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July 25, 1994

Mr. Larry D. Coble
North Carolina Department of Environment,
Health, and Natural Resources
Division of Environmental Management
Ground Water Section
8025 North Point Boulevard
Suite 100
Winston-Salem, NC 27106-3203

**Re: Corrective Action Plan
Exxon Retail Location 4-3998
4701 West Market Street
Greensboro, North Carolina
Incident 10001**



Dear Mr. Coble:

On behalf of Exxon Company, U.S.A., and in response to a Notice of Violation issued to Exxon dated January 28, 1994, ERM-Southeast, Inc. respectfully submits a Corrective Action Plan for the above referenced site.

Exxon plans to remediate petroleum hydrocarbon affected ground water at the site utilizing soil vapor extraction/air sparging (SVE/AS) technology. SVE/AS was shown to be effective in removing petroleum hydrocarbon constituents from ground water at the site during a pilot test conducted on April 13, 1994. Exxon plans to implement the proposed SVE/AS system within 180 days following approval by the North Carolina Department of Environment, Health, and Natural Resources Division of Environmental Management.

Please call Mr. Frank Medlin of Exxon (704-529-4263) or myself if you have any questions concerning the enclosed Corrective Action Plan.

Sincerely,

ERM-SOUTHEAST, INC.



Jerry Prosser, P.G.
Project Manager

jp8:cx3998.dcm

Offices of
ERM-Southeast Inc. in:

Brentwood, TN (Nashville)
Kennesaw, GA (Atlanta)
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Mobile, AL
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Resources Management Group

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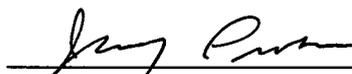
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Regional Office

**CORRECTIVE ACTION PLAN
EXXON RETAIL LOCATION #4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA**

INCIDENT #10001

*Exxon Company U.S.A.
P.O. Box 30451
Charlotte, NC 28230*

July 25, 1994



Jerry Prosser, P.G.
Geologist



Thomas M. Wilson, P.G.
Principal



ERM-Southeast
7300 Carmel Executive Park
Suite 200
Charlotte, NC 28226



DIVISION OF ENVIRONMENTAL MANAGEMENT
 CERTIFICATION FOR THE SUBMITTAL
 OF A CORRECTIVE ACTION PLAN

Responsible Party: Exxon Company, U.S.A.
 Address: P.O. Box 30451
 City: Charlotte, State: NC, Zip Code: 28230

Site Name: Exxon Retail Location 4-3998
 Address: 4701 W. Market St.
 City: Greensboro, State: NC, Zip Code: _____

I, Jerry Prosser, a Professional Engineer Licensed Geologist
 (circle one) for ERM-Southeast, Inc. do hereby certify that the
 information indicated below is enclosed as part of the requested Corrective Action Plan (CAP) and
 that to the best of my knowledge the data, site assessments, engineering plans and other associated
 materials are correct and accurate.

(Each item must be initialed by the certifying licensed professional)

- JP A listing of the names and addresses of those individuals meeting the notification requirements of 15A NCAC 2L are enclosed (if applicable).
 All None (Circle one) of the notification requirements contained in 15A NCAC 2L have been met. A list of any notification requirements not met is enclosed.
- JP A Professional Engineer or Licensed Geologist has prepared, reviewed, or certified all applicable parts of the CAP in accordance with 15A NCAC 2L .0103(e).
- JP A site assessment is attached which provides the information required by 15A NCAC 2L .0106(g).
- JP A description of the proposed corrective action and supporting justification is enclosed.
- JP Specific plans and engineering details for the restoration of groundwater quality are enclosed and propose the use of the best available technology for the restoration of groundwater quality to the levels of the groundwater standards prescribed in 15A NCAC 2L .0202..
- JP A schedule for the implementation and operation of the CAP is enclosed.
- JP A monitoring plan is enclosed which has the capacity to evaluate the effectiveness of the remedial activity and the movement of the contaminant plume, and which meets the requirements of 15A NCAC 2L .0110.
- JP The activity which resulted in the contamination incident is not permitted by the State as defined in 15A NCAC 2L .0106(e).

(Please Affix Seal and Signature)

Jerry Prosser



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1.0

INTRODUCTION

Exxon Retail Location 4-3998 is located at 4701 West Market Street in Greensboro, North Carolina. A site location map is provided in Figure 1. The site property is owned by Exxon Company, U.S.A. and is currently operating as a gasoline retail store and automobile service station. A site plan is provided in Figure 2.

According to Exxon internal records and the North Carolina Department of Environment, Health, and Natural Resources Division of Environmental Management (DEM) UST database, the following USTs have been, or are currently, located at the site.

<u>Product</u>	<u>Volume (gallons)</u>	<u>Installation Date</u>	<u>Closure Date</u>
Gasoline	6,000	4/19/71	9/91
Gasoline	6,000	4/19/71	9/91
Gasoline	6,000	4/19/71	9/91
Used Oil	1,000	4/19/71	9/91
Fuel Oil	550	4/19/71	9/91
Gasoline	12,000	10/93	Active
Gasoline	12,000	10/93	Active
Gasoline	12,000	10/93	Active
Used Oil	1,000	10/93	Active

DEM has assigned Ground Water Incident Number 10001 to the site due to the documented concentration of petroleum hydrocarbon constituents in ground water in excess of North Carolina ground water standards as stated in Title 15A of the North Carolina Administrative Code, Subchapter 2L, Section .0202. A list of the compounds exceeding 15A NCAC 2L .0202 ground water standards is provided in section 2.2.2 of this report. Ground water in the vicinity of the site has been classified as Class GA water, best used as a potable water source or a potential potable water source.

Although the former underground storage tanks (USTs) were potential on-site sources of the petroleum hydrocarbon compounds detected in ground water at the site, off-site sources are also present in the immediate vicinity of the site. According to the DEM Winston-Salem region Ground Water Incident Database (6/2/94), both the BP and Shell gasoline stores, located on the north side of Market Street across from Exxon Retail Location 4-3998, have had documented releases of petroleum hydrocarbons. The release at the BP store has been assigned ground water incident number 5136.

1.1

SUMMARY OF REMEDIAL ACTIONS TO DATE

The former UST system was closed by removal in September of 1991. As part of the tank closure activities approximately 1,955.30 tons of soil containing elevated concentrations of petroleum hydrocarbons was excavated from the former UST field and transported to the Cherokee Environmental Group thermal treatment and disposal facility in Sanford, North Carolina. Soil excavated from the current UST basin was also disposed at the Cherokee Environmental Group facility. Soil disposal manifests for this activity are provided in Appendix A.

Ground water sampling and gauging from five on-site monitor wells, and three off-site monitor wells has been conducted periodically since August 1992. Free product has not been detected in either the on-site or off-site wells. A soil vapor extraction/air sparging pilot test was conducted at the site in April 1994 to evaluate the applicability of this method of ground water remediation at the site. No other corrective actions have been implemented to date at the site.

1.2

PREVIOUS REPORTS

The following reports have been prepared which document the environmental assessment activities conducted at the site.

Comprehensive Site Assessment Report - Exxon Retail Location 4-3998, October 6, 1993, Delta Environmental Consultants, Inc.

Initial Subsurface Investigation Report - Exxon Retail Location 4-3998, September 30, 1992, Delta Environmental Consultants, Inc.

Sensitive Receptor Survey - Exxon Retail Location 4-3998, December 1991, Pilko and Associates.

Tank Excavation Assessment Report - Exxon Retail Location 4-3998, November 19, 1991, Griffith Enterprises.

Soil sample locations are shown in Figures 3 and 4 and analytical results are summarized in Table 1. Ground water analytical results are shown in Figures 5 and 6 and are summarized in Tables 2A, 2B, and 2C. Ground water elevation data are presented in Figure 7 and summarized in Table 3. Soil and ground water laboratory data sheets for samples collected prior to July 1993 can be referenced in the previously listed reports available for the site. Laboratory data sheets for soil, ground water, and SVE/AS pilot test air samples (SVE/AS pilot test) collected since July 1993 are presented in Appendices B, C, and D respectively.

1.3

PREVIOUS PERMITS

No permits have been applied for, or obtained, at the site other than monitor well installation permits.

2.0 CORRECTIVE ACTION PLAN OBJECTIVES

2.1 GOAL OF CORRECTIVE ACTION

The goal of the proposed corrective action is to reduce the concentration of petroleum hydrocarbon constituents in ground water in the vicinity of apparent source areas at the site.

2.2 TARGET CLEAN-UP CONCENTRATIONS

2.2.1 Soils

DEM guidelines for remediation of petroleum hydrocarbon affected soils require determination of site specific petroleum hydrocarbon action levels. These levels are based on local subsurface conditions and the potential for human exposure and are determined by completion of a Site Sensitivity Evaluation (SSE) worksheet. Using the SSE worksheet, the calculated site specific action levels for petroleum hydrocarbons are listed below. The completed SSE worksheet can be referenced in Appendix E.

PETROLEUM HYDROCARBON SSE ACTION LEVEL (ppm)

Low boiling point TPH	180
High boiling point TPH	720
Oil and grease	2,100

Wong



Based on the available analytical data for soil samples collected from the site, site specific petroleum hydrocarbon action levels are not exceeded and soil remediation does not appear to be required.

2.2.2 Ground Water

The target clean-up levels for ground water at the site are the ground water standards specified in T15A NCAC 2L .0202. A list of compounds of concern at the site and their respective ground water standards is given below.

<u>COMPOUND</u>	<u>15A NCAC 2L .0202 STANDARD (ug/l)</u>	<u>Maximum On-site Concentration (ug/l)</u>
Benzene	1	13,000
Toluene	1,000	50,000
Ethylbenzene	29	4,700
Total Xylenes	530	24,000
1,2-Dichloroethane	0.038	400
1,1,2,2-Tetrachloroethane	NS	110
Naphthalene	21*	369
Bis(2-ethylhexyl)phthalate	NS	56.8

* - Interim standard

NS - No standard specified

ug/l - micrograms/liter

The ground water remediation target concentrations for the compounds of concern at the site will be achieved to the extent that is technologically feasible and economically practical using the proposed remediation technology.

3.0

EXPOSURE ASSESSMENT

The primary compounds of concern identified in ground water at the site are petroleum hydrocarbon constituents of gasoline such as benzene, toluene, ethylbenzene, and xylenes. Health based standards for each of these compounds are listed below.

<u>COMPOUND</u>	<u>OSHA-PEL(1)</u> <u>(ppm)</u>	<u>IDLH(2)</u> <u>(ppm)</u>	<u>TDLO(3)</u> <u>(mg/kg)</u>
Benzene	1	3,000	130
Ethylbenzene	100	2,000	NA
Toluene	100	1,000	NA
Total Xylenes	100	1,000	NA
Naphthalene	10	10,000	NA

Notes:

- (1) OSHA Personal Exposure Limit - Long term exposure, time weighted average, contact by inhalation (OSHA 1910.1028).
- (2) Immediately Dangerous to Life and Health, Contact by inhalation (NIOSH, 1990).
- (3) Toxic Dose Low - Lowest dose of a substance introduced by any route other than inhalation, over any period of time, that has produced a toxic effect in humans (Sax, 1984).

NA = Not Available

The above listed compounds are constituents of gasoline and are volatile and flammable liquids at room temperature and atmospheric pressure. The significant potential pathways for human exposure of these compounds is through inhalation, ingestion, and dermal contact. The primary human exposure pathway of concern at the site is the ingestion of ground water containing dilute concentrations of the compounds of concern.

Although ground water at the site is classified GA, suitable for use as a potential drinking water source, the area surrounding the site is served by the City of Greensboro water system. The source of water for the City of Greensboro water system is Lake Townsend located nine miles northeast of the site. No water supply wells were identified within a 1,000-foot radius of the site during a sensitive receptor survey conducted by Pilko and Associates in December 1991.

The area surrounding the site is occupied by commercial businesses. Due to the high degree of existing development in the vicinity of the site, the land use in this area is unlikely to change in the foreseeable future.

The compounds of concern are dissolved in ground water at the site. Ground water flow is generally to the north northeast at a rate of approximately 20 feet/year within the surficial aquifer, based on the measured geometric mean hydraulic conductivity of 0.822 feet/day (rising head slug tests), assumed effective porosity of the site soils of 0.30, and a hydraulic gradient of 0.02 between monitor wells MW-2 and MW-4 (using April 13, 1994 gauging data).

The dissolved compounds of concern can be expected to migrate at a maximum rate similar to that of the calculated ground water flow velocity. Ground water analytical data collected from the site since 1992 indicate that the concentrations of the compounds of concern have not decreased significantly at the site since that time.

Vapor transport of the compounds of concern through subsurface utilities appears to be unlikely due to the absence of free product at the site. Subsurface utilities adjacent to the site include water, sanitary sewer, and natural gas lines. The average depth to ground water is more than 20 feet below the ground surface in the vicinity of the site.

4.0 EVALUATION OF REMEDIATION ALTERNATIVES

4.1 SOIL

Soil remediation is not required at the site and for that reason a review of soil remediation methods is not applicable to the site and is not provided.

4.2 GROUND WATER

The three methods of ground water remediation evaluated for use at the site include traditional pump and treat, two phase vacuum extraction, and in-situ soil vapor extraction/air sparging (SVE/AS) technologies. The pump and treat technology involves pumping affected ground water to the surface for treatment, typically by air stripping or carbon adsorption methods. Treated ground water must be discharged to a surface water body, an on-site infiltration gallery, or to a sanitary sewer. Each of the treated ground water disposal options must be permitted at potentially significant cost.

Pump and treat remediation can be used effectively to mitigate the migration of affected ground water. The major disadvantage of pump and treat technology is the limited degree of remediation that can be attained and the length of time required to achieve remediation objectives. These disadvantages result from the inability of pump and treat technology to effectively remove petroleum hydrocarbons that have adsorbed to soil particles in both the capillary fringe and saturated zones. The length of time required to meet remediation objectives with pump and treat technology, typically five to ten years, has a significant impact on the total cost of remediation over the life of the project. In many cases, regulatory standards cannot be attained using pump and treat technology despite an average cost of \$250,000 to \$300,000 (EPA, 10/93).

Two phase vacuum extraction is a ground water remediation method that may also be applicable at the site. Two phase vacuum extraction removes soil gas and ground water simultaneously from one or more extraction wells by applying a high vacuum to the extraction well, typically using a liquid ring type blower. This method of remediation is most applicable to remediation of soil and ground water containing volatile contaminants in settings characterized by low permeability soils and low ground water recharge rates. Ground water removed by the vacuum extraction well is effectively air stripped under low pressure during extraction and can often be discharged without further treatment. Air emissions from a two phase extraction system may require treatment depending on contaminant concentrations in soil and ground water, and local air emission regulations. Costs and time of remediation using two phase vacuum extraction are expected to be similar to those for the in-situ soil vapor extraction/air sparging (SVE/AS) remediation technology. Estimated remediation time is 6

months to two years and estimated costs are \$120,000 - \$200,000 for typical applications of vacuum extraction technology.

An alternative ground water remediation technology that is applicable at the subject site is SVE/AS. Applicability of SVE/AS remediation technology at the site was demonstrated in a pilot test conducted in July 1993.

The advantages of SVE/AS ground water remediation include shorter duration of remediation relative to pump and treat technology, lower costs for the overall remediation project due to the shorter remediation period, no effluent discharge requirements, and cost-effectiveness in reducing volatile contaminant concentrations in ground water. SVE/AS ground water remediation is particularly effective due to the capability of SVE/AS to remediate volatile contaminants adsorbed to soil particles in the saturated, unsaturated, and capillary fringe zones. A secondary benefit of SVE/AS remediation technology is the introduction of oxygen into the subsurface which promotes microbial activity and biodegradation of the compounds of concern. Also, residual volatile constituents that remain in unsaturated soils in the vicinity of an SVE/AS point will be removed as a result of operation of the SVE/AS system.

SVE/AS is only effective under relatively permeable sub-surface conditions where confining units are not present within, or just above, the surficial aquifer. Application of SVE/AS beneath a confining unit will potentially accelerate lateral migration of the ground water being remediated. Vapors produced by the air sparging can also concentrate in nearby confined spaces, such as buildings or utility vaults, if not properly captured using soil vapor extraction. In addition, SVE/AS is not effective in removing non-volatile constituents from ground water.

5.0 PROPOSED CORRECTIVE ACTION PLAN

Soil vapor extraction/air sparging is proposed as the most cost-effective method of ground water remediation applicable to the compounds of concern and the site conditions.

5.1 PROPOSED GROUND WATER REMEDIATION TECHNOLOGY OVERVIEW

SVE/AS remediation technology involves in-situ aeration of soils below the water table by injecting air through one or more injection points, and recovery of volatilized petroleum hydrocarbon constituents by applying a vacuum to one or more extraction points located within the unsaturated zone soils. The air injected into the saturated zone volatilizes the petroleum hydrocarbons and transports them upward into the unsaturated zone. Once the volatilized petroleum hydrocarbons have reached the unsaturated zone, they are captured by the SVE point and removed from the subsurface. Figure 8 schematically illustrates a typical SVE/AS system.

5.2 PROPOSED GROUND WATER CORRECTIVE ACTION

The proposed corrective action at the site is ground water remediation by soil vapor extraction/air sparging. Based on a preliminary review of ground water remediation options for the site, SVE/AS appears to be the most cost effective and efficient method of ground water remediation. The viability of SVE/AS remediation has been demonstrated at the site by a SVE/AS pilot test conducted in April 1994, the results of which can be referenced in Appendix F. The results of the SVE/AS pilot test indicated that a TPH mass removal rate of 9.2 pounds/day was achieved from one AS/SVE well pair located near MW-3. Additional soil boring logs compiled since the preparation of the site CSA in October 1993 which document subsurface soil grain size and consistency are provided in Appendix G.

5.2.1 Proposed Ground Water Remediation System

The proposed SVE/AS system will consist of three pairs of air sparging and vapor extraction point locations as shown in Figure 9. The locations of the SVE/AS points are designed to focus remediation in the areas of ground water containing the most elevated concentrations of petroleum hydrocarbon constituents and to prevent the off-site migration of compounds of concern.

The anticipated radius of influence of a typical air sparging point is approximately 25 feet based on the SVE/AS pilot test results. The proposed SVE/AS system is not anticipated to have a negative effect on nearby sensitive receptors such as underground utilities.

The air sparging and vapor extraction points will be constructed of 2-inch diameter Schedule 40 PVC. Typical air sparging and vapor extraction point construction details are depicted in Figures 10 and 11 respectively. The well construction diagrams for the pilot test wells can be referenced in Appendix H. The sparging and extraction points will be connected to the SVE/AS blowers via buried 4-inch and 2-inch diameter Schedule 40 PVC piping. Connection to the blower manifolds will be made using heat resistant piping composed of steel.

Air will be supplied to the air sparging points by an oil-free blower capable of maintaining air pressure of up to 10 psi at a rate of 5 to 10 cfm (cubic feet per minute). Vacuum will be maintained on the extraction wells by a separate blower capable of maintaining a vacuum of 20 to 80 inches of water at a flow rate of 50 to 100 cfm. Vacuum and air pressure to each point will be controlled by in-line cutoff and air dilution valves.

Moisture entrained in the extraction point airstream will be collected via a knockout pot and emptied into a steel drum.

Carbon adsorption units will be used to remove vapor phase petroleum hydrocarbons from the SVE/AS system air emissions. As required, the North Carolina Department of Environment, Health, and Natural Resources will be notified of the content and rate of air emissions expected from the SVE/AS system. An air emission permit will be required to operate the system. County/city building and electrical permits will be obtained prior to installation of the SVE/AS system and enclosure.

