described for soil vapors previously.

Dissolved petroleum hydrocarbons were found in the locations of TW-3, TW-4, and TW-5. However, the concentrations of BTEX and PNAs in the groundwater across the site were either very low or non-detectable. This suggests the following:

- (1) BTEX compounds have volatilized, and are presently found in the vapor phase, as witnessed by the wide distribution of elevated total organic vapor concentrations found across the site by Triangle Environmental;
- (2) PNAs and other heavy petroleum fractions are most likely adsorbing onto soils instead of leaching into the groundwater, thus resulting in elevated soil TPH levels at or below the water table;
- (3) BTEX and PNAs may have been flushed into Narragansett Bay as a result of tidal action, storms, and so on, leaving behind those petroleum fractions which readily adsorb onto soil.

Earlier data reported by TRC indicates that dissolved petroleum hydrocarbons were also found in groundwater in the Southeast corner of the site. Triangle Environmental could not locate MW-1 and RW-3 to verify those results; however, the concentration of petroleum residuals in the soil on the Southeast corner of the site suggests that the TRC data was accurate.

It should be reiterated that Triangle Environmental found no layers of floating petroleum product in any of the wells installed at the site. Discontinuous sheen and very small droplets of oil were encountered in TW-3, TW-4, and TW-5.



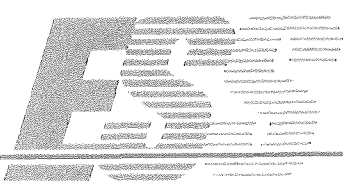
Triangle Environmental reported that petroleum contaminant migration may have been influenced by the utility lines which are located in the roadway which separates Lot 155 from Lot 268. Contaminants may have migrated along these utilities in the direction of the Western property boundary.

Soils which exhibit the Toxicity characteristic for lead appear to be isolated to an area immediately adjacent to the waste oil UST and below the water table. Triangle Environmental suggests that the leachable lead may be a component of a petroleum product which may have been released from the waste oil UST in the past. If the leachable lead is associated with a petroleum matrix, this may result in a slower dissolution rate despite being below the water table.

It should be noted that the current contents of the tank do not exhibit the Toxicity characteristic for lead. The presence of leachable lead in the soil may be accounted for in the following manner:

- (1) Historically, the contents of the tank may have contained lead. These materials may have been released from the tank in the past; or
- (2) If there has been a release from the tank, then the lead may have already leached out of the material currently in the tank.
- (3) Historical sources of lead which were associated with the use of the waterfront for shipping, boat repair, and the importation of fill materials.

The levels of total and soluble lead in the groundwater downgradient of the waste oil UST, and throughout the remainder of the site, do not represent significant levels of contamination for a commercial or industrial property. Based on the low levels of lead



found in the groundwater at the site, and the depth at which the contaminated soil occurs, it was the conclusion of Triangle Environmental that the leachable lead associated with the soils adjacent to the waste oil UST are not a significant threat to human health and the environment at this time.

3.00 QUALITATIVE RISK ANALYSIS

One of the primary goals of this plan is to provide for remediation which is protective of human health and the environment. Based on our review of the existing data, the previous records investigations made by TRC and Triangle Environmental, and visual observations made at the site, Environmental Science Services has conducted a qualitative analysis of the risk to human health and the environment for current and foreseeable future uses of the property. This section of the plan discusses the findings of the risk analysis. For the purpose of this discussion, the current and future uses of this property are both commercial. The planned future use of the property is a marina.

3.10 Potential Contaminant Migration Pathways

Contaminants at the site have been found in the vapor phase, dissolved phase, and adsorbed phase. Only minor amounts of non-aqueous phase liquids (NAPL), observed as a sheen or small oil droplets in soil and groundwater samples, have been identified at the site. Dissolved phase contaminants, while present in some areas of the site, have only been found in low concentrations. The most significant concentrations of contaminants have been found in the vapor and adsorbed phases.

Polynuclear aromatic hydrocarbons and other petroleum fractions with high molecular weights are more likely to be found in the adsorbed phase at the site. These compounds





are not particularly mobile in the environment, have a very slow dissolution or leaching rate, are not likely to volatilize, and may be biodegradable over time.

