MLW

**Piedmont Industrial Services, Inc.**
**P.O. Box 5061**
**Winston Salem, NC 27113**
**(336) 725-3788**
**fax (336) 725-4246**

---

***Certified Mail # Z 320 707 952***
***Return Receipt Requested***

RECEIVED
N.C. Dept. of EHNR
APR 30 1999
Winston-Salem
Regional Office

January 19, 1999

Ms. Cindy Rintoul
NCDENR-DWM
Winston-Salem Regional Office
585 Waughtown Street, Suite 100
Winston-Salem, North Carolina 27107-2241

Subject: **Groundwater Monitoring Report, Fourth Quarter 1998**
Exxon RAS # 4-3998
4701 W. Market Street
Greensboro, North Carolina
Groundwater Incident #10001, Site Ranking: Intermediate

Dear Ms. Rintoul:

Piedmont Industrial Services, Inc. and ERM, on behalf of Exxon Company, U.S.A., are submitting the enclosed report for the referenced site.

A soil vapor extraction and aquifer air sparge system are currently operational at the site. The system operated throughout the reporting period with only temporary shutdowns for maintenance and repairs.

If you have any questions or require further information please contact Tom Lennon at (336) 725-3788.

Best Regards,

**Piedmont Industrial Services, Inc.**

Tom Lennon, L.G.
Project Geologist

Enclosure
Copy: Mr. J. Frank Medlin, Exxon Company U.S.A.

# GROUND WATER MONITORING REPORT
# JANUARY 1999 THROUGH MARCH 1999

**Exxon RAS # 4-3998**
**4701 W. Market Street**
**Greensboro, North Carolina**
**Groundwater Incident # 10001**
**Site Rank: Intermediate**

RECEIVED
N.C. Dept. of EHNR
APR 30 1999
Winston-Salem
Regional Office

**Prepared By:**

**Piedmont Industrial Services**
**P.O. Box 5061**
**Winston-Salem, NC 27113**

**Date:**

**April 19, 1999**

**Thomas P. Lennon, L.G.**
**Piedmont Industrial Services, Inc.**

# ***Contents***

*Text*

Introduction ..... Page 1
Work Performed This Quarter ..... Page 1
Conclusions and Recommendations ..... Page 2

*Tables*

1. Summary of Most Recent Chemical Analyses
2. Summary of Historical Chemical Analysis
3. Summary of Most Recent Gauging Data
4. Summary of Historical Gauging Data
5. SVE Off-Gas Analytical Results
6. Remediation System Operating Schedule

*Figures*

1 . Topographic Map
2. Site Configuration Map
3. Groundwater Contour Map
4. Isopleth Map of Dissolved Hydrocarbon Compounds
5. Cross Sections A-A' and B-B' Illustrating Soil TPH (from CSA)
6. Cross Section A-A' and B-B' Illustrating Dissolved Benzene (from CSA)
7. Potential Receptor Map

Appendices

Appendix A: SVE Off-Gas Laboratory Report

**GROUND-WATER MONITORING REPORT**
**JANUARY 1999 THROUGH March 1999**

**Exxon RAS #4-3998**
**4701 W. Market Street**
**Greensboro, North Carolina**
**Incident #: 10001**
**Priority Rank: Intermediate**

## *Introduction*

The following is the groundwater monitoring report for Exxon RAS #4-3998, located at 4701 West Market Street., in Greensboro, North Carolina (Figure 1). The responsible party for this site is:

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

This report was prepared in accordance with the following document: The Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater published by the State of North Carolina Department of Environment and Natural Resources, Division of Water Management, Groundwater Section, January 2, 1998. This report was prepared by Piedmont Industrial Services, Inc. and ERM Southeast.

The SVE/AAS remediation system off-gas was last sampled on 2/23/99. The SVE system was in operation throughout the first quarter. Remediation system operation and maintenance is performed monthly.

## *Work Performed This Quarter*

The groundwater monitoring wells associated with this site have been sampled (Table 1, Table 2) and gauged (Table 3, Table 4) periodically since wells were first installed in 1992. Select monitoring wells were most recently sampled in December 1998.

Free product (NAPL) had not been present in the past, but was detected in wells MW-2 and MW-3 during the fourth quarter of 1998. In December of 1998, product thickness was as follows: MW-2: 0.5 feet, MW-3: 0.25 feet. During the current reporting period, wells MW-2 and MW-3 were gauged on a monthly basis. As indicated in Table 3, during each month product was observed in well MW-2 in a thickness of 0.03 feet. No product was observed in well MW-2.

An aquifer air sparge/soil vapor extraction (AAS/SVE) system was installed and operated from the second quarter 1996 through the present. On 2/23/99 an SVE off-gas sample was collected for laboratory analysis. A copy of the laboratory test report is included as Appendix A. A table of SVE off-gas analytical results is presented as part of Table 5. A summary of maintenance activities conducted at the site is presented in Table 6.

A site location map is presented in Figure 1. A site configuration map is presented as Figure 2. A map illustrating the direction of groundwater flow for water table conditions is presented as Figure 3. The dissolved phase hydrocarbon plume is presented as Figure 4. Cross sections from the CSA report are presented in Figures 5 and 6.

Groundwater monitoring wells MW-5 and MW-6 were located off-site at the McDonald's restaurant. Both wells were buried during re-landscaping and re-paving activities by McDonald's. During this reporting period attempts were made to locate the wells with a metal detector. Unfortunately these efforts proved unsuccessful. The last sampling event including these two wells indicated BTEX levels to be 2 ppb in MW-5 and ND in MW-6 (9/18/95 data).

No potential receptors within 1,000 ft. were identified in the CSA developed by ERM-Southeast in February 1996. Private water supply and irrigation wells were found within 1,500 ft., as noted in the CSA Report. The wells were noted not to be potential receptors based on use and / or location. The Winston-Salem Regional Office made Exxon aware of an ongoing investigation to identify wells in the area in 1998. No further information was received. A potential receptor map is attached is Figure 7.

The CAP was presented to the NCDENR in July 1994 and has been implemented.

## *Conclusions and Recommendations*

Future remediation activities at this site include the operation of the remediation system to reduce dissolved hydrocarbon levels in the groundwater to the GCL (gross contaminant level). Monthly free-product gauging will continue on a monthly basis for wells MW-2 and MW-3.

# TABLES

**TABLE 1**
**SUMMARY OF MOST RECENT CHEMICAL ANALYSIS**
**EXXON RAS #4-3998**
**4701 WEST MARKET STREET**
**GREENSBORO, NORTH CAROLINA**

**DECEMBER 22, 1998**

| Well Designation | Benzene | Toluene | Ethyl-benzene | Total Xylenes | Total BTEX | MTBE | IPE | EDB | Lead |
|---|---|---|---|---|---|---|---|---|---|
| MW-1 | 414 | 327 | 382 | 836 | 1959 | ND | 311 | 0.29 | |
| MW-2 | **NAPL in well, not sampled** | | | | | | | | |
| MW-3 | **NAPL in well, not sampled** | | | | | | | | |
| MW-4 | 31.2 | ND | 2.2 | 137 | 170.4 | 2.4 | 4 | ND | |
| MW-7 | 23.3 | 26.1 | 4.5 | 25.6 | 79.5 | 24.5 | 2 | ND | |
| MW-9 | 4.8 | ND | 5.1 | 114 | 123.9 | ND | 15 | ND | |
| OP-1 | 334 | 10.5 | 47.4 | 133 | 524.9 | 83.1 | 8 | ND | |
| DW-8 | ND | ND | ND | ND | ND | ND | ND | ND | |
| NC 2L | *1* | *1000* | *29* | *530* | *NA* | *200* | *70*** | *0.0004* | *15* |
| "GCL" | *5000* | *257500* | *29000* | *87500* | *NA* | *200000* | *70000* | *0.4* | *15,000* |