The above ground SVE/AS system components will be located in a locked fenced enclosure for security. In addition, system control panels will be enclosed in lockable weatherproof covers. The air sparging and vapor extraction points will be accessible through lockable vaults. The operation of the air sparging and vapor extraction equipment will be interlocked to prevent the uncontrolled migration of petroleum hydrocarbon vapors during air sparging operations.

5.2.2 *Permit Requirements*

Building, zoning, and mechanical permits will be required to facilitate installation of the proposed ground water remediation system. An air emission permit will be required to operate the proposed system.

5.2.3

Operation and Maintenance of the Proposed Ground Water Remediation System

The proposed SVE/AS system will be designed to maintain a continuous vacuum at all of the vapor extraction points, and constant air flow to the sparging points, during operation of the system. The operational settings for air pressure, vacuum pressure, and air flow will be determined in the field during system start-up testing. These parameters will be adjusted as necessary during the first month of operation to maximize petroleum hydrocarbon removal rates from the subsurface.

Due to the simplicity of the system components, no maintenance shutdowns are planned. System maintenance will be conducted only on an as needed basis. The system will be inspected on a monthly basis for operational deficiencies or potential maintenance problems, including removal of fluids collected in the moisture knock-out drum and replacement of spent carbon from the air emission treatment subsystem (if applicable). System operating parameters such as air pressure, air flow, air temperature will be recorded during the monthly inspections of the system. In addition, a photoionization detector will be used to monitor the concentration of volatile organic compounds in the system air emissions on a monthly basis.

5.3

FOLLOW-UP MONITORING, SYSTEM EVALUATION, AND REPORTING

Air emissions from the SVE system blower will be monitored for total volatile organic compounds on a monthly basis using a photoionization detector. System emission air samples will be collected and analyzed for BTEX compounds by EPA Method 8020 and TPH by EPA Method 8015 upon system start-up, and on a quarterly basis during active remediation.

Prior to system start-up, and on a quarterly basis during active remediation, ground water quality will be monitored by sampling the three most affected site monitor wells, MW-1, MW-2, and MW-3. All of the site monitor wells will be sampled on an annual basis. The ground water samples collected from these monitor wells will be analyzed for BTEX compounds, methyl tert-butyl ether (MTBE), and isopropyl ether (IPE) by modified EPA Method 602. All of the site monitor wells will be gauged during the quarterly sampling events.

Reports describing the system operation and monitoring results will be prepared upon receipt of the quarterly air and ground water sampling analytical data. The reports will summarize operation of the system during the previous quarter and present tabulated site air and ground water analytical and gauging data. The effectiveness of the remediation system will be reviewed and evaluated based on the updated air emission analytical and system operational data. If requested, the quarterly reports will be submitted to DEM by the last day of the month following the end of each calendar quarter.

If the monitored air emission parameters have stabilized after one year of operation (i.e. maintained relatively consistent contaminant concentrations over the preceding six month period), air emission and ground water quality sampling are proposed to be conducted on a semi-annual basis. Monthly maintenance visits to the site will continue through the termination of active remediation at the site.

The proposed SVE/AS remediation system will remain in operation until the petroleum affected ground water at the site has been remediated to North Carolina standards, or until the practical limit of remediation is achieved based on the criteria for termination of corrective action contained in T15A NCAC 2L .0106(m), at which time Exxon may elect to apply for a variance to North Carolina ground water standards for the site.

5.4 NOTIFICATION REQUIREMENTS

Notification of adjacent property owners and the owners of properties that have been impacted by migration of the contaminant plume is not required for the proposed ground water remediation system. A list of the property owners adjacent to Exxon Retail Location 4-3998 is provided in Table 4. The locations of the properties adjacent to the site are shown in Figure 12.

5.5 CORRECTIVE ACTION IMPLEMENTATION SCHEDULE

The proposed Corrective Action Plan implementation schedule is provided below.

<u>ACTIVITY</u>	<u>TARGET COMPLETION TIME FRAME</u>
Installation of proposed ground water remediation system	180 days following DEM approval of site corrective action plan
Quarterly monitoring and reporting	Calendar year quarters upon system start-up (semi-annual monitoring after first year if warranted)
Estimated time to achieve clean-up goals	2 years following system start-up

6.0 REFERENCES

6.1 SITE SPECIFIC REFERENCES

Comprehensive Site Assessment Report - Exxon Retail Location 4-3998, October 6, 1993, Delta Environmental Consultants, Inc.

Initial Subsurface Investigation Report - Exxon Retail Location 4-3998, September 30, 1992, Delta Environmental Consultants, Inc.

Tank Excavation Assessment Report - Exxon Retail Location 4-3998, November 19, 1991, Griffith Enterprises.

Sensitive receptor Survey - Exxon Retail Location 4-3998, December 1991, Pilko and Associates.

6.2 GENERAL REFERENCES

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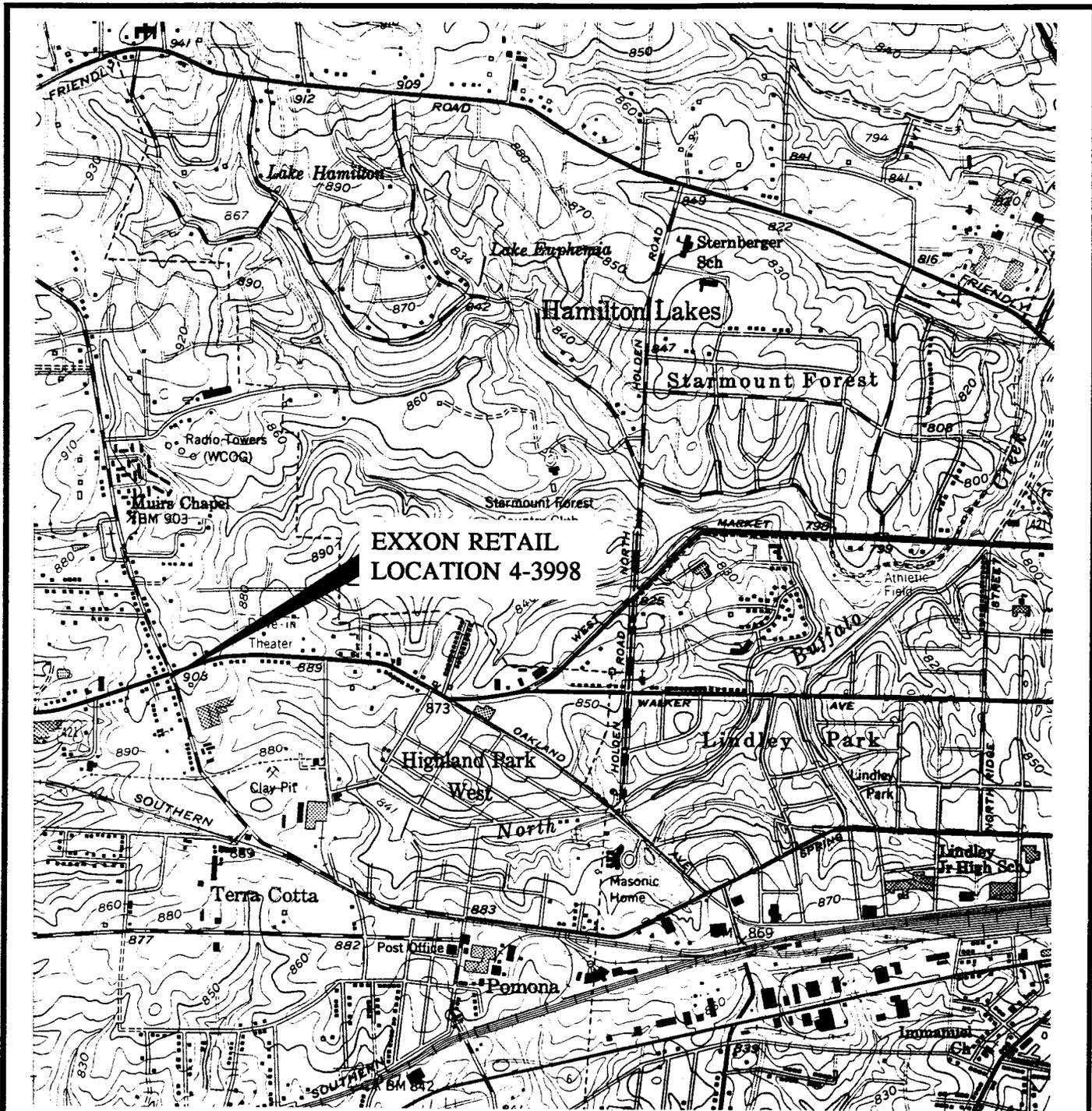
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SOURCE: GREENSBORO, NC 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE, 1951 (PHOTOREVISED 1968)



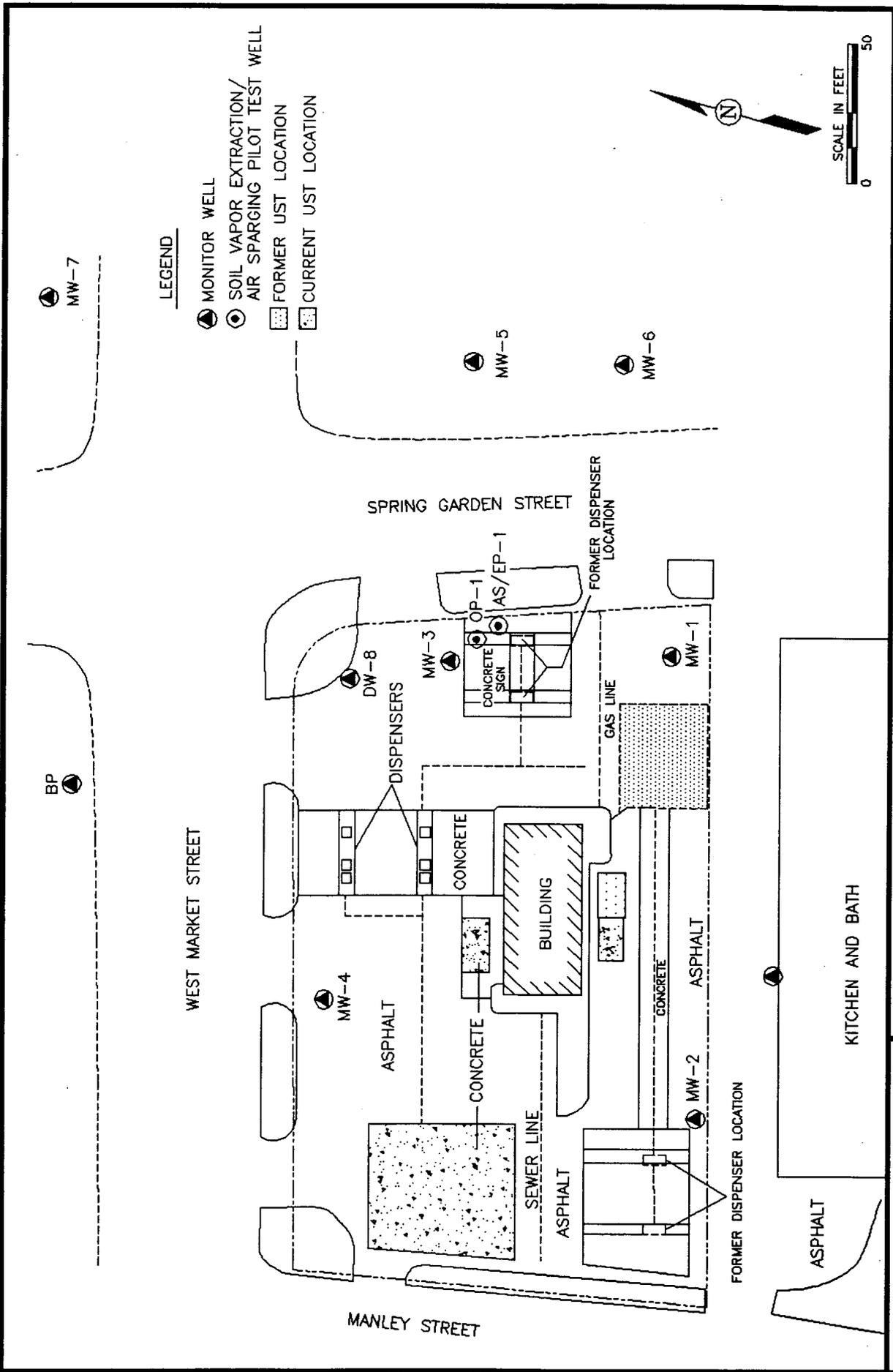
ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA

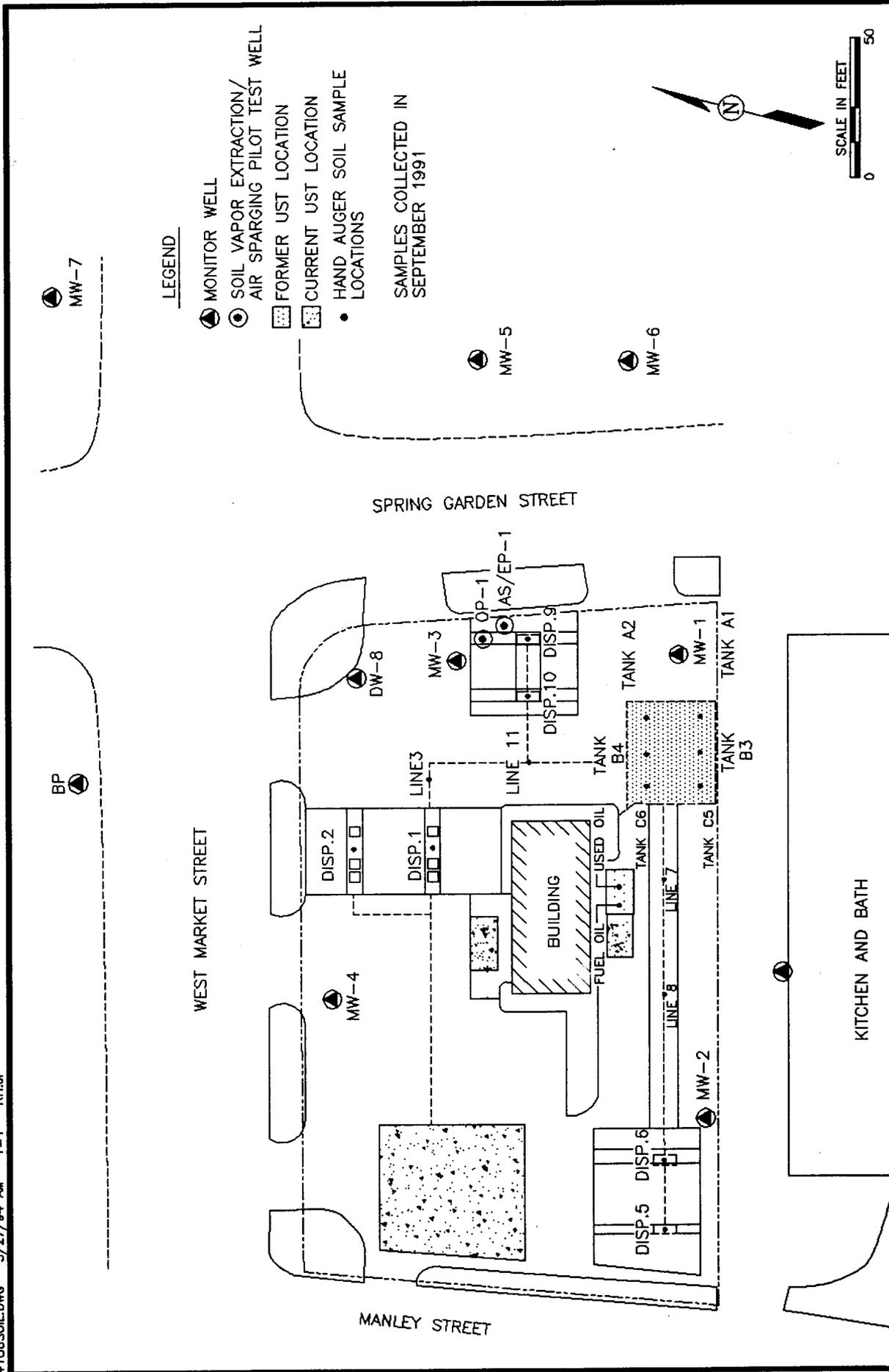
ERM

SITE LOCATION MAP
EXXON COMPANY, U.S.A.
RETAIL LOCATION 4-3998
GREENSBORO, NORTH CAROLINA

FIGURE

1

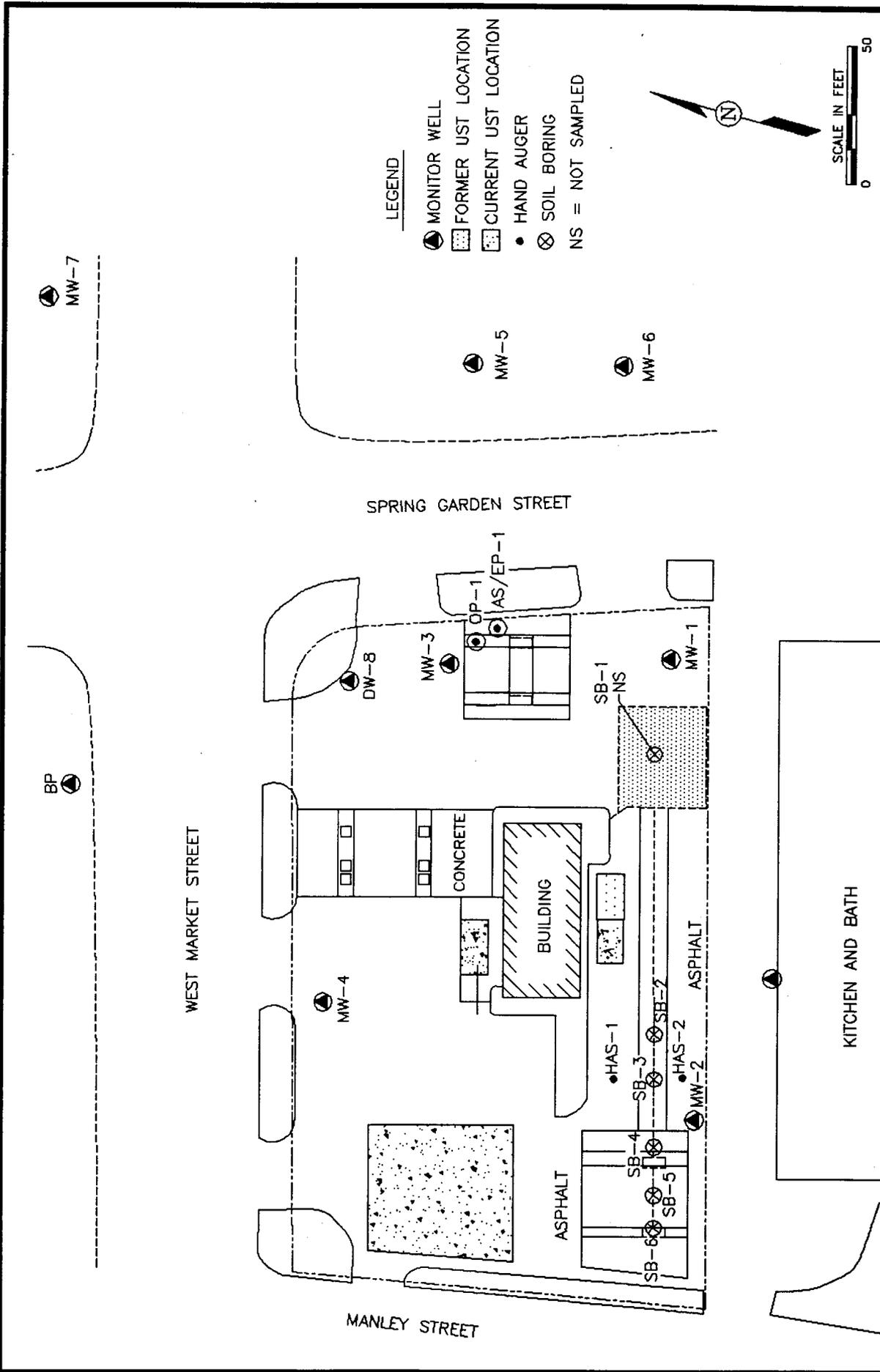




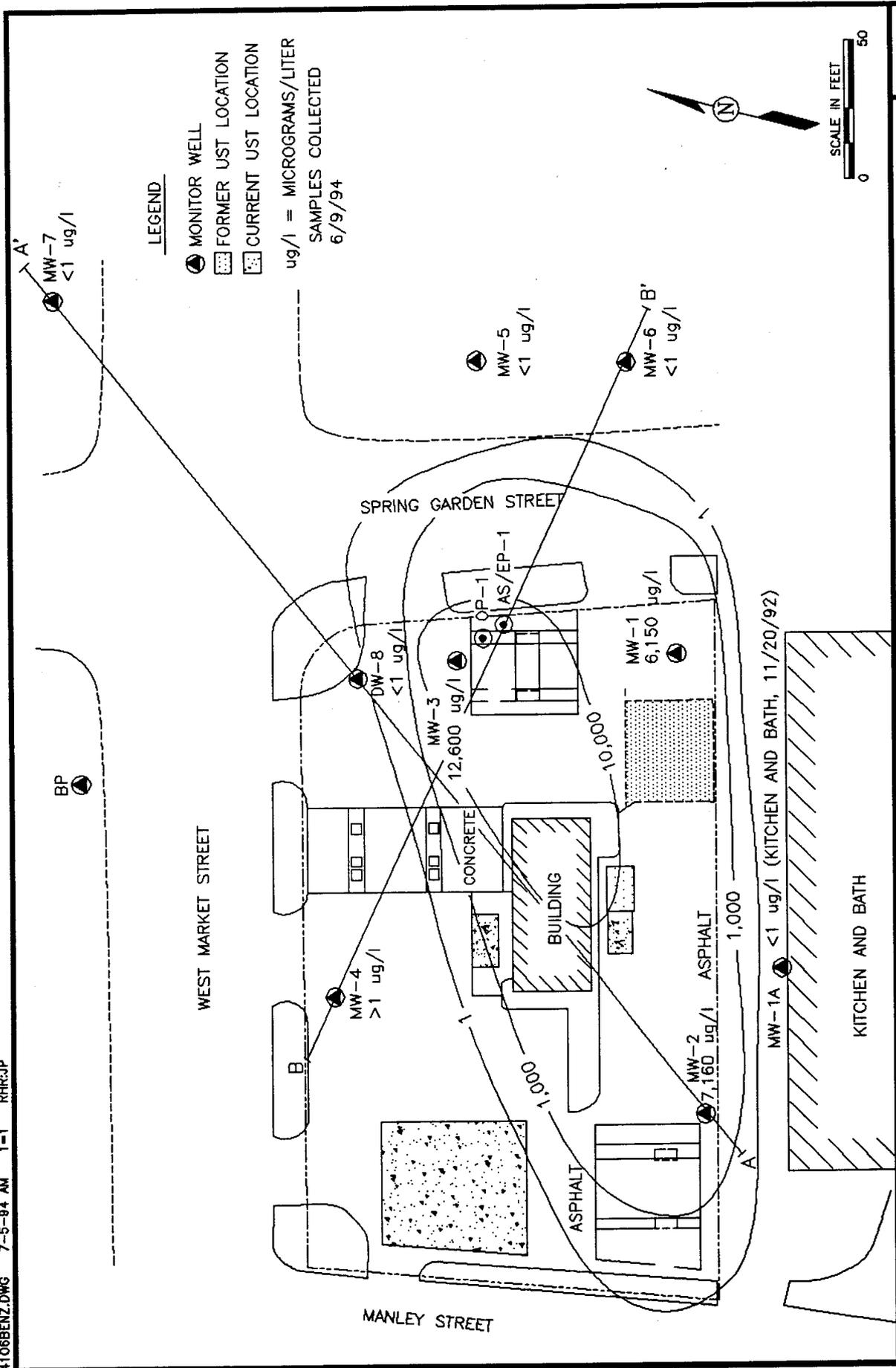
UST CLOSURE SOIL SAMPLE LOCATIONS
EXXON COMPANY, U.S.A.
 RETAIL LOCATION 4-3998
 4701 W. MARKET STREET
 GREENSBORO, NORTH CAROLINA

ERM-Southeast, Inc.
 CHARLOTTE, NORTH CAROLINA





POST-UST CLOSURE SOIL SAMPLE LOCATIONS
 EXXON COMPANY, U.S.A.
 RETAIL LOCATION 4-3998
 4701 W. MARKET STREET
 GREENSBORO, NORTH CAROLINA



FIGURE

5

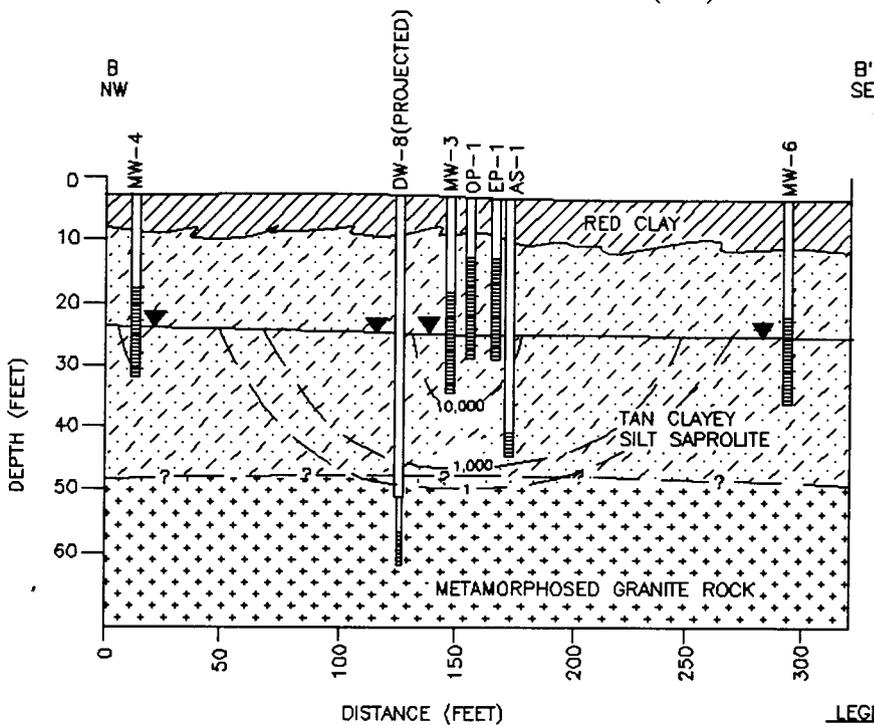
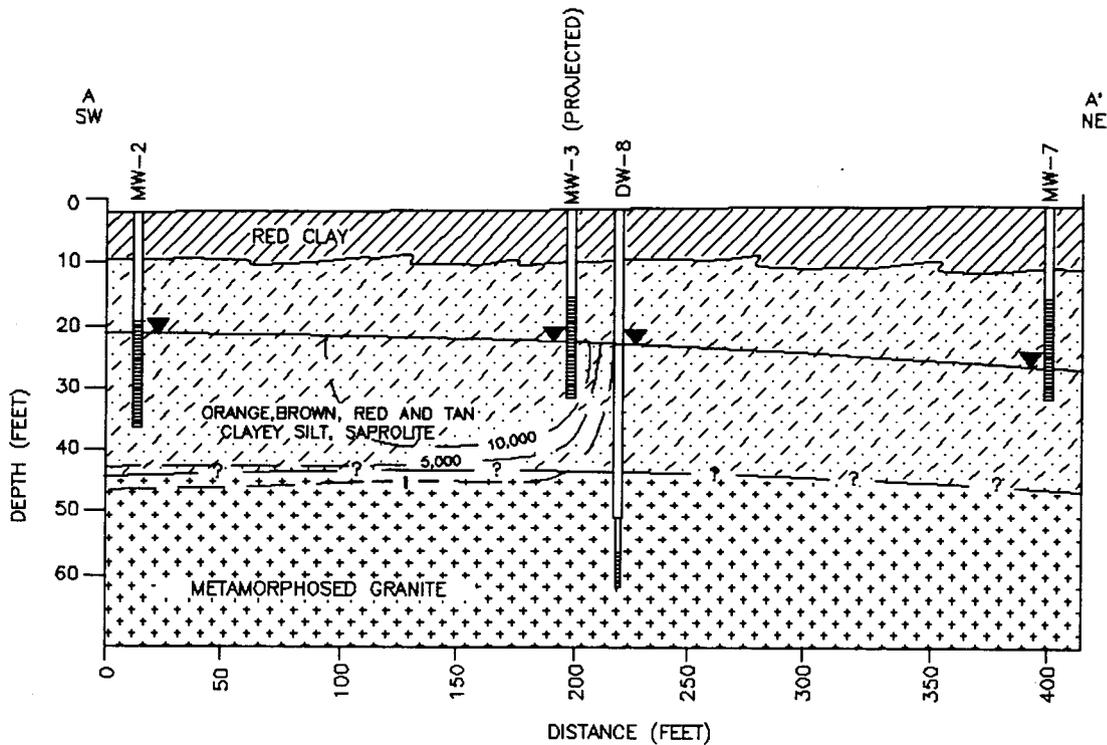
GROUND WATER ISOCONCENTRATION CONTOUR MAP - BENZENE

EXXON COMPANY, U.S.A.

RETAIL LOCATION 4-3998
 4701 W. MARKET STREET
 GREENSBORO, NORTH CAROLINA

ERM - Southeast, Inc.
 CHARLOTTE, NORTH CAROLINA





- LEGEND**
- WATER TABLE
 - BENZENE ISOCONCENTRATION CONTOUR LINE
 - BENZENE ANALYSIS GIVEN IN MICROGRAMS/LITER ($\mu\text{g/l}$)

4106ISOC.DWG 6-15-94 AM 1-1 KH/AN

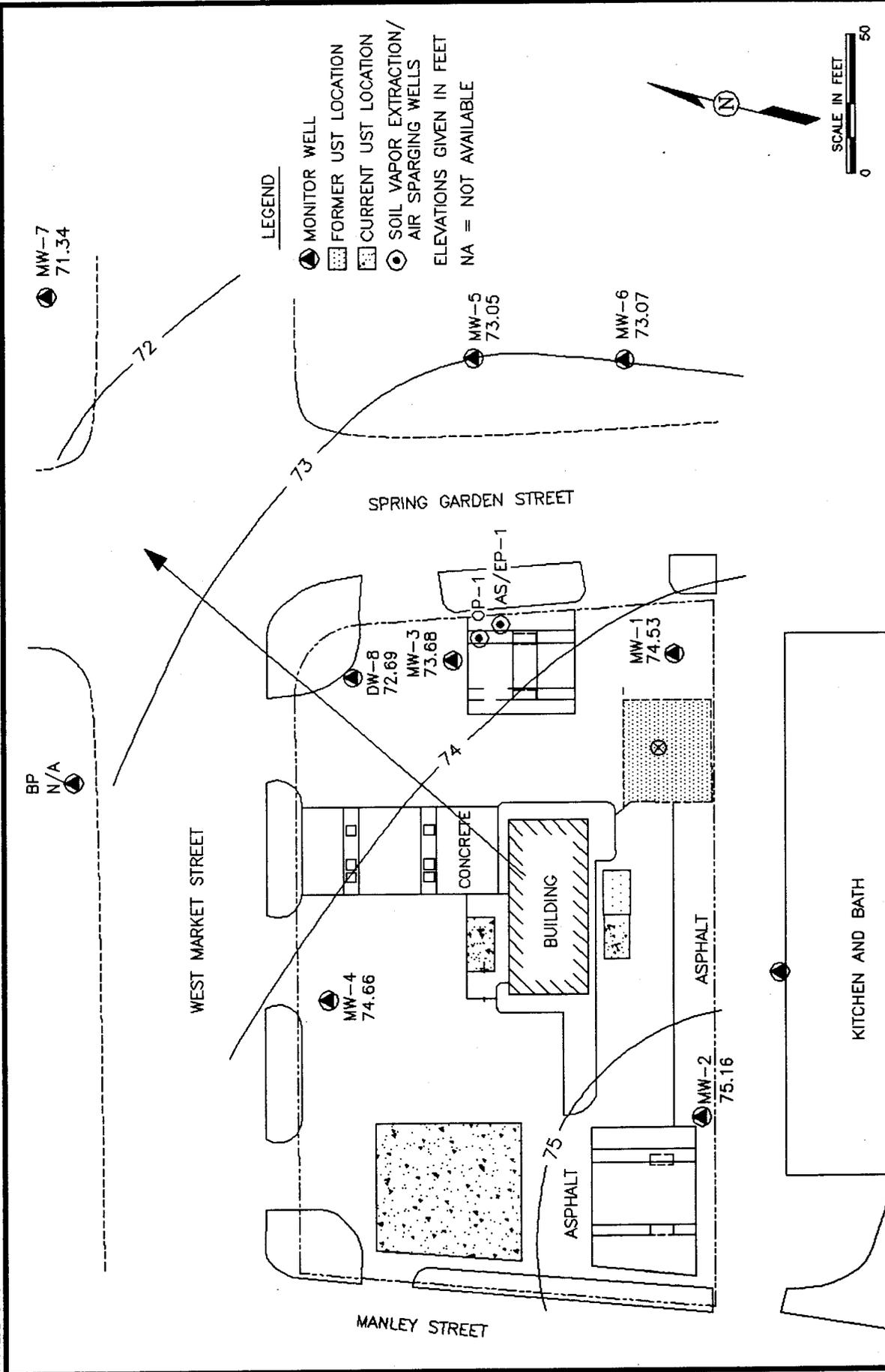


ERM-Southeast, Inc.
 CHARLOTTE, NORTH CAROLINA

**GROUNDWATER BENZENE ISOCONCENTRATION
 CONTOUR CROSS SECTIONS**
 EXXON COMPANY, U.S.A.
 RETAIL LOCATION # 4-3998
 GREENSBORO, NORTH CAROLINA

FIGURE

6



FIGURE

7

GROUND WATER ELEVATION CONTOUR MAP-6/9/94

EXXON COMPANY, U.S.A.

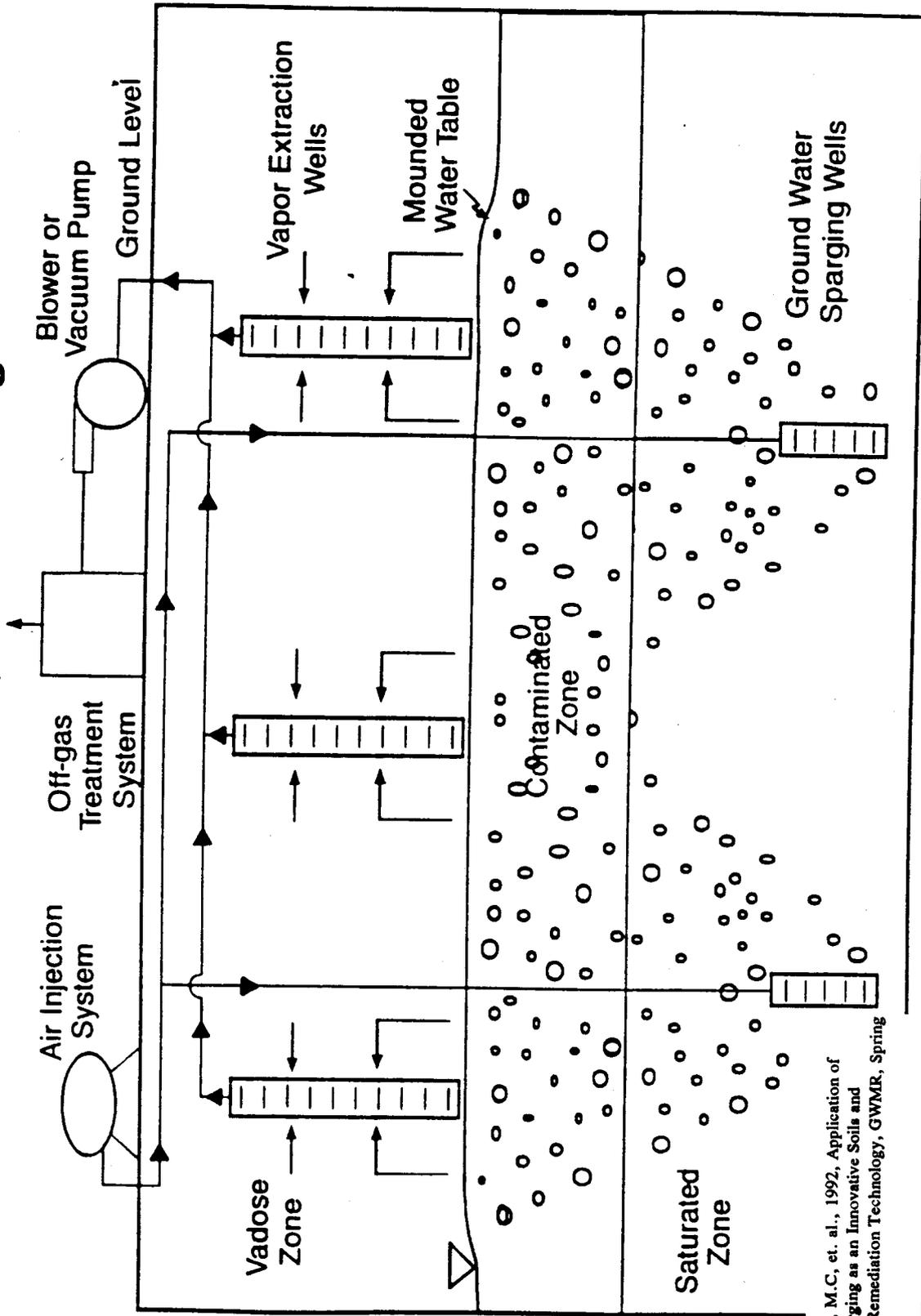
RETAIL LOCATION 4-3998

4701 W MARKET STREET
GREENSBORO, NORTH CAROLINA

ERM - Southeast, Inc.
CHARLOTTE, NORTH CAROLINA



Typical Sparging System Configuration



Source: Marley, M.C., et. al., 1992, Application of In Situ Air Sparging as an Innovative Soils and Ground Water Remediation Technology, GWMR, Spring 1992.