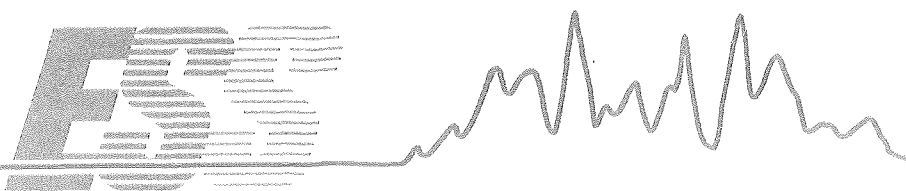
Benzene, toluene, ethylbenzene, and xylenes (BTEX) are lighter weight fractions of petroleum that are generally more mobile in the environment, have a greater volatilization potential, and have a greater dissolution rate in groundwater. The presence of elevated total organic vapors and the absence of elevated concentrations of dissolved BTEX in the groundwater suggest that the most likely migration pathway for these contaminants at the site is volatilization. Due to the absence of basements and other confined spaces in the area, this exposure due to this migration pathway is not expected to be significant.

3.20 Potential Exposure Points

The highest concentrations of adsorbed phase contaminants are found at a depth of 4-12 feet below surface elevation. The low or non-detectable levels of contaminants found in the top six inches of soil are not expected to pose a significant health risk via dermal contact, incidental ingestion, and inhalation of contaminated particulates. The dissolution of these materials is expected to be at a rate which does not pose a serious threat to further groundwater degradation at the site.

The data presented by Triangle Environmental concerning soil vapor concentrations indicates that the highest soil vapor concentrations are found at a depth of 4-10 feet below surface elevations in most areas of the site. Volatile organic vapors released from the soil to the atmosphere are expected to be diluted to a concentration which does not represent a significant exposure risk to human health via inhalation. The presence of a high water table and tidal influences in the area of the project site is not conducive to the construction of basements in the area, where volatile organic vapors can sometimes





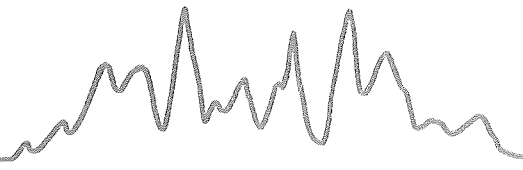
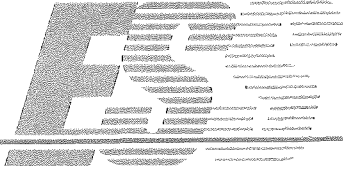
accumulate at harmful levels. Therefore, exposure via inhalation of harmful vapors is not expected to be significant.

Potential exposures to contaminated soil and groundwater could occur during future site development. However, because of the high water table, the influence of tidal fluctuations on subsurface structures, and the effect of a saline environment on construction materials, it is highly unlikely that significant disturbance or excavation of site soils will occur during future site development. The existing buildings are of a slab-on-grade type of construction, and it is expected that future site construction will be of a similar nature. Pile driving activities and/or footing excavations may result in minor disturbance of contaminated soil and brief exposures to construction workers.

Exposures to contaminated groundwater via ingestion are not expected to be significant. The groundwater in the area of the site is classified as Class GB which is unsuitable for use as drinking water. It is expected that the groundwater will remain unsuitable as a drinking water resource for current and future uses of the property.

As public water is available for bathing and cooking, exposure to contaminated groundwater via dermal contact, inhalation of volatilized organic compounds, and incidental ingestion is not expected to occur.

Contaminated groundwater and sediment particles may migrate into Newport Harbor via tidal flushing, groundwater movement, flooding, and other pathways. The concentration of any contaminant migrating into Newport Harbor is expected to be diluted to a concentration of less than the detection limit. Newport Harbor is classified as Class SC by the RIDEM Division of Water Resources. It is known to be in a degraded environmental condition. It is unlikely that the contribution of contaminants migrating into Newport Harbor from the site are significant when compared to the contribution of



contaminants from pleasure craft and commercial boats frequenting the harbor. Therefore, the migration of contaminants from the site is not expected to significantly impact aquatic life in Newport Harbor. The human consumption of contaminated fish and shellfish is also not expected to be a significant exposure route at the site. Shellfishing is currently banned in this area.