*** INTERIM STANDARD*

*BOLD INDICATES GREATER THAN DENR "GCL" STANDARD, PER PAGE 60, SOIL AND GROUNDWATER GUIDELINES, 1/1998*

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



| MONITOR WELL ID | DATE | EXPANDED EPA METHOD 602 | | | | | | | METHOD 504.1 EDB | METHOD 3030C LEAD |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL BTEX | BENZENE | TOLUENE | ETHYL-BENZENE | XYLENES | MTBE | IPE | | |
| MW-1 | 8/20/92 | 65,900 | 5000 | 35000 | 3900 | 22000 | <500 | -- | -- | -- |
| | 3/25/93 | 44,600 | 3500 | 21000 | 3100 | 17000 | <250 | -- | -- | -- |
| | 6/22/93 | 44,600 | 4200 | 18000 | 3400 | 19000 | <500 | -- | -- | -- |
| | 6/9/94 | 62,450 | 6150 | 22500 | 5000 | 28800 | 96 | 900 | <10 | 5 |
| | 6/14/95 | <1 | <1 | <1 | <1 | <1 | <10 | 465 | -- | -- |
| | 9/18/95 | 50,500 | 4,000 | 24,000 | 3,000 | 19,500 | <5,000 | <5,000 | -- | -- |
| | 12/6/95 | 47,700 | 4,500 | 18,000 | 3,600 | 21,600 | <225 | 1,230 | -- | -- |
| | 3/27/96 | 15,350 | 2,340 | 3,420 | 1,350 | 8,240 | <450 | 945 | <0.503 | <3.0 |
| | 6/26/96 | 32,280 | 3,420 | 7,980 | 2,640 | 18,240 | <200 | 1,030 | <20 | <3.0 |
| | 6/17/97 | 25,730 | 3,000 | 4,800 | 2,430 | 15500 | ND | 950 | ND | ND |
| | 12/16/97 | 4,250 | 1,110 | 560 | 780 | 1800 | 90 | 130 | 0.07 | ND |
| | 9/30/98 | 9,125 | 1,750 | 715 | 1,810 | 4850 | 15 | 765 | 0.34 | ND |
| | **12/22/98** | **1,959** | **414** | **327** | **382** | **836** | **ND** | **311** | **0.29** | |
| MW-2 | 8/20/92 | 13,900 | 1400 | 4900 | 1600 | 6000 | <250 | -- | -- | -- |
| | 3/25/93 | 16,400 | 2000 | 7300 | 1200 | 5900 | <250 | -- | -- | -- |
| | 6/22/93 | 76,800 | 8100 | 40000 | 4700 | 24000 | <2500 | -- | -- | -- |
| | 6/9/94 | 70,520 | 7160 | 33500 | 4560 | 25300 | 390 | 280 | <10 | 3 |
| | 6/14/95 | 234,900 | 14,000 | 112,000 | 17,100 | 91,800 | <225 | 1,710 | -- | -- |
| | 9/18/95 | 56,000 | 4,500 | 25,000 | 4,000 | 22,500 | <1,000 | 1,600 | -- | -- |
| | 12/6/95 | 5,553 | 788 | 2,900 | 315 | 1,550 | <225 | 292 | -- | -- |
| | 3/27/96 | 136,800 | 22,000 | 72,000 | 7,200 | 35,600 | <900 | 10,800 | 0.70 | <3.0 |
| | 6/26/96 | 103,000 | 16,000 | 60,000 | 4,500 | 22,500 | <10000 | <10000 | <1000 | <3.0 |
| | 6/17/97 | 86,800 | 13,100 | 46,000 | 4,100 | 23,600 | ND | 6,000 | ND | ND |
| | 12/16/97 | 90,550 | 14,000 | 49,500 | 4,050 | 23,000 | 1,350 | 4,050 | 0.22 | ND |
| | 9/30/98 | 116,130 | 17,400 | 74,300 | 7,130 | 17,300 | ND | 8,750 | 1.26 | ND |
| | **12/22/98** | **NS** | | | | | | | | |
| MW-3 | 8/20/92 | 84,800 | 11000 | 41000 | 4800 | 26000 | <500 | -- | -- | -- |
| | 3/25/93 | 67,300 | 9700 | 35000 | 3600 | 19000 | <1000 | -- | -- | -- |
| | 6/22/93 | 88,900 | 13000 | 50000 | 3900 | 22000 | <2500 | -- | -- | -- |
| | 6/9/94 | 114,700 | 12600 | 65400 | 4500 | 32200 | <1000 | 2580 | <50 | 678 |
| | 6/14/95 | 308,200 | 25,200 | 157,000 | 18,000 | 108,000 | <225 | 2,740 | -- | 390 |
| | 9/18/95 | 125,000 | 15,000 | 73,000 | 6,000 | 31,000 | <5,000 | <5,000 | -- | 372 |
| | 12/6/95 | 156,600 | 19,800 | 94,500 | 6,300 | 36,000 | <4500 | 7,650 | -- | 147 |
| | 3/27/96 | 158,400 | 23,400 | 80,100 | 8,100 | 46,800 | <900 | 11,200 | 59 | 1,400 |
| | 6/26/96 | 106,750 | 14,300 | 49,000 | 5,650 | 37,800 | <5000 | 7,300 | <500 | 1,010 |
| | 6/17/97 | 39,381 | 3,550 | 19,100 | 2,181 | 14,550 | ND | 1,140 | ND | 376 |
| | 12/16/97 | 97,200 | 16,400 | 49,300 | 4,500 | 27,000 | 450 | 4,720 | 35 | 956 |
| | 9/30/98 | 59,530 | 8,320 | 37,800 | 3,560 | 9,850 | ND | 2,240 | 69 | 516 |
| | **12/22/98** | **NS** | | | | | | | | |

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



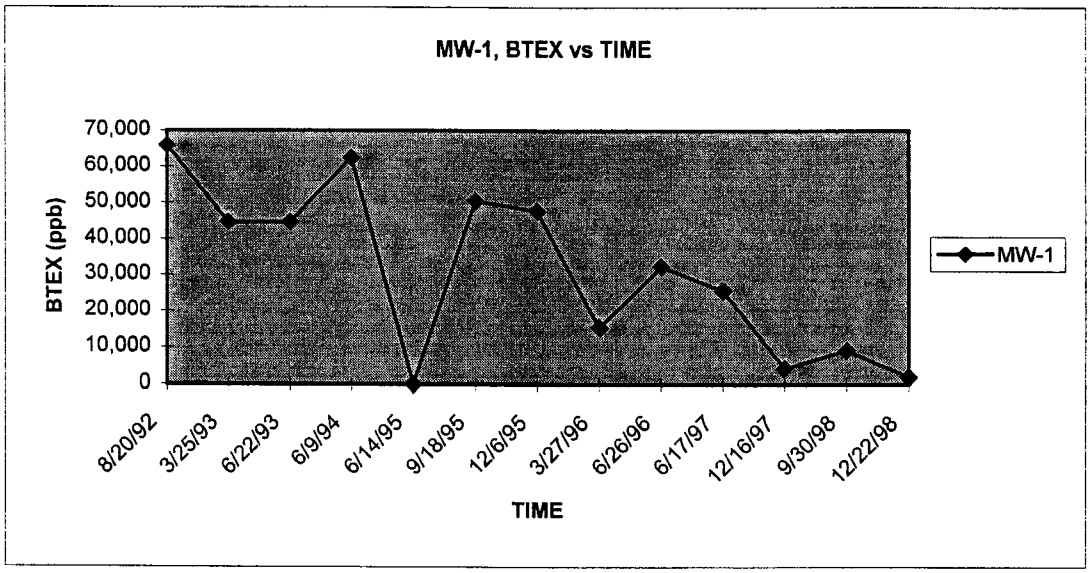
| MONITOR WELL ID | DATE | EXPANDED EPA METHOD 602 | | | | | | | METHOD 504.1 EDB | METHOD 3030C LEAD |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL BTEX | BENZENE | TOLUENE | ETHYL-BENZENE | XYLENES | MTBE | IPE | | |
| MW-4 | 8/20/92 | 4 | <2.0 | <2.0 | <2.0 | 4 | <10 | -- | -- | -- |
| | 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 |
| | 6/14/95 | 71 | 6 | 9 | 3 | 53 | <10 | <10 | -- | -- |
| | 9/18/95 | 33 | 4 | <1.0 | <1.0 | 29 | <10 | 33 | -- | -- |
| | 6/17/97 | 112.2 | 11.4 | ND | 15.8 | 85.0 | ND | ND | -- | -- |
| | 12/16/97 | 175.0 | 22.0 | 2.0 | 14.0 | 137.0 | ND | 2 | ND | ND |
| | 9/30/98 | 65.9 | 8.8 | 1.2 | 2.4 | 53.5 | ND | 1 | ND | ND |
| | **12/22/98** | **170.4** | **31.2** | **ND** | **2.2** | **137.0** | **2** | **4** | **ND** | |
| 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 |
| | 6/14/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <10 | -- | -- |
| | 9/18/95 | 2 | <1.0 | 1 | <1.0 | 1 | <10 | 27 | -- | -- |
| 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 |
| | 6/14/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <10 | -- | -- |
| | 9/18/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | 14 | -- | -- |
| 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 |
| | 6/14/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <10 | -- | 26 |
| | 9/18/95 | 2 | <1.0 | 1 | <1.0 | 1 | 10 | 16 | -- | 15 |
| | 12/16/97 | 11 | 7 | 4 | <1.0 | <1.0 | <1.0 | <1.0 | <0.02 | 7 |
| | **12/22/98** | **79.5** | **23.3** | **26.1** | **4.5** | **25.6** | **24.5** | **2.0** | **ND** | |
| 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 |
| | 6/14/95 | 2 | <1 | 1 | <1 | 1 | <10 | <10 | -- | -- |
| | 9/18/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <10 | <10 | -- | -- |
| | 12/16/97 | 14 | 2 | 6 | <1.0 | 6 | <1.0 | <1.0 | <0.02 | 5 |
| | 9/30/98 | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | **12/22/98** | **ND** | **ND** | **ND** | **ND** | **ND** | **ND** | **ND** | **ND** | **ND** |

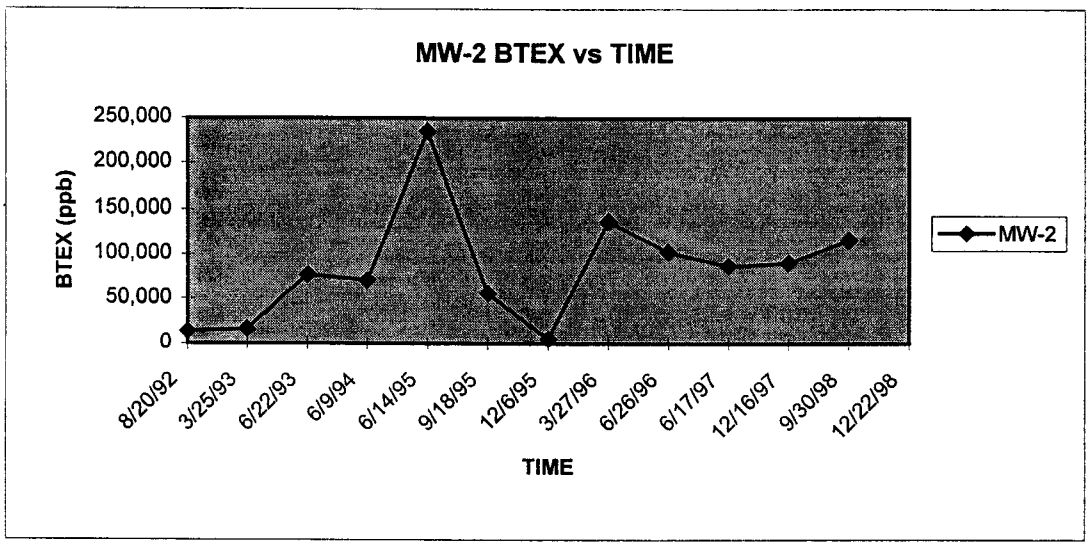
# TABLE 2
## EPA METHOD 602 AND LEAD GROUND WATER ANALYTICAL RESULTS
## EXXON RETAIL LOCATION 4-3998
## 4701 WEST MARKET STREET
## GREENSBORO, NORTH CAROLINA