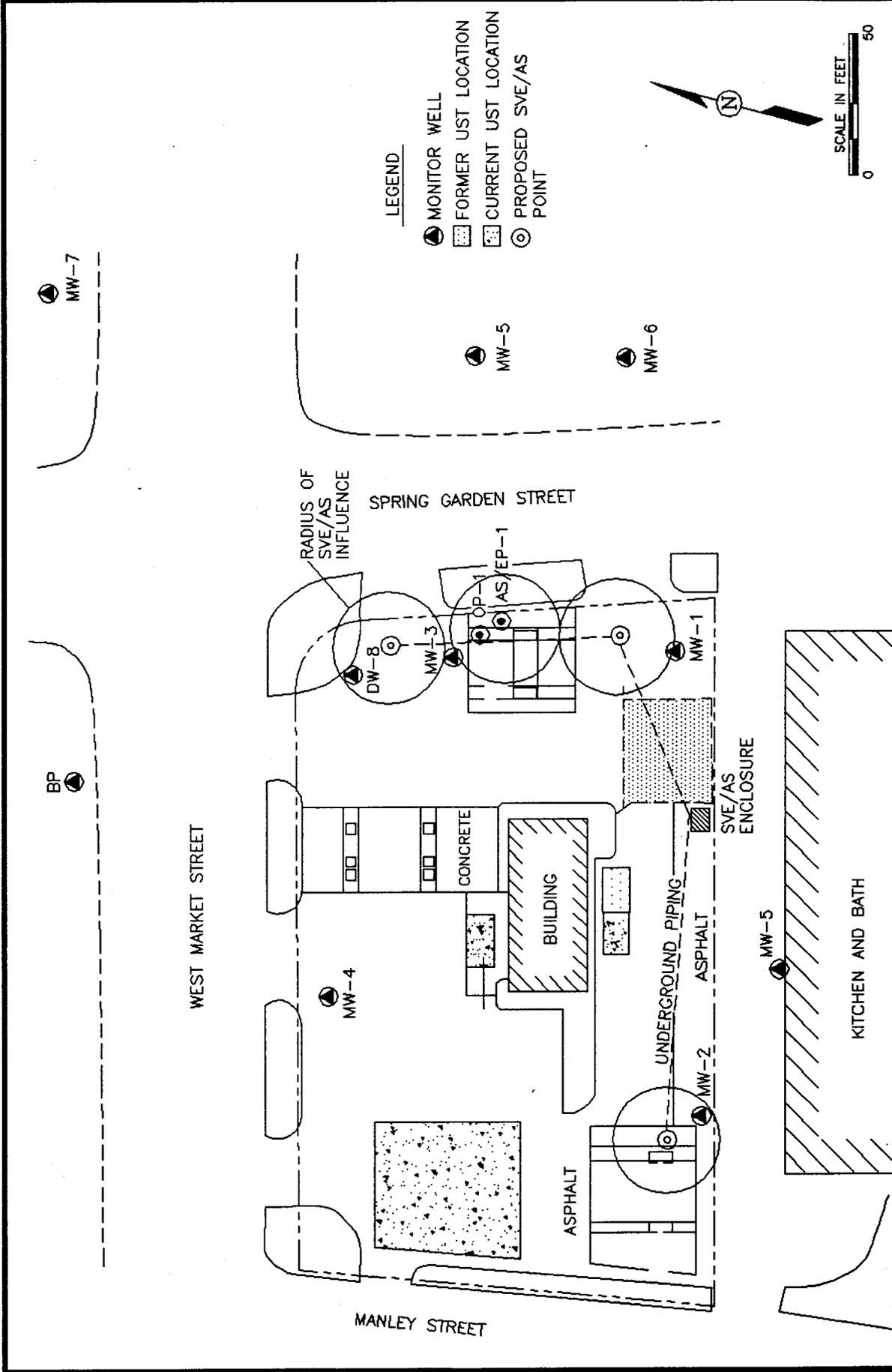
FIGURE

8

SCHEMATIC DIAGRAM OF SOIL VAPOR EXTRACTION/AIR SPARGING SYSTEM

ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA



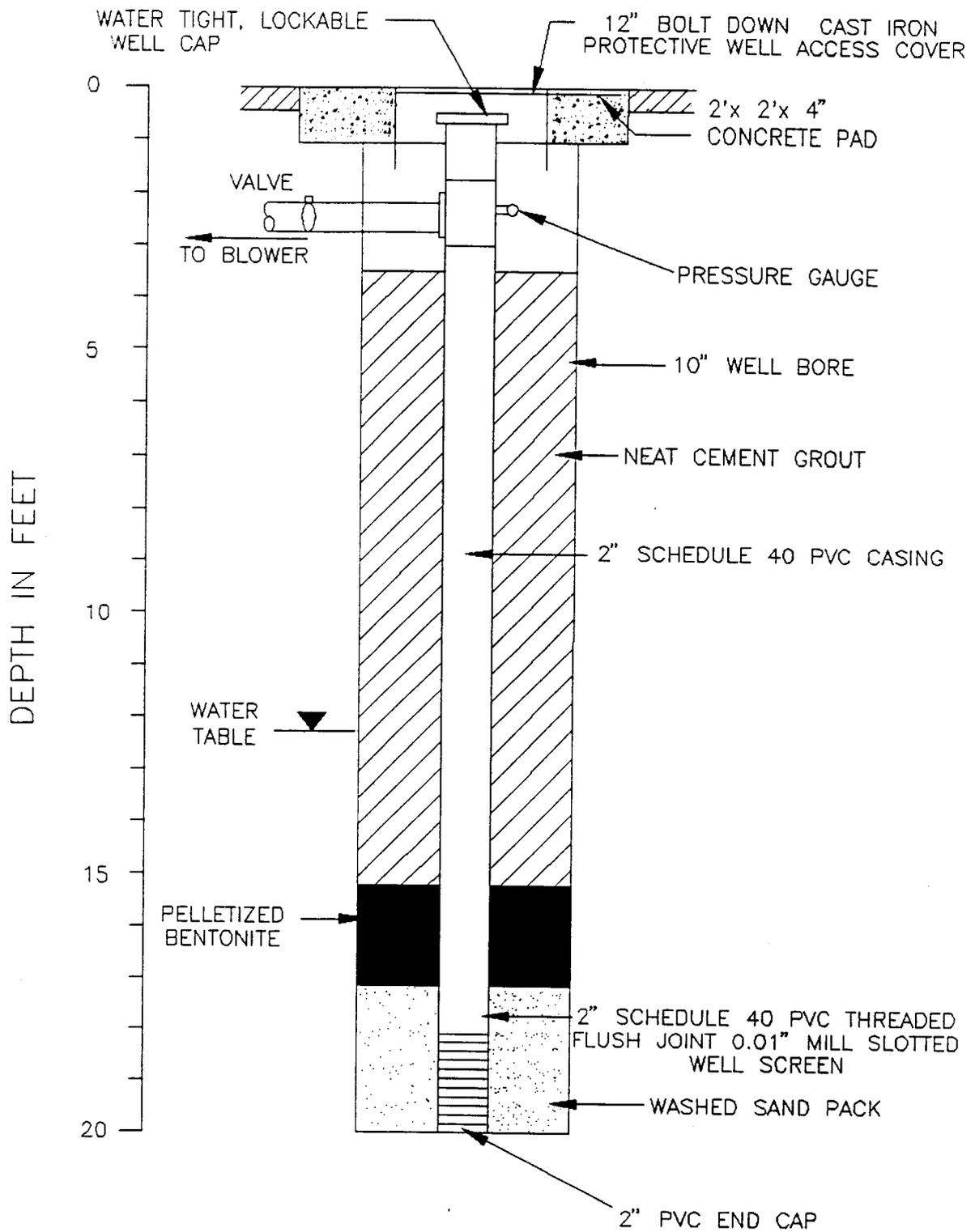


ERM - Southeast, Inc.
 CHARLOTTE, NORTH CAROLINA

ER

PROPOSED SVE/AS SYSTEM LAYOUT
 EXXON COMPANY, U.S.A.
 RETAIL LOCATION 4-3998
 4701 W. MARKET STREET
 GREENSBORO, NORTH CAROLINA

FIGURE 9



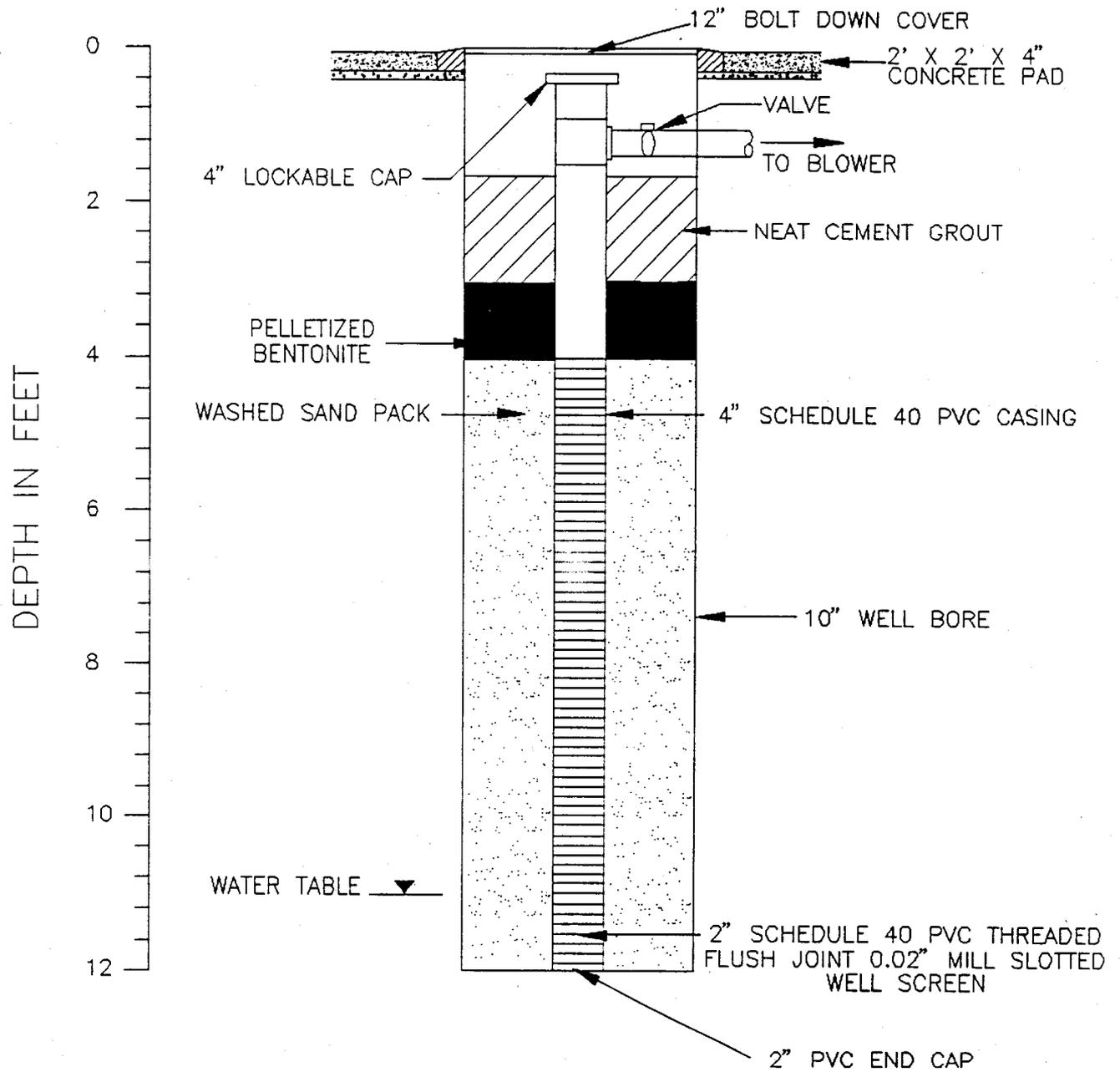
EXXON COMPANY, U.S.A.
 EXXON RETAIL LOCATION #4-6580
 2160 ALAMANCE ROAD
 BURLINGTON, NORTH CAROLINA

FIGURE 10.
 TYPICAL AIR SPARGING POINT
 CONSTRUCTION DIAGRAM



ERM-SOUTHEAST, INC
 CHARLOTTE, NC

7544AS.DWG
 1/27/94:KH/JP



EXXON COMPANY, U.S.A.
 EXXON RETAIL LOCATION 4-6580
 2160 ALAMANCE ROAD
 BURLINGTON, NORTH CAROLINA

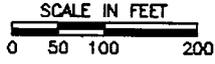
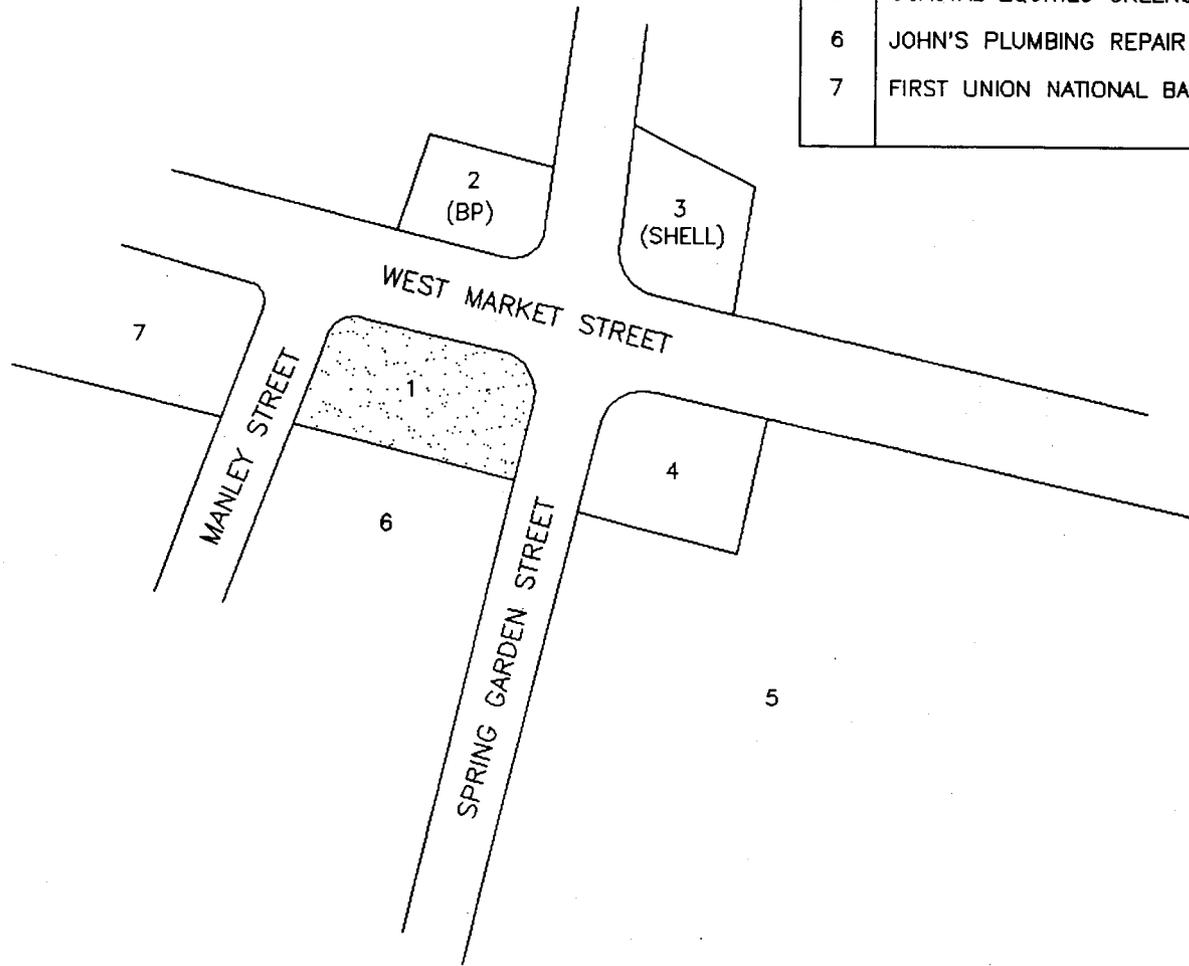
FIGURE 11.
 TYPICAL VAPOR EXTRACTION
 POINT CONSTRUCTION DIAGRAM



ERM-SOUTHEAST, INC
 CHARLOTTE, NC

7544SYE.DWG
 1/25/94:KH/JP

ID #	OWNER
1	EXXON COMPANY USA
2	SERVICE STATION REALTY
3	LUCY MAE EDWARDS QUALITY OIL CO.
4	SHONEY'S SOUTH INC
5	COASTAL EQUITIES GREENSBORO
6	JOHN'S PLUMBING REPAIR CO.
7	FIRST UNION NATIONAL BANK



4106ADPR.DWG 07-06-94 1-1 RHR/AN



ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA

ADJACENT PROPERTY OWNERS
EXXON COMPANY, U.S.A.
RETAIL LOCATION 4-3998
GREENSBORO, NORTH CAROLINA

FIGURE
12

TABLE 1
SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS
EXXON RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

SAMPLE ID	DATE SAMPLED	DEPTH (ft. bgl)	TPH BY EPA METHOD 5030 (mg/kg)	TPH BY EPA METHOD 3550 (mg/kg)	OIL AND GREASE BY EPA METHOD 9071 (mg/kg)
Tank A1	9-13-91	11	344	--	--
Tank A2	9-13-91	11	9,000	--	--
Tank B3	9-13-91	11	109	--	--
Tank B4	9-13-91	11	6,310	--	--
Tank C5	9-13-91	11	<5.0	--	--
Tank C6	9-13-91	11	5,460	--	--
Disp. 1	NA	3	<5.0	--	--
Disp. 2	NA	3	12.8	--	--
Line 3	NA	3	<5.0	--	--
Disp. 5	9-19-91	3	1,140	--	--
Disp. 6	9-19-91	3	1,490	--	--
Line. 7	9-19-91	3	<5.0	--	--
Line. 8	9-19-91	3	4,680	--	--
Disp. 9	9-19-91	3	<5.0	--	--
Disp. 10	9-19-91	3	15.9	22	--
Disp. 11	9-19-91	3	<5.0	--	<20
Fuel Oil	9-20-91	NA	--	15	--
Used Oil	9-20-91	NA	--	64	--
MW-1	8-13-92	15-17	0.22	<10	--
MW-2	8-13-92	20-22*	48	<10	--
MW-3	8-14-92	20-22*	44	<10	--
MW-4	8-14-92	20-22*	<0.05	<10	--
MW-5	3-24-93	15-17	<0.05	<10	--
MW-6	3-24-93	15-17	<0.05	--	--
MW-7	3-24-93	15-17	0.59	--	--
DW-8	3-25-93	15-17	<0.05	--	--
SB-2	3-9-94	14-16	.095	--	--
SB-3	3-9-94	14-16	5.0	--	--
SB-4	3-10-94	14-16	1.7	--	--
SB-5	3-10-94	14-16	4.1	--	--
SB-6	3-10-94	14-16	.39	--	--
SB-6	3-10-94	4-6	18	--	--
HAS-1	3-9-94	6	.14	--	--
HAS-2	3-10-94	6	.12	--	--

Notes:

"--" indicates not analyzed

mg/kg = milligrams per kilogram

NA = Not available

"**" indicates sample was collected at or below the water table

TABLE 2A
 EPA METHOD 602 GROUND WATER ANALYTICAL RESULTS
 FORMER EXXON LOCATION #4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA

Analytical Method	WELL	EPA METHOD 602							504.1	3030C	
		DATE	TOTAL BTEX	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	MTBE	IPB	EDB	LEAD
	MW-1	8/20/92	65900	5000	35000	3900	22000	<500	--	--	--
		3/25/93	44600	3500	21000	3100	17000	<250	--	--	--
		6/22/93	44600	4200	18000	3400	19000	<500	--	--	--
		6/9/94	62450	6150	22500	5000	28800	96	900	<10	5
	MW-2	8/20/92	13900	1400	4900	1600	6000	<250	--	--	--
		3/25/93	16400	2000	7300	1200	5900	<250	--	--	--
		6/22/93	76800	8100	40000	4700	24000	<2500	--	--	--
		6/9/94	70520	7160	33500	4560	25300	390	280	<10	3
	MW-3	8/20/92	84800	11000	41000	4800	26000	<500	--	--	--
		3/25/93	67300	9700	35000	3600	19000	<1000	--	--	--
		6/22/93	88900	13000	50000	3900	22000	<2500	--	--	--
		6/9/94	114700	12600	65400	4500	32200	<1000	2580	<50	678
	MW-4	8/20/92	4	<2.0	<2.0	<2.0	4	<10	--	--	--
		3/25/93	17.6	1.9	4.7	<1.0	11	<10	--	--	--
		6/22/93	17.5	1.5	<1.0	<1.0	16	<10	--	--	--
		6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	4
	MW-5	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	13
	MW-6	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	13
	MW-7	3/25/93	9.1	1.9	1.9	1.9	3.4	36.0	--	--	--
		6/22/93	<5.0	<5.0	<5.0	<5.0	<5.0	<50	--	--	--
		6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	20
	DW-8	3/25/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/22/93	<1.0	<1.0	<1.0	<1.0	<1.0	<10	--	--	--
		6/9/94	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	4
	MW-1A*	11/20/92	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--	--

Notes:

MTBE = Methy tert-butyl ether

EPA Method 602 analysis is for Purgeable Aromatics

Results in micrograms per liter (ug/l).