3.30 Potential Affects of Man-Made Features On Contaminant Migration

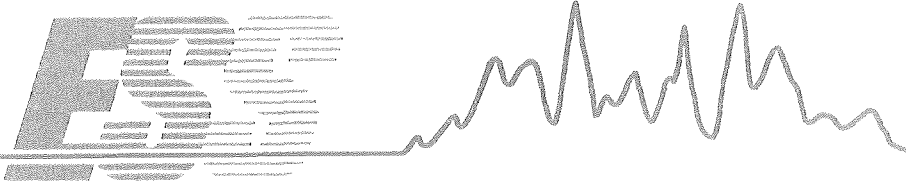
Vapor migration and direct exposures are limited across approximately 95% of Lot 155 and 50% of Lot 268 due to asphalt paving and buildings. The remainder of the two lots is either well vegetated or covered with crushed stone. Direct contact and airborne exposures are expected to be limited in these areas as discussed in Section 3.2.

The utility lines at the center of the road which divides the two lots may have influenced contaminant migration over time. It should also be noted that volatile organic vapors can accumulate in storm drains and sewer lines causing a potential fire and explosion risk.

3.40 Contaminant Levels On Nearby Sites

The Providence Energy Corporation (Providence Gas Company) operated a coal gasification plant on the property located approximately 300 feet south of the subject site until the late 1950's. Soil contaminated with coal tar residues was removed from the site during the construction of condominiums between 1985 and 1988. This work was conducted under a Consent Agreement with the RIDEM, which required that the level of "organic contaminants" in ambient air must be maintained at a concentration of less than 10 ppm. Any soil which, when disturbed, would cause an exceedance of this ambient air concentration, was required to be removed for off-site disposal.





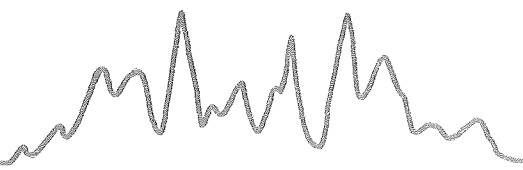
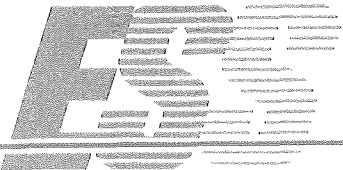
A Final Site Screening Inspection (SSI) was conducted at the Providence Gas site by the NUS Field Investigation Team for the US Environmental Protection Agency in 1989, after the completion of construction. The data reported in the SSI indicates that the soils at the site are still contaminated with polynuclear aromatic hydrocarbons (PNAs), total cyanides, and heavy metals. The highest concentrations of individual PNAs ranged from 4.4 - 45 mg/kg, and the concentrations of lead ranged from 21-177 ppm. Elevated levels of PNAs and heavy metals were also found in the off-site background sample collected during the SSI. NUS recommended that no further remedial action should be planned for the Providence Gas site. The levels remaining in the soils at the Providence Gas site are comparable to the concentrations of petroleum residuals in the soil on Waites Wharf.

4.00 PROPOSED REMEDY

After repeated discussions with the client and their legal counsel (Richard P. Bennett, Esq. of Licht and Semonoff), the involved parties came to a consensus on the proposed remedy. The remainder of the work plan describes how the proposed remedy will be implemented. The remedy is based on the qualitative risk analysis presented above which shows that the contamination at the site is not expected to present a significant risk to human health and the environment based on current and foreseeable future uses of the property.

The proposed remedy calls for the removal of actual and potential contamination sources. The source of the petroleum contamination is most likely the 1984 fuel oil spill or a leaking underground storage tank. The source of the lead has not as yet been determined, but is most likely historic in nature. To the extent that source removal was not already accomplished during the 1984 oil spill under supervision by the RIDEM, and by the removal of the former aboveground petroleum storage tanks, ESS would recommend removal of the existing USTs to insure that other possible sources have been eliminated from the site.