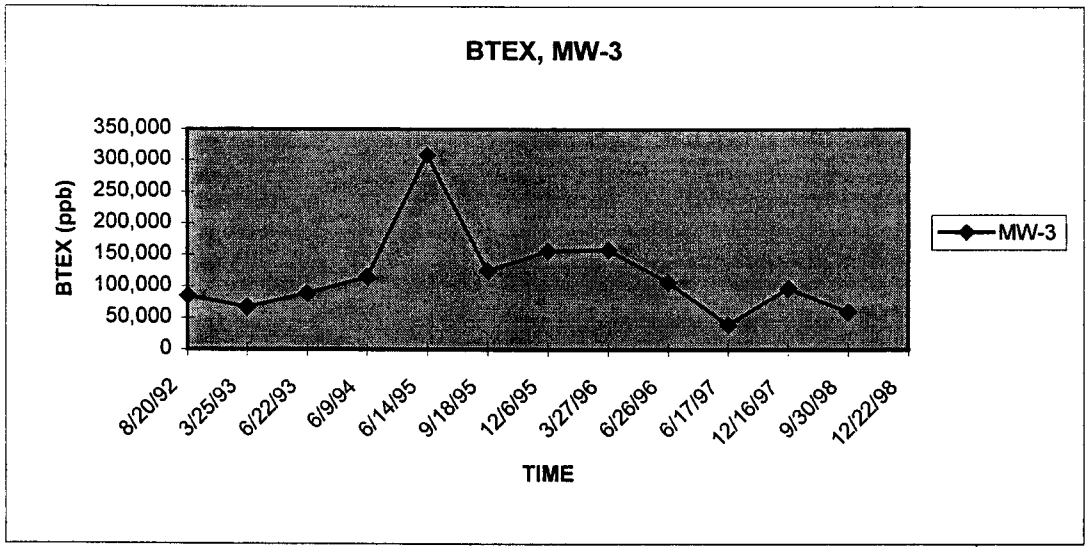


| MONITOR WELL ID | DATE | EXPANDED EPA METHOD 602 | | | | | | | METHOD 504.1 EDB | METHOD 3030C LEAD |
|---|---|---|---|---|---|---|---|---|---|---|
| | | TOTAL BTEX | BENZENE | TOLUENE | ETHYL-BENZENE | XYLENES | MTBE | IPE | | |
| MW-9 | 12/6/95 | 823 | 36 | 7 | 110 | 670 | <10 | 38 | -- | -- |
| | 12/16/97 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.02 | 5 |
| | 9/30/98 | <1.0 | 8 | 70 | 45 | 307 | ND | 8 | ND | ND |
| | **12/22/98** | **124** | **5** | **ND** | **5** | **114** | **ND** | **15** | **ND** | |
| | | | | | | | | | | |
| OP-1 | 12/16/97 | 561 | 320 | 10 | 57 | 174 | 45 | 10 | <0.02 | <3 |
| | **12/22/98** | **525** | **334** | **11** | **47** | **133** | **83** | **8** | **ND** | |
| | | | | | | | | | | |
| MW-1A* | 11/20/92 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | -- | -- | -- |
| (MW-Moore | 11/13/95 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | -- | -- | -- | -- |
| | | | | | | | | | | |
| **T15A NCAC 2L STANDARD** | | | **1** | **1,000** | **29** | **530** | **200** | **NS** | **0.0004** | **15** |

BTEX / Gross Levels Graphs



BTEX / Gross Levels Graphs

GCL Groundwater Levels (ppb)
From 1998 Guidelines (p.60)

| Benzene | Toluene | E-Benz | Xylenes | MTBE | IPE | EDB | Lead |
|---|---|---|---|---|---|---|---|
| 5000 | 257500 | 29000 | 87500 | 200000 | 70000 | 50 | 15 |

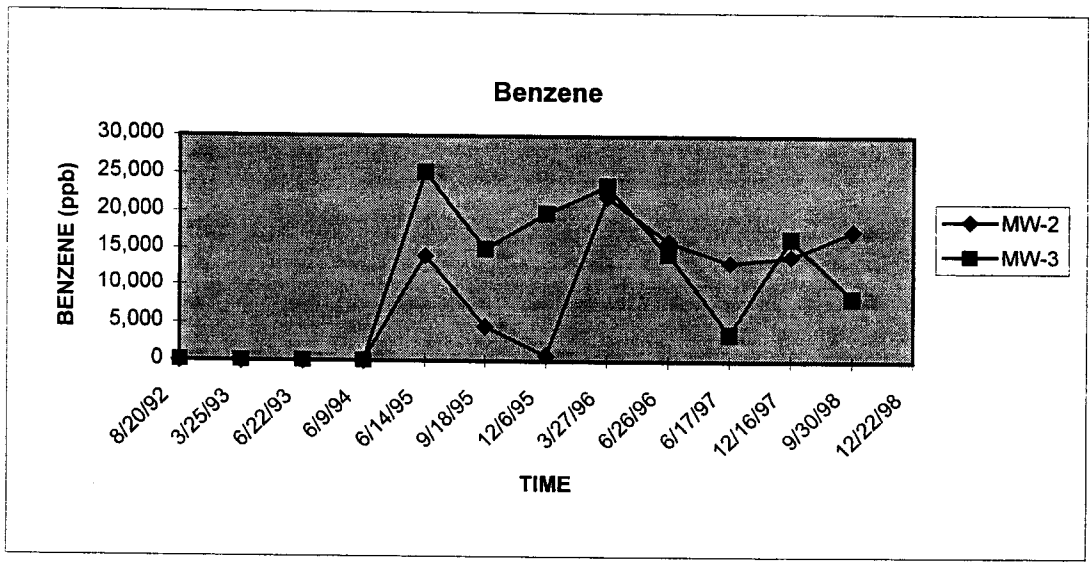


**TABLE 3**
**SUMMARY OF MOST RECENT GAUGING AND WELL CONSTRUCTION DATA**
**EXXON RAS #4-3998**
**4701 WEST MARKET STREET**
**GREENSBORO, NORTH CAROLINA**

| MONITORING WELL | DATE GAUGED | DATE DRILLED | CASING ELEV. (ft.) | DEPTH TO WATER (ft.) | GROUNDWATER ELEV. (ft.) | SCREENED INTERVAL (ft.) |
|---|---|---|---|---|---|---|
| MW-1 | 12/22/98 | 8/13/92 | 96.50 | 23.60 | 72.90 | 15-30 |
| MW-2 | 12/22/98 | 8/13/92 | 96.56 | 0.5' NAPL | NA | 15-35 |
| MW-2 | 1/28/99 | 8/13/92 | 96.56 | 0.03' NAPL | NA | 15-35 |
| MW-2 | 2/15/99 | 8/13/92 | 96.56 | 0.03' NAPL | NA | 15-35 |
| MW-2 | 3/19/99 | 8/13/92 | 96.56 | 0.03' NAPL | NA | 15-35 |
| MW-3 | 12/22/98 | 8/14/92 | 96.92 | 0.25' NAPL | NA | 15-30 |
| MW-3 | 1/28/99 | 8/14/92 | 96.92 | 22.88 | 74.04 | 15-30 |
| MW-3 | 2/15/99 | 8/14/92 | 96.92 | 22.80 | 74.12 | 15-30 |
| MW-3 | 3/19/99 | 8/14/92 | 96.92 | 22.84 | 74.08 | 15-30 |
| MW-4 | 12/22/98 | 8/14/92 | 97.92 | 24.38 | 73.54 | 15-30 |
| MW-5 | 9/30/98 | 3/29/93 | 97.24 | PAVED OVR | PAVED OVR | 17-32 |
| MW-6 | 9/30/98 | 3/29/93 | 96.15 | PAVED OVR | PAVED OVR | 17-32 |
| MW-7 | 12/22/98 | 3/29/93 | 98.64 | 27.18 | 71.46 | 17-32 |
| MW-9 | 12/22/98 | 12/6/95 | 94.56 | 21.03 | 73.53 | 15-30 |
| DW-8 | 12/22/98 | NA | 98.00 | 22.87 | 75.13 | 55-60 |
| OP-1 | 12/22/98 | 3/9/94 | 96.79 | 25.55 | 71.24 | 8-25 |

NA not applicable or not available

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

| DATE | MW-1 96.50 | | MW-2 96.56 | | MW-3 96.92 | | MW-4 97.92 | |
|---|---|---|---|---|---|---|---|---|
| | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION |
| 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 |
| 6/14/95 | 22.65 | 73.85 | 22.70* | 73.86 | 23.96* | 72.96 | 24.28 | 73.64 |
| 9/18/95 | 23.73 | 72.77 | 24.06* | 72.50 | 25.22* | 71.70 | 24.82 | 73.10 |
| 12/6/95 | 22.20 | 74.30 | 21.70 | 74.86 | 23.60 | 73.32 | 24.26 | 73.66 |
| 12/14/95 | 22.10 | 74.40 | 21.62 | 74.94 | 23.44* | 96.92 | 24.22 | 73.70 |
| 3/27/96 | 19.56 | 76.94 | 19.25 | 77.31 | 21.16 | 75.76 | n/a | n/a |
| 6/26/96 | 20.39 | 76.11 | 20.15 | 76.41 | 21.70 | 75.22 | n/a | n/a |
| 6/17/97 | 18.28 | 78.22 | 18.08 | 78.48 | 19.7 | 77.22 | 20.26 | 77.66 |
| 12/16/97 | 21.84 | 74.66 | 21.05 | 75.51 | 23.02 | 73.90 | 22.92 | 75.00 |
| 9/30/98 | 22.65 | 73.85 | 22.43 | 74.13 | 23.41 | 73.51 | 22.61 | 75.31 |
| 12/22/98 | 23.6 | 72.90 | 0.5" NAPL | NAPL | 0.25" NAPL | NAPL | 24.38 | 73.54 |
| 1/28/99 | NM | NM | 0.03' NAPL | NAPL | 22.88 | 74.04 | NM | NM |
| 2/15/99 | NM | NM | 0.03' NAPL | NAPL | 22.8 | 74.12 | NM | NM |
| 3/19/99 | NM | NM | 0.03' NAPL | NAPL | 22.84 | 74.08 | NM | NM |