Samples dated prior to 1994 collected by Delta Environmental Consultants, Inc.

"--" = not analyzed

* - Source: Groundwater Investigation - Bath and Kitchen Menagerie, Greensboro, North Carolina, 11-27-92, Pyramid Environmental, Inc.

TABLE 2B
 EPA METHOD 601 GROUND WATER ANALYTICAL RESULTS
 FORMER EXXON LOCATION #4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA

WELL	DATE	EPA METHOD 601			
		1,2-DICHLORO-ETHANE	1,1,2,2-TETRA-CHLOROETHANE	CHLOROFORM	ALL OTHER COMPOUNDS
MW-1	8/20/92	<150	<50	<50	BDL
	3/25/93	<1500	<300	<1.0	BDL
	6/22/93	<800	<800	<300	BDL
MW-2	8/20/92	<80	40	<30	BDL
	3/25/93	<300	<1.0	<1.0	BDL
	6/22/93	<800	<300	<300	BDL
MW-3	8/20/92	400	110	<30	BDL
	3/25/93	<1500	<1.0	<1.0	BDL
	6/22/93	<800	<300	<300	BDL
MW-4	8/20/92	<3	<1.0	<1.0	BDL
	3/25/93	<3	<1.0	<1.0	BDL
	6/22/93	<3	<1.0	<1.0	BDL
MW-5	3/25/93	<3.0	<1.0	<1.0	BDL
	6/22/93	<3.0	<1.0	<1.0	BDL
MW-6	3/25/93	<3.0	<1.0	<1.0	BDL
	6/22/93	<3.0	<1.0	<1.0	BDL
MW-7	3/25/93	<3.0	13	<1.0	BDL
	6/22/93	<3.0	<1.0	<1.0	BDL
DW-8	3/25/93	<3.0	<1.0	11	BDL
	6/22/93	<3.0	<1.0	<1.0	BDL

Notes:

EPA Method 601 analysis is for Purgeable Halocarbons

Results in micrograms per liter (ug/l).

BDL = Below Detection Limit

Samples dated prior to 1994 collected by Delta Environmental Consultants, Inc.

TABLE 2C
 EPA METHOD 625 GROUND WATER ANALYTICAL RESULTS
 FORMER EXON LOCATION #4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA

WELL	DATE	EPA METHOD 625									
		PHENOL	NAPHTHALENE	ANTHRACENE	BIS(2-ETHYL- HEXYL) PHTHALATE	BUTYL BENZYL PHTHALATE	FLUORENE	PHENANTHRENE	ALL OTHER EPA 625 COMPOUNDS		
MW-1	8/20/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/93	<5.0	320	<7.6	<10	<10	<7.6	<21.6	<1.9	<5.4	BDL
	6/22/93	<1.5	216	<1.9	2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
MW-2	8/20/92	<1.5	189	<1.0	<2.5	<2.5	<1.0	<5.4	<1.0	<5.4	BDL
	3/25/93	<3.0	370	<3.8	<5	<10	<7.0	<21.6	<1.0	<5.4	BDL
	6/22/93	<1.5	369	<1.0	56.8	<2.5	<1.0	<5.4	<1.0	<5.4	BDL
MW-3	8/20/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/93	<1.5	440	<1.9	<25	<25	<10	<5.4	<1.0	<5.4	BDL
	6/22/93	<3.0	348	<3.8	17.2	<5.0	<3.8	<10.8	<1.0	<5.4	BDL
MW-4	8/20/92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/25/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
	6/22/93	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-5	3/25/93	6.2	<1.6	3.2	8.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
	6/22/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
MW-6	3/25/93	21.3	5.4	<1.9	15.2	19.0	4.0	11.1	<1.9	<5.4	BDL
	6/22/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
MW-7	3/25/93	15.1	3.2	<1.9	<2.5	<2.5	2.5	7.8	<1.0	<5.4	BDL
	6/22/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.0	<5.4	<1.0	<5.4	BDL
DW-8	3/25/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL
	6/22/93	<1.5	<1.6	<1.9	<2.5	<2.5	<1.9	<5.4	<1.9	<5.4	BDL

Notes:
 EPA Method 625 analysis is for Base/Neutral Extractables
 Results in micrograms per liter (ug/l).
 BDL = Below Detection Limit
 NA = Not Analyzed
 Samples collected by Delta Environmental Consultants, Inc.

TABLE 3
GROUND WATER ELEVATION DATA
FORMER EXXON RETAIL LOCATION #4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

	MW-1		MW-2		MW-3		MW-4	
TOC ELEV.	96.50		96.56		96.92		97.92	
DATE	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)
8/20/92	23.45	73.05	22.99	73.57	24.49	72.43	24.50	73.42
3/25/93	18.77	77.73	18.90	77.66	20.91	76.01	22.62	75.30
6/11/93	19.23	77.27	18.85	77.71	20.74	76.18	21.36	76.56
4/13/94	19.79	76.71	19.06	77.50	21.60	75.32	22.74	75.18
6/9/94	21.97	74.53	21.40	75.16	23.24	73.68	23.26	74.66

	MW-5		MW-6		MW-7		DW-8	
TOC ELEV.	97.24		96.15		98.64		98.00	
DATE	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)
3/25/93	22.05	75.19	21.10	75.05	26.60	72.04	9.50	88.50
6/11/93	21.88	75.36	20.71	75.44	25.61	73.03	22.41	75.59
4/13/94	22.74	74.50	21.62	74.53	—	—	—	—
6/9/94	24.19	73.05	23.08	73.07	27.30	71.34	25.31	72.69

	AS-1		EP-1		OP-1	
TOC ELEV.	96.38		96.31		96.79	
DATE	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)	DEPTH TO WATER (FT.)	WATER TABLE ELEV. (FT.)
4/13/94	20.90	75.48	20.77	75.54	21.06	75.73
6/9/94	22.65	73.73	22.56	73.75	23.04	73.75

NOTES:

No liquid phase hydrocarbons observed in any of the wells.

Elevation data are relative to an on-site benchmark which has been assigned an arbitrary elevation of 100.00 feet.

TOC = Top of monitor well casing.

"—" indicates well not gauged

TABLE 4
ADJACENT PROPERTY OWNERS
EXXON RETAIL LOCATION 4-3998
GREENSBORO, NORTH CAROLINA

Property Owner	Address
Service Station Realty, Inc.	PO Box 94563 Cleveland, OH 44114
Lucy Mae Edwards Quality Oil Company	PO Box 2736 Winston-Salem, NC 27102-2736
Shoney's South, Inc. c/o RASH #817-33-263	PO Box 1600 Rowlett, TX 75088
Coastal Equities Greensboro L.P.	118 West 22nd Street New York, NY 10011
John's Plumbing Repair Co., Inc.	PO Box 8496 Greensboro, NC 27419-496
First Union National Bank	Corporate Real Estate Bldg. 579 1420 Two First Union Plaza Charlotte, NC 28282

APPENDIX A
SOIL DISPOSAL MANIFESTS

RECEIVED
MAY 20 1994



MEMO

Cherokee Environmental Group

A Division of Cherokee Sanford Group, Inc.

1600 Colon Road • Sanford, North Carolina 27330 • (919) 774-5330 • 1-800-774-5330 • Fax (919) 774-5337
7100 Muirkirk Road • Beltsville, Maryland 20705 • (301) 210-6100 • Fax (301) 210-6104

DATE: 05-18-94

CC:

TO: Frank Medlin

FROM: Annette B. Thomas

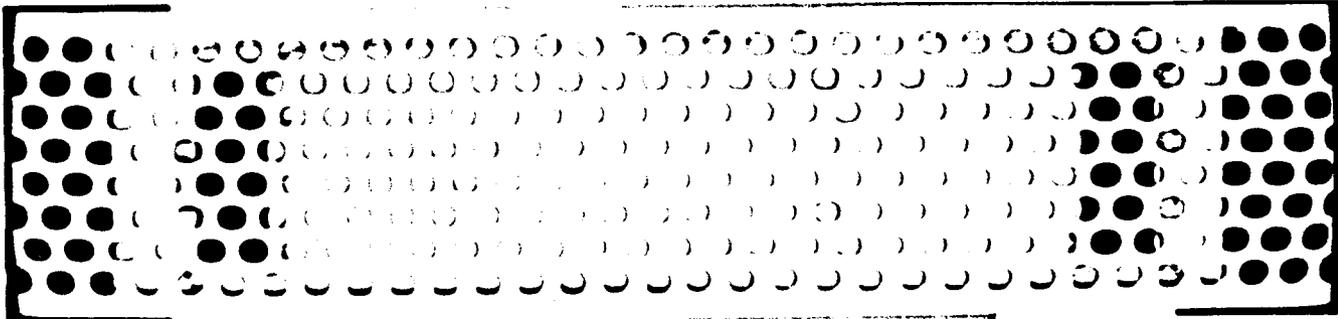
SUBJECT: Exxon SS# 4-3998

Dear Mr. Medlin,

Per Mr. Summey's request, I am sending you a copy of our truck log and remediation letter of the above mentioned.

If we can be of further assistance, please call.

Annette B. Thomas





Cherokee Environmental Group

A Division of Cherokee Sanford Group, Inc.

October 10, 1991

Exxon Company U.S.A.
PO Box 4386
Houston, TX 77210

RE: Remediation of NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL
originating at Exxon Station #4-3998 4701 Market Street in
Greensboro, NC.

Dear Sir:

Cherokee Environmental Group ("CEG") received approximately 1955.30 tons of soil on September 4, 1991 through September 24, 1991. The Generator (or the Generator's agent) has certified that this soil is contaminated only with NON-HAZARDOUS PETROLEUM (Class I and Class II petroleum products). Receipt of this shipment of NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL is evidenced by CEG's manifests with control numbers 6336 through 7316.

This NON-HAZARDOUS PETROLEUM CONTAMINATED SOIL has been accepted by CEG, and this soil will be remediated in CEG's brickmaking process. In this process, the subject contaminated soil is mixed with raw materials, crushed, ground, compacted, and extruded into green bricks. The green bricks are then preheated and fired in tunnel kilns at temperatures reaching 1950 degrees Fahrenheit. This process drives off and / or consumes any volatiles contained in the material, leaving the finished brick free of any petroleum products.

It must be stressed that this process is permitted by the State of North Carolina's Department of Environment, Health, and Natural Resources only for the remediation of NON-HAZARDOUS Class I and II Petroleum Contaminated Soil, and CEG has not contracted to remediate any other type of contaminated material.

This particular job is filed as WM # 549. If you have any questions on this job or if we can be of further service, please feel free to call me at (919) 774-5330.

Sincerely,

Melissa Dalrymple

Melissa Dalrymple
CHEROKEE ENVIRONMENTAL GROUP

CHERONNEL OIL AND GAS GROUP, INC.
 ENVIRONMENTAL SERVICES
 1600 COLON ROAD
 SANFORD, N.C. 27330
 919-775-2121

Billing Date: 10/10/91

Page 3

Customer: EXXON CO. USA
 Address: P O BOX 4386
 HOUSTON, TX 77210

Cust #: 209400
 WM #: 549
 Price/Ton: 30.00

Waste Origin: EXXON COMPANY USA
 GREENSBORO, NC

Manifest Number	Date	Gross Weight	Tare Weight	Net Weight	Net Tons	Price Per Load
6868	9/11/91	80060	32100	47960	23.98	719.40
6869	9/11/91	62990	30000	32990	16.50	494.85
6870	9/11/91	67450	31000	36450	18.23	546.75
6871	9/17/91	68310	29300	39010	19.50	585.15
6872	9/17/91	71360	29620	41740	20.87	626.10
6873	9/17/91	60670	26000	34670	17.34	520.05
6874	9/17/91	61170	25280	35890	17.95	538.35
6875	9/17/91	73190	32000	41190	20.60	617.85
6876	9/17/91	67170	25000	42170	21.09	632.55
6877	9/17/91	68640	28560	40080	20.04	601.20
6878	9/17/91	58950	26000	32950	16.48	494.25
6879	9/17/91	68008	29300	38708	19.35	580.62
6880	9/17/91	73800	29620	44180	22.09	662.70
6881	9/17/91	72200	32000	40200	20.10	603.00
6882	9/17/91	59930	26120	33810	16.91	507.15
6883	9/17/91	70650	28560	42090	21.05	631.35
6884	9/17/91	61200	25280	35920	17.96	538.80
6885	9/17/91	54230	25000	29230	14.62	438.45
6886	9/17/91	60780	26000	34780	17.39	521.70
6887	9/18/91	48230	19680	28550	14.28	428.25
6888	9/18/91	64220	23000	41220	20.61	618.30
6889	9/18/91	67750	26200	41550	20.77	623.25
6890	9/18/91	68890	26000	42890	21.45	643.35
6891	9/18/91	47520	22000	25520	12.76	382.80
6892	9/18/91	58030	26000	32030	16.02	480.45
6893	9/19/10	51240	21000	30240	15.12	453.60
6894	9/19/91	47900	19680	28220	14.11	423.30
68971	9/24/91	60890	26000	34890	17.45	523.35
68972	9/24/91	63940	25280	38660	19.33	579.90
6973	9/24/91	65820	25000	40820	20.41	612.30
6974	9/24/91	69280	27000	42280	21.14	634.20
7314	9/19/91	48140	21000	27140	13.57	407.10
7315	9/18/91	54620	21500	33120	16.56	496.80
7316	9/18/91	49430	21500	27930	13.97	418.95

Invoice Subtotal =====>	1955.30	58,658.90
Surcharge =====>		
Invoice Total =====>		

ENVIRONMENTAL SERVICES
 1600 COLON ROAD
 SANFORD, N.C. 27330
 919-775-2121

Billing Date: 10/10/91

Page 2

Customer: EXXON CO. USA
 Address: P O BOX 4386
 HOUSTON, TX 77210

Cust #: 209400
 WM #: 549
 Price/Ton: 30.00

Waste Origin: EXXON COMPANY USA
 GREENSBORO, NC

```

*****
Manifest      Date      Gross      Tare      Net      Net      Price Per
Number        Date      Weight     Weight    Weight   Tons     Load
*****
6372      9/06/91      65320      18450      46870      23.44      703.05
6373      9/06/91      48770      18000      30770      15.39      461.55
6374      9/06/91      40270      18000      22270      11.14      334.05
6375      9/06/91      48670      21000      27670      13.84      415.05
6376      9/06/91      69980      30020      39960      19.98      599.40
6377      9/06/91      45100      15620      29480      14.74      442.20
6378      9/06/91      75180      30000      45180      22.59      677.70
6379      9/06/91      77710      28560      49150      24.58      737.25
6380      9/06/91      65310      29000      36310      18.16      544.65
6381      9/06/91      65000      30000      35000      17.50      525.00
6382      9/06/91      66150      31000      35150      17.57      527.25
6383      9/06/91      65150      29920      35230      17.61      528.45
6384      9/06/91      71820      32000      39820      19.91      597.30
6385      9/06/91      67240      29030      38210      19.11      573.15
6386      9/06/91      58700      25280      33420      16.71      501.30
6387      9/06/91      63830      24600      39230      19.61      588.45
6388      9/06/91      67690      25000      42690      21.35      640.35
6389      9/06/91      44540      14540      30000      15.00      450.00
6390      9/06/91      42110      17110      25000      12.50      375.00
6391      9/06/91      70120      27800      42320      21.16      634.80
6392      9/06/91      45660      18000      27660      13.83      414.90
6393      9/06/91      47740      21000      26740      13.37      401.10
6394      9/06/91      62025      21660      40365      20.18      605.48
6395      9/11/91      78000      29300      48700      24.35      730.50
6396      9/11/91      47510      19800      27710      13.86      415.65
6397      9/11/91      66180      24600      41580      20.79      623.70
6398      9/11/91      76180      29620      46560      23.28      698.40
6399      9/11/91      75710      30000      45710      22.86      685.65
6400      9/11/91      79300      30000      49300      24.65      739.50
6861      9/11/91      85070      31000      54070      27.04      811.05
6862      9/11/91      73760      32100      41660      20.83      624.90
6863      9/11/91      64300      24600      39700      19.85      595.50
6864      9/11/91      45730      19800      25930      12.97      388.95
6865      9/11/91      69150      29300      39850      19.93      597.75
6866      9/11/91      77470      30000      47470      23.74      712.05
6867      9/11/91      79390      29620      49770      24.89      746.55
  
```

Invoice Subtotal =====>	1335.76	40,072.73
Surcharge =====>		
Invoice Total =====>		