The proposed remedy for the site includes the following:

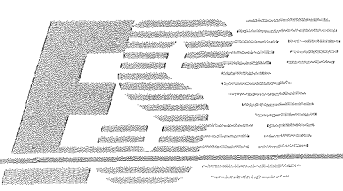
- (1) removal of the existing sources of contamination; i.e., the 275 gallon fuel oil UST and the waste oil UST;
- (2) removal, testing, and proper disposal of only those soils above the water table that are disturbed during the removal of the two USTs;
- (3) backfilling the tank excavations with clean fill;
- (4) removal of the two empty aboveground storage tanks located at the center of Lot 268;
- (5) natural attenuation, flushing, biodegradation, and dilution of soil and groundwater contaminants on the remainder of the site; and,
- (6) a deed restriction, the contents of which will be agreed to by the client and the RIDEM in the Consent Agreement.

5.00 WORK PLAN SUMMARY

The proposed remedy will be implemented in the manner described in this section of the remedial action plan.

Prior to the removal of the USTs, the tanks will be registered with the UST Section of the RIDEM Division of Waste Management. A closure application will also be filed with the UST section a minimum of ten days prior to the closure of the tanks. Verbal notice that the tank





closures are about to proceed will be given to the RIDEM and the City of Newport Fire Department within 72 hours of the date that the tanks will be removed.

Prior to the date of the tank removal, the tanks will have their contents pumped into tankers for transportation and disposal at a licensed facility.

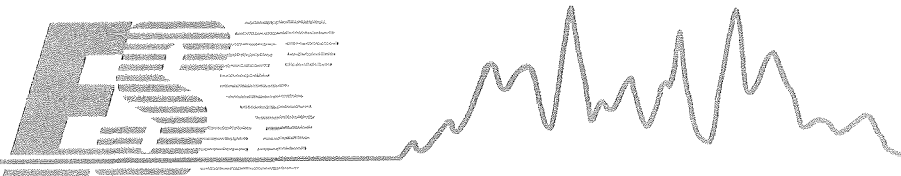
The tanks will be removed in accordance with RIDEM and API standards. The tanks will be cleaned on-site to remove any sludge remaining in the bottom of the tanks. These sludges will be drummed, tested, and disposed of in accordance with the RIDEM Rules and Regulations for Hazardous Waste Management. A hole will be cut in each tank in such a manner that the tank is no longer fit for use. The tanks will be transported off-site to a metals recycling facility in accordance with RIDEM and City of Newport Fire Department regulations.

During the excavation of each tank, a field engineer will document and photograph the tank removal process. Soils will be monitored visually and with a photoionization detector. At the completion of the tank removal process, a closure assessment will be prepared in accordance with the RIDEM UST regulations.

Only those soils disturbed in order to remove the tanks will be stockpiled for disposal. The field engineer will direct the remediation contractor to place the disturbed soils in a stockpile for disposal if:

- (1) the total organic vapor concentration of the soil exceeds 50 ppm when measured by the jar headspace analysis technique;
- (2) there is visual evidence, such as the presence of a sheen or soil discoloration due to the presence of petroleum, to suggest that the soil is contaminated; or
- (3) a distinct petroleum odor is evident.





which documents the actions taken to implement the proposed remedy, including, but not limited to: visual observations, field screening results, laboratory Certificates of Analysis, shipping papers, and disposal documentation.

6.00 LIMITATIONS

This report has been prepared under contract to Mr. Thomas Hemmendinger of Salter, McGowan, Swartz, and Holden, the receiver of leases and rentals. The report is for the exclusive use of Mr. Hemmendinger, Mr. Robert Alvine of People's Bank, and Mr. Richard Bennett of Licht and Semonoff. The work performed by ESS was authorized in our proposal to Mr. Hemmendinger dated May 9, 1994, and is subject to the terms and conditions stated in that proposal.

The information presented in this report is based solely upon the field observations, analytical results, and other information/documentation provided by People's Bank and Licht and Semonoff that was obtained from TRC Environmental Consultants and Triangle Environmental. ESS is not responsible for the accuracy or veracity of information provided by outside sources. No representation concerning records other than those described herein is expressed or implied.