| DATE | MW-5 97.24 | | MW-6 96.15 | | MW-7 98.64 | | DW-8 98.00 | |
|---|---|---|---|---|---|---|---|---|
| | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION |
| 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 |
| 6/14/95 | 25.02 | 72.22 | 23.90 | 72.25 | 27.78 | 70.86 | 25.40 | 72.60 |
| 9/18/95 | 25.82 | 71.42 | 24.86 | 71.29 | 27.35 | 71.29 | 25.57 | 72.43 |
| 12/6/95 | 24.77 | 72.47 | 23.73 | 72.42 | 27.60 | 71.04 | 25.18 | 72.82 |
| 12/14/95 | 24.68 | 72.56 | 23.66 | 72.49 | 27.47 | 71.17 | 25.11 | 72.89 |
| 3/27/96 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| 6/26/96 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| 12/16/97 | n/a | n/a | n/a | n/a | n/a | n/a | 24.25 | 73.75 |
| 9/30/98 | n/a | n/a | n/a | n/a | n/a | n/a | 22.87 | 75.13 |
| 12/22/98 | n/a | n/a | n/a | n/a | 27.18 | 71.46 | 22.87 | 75.13 |

| DATE | MW-9 94.56 | | MW -Moore 98.10 | | OP-1 96.79 | | | |
|---|---|---|---|---|---|---|---|---|
| | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | | |
| 4/13/94 | -- | -- | -- | -- | 21.06 | 75.73 | | |
| 6/9/94 | -- | -- | -- | -- | 23.04 | 73.75 | | |
| 6/14/95 | -- | -- | -- | -- | 23.94 | 72.85 | | |
| 11/13/95 | -- | -- | 23.90 | 74.20 | -- | -- | | |
| 12/6/95 | **20.64 | 73.92 | 23.12 | 74.98 | -- | -- | | |
| 12/14/95 | 19.19 | 75.37 | -- | -- | -- | -- | | |
| 3/27/96 | n/a | n/a | -- | -- | -- | -- | | |
| 6/26/96 | n/a | n/a | -- | -- | -- | -- | | |
| 12/16/97 | 18.45 | 76.11 | -- | -- | 24.22 | 72.57 | | |
| 9/30/98 | 21.08 | 73.48 | -- | -- | n/a | n/a | | |
| 12/22/98 | 21.03 | 73.53 | -- | -- | 25.55 | 71.24 | | |

d:\exxqrs

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

| | AS-1 96.38 | | EP-1 96.31 | | | | | |
|---|---|---|---|---|---|---|---|---|
| DATE | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | DEPTH TO GROUND WATER | GROUND WATER ELEVATION | | | | |
| 4/13/94 | 20.90 | 75.48 | 20.77 | 75.54 | | | | |
| 6/9/94 | 22.65 | 73.73 | 22.56 | 73.75 | | | | |
| 6/14/95 | 23.54 | 72.84 | DRY | -- | | | | |

Notes:
Depth to ground water measured in feet below top of casing.
Elevations are relative to an on-site reference point which has been assigned an elevation of 100.00 feet.
"--" = Gauging data not available
* = Free product film detected in monitor well (<0.01 feet thick)
** = Ground water not at static level
n/a = well not gauged

# TABLE 5
## SVE OFF-GAS ANALYTICAL RESULTS

**SVES SAMPLING**

| Date | Benzene (ppm) | Toluene (ppm) | Ethyl-benz (ppm) | Tot-Xylenes (ppm) | Total VOCs (TPH, ppm) | Air Velocity (fps) | Benzene (lbs/day) | VOCs (lbs/day) |
|---|---|---|---|---|---|---|---|---|
| *6/12/96* | *2.91* | *2.50* | *<0.5* | *1.07* | *44.50* | *38.26* | *0.03* | *0.52* |
| *12/16/97* | -- | -- | -- | -- | ***3.60*** | -- | -- | -- |
| *4/6/98* | *<15* | *0.52* | *0.82* | *2.15* | *8.26* | *166.00* | *ND* | *0.42* |
| ***2/23/99*** | ***5.50*** | ***7.30*** | ***0.80*** | ***5.90*** | ***66.30*** | ***145.00*** | ***ND*** | ***2.96*** |

Results in micrograms per liter (ug/l).
MTBE = Methy tert-butyl ether
IPE = Isopropyl ether
EDB = Ethylene dibromide
"--" = not analyzed
* - Source: Groundwater Investigation - Bath and Kitchen Menagerie, Greensboro, North Carolina, 11-27-92, Pyramid Environmental,Inc.

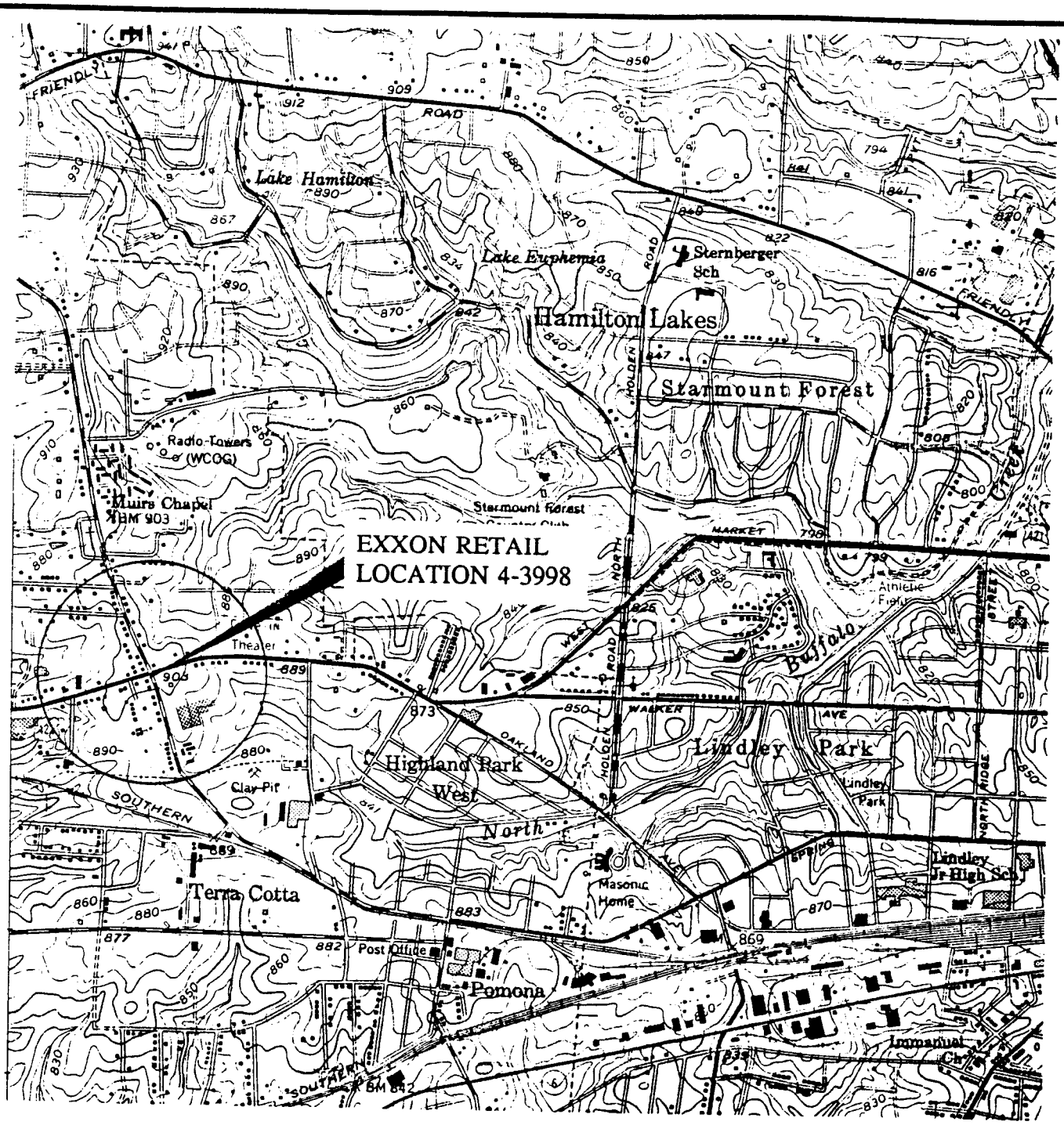
**TABLE 6**
**SYSTEM OPERATING SCHEDULE**
**EXXON RETAIL LOCATION 4-3998**
**4701 WEST MARKET STREET**
**GREENSBORO, NORTH CAROLINA**

| Line | Date | Operation | SVE air vel. (f/m) | AAS press. psi | SVE vac. in H2O |
|---|---|---|---|---|---|
| 1 | 4/29/96 | system start-up | 6059 | 9 | 30 |
| 2 | 5/25/96 | shut system down; maint. on carbon drums | | | |
| 3 | 6/14/96 | system check | 6090 | 5.5 | 25 |
| 4 | 6/20/96 | installed carbon drums in parallel, relocated vacuum relief valve | | | |
| 5 | | flow into carbon drums about 100 cfm each | | | |
| 6 | 8/5/96 | system check, hour meter 2135.11 | 10000+ | 7 | 25 |
| 7 | 8/26/96 | system down, high level switch failed. Switch backordered | | | |
| 8 | 10/29/96 | system still down, awaiting delivery of high level switch | | | |
| 9 | 11/7/96 | installed new high-level switch. | | | |
| 10 | 11/19/96 | wired new high level switch moisture knock out tank. | | | |
| 11 | | system still off. | | | |
| 12 | 12/2/96 | system test. Hour meter 2279.87. Lubricated blower impellers. | 10000+ | 7 | 25 |
| 13 | 1/7/96 | system re-start. Note to get new vac. rel valve set for 10 in-Hg. | | 9.5 | 20 |
| 14 | | Current valve set for 14 in-Hg. | | | |
| 15 | 1/27/97 | hour meter 2755.44 | 7904 | 7 | 22 |
| 16 | 2/31/97 | hour meter 3549.23. Turned AS compressor off due to dirty filter | 10000+ | 7.5 | 23 |
| 17 | 3/31/97 | hour meter 4406.29 | 10000+ | 7.5 | 23 |
| 18 | 4/25/97 | hour meter 4804.34 | 10000+ | off | 27 |
| 19 | | compressor off, filter needs to be replaced. | | | |
| 20 | 5/16/97 | hour meter 5293.04 | 10000+ | off | 24 |
| 21 | | compressor off, waiting on filter | | | |
| 22 | 6/21/97 | hour meter 6155.59 | 10000+ | off | 26 |
| 23 | | replaced compressor filter, compressor inoperable | | | |
| 24 | | rebuilding kit for compressor ordered | | | |
| 25 | 7/1/97 | system restarted | | | |
| 26 | 7/31/97 | system check. Hour meter 7096.29 | 10000+ | 7 | 23 |
| 27 | 8/25/97 | system check. Hour meter 7697.47 | 10000+ | 7 | 23 |
| 28 | 9/25/97 | system check. Hour meter 8603.90 | 10000+ | 7 | 25 |
| 29 | | air filter on SVE needs to be replaced. Will order this week. | | | |
| 30 | | Assembly model: CSL-850-200, element #850 | | | |
| 31 | 10/17/97 | system check. Hour meter 8940.50 | 10000+ | 7 | 25 |
| 32 | | replaced SVE filter; system serviced | | | |
| 33 | | one drum on site contains dirt and concrete debris from bollard instl. | | | |
| 34 | | six unlabeled drums (empty) ...not Griffith's | | | |
| 35 | 11/30/97 | system check. Hour meter 10,087.31 | 10000+ | 7 | 25 |
| 36 | | checked SVE filter-OK; system serviced | | | |
| 37 | | compressor filter needs to be replaced, Gast #3080 P-121-T338 | | | |
| 38 | 12/18/97 | system check. Hour meter 10,421.38 | | | 25 |
| 39 | | shut down system due to faulty compressor impeller | | | |