ENVIRONMENTAL SERVICES
 1600 COLON ROAD
 SANFORD, N.C. 27330
 919-775-2121

Billing Date: 10/10/91

Page 1

Customer: EXXON CO. USA
 Address: P O BOX 4386
 HOUSTON, TX 77210

Cust #: 209400
 WM #: 549
 Price/Ton: 30.00

Waste Origin: EXXON COMPANY USA
 GREENSBORO, NC

Manifest Number	Date	Gross Weight	Tare Weight	Net Weight	Net Tons	Price Per Load
6000	9/24/91	62100	23500	38600	19.30	579.00
6336	9/04/91	41810	19800	22010	11.01	330.15
6337	9/04/91	60220	23500	36720	18.36	550.80
6338	9/04/91	40680	20120	20560	10.28	308.40
6339	9/04/91	61590	25280	36310	18.16	544.65
6340	9/04/91	62980	27000	35980	17.99	539.70
6341	9/04/91	64700	25000	39700	19.85	595.50
6342	9/04/91	67150	25280	41870	20.94	628.05
6343	9/04/91	52480	25300	27180	13.59	407.70
6344	9/04/91	60390	27800	32590	16.30	488.85
6345	9/04/91	57890	24600	33290	16.64	499.35
6346	9/04/91	44260	23500	20760	10.38	311.40
6347	9/04/91	41230	19800	21430	10.72	321.45
6348	9/04/91	50820	20200	30620	15.31	459.30
6349	9/04/91	57990	25280	32710	16.36	490.65
6350	9/04/91	72430	28560	43870	21.94	658.05
6351	9/01/91	61890	24600	37290	18.64	559.35
6352	9/04/91	62940	27000	35940	17.97	539.10
6353	9/04/91	69520	25000	44520	22.26	667.80
6354	9/04/91	58300	25300	33000	16.50	495.00
6355	9/04/91	70010	27800	42210	21.11	633.15
6356	9/05/91	50030	20200	29830	14.92	447.45
6357	9/05/91	66730	25280	41450	20.73	621.75
6358	9/05/91	44100	19800	24300	12.15	364.50
6359	9/05/91	60250	23500	36750	18.38	551.25
6360	9/05/91	76180	28560	47620	23.81	714.30
6361	9/05/91	63060	24600	38460	19.23	576.90
6362	9/05/91	66870	27000	39870	19.93	598.05
6363	9/05/91	68120	25000	43120	21.56	646.80
6364	9/05/91	58330	15050	43280	21.64	649.20
6365	9/05/91	75620	27860	47760	23.88	716.40
6367	9/06/91	45640	19800	25840	12.92	387.60
6368	9/06/91	63730	25280	38450	19.23	576.75
6369	9/06/91	68740	25000	43740	21.87	656.10
6370	9/06/91	61000	14680	46320	23.16	694.80
6371	9/06/91	65660	24600	41060	20.53	615.90

Invoice Subtotal =====>	647.51	19,425.15
Surcharge =====>		
Invoice Total =====>		

APPENDIX B
SOIL LABORATORY DATA SHEETS



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5392

RECEIVED
MAR 31 1994

SUMMARY REPORT

CLIENT : ERM-Southeast
PROJECT : 4106 Exxon SS# 4-3998

JOB NUMBER : D94-2749
REPORT DATE : 21-MAR-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	HAS-1(6') Greensboro, NC	Soil	9-MAR-1994
2	SB-2(14-16) Greensboro, NC	Soil	9-MAR-1994
3	SB-3(14-16) Greensboro, NC	Soil	9-MAR-1994
4	SB-4(14-16) Greensboro, NC	Soil	10-MAR-1994

TPH BY GC (VOLATILE), EPA 5030/8015M	1	2	3	4
Total Petroleum Hydrocarbon $\mu\text{g/Kg}$	140	95	5000	1700

MISCELLANEOUS ANALYSES	1	2	3	4
Total Solids %	74.5	64.4	70.6	65.3

Martin Jeffus jm



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

SUMMARY REPORT

CLIENT : ERM-Southeast
PROJECT : 4106 Exxon SS# 4-3998

JOB NUMBER : D94-2749
REPORT DATE : 21-MAR-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
5	SB-5(14-16) Greensboro, NC	Soil	10-MAR-1994
6	SB-6(14-16) Greensboro, NC	Soil	10-MAR-1994
7	HAS-2(6') Greensboro, NC	Soil	10-MAR-1994
8	SB-6(4-6) Greensboro, NC	Soil	10-MAR-1994

TPH BY GC (VOLATILE), EPA 5030/8015M	5	6	7	8
Total Petroleum Hydrocarbon $\mu\text{g}/\text{Kg}$	4100	390	120	18000

MISCELLANEOUS ANALYSES	5	6	7	8
Total Solids %	67.8	64.9	75.6	72.6

Martin Jeffus jm



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-1
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : HAS-1(6')
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 17-MAR-1994
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50 $\mu\text{g/Kg}$	140 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	94.0 %

Martin Jeffus jm
Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-1

REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : HAS-1(6')
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	74.5 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm
Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-2
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-2(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 17-MAR-1994
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50 $\mu\text{g/Kg}$	95 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	89.0 %

Martin Jeffus jm
Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-2
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-2(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	64.4 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-3
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-3(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 18-MAR-1994
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50 $\mu\text{g/Kg}$	5000 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	81.0 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-3
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-3(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 9-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	70.6 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-4
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
 : Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-4(14-16)
 : Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 18-MAR-1994
DILUTION FACTOR : 5
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	250 $\mu\text{g/Kg}$	1700 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	102 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-4
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-4(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	65.3 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-5
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-5(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 18-MAR-1994
DILUTION FACTOR : 5
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	250 $\mu\text{g/Kg}$	4100 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	101 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-5
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
 : Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-5(14-16)
 : Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	67.8 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-6
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-6(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 17-MAR-1994
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50 $\mu\text{g/Kg}$	390 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	77.0 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-6
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-6(14-16)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	64.9 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-7

REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : HAS-2(6')
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 17-MAR-1994
DILUTION FACTOR : 1
METHOD FACTOR : 1
QC BATCH NO : 26-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	50 $\mu\text{g/Kg}$	120 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	89.0 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-7
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : HAS-2(6')
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	75.6 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-8
REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-6(4-6)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : MKS
ANALYZED ON : 18-MAR-1994
DILUTION FACTOR : 50
METHOD FACTOR : 1
QC BATCH NO : 28-031794A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	2500 $\mu\text{g/Kg}$	18000 $\mu\text{g/Kg}$

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	50.0 $\mu\text{g/Kg}$	96.0 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-258-5591
Fax. 214-258-5592

DATE RECEIVED : 11-MAR-1994

REPORT NUMBER : D94-2749-8

REPORT DATE : 21-MAR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Soil
ID MARKS : SB-6(4-6)
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 10-MAR-1994

MISCELLANEOUS ANALYSES		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Solids /1	0.01 %	72.6 %
Analyzed using EPA 160.3 on 18-MAR-1994 by JAM QC Batch No : 01135H		

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED: 11-MAR-1994

REPORT NUMBER: D94-2749

REPORT DATE: 21-MAR-1994

SUBMITTED BY: ERM-Southeast

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Total Solids	TPH	TPH
BATCH No.	01135H	28-031794A	26-031794A
LCS LOT No.	----	091493A	091493A
PREP METHOD	----	EPA 5030	EPA 5030
PREP DATE	----	3/17/94	3/17/94
PREP CHEMIST	----	JH	JH
ANALYSIS METHOD	EPA 160.3	EPA 8015	EPA 8015
ANALYSIS DATE	3/18/94	3/17/94	3/17/94
ANALYST	JAM	MKS	MKS
METHOD BLANK	----	< 50.0 µg/Kg	< 50.0 µg/Kg
MS % RECOVERY	----	109	111
MSD % RECOVERY	----	104	106
LCS % RECOVERY	----	89.9	72.9
DUPLICATE RPD	0.13	----	----
MS/MSD RPD	----	4.69	4.63
SPIKE LEVEL	----	500 µg/Kg	500 µg/Kg
SPIKED SAMPLE ID No.	----	D94-2309-4	D94-2841-2
DUPLICATE SAMPLE ID No.	D94-2947-1	----	----

----: Not Applicable
NC: Not Calculable

MS: Matrix Spike
MSD: Matrix Spike Duplicate

LCS: Laboratory Control Sample
RPD: Relative Percent Difference

COMMENTS:

Inchcape Testing Services

NDRC Laboratories

CHAIN OF CUSTODY RECORD

EXXON Company, USA
Regional Laboratory Program

1089 East Collins Blvd, Richardson, Texas 75081 (214) 238-5591 (Voice), (214) 238-5592 (Fax)
Attn: Belinda Feuerbacher, Project Director

Consultant's Name: ERM - Soithens

Page 1 of 1

Address: Suite 200 7330 Carnal Executive Park, Charlotte NC 28226

Project: EXXON - Market Street Consultant Proj #: 4106 Consultant Work Release #: 19430319

Project Contact: Terry Pussier Phone: 701-541-8344 Fax: 541-8416 Laboratory Work Release #: 19408689

Alternate Contact: Andy Nunnally Phone: 11 Fax: 11 Site Location: Greensboro NC

EXXON Contact: Frank Melvin (EE) C&M (circle one) Phone: 337-426339 Fax: 5294209 EXXON RAS #: 4-3398

Shipment Method: Burlington Air Air Bill # 974 815 984 Sampler's Signature: [Signature]

Shipment Date: 3-10-94

SAMPLE ID DATE TIME MATRIX PRSV SAMPLE LOCATION/ DESCRIPTION

SAMPLE ID	DATE	TIME	MATRIX WATER/ SOIL	PRSV	SAMPLE LOCATION/ DESCRIPTION	ANALYSIS REQUIRED Number of Containers	DUF	WIC	SCREENED FOR RADIOACTIVITY	Sample Condition as Received Temperature °F	Cooler #	Inbound Sealed	Outbound Sealed	COMMENTS
HAS-1 (C)	3-9-94	1200	soil			2	250mL							
SB-2 (14/16)	↓	1500				1								
SB-3 (14/16)	↓	1630				1								
SA-4 (14/16)	3-10-94	1001				2								
SA-5 (14/16)	↓	1100				1								
SA-6 (14/16)	↓	1200				1								
HA-2 (6')	↓	930				1								
SA-6 (4-b)	↓	1150				1								

Turn around time 24 hr 48 hr 72 hr Standard Other Total # of Containers: 11

(1) Relinquished by Signature: [Signature] Date: 3-10-94 Company: ERM Soithens

(2) Relinquished by Signature: [Signature] Date: 3-10-94 Company: ERM Soithens

(3) Received by Signature: [Signature] Date: 3-11-94 Company: ITSU

Company: Burlington Air Time: 11:00 Company: ITSU Time: 11:00

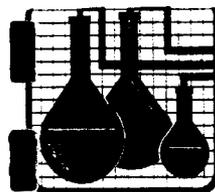
Distribut. White - Original Yellow - Exxon Pink - NDRC Laboratories Jdemrod - Consultant

ORIGINAL

3/2

APPENDIX C

GROUND WATER LABORATORY DATA SHEETS



SPECIALIZED ASSAYS
ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

RECEIVED
JUN 23 1994

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-1
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027369

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 12:00

Time Received: 9:00

Sample type: Water

Preservative:

Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	6150	ug/l	500.	6/14/94	16:08	S. Wani	602
Toluene	22500	ug/l	500.	6/14/94	16:08	S. Wani	602
Ethylbenzene	5000	ug/l	500.	6/14/94	16:08	S. Wani	602
Xylenes, total	28800	ug/l	500.	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	96.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	900.	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 10.0	ug/l	10.0	6/16/94	10:38	M. Goodrich	504.1
Lead	0.005	mg/l	0.003	6/13/94	12:54	R. Street	3030c

* Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	95.	70 - 130

Danny Hall
Laboratory Supervisor



ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-2
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027370

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 12:30

Time Received: 9:00

Sample type: Water

Preservative:

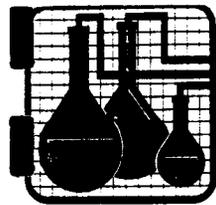
Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	7160	ug/l	200.	6/14/94	16:08	S. Wani	602
Toluene	33500	ug/l	200.	6/14/94	16:08	S. Wani	602
Ethylbenzene	4560	ug/l	200.	6/14/94	16:08	S. Wani	602
Xylenes, total	25300	ug/l	200.	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	390.	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	280.	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 10.0	ug/l	10.0	6/16/94	10:38	M.Goodrich	504.1
Lead	0.003	mg/l	0.003	6/13/94	12:54	R.Street	3030c

** Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	89.	70 - 130

Danny Hale
Laboratory Supervisor



SPECIALIZED ASSAYS
ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-3
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027371

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 13:00

Time Received: 9:00

Sample type: Water

Preservative:

Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	12600	ug/l	500.	6/14/94	16:08	S. Wani	602
Toluene	65400	ug/l	500.	6/14/94	16:08	S. Wani	602
Ethylbenzene	4500	ug/l	500.	6/14/94	16:08	S. Wani	602
Xylenes, total	32200	ug/l	500.	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 1000	ug/l	1000	6/14/94	16:08	S. Wani	602
Isopropyl ether	2560	ug/l	1000	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 50.0	ug/l	50.0	6/16/94	10:38	M. Goodrich	504.1
Lead	0.678	mg/l	0.003	6/13/94	12:54	R. Street	3030c

Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	92.	70 - 130

Handwritten Signature
Laboratory Supervisor



ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-4
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027372

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 11:15

Time Received: 9:00

Sample type: Water

Preservative:

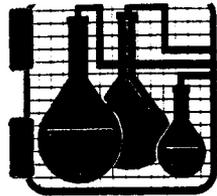
Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Toluene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Ethylbenzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Xylenes, total	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 0.1	ug/l	0.1	6/16/94	10:38	M. Goodrich	504.1
Lead	0.004	mg/l	0.003	6/13/94	12:54	R. Street	3030c

** Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	93.	70 - 130

Laboratory Supervisor



SPECIALIZED ASSAYS
ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-5
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027373

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 10:20

Time Received: 9:00

Sample type: Water

Preservative:

Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Toluene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Ethylbenzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Xylenes, total	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 0.1	ug/l	0.1	6/16/94	10:38	M. Goodrich	504.1
Lead	0.013	mg/l	0.003	6/13/94	12:54	R. Street	3030c

Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	94.	70 - 130

Clarry Hall

Laboratory Supervisor



ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-6
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027374

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 10:45

Time Received: 9:00

Sample type: Water

Preservative:

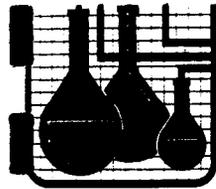
Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Toluene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Ethylbenzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Xylenes, total	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 0.1	ug/l	0.1	6/16/94	10:38	M. Goodrich	504.1
Lead	0.013	mg/l	0.003	6/13/94	12:54	R. Street	3030c

** Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	96.	70 - 130

Laboratory Supervisor



SPECIALIZED ASSAYS
ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: MW-7
EXXON 4-3998 / GREENSBORO

Lab Number: 94-A027375

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 10:00

Time Received: 9:00

Sample type: Water

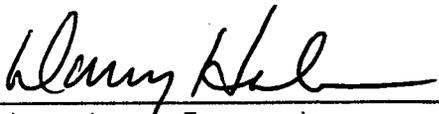
Preservative:

Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Toluene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Ethylbenzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Xylenes, total	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 0.1	ug/l	0.1	6/16/94	10:38	M. Goodrich	504.1
Lead	0.020	mg/l	0.003	6/13/94	12:54	R. Street	3030c

** Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRD Surrogate	96.	70 - 130


Laboratory Supervisor



ENVIRONMENTAL

300 12th Avenue South
Nashville, Tennessee 37203

ANALYTICAL REPORT

ERM-SOUTHEAST INC. 5919
ATTN: JERRY PROSSER
7300 CARMEL EXEC. PARK STE 200
CHARLOTTE, NC 28226

Sample: DW-8
EXXON 4-3798 / GREENSBORO

Lab Number: 94-A027376

Sampler: ANDY NUNNALLY

State Certification: 387

Date Collected: 6/ 9/94

Date Received: 6/10/94

Time Collected: 11:45

Time Received: 9:00

Sample type: Water

Preservative:

Site I.D.:

Analyte	Result	Units	PQL	Date	Time	Analyst	Method
Benzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Toluene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Ethylbenzene	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Xylenes, total	< 1.0	ug/l	1.0	6/14/94	16:08	S. Wani	602
Methyl-t-butylether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Isopropyl ether	< 10.0	ug/l	10.0	6/14/94	16:08	S. Wani	602
Ethylene Dibromide	< 0.1	ug/l	0.1	6/16/94	10:38	M. Goodrich	504.1
Lead	0.004	mg/l	0.003	6/13/94	12:54	R. Street	3030c

** Surrogate Recoveries **

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	96.	70 - 130

Laboratory Supervisor

ENVIRONMENTAL

REFERRING CLIENT

Account: (5919)
 ARM - Southeast, Inc.
 Terry Prosser
 300 Carmel Executive Park Suite 200
 Charlotte, NC 28226
 Ph: 704-541-8345 Fax: 704-541-8416



300 12th Ave., South
 Nashville, TN 37203
 615-726-0177
 FAX 615/726-3404

SPILLING CONTROL NUMBER (FOR LAB USE ONLY)

9649

PROJECT # *EWRA*
 19930319

P.O. # *EXM #*
 4106

SAMPLERS (Signature-Please Print)

Andy Nunnally

PROJECT NAME

EX-04-3998 / Greensboro NC

FOR LAB USE ONLY ACC#	SAMPLE DESCRIPTION	DATE	TIME	COMP	GRAB	# OF CONT	ANALYSIS REQUESTED
27369	MW-1	6/9/94	1200		X	4	BTEX + IPE + MTBE + EDB lead by 3030 C
370	MW-2		1230		X	4	" "
371	MW-3		1300		X	4	" "
372	MW-4		1115		X	4	" "
373	MW-5		1020		X	4	" "
374	MW-6		1045		X	4	" "
375	MW-7		1000		X	4	" "
376	DW-8		1145		X	4	" "
377	trip blank						

Relinquished by: (Signature) <i>[Signature]</i>	Date / Time 6/9/94	Received by: (Signature) <i>Federal Express</i>	Received for Laboratory by: ~ <i>Kerrin Buelwell</i>	Date / Time 6/10/94 0900
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Remarks	
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		
Relinquished by: (Signature)	Date / Time	Received by: (Signature)		

For further assistance in completing the chain of custody form please refer to the instructions found on the opposite side

QC #

94-A027378

APPENDIX D

AIR LABORATORY DATA SHEETS



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

MAV 02 1994

SUMMARY REPORT

CLIENT : ERM-Southeast
PROJECT : 4106 Exxon SS# 4-3998

JOB NUMBER : D94-4176
REPORT DATE : 21-APR-1994

SAMPLE NO.	ID MARKS	MATRIX	DATE SAMPLED
1	EP-1 Greensboro, NC	Air	13-APR-1994
2	AS/EP-1 Greensboro, NC	Air	13-APR-1994

BTEX ANALYSIS, EPA 8020		1	2		
Benzene	mg/m ³	102	247		
Toluene	mg/m ³	484	1210		
Ethyl benzene	mg/m ³	22.9	60.5		
Xylenes	mg/m ³	82.3	313		
BTEX (total)	mg/m ³	691	1830		

TPH BY GC (VOLATILE), EPA 5030/8015M		1	2		
Total Petroleum Hydrocarbon	mg/m ³	2170	2100		

Martin Jeffus jm



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 14-APR-1994

REPORT NUMBER : D94-4176-1
REPORT DATE : 21-APR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Air
ID MARKS : EP-1
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 13-APR-1994

JOB NOTES :

Exxon Project!

FAX RESULTS :

PHONE NUMBER : 704-541-8345
FAX NUMBER : 704-541-8416

QC REPORTING LEVEL : 1



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 14-APR-1994

REPORT NUMBER : D94-4176-1
REPORT DATE : 21-APR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Air
ID MARKS : EP-1
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 13-APR-1994
ANALYSIS METHOD : EPA 8020 /1
ANALYZED BY : RDG
ANALYZED ON : 18-APR-1994
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 1-041894A

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.3 mg/m ³	102 mg/m ³
Toluene	1.3 mg/m ³	484 mg/m ³
Ethyl benzene	1.3 mg/m ³	22.9 mg/m ³
Xylenes	1.3 mg/m ³	82.3 mg/m ³
BTEX (total)		691 mg/m ³ #

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene	5.0 mg/m ³	82.0 %

Based upon Good Laboratory Practice, the result is rounded to the appropriate number of significant figures.