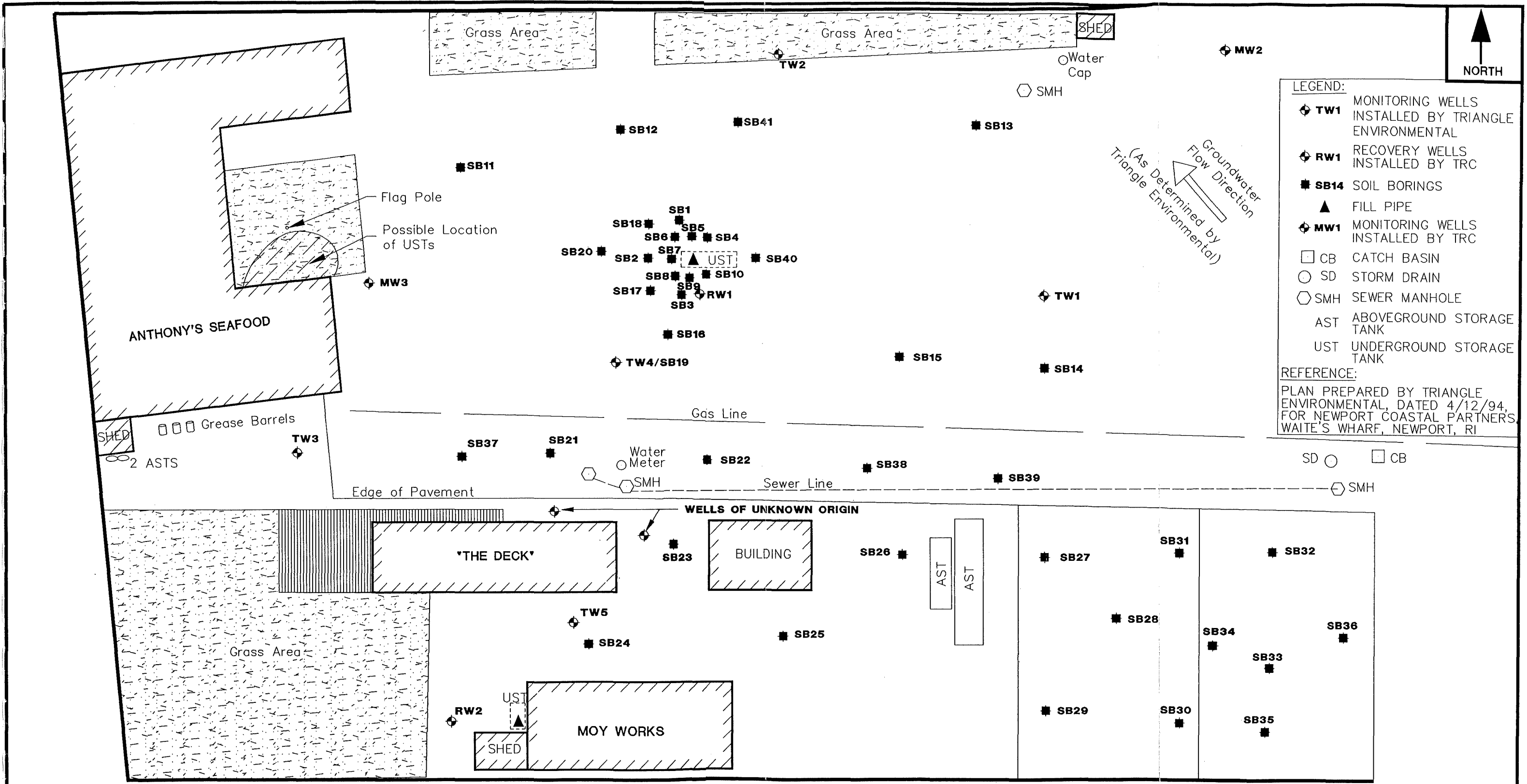


Figure 1:

Site Plan
Newport Coastal Partners
Waite's Wharf
Newport, Rhode Island

ENVIRONMENTAL SCIENTISTS, ENGINEERS, AND ANALYTICAL LABORATORY

ENVIRONMENTAL SCIENCE SERVICES

PROVIDENCE, RHODE ISLAND 02909 (401) 421-0398

SCALE: 1"=30' DATE: June, 1994