**TABLE 6**
**SYSTEM OPERATING SCHEDULE**
**EXXON RETAIL LOCATION 4-3998**
**4701 WEST MARKET STREET**
**GREENSBORO, NORTH CAROLINA**

| Line | Date | Operation | SVE air vel. (f/m) | AAS press. psi | SVE vac. in H2O |
|---|---|---|---|---|---|
| 40 | 1/20/98 | replaced cooling impeller on compressor. | | | 25 |
| 41 | | SVE system running. Hour meter 111579.0 | | | |
| 42 | 2/25/98 | system check. SVE operating, AAS still down. Awaiting filter for AAS | | 4 | 25 |
| 43 | | compressor. | | | |
| 44 | | System serviced: oil change in blower motor and unit greased. | | | |
| 45 | | Pressure relief valve on compressor failed critical device test. | | | |
| 46 | 4/6/98 | system check and air sample on SVE. | 10000+ | | |
| 47 | | Hour meter: 11895.78 | | | |
| 48 | 6/26/98 | system check. SVE operating. Replaced Kunkle valve on AAS and | 10000+ | 7 | 22 |
| 49 | | restarted system. Replaced SVE filter. Oil change in compressor and | | | |
| 50 | | compressor greased. Hour meter 11895.92 | | | |
| 51 | 7/8/98 | system check. Hour meter 12,184.55 | 10000+ | 7 | 22 |
| 52 | | checked SVE filter-OK; system serviced | | | |
| 53 | | greased blower and changed oil | | | |
| 54 | 8/14/98 | system check. SVE selenoid valve on moisture knock-out faulty. | 10000+ | 6.5 | 24 |
| 55 | | SVE down until replacement can be installed | | | |
| 56 | 10/13/98 | system check. SVE restarted. Hour meter 13,070.98 | 10000+ | 6.5 | 24 |
| 57 | | replaced selenoid valve w/elec. ball valve; installed new relay | | | |
| 58 | 11/27/98 | system check. SVE/AS operating OK. Hour meter 14,290.86 | 10000+ | 4 | 27 |
| 59 | | Belt tension adjusted, exhauster lube changed, system greased. | | | |
| 60 | 12/4/98 | system check (at site for other reasons). System operating OK | not checked | not checked | not checked |
| 61 | | | | | |
| 62 | 1/28/99 | system check . System operating O.K. | 10000+ | 5 | 25 |
| 63 | | Gauged NAPL in wells | | | |
| 64 | 2/15/99 | system check . System operating O.K. | 10000+ | 6 | 25 |
| 65 | | Gauged NAPL in wells | | | |
| 66 | 2/23/99 | collect SVE sample | 10000+ | 6 | 25 |
| 67 | | | | | |
| 68 | 3/15/99 | System check. System operating. Needed to repair broken main powe | 10000+ | 7 | 25 |
| 69 | | switch. System left off. | | | |
| 70 | 3/19/99 | Installed new power switch. System re-started. Operating O.K. gauged | 10000+ | 6 | 25 |
| 71 | | NAPL in wells | | | |

# FIGURES




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

SCALE IN FEET

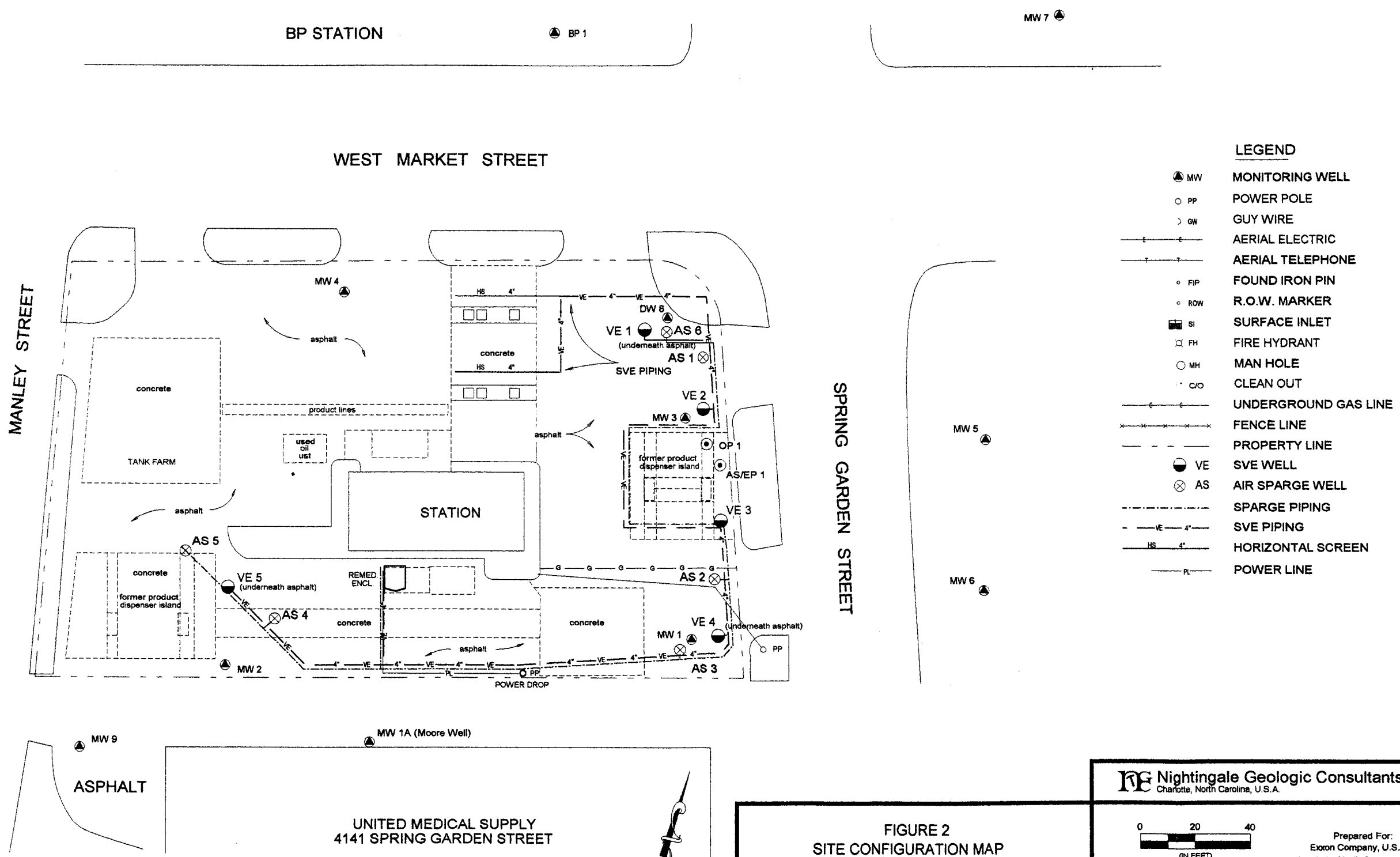
0 2000

ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA

ERM

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

FIGURE 1




NOTE: AIR SPARGE WELL AS/EP 1 WAS INSTALLED FOR THE PILOT TEST AND WAS CONNECTED TO THE SYSTEM.

## LEGEND

| | |
|---|---|
| MW | MONITORING WELL |
| PP | POWER POLE |
| GW | GUY WIRE |
| | AERIAL ELECTRIC |
| | AERIAL TELEPHONE |
| FIP | FOUND IRON PIN |
| ROW | R.O.W. MARKER |
| SI | SURFACE INLET |
| FH | FIRE HYDRANT |
| MH | MAN HOLE |
| C/O | CLEAN OUT |
| | UNDERGROUND GAS LINE |
| | FENCE LINE |
| | PROPERTY LINE |
| VE | SVE WELL |
| AS | AIR SPARGE WELL |
| | SPARGE PIPING |
| VE 4" | SVE PIPING |
| HS 4" | HORIZONTAL SCREEN |
| PL | POWER LINE |

Nightingale Geologic Consultants, P.C.
Charlotte, North Carolina, U.S.A.