Martin Jeffus jm
Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 14-APR-1994

REPORT NUMBER : D94-4176-1
REPORT DATE : 21-APR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Air
ID MARKS : EP-1
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 13-APR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : RDG
ANALYZED ON : 18-APR-1994
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 2-041894A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	63 mg/m ³	2170 mg/m ³

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	5.0 mg/m ³	112 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 14-APR-1994

REPORT NUMBER : D94-4176-2
REPORT DATE : 21-APR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Air
ID MARKS : AS/EP-1
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 13-APR-1994
ANALYSIS METHOD : EPA 8020 /1
ANALYZED BY : RDG
ANALYZED ON : 18-APR-1994
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 1-041894A

BTEX ANALYSIS		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Benzene	1.3 mg/m ³	247 mg/m ³
Toluene	1.3 mg/m ³	1210 mg/m ³
Ethyl benzene	1.3 mg/m ³	60.5 mg/m ³
Xylenes	1.3 mg/m ³	313 mg/m ³
BTEX (total)		1830 mg/m ³ #

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Bromofluorobenzene	5.0 mg/m ³	102 %

Based upon Good Laboratory Practice, the result is rounded to the appropriate number of significant figures.

Martin Jeffus jm
Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED : 14-APR-1994

REPORT NUMBER : D94-4176-2
REPORT DATE : 21-APR-1994

SAMPLE SUBMITTED BY : ERM-Southeast
ADDRESS : 7300 Carmel Executive Park #200
: Charlotte, NC 28226
ATTENTION : Mr. Jerry Prosser

SAMPLE MATRIX : Air
ID MARKS : AS/EP-1
: Greensboro, NC
PROJECT : 4106 Exxon SS# 4-3998
DATE SAMPLED : 13-APR-1994
ANALYSIS METHOD : EPA 5030/8015M /1
ANALYZED BY : RDG
ANALYZED ON : 18-APR-1994
DILUTION FACTOR : 25
METHOD FACTOR : 1
QC BATCH NO : 2-041894A

TPH BY GC (VOLATILE)		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Total Petroleum Hydrocarbon	63 mg/m ³	2100 mg/m ³

QUALITY CONTROL DATA		
SURROGATE COMPOUND	SPIKE LEVEL	SPIKE RECOVERED
Fluorobenzene	5.0 mg/m ³	122 %

Martin Jeffus jm

Martin Jeffus
General Manager



Inchcape Testing Services

NDRC Laboratories

1089 E. Collins Blvd.
Richardson, TX 75081
Tel. 214-238-5591
Fax. 214-238-5592

DATE RECEIVED: 14-APR-1994

REPORT NUMBER: D94-4176

REPORT DATE: 21-APR-1994

SUBMITTED BY: ERM-Southeast

LABORATORY QUALITY CONTROL REPORT

ANALYTE	TPH	Benzene	Ethyl Benzene
BATCH No.	2-041894A	1-041894A	1-041894A
LCS LOT No.	032294-3	032294-3	032294-3
PREP METHOD	EPA 5030	EPA 5030	EPA 5030
PREP DATE	4/18/94	4/18/94	4/18/94
PREP CHEMIST	JCH	JCH	JCH
ANALYSIS METHOD	EPA 8015	EPA 8020	EPA 8020
ANALYSIS DATE	4/19/94	4/19/94	4/19/94
ANALYST	RDG	RDG	RDG
METHOD BLANK	< 2.5 mg/m ³	< 0.05 mg/m ³	< 0.05 mg/m ³
MS % RECOVERY	97.7	81.6	88.9
MSD % RECOVERY	100	82.5	89.1
LCS % RECOVERY	116	80.2	89.2
DUPLICATE RPD	----	----	----
MS/MSD RPD	2.33	1.10	0.22
SPIKE LEVEL	50.0 mg/m ³	5.0 mg/m ³	5.0 mg/m ³
SPIKED SAMPLE ID No.	D94-4326-7	D94-4326-7	D94-4326-7
DUPLICATE SAMPLE ID No.	----	----	----

----: Not Applicable
NC: Not Calculable

MS: Matrix Spike
MSD: Matrix Spike Duplicate

LCS: Laboratory Control Sample
RPD: Relative Percent Difference

COMMENTS:

Inchcape Testing Services

1089 East Collins Blvd, Richardson, Texas 75081 (214) 238-5591 (Voice), (214) 238-5592 (Fax)
 Atn: Belinda Feuerbacher, Project Director

CHAIN OF CUSTODY RECORD

EXXON Company, USA
 Regional Laboratory Program

Consultant's Name: ERM - Sothwest

Page Lot 1

Address: Site 200 7300 Carnel Executive Park, Dallas TX

Project: Exxon 4701 Market Street Consultant Proj #: 4/106 Consultant Work Release #: 19430319

Project Contact: Jerry Prosser Phone: 541-8345 Fax: 541-8416 Laboratory Work Release #: 19403902

Alternate Contact: Andy Nunnally Phone: 11 Fax: 11 Site Location: Crenshaw VIC

EXXON Contact: Frank Melvin (EE) C&M (circle one) Phone: 529-4443 Fax: 529-4209 EXXON RAS #: 4-3978

Sampled by (print): Andy Nunnally Sampler's Signature: [Signature]

Shipment Method: Relby A Air Bill # 979 816 021 ANALYSIS REQUIRED

Shipment Date: 4-13-94 Number of Containers: 2

SAMPLE ID DATE TIME MATRIX PRSV SAMPLE LOCATION/ DESCRIPTION

SAMPLE ID	DATE	TIME	MATRIX WATER/SOIL	PRSV	SAMPLE LOCATION/ DESCRIPTION	ANALYSIS REQUIRED	Number of Containers	Sample Condition as Received
EP-1	4-13-94	1230	Air		TPK 4000	DUPLICATE	2	Temperature °C: <u>24</u> Cooler #: <u>N/A</u> Inbound Sealed: <u>Yes</u> Outbound Sealed: <u>Yes</u>
AS/EP-1	11	1130	Air		TPK 5000	DUPLICATE	2	

Turn around time 24 hr 48 hr 72 hr Standard Other 4 Total # of Containers: 4

(1) Relinquished by Signature [Signature] Date 4-13-94 Time: 10:00 (2) Relinquished by Signature _____ Date _____ Time: _____

Company: ERM-Sothwest (2) Received by Signature _____ Date _____ Time: _____

(1) Received by Signature [Signature] Date 4-14-94 Time: 10:00 (3) Received by Signature _____ Date _____ Time: _____

Company: Relby A Time: 10:00 Company: _____ Time: _____

Distribution: White - Original Yellow - Exxon Pink - NDRC Laboratories Green - Consultant

APPENDIX E
SITE SENSITIVITY EVALUATION

Table 1
Site Sensitivity Evaluation (SSE)
 Site Characteristics Evaluation (Step 1)

Characteristic	Condition	Rating	
Grain Size*	Gravel	150	50
	Sand	100	
	Silt	50	
	Clay	0	
Are relict structures, sedimentary structures, and/or textures present in the zone of contamination and underlying "soils"?	Present and intersecting the water table.	10	10
	Present but <u>not</u> intersecting the water table.	5	
	None present.	0	
Distance from location of deepest contaminated soil** to water table.	0 - 5 feet (C, D & E sites only)	20	10
	5 - 10 feet	20	
	>10 - 40 feet	10	
	> 40 feet	0	
Is the top of bedrock or transmissive indurated sediments located above the water table?	Yes	20	0
	No	0	
Artificial conduits present within the zone of contamination.	Present and intersecting the water table.	10	0
	Present but <u>not</u> intersecting the water table.	5	
	Not present.	0	

Total Site Characteristics Score: 70

* Predominant grain size based on Unified Soil Classification System or U.S. Dept. of Agriculture's Soil Classification Method.

** (>10 ppm TPFH by Method 5030; >40 ppm TPFH by Method 3550; >250 ppm O&G by Method 9071)

Site Sensitivity Evaluation (SSE)

Initial Cleanup Level
(Step 2)

Final Cleanup Level
(Step 3)

EPA Method 5030 for Low Boiling Point Hydrocarbons such as Gasoline, Aviation Fuels, Gasohol

Total Site Characteristics Score	Initial Cleanup Level TPFH (ppm)	Select Site Category*	Category A & B (Multiply initial cleanup level by 1)	Final Cleanup Level
>150	≤10	Select Site Category* 	1 x _____ = _____ ppm	
121-150	20		Category C & D (Multiply initial cleanup level by 2)	2 x _____ = _____ ppm
91-120	40			
61-90	60			
31-60	80			3 x <u>60</u> = <u>180</u> ppm
0-30	100			

EPA Method 3550 for High Boiling Point Hydrocarbons such as Kerosene, Diesel, Varsol, Mineral Spirits, Naphtha

Total Site Characteristics Score	Initial Cleanup Level TPFH (ppm)	Select Site Category*	Category A & B (Multiply initial cleanup level by 1)	Final Cleanup Level
>150	≤40	Select Site Category* 	1 x _____ = _____ ppm	
121-150	80		Category C & D (Multiply initial cleanup level by 2)	2 x _____ = _____ ppm
91-120	160			
61-90	240			
31-60	320			3 x <u>240</u> = <u>720</u> ppm
0-30	400			

EPA Method 9071 for Heavy Fuels - Oil & Grease (O&G) such as Fuel Oil #4, #5, #6, Motor Oil, Hydraulic Fluid

Total Site Characteristics Score	Initial Cleanup Level O&G (ppm)	Select Site Category*	Category A & B (Multiply initial cleanup level by 1)	Final Cleanup Level
>150	≤250	Select Site Category* 	1 x _____ = _____ ppm	
121-150	400		Category C & D (Multiply initial cleanup level by 2)	2 x _____ = _____ ppm
91-120	550			
61-90	700			
31-60	850			3 x <u>700</u> = <u>2,100</u> ppm
0-30	1000			

* See Site Category Descriptions, Table 3

APPENDIX F
SVE/AS PILOT TEST RESULTS

TABLE F-1
SOIL VAPOR EXTRACTION PILOT TEST RESULTS
EXXON RETAIL LOCATION 4-3998
4701 W. MARKET STREET
GREENSBORO, NORTH CAROLINA
APRIL 13, 1994

	Distance to AS/SVE-1	Elapsed Time (minutes)		
		0	30	60
Extraction Well EP-1	--			
Vacuum (in H2O)		0	60	59
Air Flow (m/h)*		0	85	84
VOC concentration (ppm)		156	88	154
Observation Point OP-1	14 feet			
Vacuum (in H2O)		0	0.10	0.10
VOC concentration (ppm)		90	45	13.2
Monitor Well MW-3	19 feet			
Vacuum (in H2O)		0	0.04	0.05
VOC concentration (ppm)		18	11.5	10

Notes:

* = Air flow rate based on Manufacturers specifications for the system blower (Gast model R5325R-50, 2 horsepower, 60 hertz)

m/h = cubic meters per hour

ppm = parts per million

VOC = Volatile organic compounds - measured using a photoionization detector.

TABLE F-2

SVE/AS PILOT TEST FIELD DATA
 EXXON RETAIL LOCATION 4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA
 APRIL 13, 1994

	DISTANCE TO AS/EP-1	ELAPSED TIME (minutes)						
		PRE START-UP	START	15	30	60	90	
AIR SPARGE WELL AS-1	---							
Water Level (ft. BTOC)		20.90	--	--	--	--	--	--
Pressure (psi)		0	25.5	18.5	14.5	12.5	11.5	
Air Flow Rate (SCFM)		0	2	3-4	3-4	3-4	3-4	
OBSERVATION WELL OP-1	14 feet							
Water Level (ft. BTOC)		21.06	--	--	20.66	20.48	20.46	
Dissolved Oxygen (ppm)		5.7	--	--	--	5.4	5.2	
Pressure (inches of water)		0.0	--	>5	>5	>5	>5	
VOCs (ppm)		13.2	--	--	40	48	67	
OBSERVATION WELL MW-3	19 feet							
Water Level (ft. BTOC)		21.60	--	--	21.48	21.39	21.49	
Dissolved Oxygen (ppm)		5.4	--	--	--	5.4	5.4	
Pressure (inches of water)		0.0	--	1.7	2.4	2.7	3.0	
VOCs (ppm)		10	--	--	13.4	14.6	19.5	
EXTRACTION WELL EP-1	---							
Vacuum - inches of water		0	--	58	58	58	58	
SVES Emissions (ppm)		154	--	220	220	290	190	

ABBREVIATIONS:

- BTOC = Below Top of Casing
- psi = pounds per square inch
- SCFM = Standard Cubic Feet per Minute
- ppm = parts per million
- VOC = Volatile Organic Compound - measured using a photoionization detector
- SVE = Soil Vapor Extraction
- AS = Air Sparge
- SVES Emissions = Soil Vapor Extraction System Air Emissions - measured using a photoionization detector

TABLE F-3
 SOIL VAPOR EXTRACTION/AIR SPARGING PILOT TEST
 AIR EMISSION ANALYTICAL RESULTS
 EXXON RETAIL LOCATION 4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA
 APRIL 13, 1994

SAMPLE I.D.	TPH	TOTAL BTEX	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	COMMENTS
EP-1	2,170 mg/m	691 mg/m	102 mg/m	484 mg/m	22.9 mg/m	82.3 mg/m	SVE phase of pilot test
Loading Rate	9.2 lb/day	2.92 lb/day	0.43 lb/day	2.05 lb/day	0.1 lb/day	0.35 lb/day	
AS/EP-1	2,100 mg/m	1,830 mg/m	247 mg/m	1,210 mg/m	60.5 mg/m	313 mg/m	SVE/AS phase of pilot test
Loading Rate	8.9 lb/day	7.75 lb/day	1.05 lb/day	5.12 lb/day	0.26 lb/day	1.32 lb/day	

NOTES:

- TPH = Total Petroleum Hydrocarbons - analysis by modified EPA Method 8015
- BTEX analysis by EPA Method 8020
- mg/m = milligrams per cubic meter
- Air emission loading rate based on an air flow rate of 80 cubic meter/hour

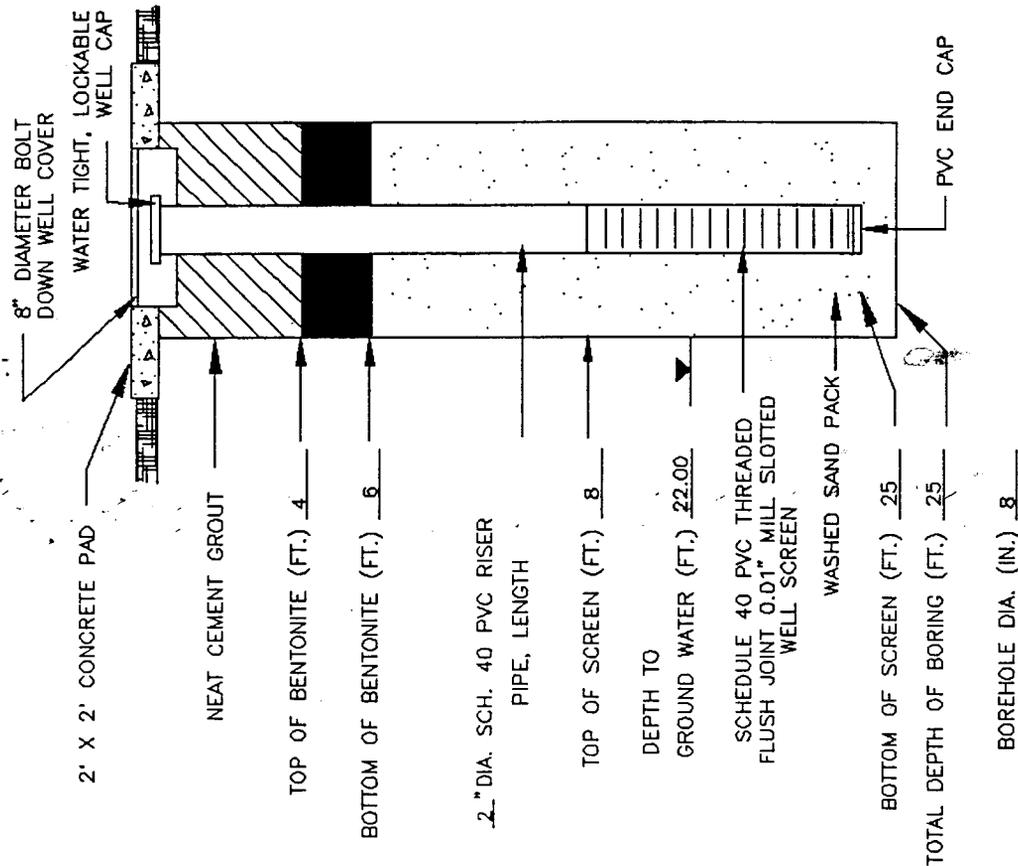
APPENDIX G
SOIL BORING LOGS

**ERM-SOUTHEAST
ENVIRONMENTAL RESOURCES MANAGEMENT**
PAGE 1 OF 2

Drilling Log

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: AS/EP-1 Drilling Company: Southeastern Env. Services Date Drilled: 3-10-94 Driller: Steve Stratton Log By: Andy Nunnally MFW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 40' Total Depth Well: 40'/25' Top of Casing Elevation: AS 96.38/EP-1 96.31 Boring/Casing Diameter: 8" Water Level: Initial/24-hours: 21.7'/21.43 Screen Interval(s): 38-40/8-25 Bentonite Interval(s): 33-35'/4-6 Grout Interval(s): 0-4
---	---

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type-Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4	pushed	SS	4-6	Red Clay. No odor or staining. Moist. Rec. = 1.5 ft., PID = 5.0 ppm.
5				
6	8,11,17,18	SS	6-8	Red Clay. No odor or staining. Moist. Rec. = 2.0 ft., PID = 6.0 ppm.
7				
8	1,2,3,3	SS	8-10	Orange-brown to dark red silty clay to clayey SILT. (30% clay). Saprolitic, moist, Recovery = 2.0 ft. PID = 14.6 ppm.
9				
10	1,3,4,4	SS	10-12	Orange-red to tan orange saprolitic clayey SILT (30% clay). Moist, Recovery = 2.0 ft. PID = 14.6 ppm.
11				
12	2,2,2,3	SS	12-14	Tan, orange and red clayey SILT (30% clay). Saprolite, moist. Recovery = 2.0 ft. PID = 22 ppm.
13				
14	2,2,3,4	SS	14-16	Tan, orange and red clayey SILT. (30% clay). Saprolite, slight odor, moist, Recovery = 2.0 ft., PID = 26 ppm.
15				
16	1,1,2,3	SS	16-18	Tan, orange and red clayey SILT (30% clay). Saprolite, slight odor, moist, Recovery = 2.0 ft. PID = 40 ppm.
17				
18	1,1,1,2	SS	18-20	Dark brown clayey silt (30% clay). Saprolite, moderate odor, very moist, Recovery = 2.0 ft. PID = 116 ppm.
19				
20	1,1,1,1	SS	20-22	Red and brown to tan and orange clayey SILT (30% clay). Saprolite, strong odor, wet. Recovery = 20 ft. PID = 132 ppm.
21				
22	1,1,1,1	SS	22-24	Brown and orange clayey silt (30%). Saprolite, wet, odor. Recovery = 2.0 ft. PID = 150 ppm.
23				



Sample Interval (ft.)	Type/Number	Blow Count per 6 inches	VOC (ppm)	Description
4-6	S	pushed	7.4	Red Clay. Stiff. Recovery 1.7 ft.
9-11	S	2,3,3,4	20	Orange, red and tan clayey Silt (30% clay). Saprolite, moist, slight odor. Recovery = 1.6 ft.
14-16	S	2,2,2,3	58	Medium brown, tan and orange clayey Silt (30% clay). Saprolite, moist, odor. Recovery = 1.8 ft.
19-21	S	3,2,2,3	148	Orange, brown and red clayey Silt, Saprolite very moist, strong odor. Recovery = 1.8 ft.
24-26	S	1,3,3,5	162	Red-tan and orange-brown clayey Silt (30% clay). Saprolite, wet, strong odor,

Notes:

ppm = Parts per million

VOC = Volatile organic compound

S = Split spoon sample

AS = Auger sample

BS = Miscellaneous sample

RC = Rock core

DATE 03/09/94

DRILLING METHOD HOLLOW STEM AUGER

DRILLING CO. SOUTHEASTERN ENVIRONMENTAL SERVICE

TOP OF CASING ELEVATION (ft.) 96.79

DRILLER STEVE STRATTON

LOG BY ANDY NUNNALLY

EXXON COMPANY, U.S.A.
 RETAIL LOCATION 4-3998
 4701 WEST MARKET STREET
 GREENSBORO, NORTH CAROLINA

OP-1

DRILLING LOG AND MONITOR WELL
 CONSTRUCTION DIAGRAM



ERM - SOUTHEAST, INC
 CHARLOTTE, NC

4106051.DWG
 07/06/94:RER/AH

TYPE:LOC.DWG

ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: SB-1 Drilling Company: Southeastern Env. Services Date Drilled: 3-10-94 Driller: Steve Stratton Log By: Andy Nunnally MW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 17' Total Depth Well: NA Top of Casing Elevation: Boring/Casing Diameter: Water Level: Initial/24-hours: NA Screen Interval(s): NA Bentonite Interval(s): NA Grout Interval(s): NA
--	---

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type- Number	Sample Interval (feet)	Description/Soil Classification
0				Former UST field, gravel from 0 to 17 feet.
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				TD = 17 feet
18				
19				
20				
21				
22				
23				

**ERM-SOUTHEAST
ENVIRONMENTAL RESOURCES MANAGEMENT**

Drilling Log

Page 2 of 2

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: AS/EP-1 Drilling Company: Southeastern Env. Services Date Drilled: 3-10-94 Driller: Steve Stratton Log By: Andy Nunnally MW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 40' Total Depth Well: 40'/25' Top of Casing Elevation: AS 96.38/EP-1 96.31 Boring/Casing Diameter: 8" Water Level: Initial/24-hours: 21.7'/21.43 Screen Interval(s): 38-40/8-25 Bentonite Interval(s): 33-35'/4-6 Grout Interval(s): 0-4
--	---

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type-Number	Sample Interval (feet)	Description/Soil Classification
23	1,1,1,1	SS	22-24	Brown and orange clayey silt (30% clay). Saprolite, wet, odor, Recovery = 2.0 feet. PID = 150 ppm.
24				
25	1,1,1,1	SS	24-26	Brown and orange clayey silt (30% clay). Saprolite, wet, odor, Recovery = 2.0 ft. PID = 140 ppm.
26				
27	1,1,2,3	SS	26-28	Brown clayey silt (30% clay). Saprolite, wet, odor, Recovery = 2.0 ft. PID = 170 ppm.
28				
29	1,2,2,3	SS	28-30	Medium brown clayey silt (30% clay). Saprolite, wet, odor. Recovery = 2.0 ft. PID = 156 ppm.
30				
31	1,2,1,1	SS	30-32	Medium brown clayey silt (30% clay). Saprolite, wet, odor. Recovery = 2.0 ft. PID = 156 ppm.
32				
33	2,2,3,3	SS	32-34	Medium brown clayey silt (30% clay). Saprolite, wet, odor. Recovery = 1.5 ft. PID = 148 ppm.
34				
35	1,1,1,1	SS	34-36	Light brown, purplish red and tan clayey silt (30% clay). Saprolite, wet, odor. Recovery = 1.2 ft. PID = 100 ppm.
36				
37	4,4,7,9	SS	36-38	Red, tan and white clayey silt (30% clay). Saprolite, wet, odor. Recovery = 1.2 ft. PID = 50 ppm.
38				
39	2,3,4,7	SS	38-40	Red, brown and tan clayey silt (30% clay). Saprolite, wet, slight odor. Recovery = 2.0 ft. PID = 20 ppm.
40				
41				
42				
43				
44				
45				
46				

ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998
 Location: Greensboro, NC
 Owner: Exxon Company U.S.A.
 Monitor Well: SB-2
 Drilling Company: Southeastern Env. Services
 Date Drilled: 3-9-94
 Driller: Steve Stratton
 Log By: Andy Nunnally
 MW Permit No.:

Drilling Method: Hollow Stem Auger
 Sampling Methods: SS = Split Spoon
 Total Depth Boring: 16'
 Total Depth Well: NA
 Top of Casing Elevation:
 Boring/Casing Diameter:
 Water Level: Initial/24-hours: NA
 Screen Interval(s): NA
 Bentonite Interval(s): NA
 Grout Interval(s): NA

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type- Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4				
5	4,3,3,4	SS	4-6	Medium brown silty CLAY. Moist. Recovery = 1.0 ft. PID = 0.6 ppm.
6				
7				
8				
9				
10	1,2,3,5	SS	9-11	Tan and orange silty clay to clayey silt. Saprolitic, moist. Recovery = 1.2 ft. PID = 3.0 ppm.
11				
12				
13				
14				
15	1,2,3,4	SS	14-16	Tan, orange and red clayey silt (30% clay). Saprolite. Moist. Recovery = 1.2 ft. PID = 4.2 ppm.
16				TD = 16 feet.
17				
18				
19				
20				
21				
22				

ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: SB-3 Drilling Company: Southeastern Env. Services Date Drilled: 3-9-94 Driller: Steve Stratton Log By: Andy Nunnally MW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 16' Total Depth Well: NA Top of Casing Elevation: Boring/Casing Diameter: Water Level: Initial/24-hours: NA Screen Interval(s): NA Bentonite Interval(s): NA Grout Interval(s): NA
--	---

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type- Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4				
5	3,4,5,6	SS	4-6	Medium brown silty CLAY. Moist, odor. Recovery = 0.4 ft. PID = 110 ppm.
6				
7				
8				
9				
10	2,3,4,7	SS	9-11	Tan and orange silty clay to clayey silt. Saprolitic, moist, odor. Recovery = 1.2 ft. PID = 112 ppm.
11				
12				
13				
14				
15	2,3,5,5	SS	14-16	Tan, orange and red clayey silt (30% clay). Saprolite. Moist, odor. Recovery = 1.5 ft. PID = 120 ppm.
16				TD = 16 feet.
17				
18				
19				
20				
21				
22				

ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: SB-4 Drilling Company: Southeastern Env. Services Date Drilled: 3-10-94 Driller: Steve Stratton Log By: Andy Nunnally MW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 16' Total Depth Well: NA Top of Casing Elevation: Boring/Casing Diameter: Water Level: Initial/24-hours: NA Screen Interval(s): NA Bentonite Interval(s): NA Grout Interval(s): NA
---	---

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type- Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4				
5	1,1,2,5	SS	4-6	Red clay. Moist, odor. Recovery = 1.2 ft. PID = 120 ppm.
6				
7				
8				
9				
10	1,1,2,5	SS	9-11	Tan, orange, red clayey silt (30% clay). Saprolite, moist, odor. Recovery = 1.5 ft. PID = 146 ppm.
11				
12				
13				
14				
15	2,4,5,5	SS	14-16	Tan, orange and red clayey silt (30% clay). Saprolite, moist, strong odor. Recovery = 1.7 ft. PID = 162 ppm.
16				TD = 16 feet.
17				
18				
19				
20				
21				
22				

ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998
 Location: Greensboro, NC
 Owner: Exxon Company U.S.A.
 Monitor Well: SB-5
 Drilling Company: Southeastern Env. Services
 Date Drilled: 3-10-94
 Driller: Steve Stratton
 Log By: Andy Nunnally
 MW Permit No.:

Drilling Method: Hollow Stem Auger
 Sampling Methods: SS = Split Spoon
 Total Depth Boring: 16'
 Total Depth Well: NA
 Top of Casing Elevation:
 Boring/Casing Diameter: 8"
 Water Level: Initial/24-hours: NA
 Screen Interval(s): NA
 Bentonite Interval(s): NA
 Grout Interval(s): NA

DEPTH (feet)	Blow Count (per 6 inches)	Sample Type-Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4				
5	3,5,8,16	SS	4-6	Red clay. Moist, odor. Recovery = 1.3 ft. PID = 46 ppm.
6				
7				
8				
9				
10	1,2,4,4	SS	9-11	Tan, orange, red clayey silt (30% clay). Saprolite, moist, odor. Recovery = 1.5 ft. PID = 76 ppm.
11				
12				
13				
14				
15	2,3,3,5	SS	14-16	Light brown clayey silt (30% clay). Saprolite, moist, odor. Recovery = 1.6 feet. PID = 76 ppm.
16				TD = 16 feet.
17				
18				
19				
20				
21				
22				

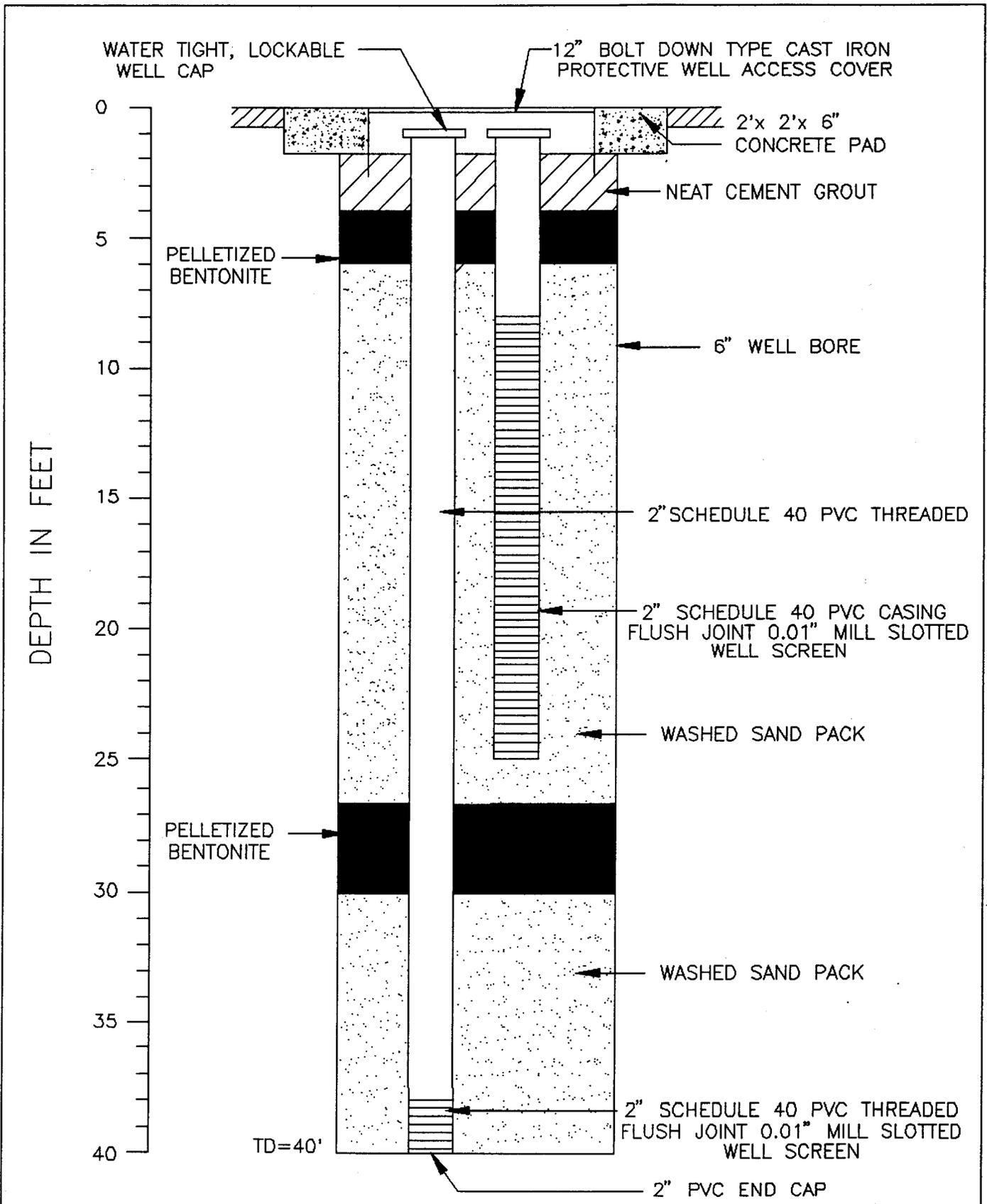
ERM-SOUTHEAST ENVIRONMENTAL RESOURCES MANAGEMENT

Drilling Log

Project: Exxon 4-3998 Location: Greensboro, NC Owner: Exxon Company U.S.A. Monitor Well: SB-6 Drilling Company: Southeastern Env. Services Date Drilled: 3-10-94 Driller: Steve Stratton Log By: Andy Nunnally MW Permit No.:	Drilling Method: Hollow Stem Auger Sampling Methods: SS = Split Spoon Total Depth Boring: 16' Total Depth Well: NA Top of Casing Elevation: Boring/Casing Diameter: 8" Water Level: Initial/24-hours: NA Screen Interval(s): NA Bentonite Interval(s): NA Grout Interval(s): NA
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DEPTH (feet)	Blow Count (per 6 inches)	Sample Type-Number	Sample Interval (feet)	Description/Soil Classification
0				
1				
2				
3				
4				
5	2,3,9,8	SS	4-6	Red clay. Moist, odor. Recovery = 1.8 ft. PID = 106 ppm.
6				
7				
8				
9				
10	2,2,3,5	SS	9-11	Tan, orange, red clayey silt (30% clay). Saprolite, moist, slight odor. Recovery = 1.0 ft. PID = 54 ppm.
11				
12				
13				
14				
15				
16				TD = 16 feet.
17				
18				
19				
20				
21				
22				

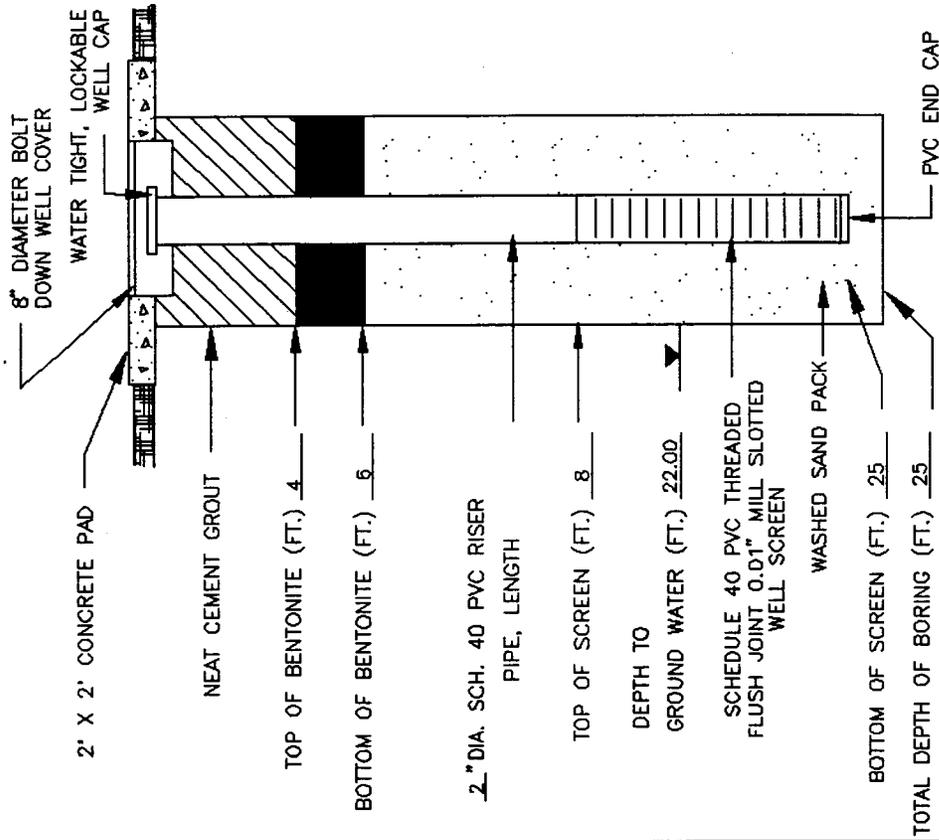
APPENDIX H
WELL CONSTRUCTION DIAGRAMS



AS/EP-1 CONSTRUCTION DIAGRAM
 EXXON COMPANY, U.S.A.
 RETAIL LOCATION 4-3998
 GREENSBORO, NORTH CAROLINA



ERM-SOUTHEAST, INC



2' X 2' CONCRETE PAD

8" DIAMETER BOLT
DOWN WELL COVER

WATER TIGHT, LOCKABLE
WELL CAP

NEAT CEMENT GROUT

TOP OF BENTONITE (FT.) 4

BOTTOM OF BENTONITE (FT.) 6

2" DIA. SCH. 40 PVC RISER
PIPE, LENGTH

TOP OF SCREEN (FT.) 8

DEPTH TO
GROUND WATER (FT.) 22.00

SCHEDULE 40 PVC THREADED
FLUSH JOINT 0.01" MILL SLOTTED
WELL SCREEN

WASHED SAND PACK

BOTTOM OF SCREEN (FT.) 25

TOTAL DEPTH OF BORING (FT.) 25

BOREHOLE DIA. (IN.) 8

PVC END CAP

Sample Interval (ft.)	Sample Type/Number	Blow Count per 6 inches	VOC (ppm)	Description
4-6	S	pushed	7.4	Red Clay. Stiff. Recovery 1.7 ft.
9-11	S	2,3,3,4	20	Orange, red and tan clayey Silt (30% clay). Saprolite, moist, slight odor. Recovery = 1.6 ft.
14-16	S	2,2,2,3	58	Medium brown, tan and orange clayey Silt (30% clay). Saprolite, moist, odor. Recovery = 1.8 ft.
19-21	S	3,2,2,3	148	Orange, brown and red clayey Silt, Saprolite very moist, strong odor. Recovery = 1.8 ft.
24-26	S	1,3,3,5	162	Red-tan and orange-brown clayey Silt (30% clay). Saprolite, wet, strong odor,

Notes:

ppm = Parts per million

VOC = Volatile organic compound

S = Split spoon sample

AS = Auger sample

BS = Miscellaneous sample

RC = Rock core

DATE 03/09/94

DRILLING METHOD HOLLOW STEM AUGER

DRILLING CO. SOUTHEASTERN ENVIRONMENTAL TOP OF CASING ELEVATION (ft.) 96.79

DRILLER STEVE STRATTON SERVICE

LOG BY ANDY NUNNALLY

EXXON COMPANY, U.S.A.
RETAIL LOCATION 4-3998
4701 WEST MARKET STREET
GREENSBORO, NORTH CAROLINA

OP-1

DRILLING LOG AND MONITOR WELL
CONSTRUCTION DIAGRAM

4106081.DWG
07/06/04.SDB/A/N



ERM - SOUTHEAST, INC
CHARLOTTE, NC

TYPELOC.DWG