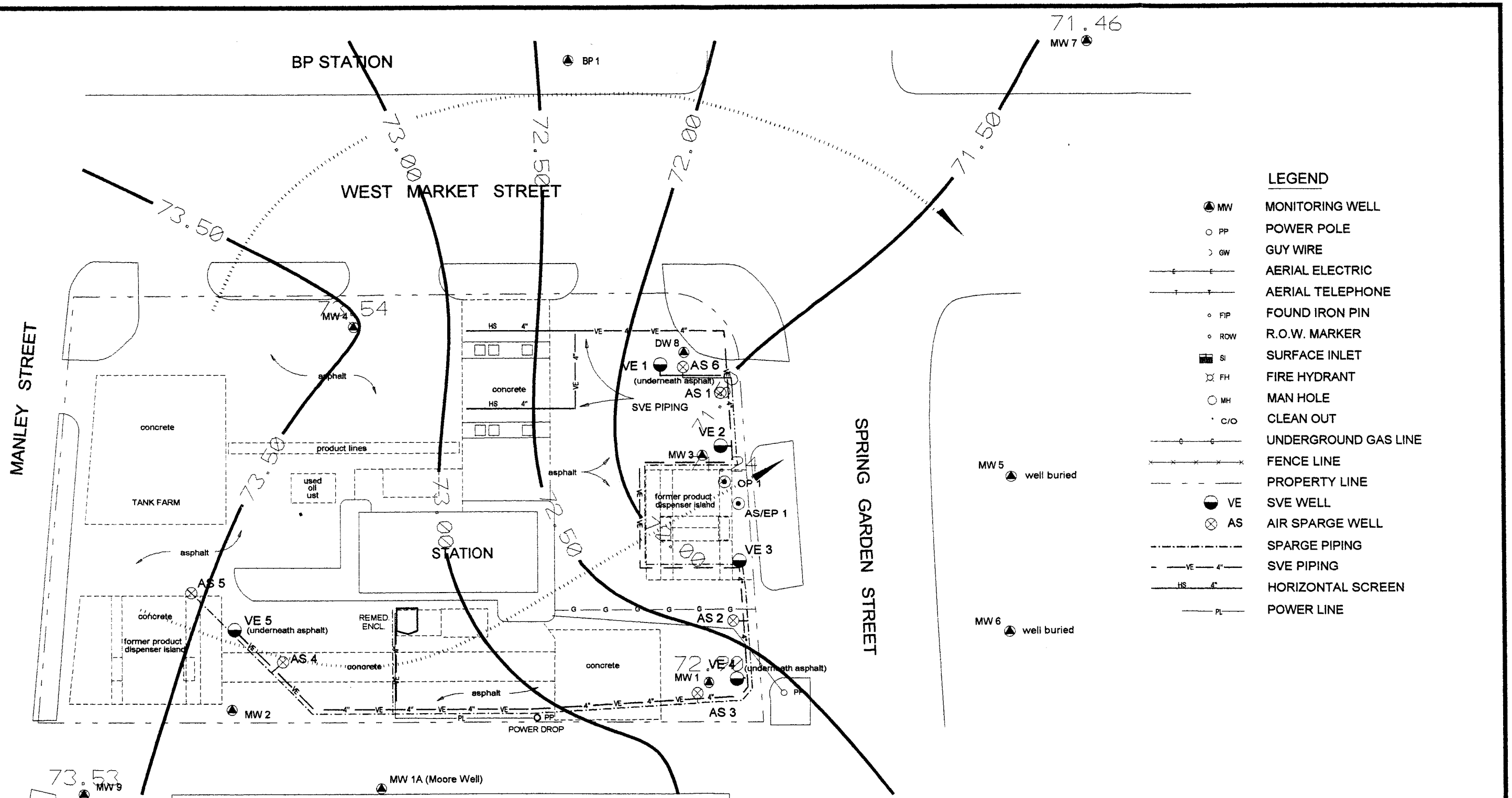
FIGURE 2
SITE CONFIGURATION MAP
EXXON RAS #4-3998
4701 WEST MARKET ST., GREENSBORO, NC

Reference map by EA Engineering, Science, and Technology

0 20 40
(IN FEET)
1 inch = 40 feet

Prepared For:
Exxon Company, U.S.A.
Charlotte, North Carolina, U.S.A.

| | | | |
|---|---|---|---|
| File Name: | 43998sm4.dw2 | Date: | 1/1998 |
| Approved: | | Scale: | 1 in. = 40 ft. |




NOTE: AIR SPARGE WELL AS/EP 1 WAS INSTALLED FOR THE PILOT TEST AND WAS CONNECTED TO THE SYSTEM.

FIGURE 3
GROUNDWATER FLOW MAP
EXXON RAS #4-3998
4701 WEST MARKET ST., GREENSBORO, NC

Reference map by EA Engineering, Science, and Technology

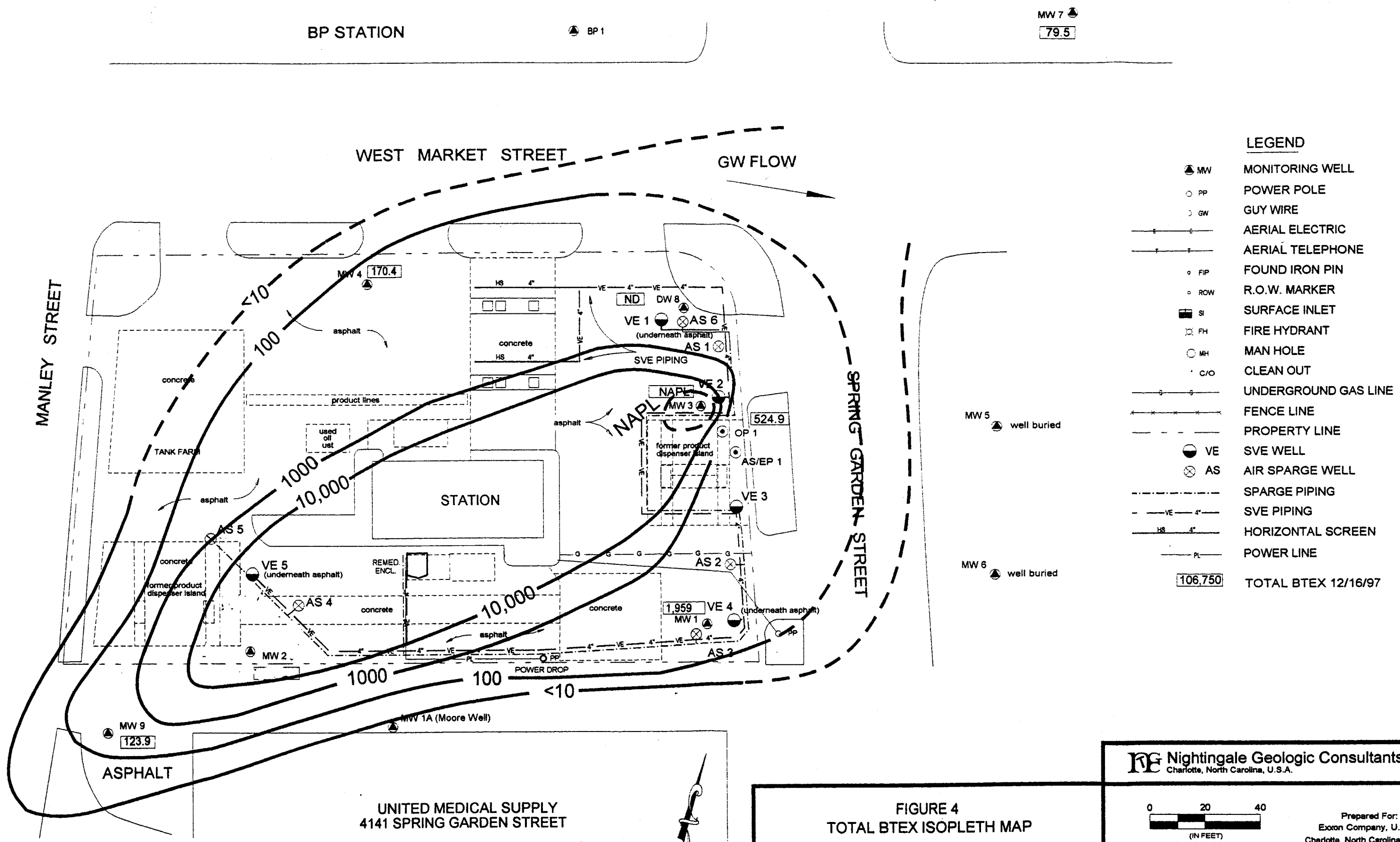
Nightingale Geologic Consultants, P.C.
Charlotte, North Carolina, U.S.A.

0 20 40
(IN FEET)
1 inch = 40 feet

Prepared For:
Exxon Company, U.S.A.
Charlotte, North Carolina, U.S.A.

File Name: 43998sm4.dw2 Date: 12/1998

Approved: Scale: 1 in. = 40 ft.




UNITED MEDICAL SUPPLY
4141 SPRING GARDEN STREET

NOTE: AIR SPARGE WELL AS/EP 1 WAS INSTALLED FOR THE PILOT TEST AND WAS CONNECTED TO THE SYSTEM.

FIGURE 4
TOTAL BTEX ISOPLETH MAP
EXXON RAS #4-3998
4701 WEST MARKET ST., GREENSBORO, NC

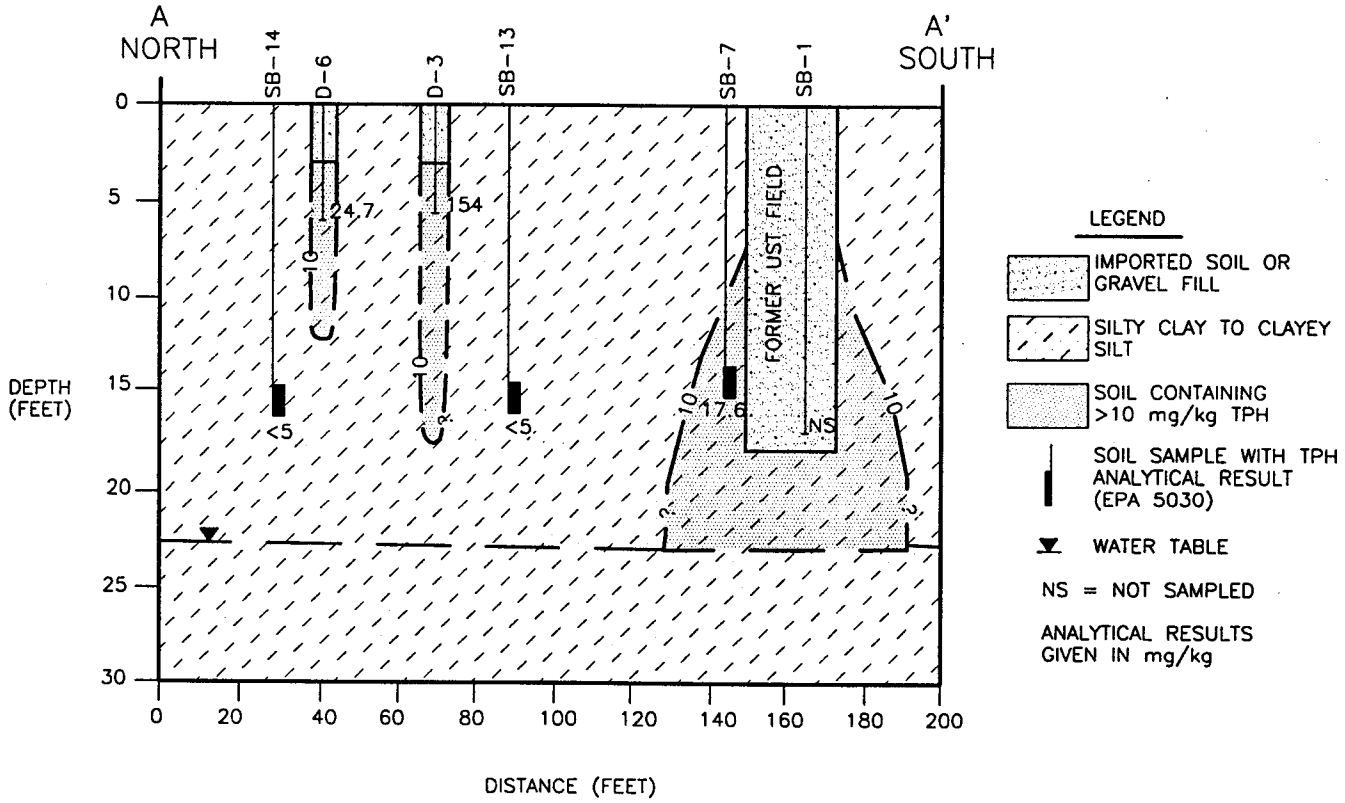
Reference map by EA Engineering, Science, and Technology

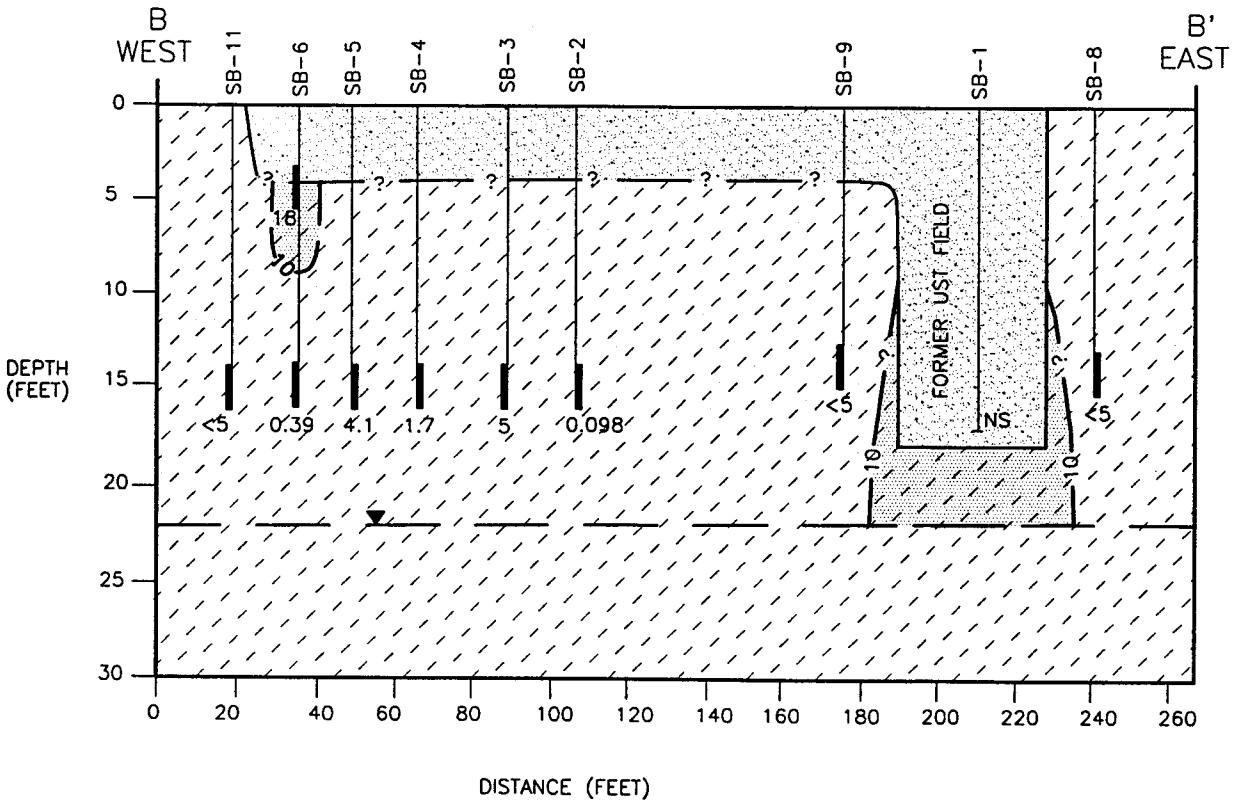
Nightingale Geologic Consultants, P.C.
Charlotte, North Carolina, U.S.A.

0 20 40
(IN FEET)
1 inch = 40 feet

Prepared For:
Exxon Company, U.S.A.
Charlotte, North Carolina, U.S.A.

| | | | |
|---|---|---|---|
| File Name: | 43998sm4.dw2 | Date: | 12/1998 |
| Approved: | | Scale: | 1 in. = 40 ft. |




4106CRS2.DWG 1-29-96 AM 1=1 KH/JP

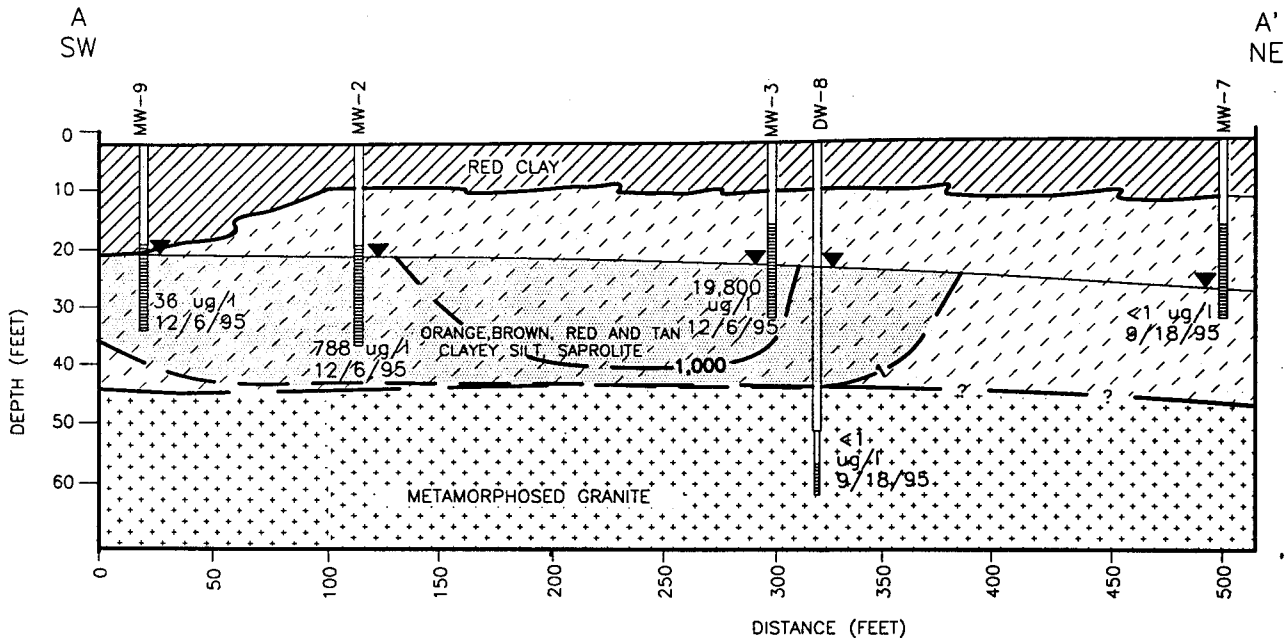
ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA

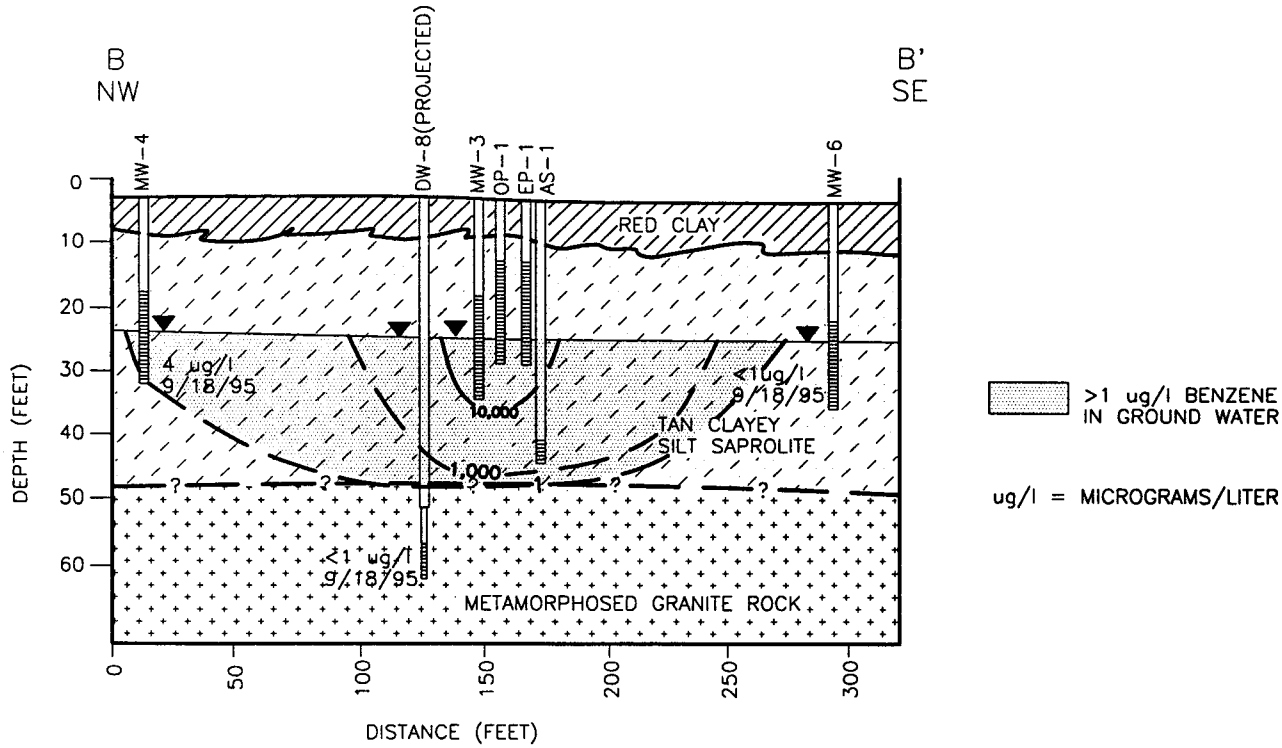
ERM

**GEOLOGIC GROSS-SECTIONS WITH LOW BOILING POINT TPH ANALYTICAL RESULTS**

EXXON RETAIL LOCATIONN 4-3998
GREENSBORO, NORTH CAROLINA

FIGURE
5



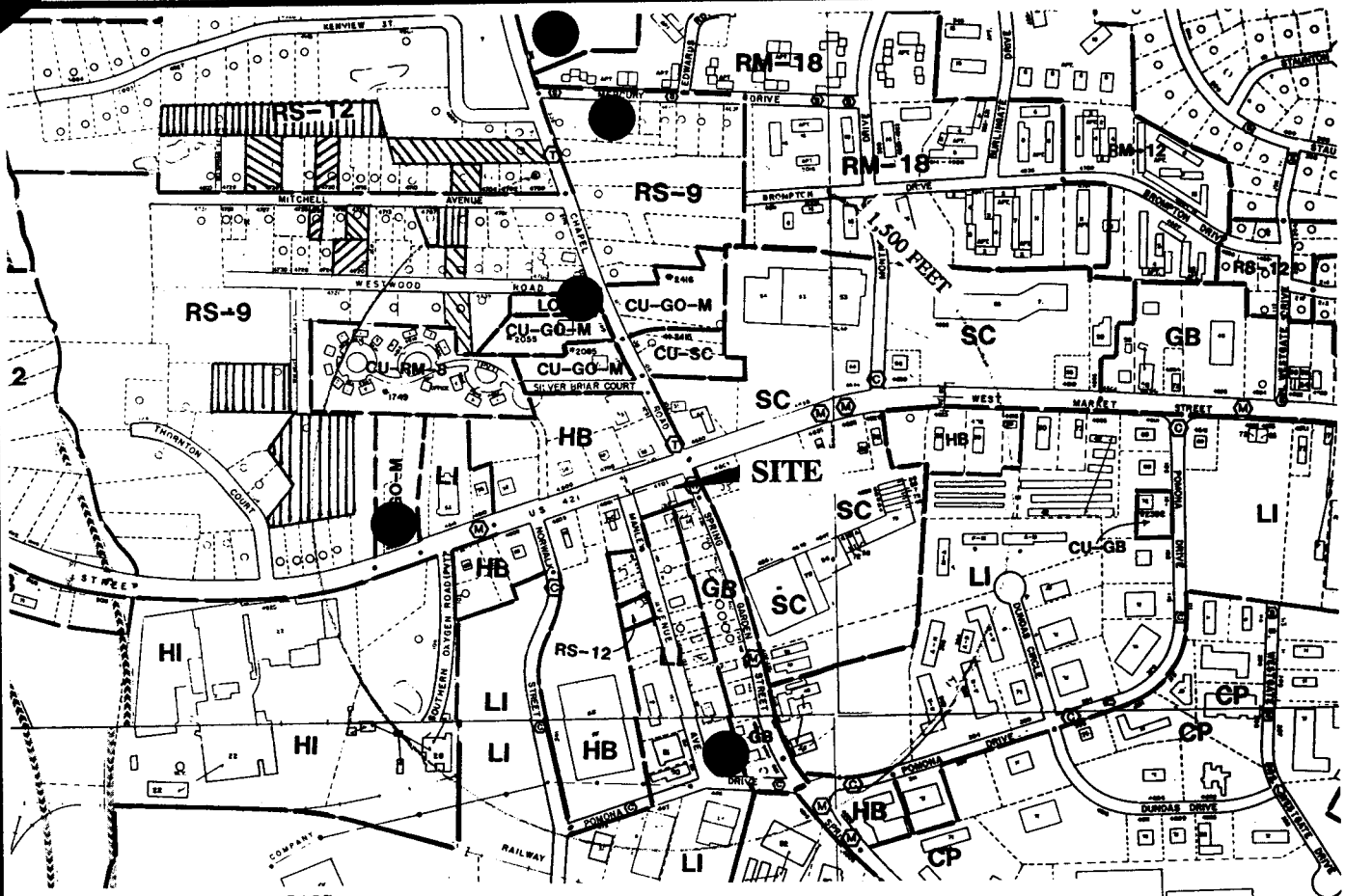

4106ISOC.DWG 6-15-94 AM 1=1 KH/AN

ERM

ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA

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

FIGURE
6




ZONING DESCRIPTIONS

| | |
|---|---|
| CU | Corporate park district (office, warehouse, assembly, research and development uses) |
| GB | General business district (retail, service, office uses) |
| GO | Geral Office district (M indicates moderate density) |
| HB | Highway business district (reatil, service, and distrubution purposes) |
| HI | Heavy industrial district |
| LI | Light industrial district |
| LO | Limited Office District |
| RM | Multifamily residential dwellings |
| RS | Single family detached residential dwellings |
| SC | Shopping center district |

LEGEND

- Residential water supply well
- Residential irrigation well
- Out-of-service water supply well
- Child day care center, church, or school

SOURCE: GREENSBORO ZONING MAP, AUGUST 1995

SCALE IN FEET
0 800

ERM-Southeast, Inc.
CHARLOTTE, NORTH CAROLINA
ERM

LAND USE AND WATER SUPPLY WELL LOCATION MAP
EXXON COMPANY, U.S.A.
RETAIL LOCATION 4-3998
GREENSBORO, NORTH CAROLINA

FIGURE
7

85X11VER.DWG MM-DD-YY AM 1=1 TIWK

# Appendix A

SPECIALIZED ASSAYS ENVIRONMENTAL
2960 Foster Creighton Dr.
Nashville, Tennessee 37204

1-800-765-0980
615-726-0177
Fax: 615-726-3404

132344

# EXXON COMPANY USA

## CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUESTED

LWR #: _____

Name: PIEDMONT INDUSTRIAL SERVIC Phone: 336-725-3788
TOM LENNON 8259 Fax: 336-723-0731

Address: 309 Sunset Drive
WINSTON SALEM, NC 27103

Client Project #
Name:

Project Mgr: Tom Lennon
Exxon Env. Work Release: 19900714

Exxon Contact: FRANK MEDLIN [circle one] EE or C&M Phone:

RAS #: 4-3998
Site Address: 4701 W. Market St. Greensboro
State ID #:

Cooler Seal
Seal Intact yes no Initial

Consultant Receipt
yes no Initial

Laboratory Receipt
yes no Initial

Air Bill # 809950383518
___ # of coolers
Sample Temperature ___ [°C] upon receipt

Sampled by [please print] Alan Duke
Sampler Signature: Alan Duke

Ship Date: 2-23-99

TAT REQUESTED 24hr 48hr 72hr other _____ day Exxon Std TAT

| FIELD SAMPLE ID | SAE LAB # [for lab use only] | # CONT | Matrix: WATER | SOIL | AIR | SLUDGE | PRODUCT | OTHER | Method Preserved: HCL | HNO3 | H2SO4 | ICE | NON-PRES | OTHER SPECIFY | Sampling: DATE | TIME | BTEX 602 ☐ 8020 ☒ | MTBE ☐ | EDB METHOD ___ | PETROLEUM HYDROCARBONS, GC, 8015 GAS ☒ DIESEL ☐ | TRPH/OIL AND GREASE 418.1 ☐ 9070 ☐ 9071 ☐ 413.1 ☐ 413.2 ☐ | PURGEABLE HALOCARBONS 601 ☐ 8010 ☐ 8021 ☐ | PURGEABLE AROMATICS 602 ☐ 8020 ☐ 8021 ☐ | PCB's ☐ | VOLATILE ORGANICS 624 ☐ 8240 TCL ☐ 8260 ☐ | EXTRACTABLE ORGANICS 625 ☐ 8270 TCL ☐ | PAH's 610 ☐ 8310 ☐ 8100 ☐ 8270 ☐ | TCLP METALS ☐ VOA's ☐ BNA's ☐ P/H ☐ TOTAL ☐ | METALS RCRA ☐ PP ☐ TAL ☐ | LEAD 238.2 ☐ 200.7 ☐ 6010 ☐ 7421 ☐ | CORROSIVITY ☐ REACTIVITY ☐ | FP OPEN CUP ☐ CLOSED CUP ☐ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SVE Effluent | 25993 | 1 | | | X | | | | | | | | | | 2/23 | 413 | X | | | X | | | | | | | | | | | |

OTHER

SPECIAL DETECTION LIMITS:

REPORTING LIMITS:

CLIENT REMARKS:

STORAGE LOCATION:

| | DATE | TIME |
|---|---|---|
| Relinquished by Sampler: Alan Duke | 2/23/99 | 730 |
| Company / Affiliation: P.I.S. | | |
| Relinquished by: | | |
| Company / Affiliation: | | |

| | DATE | TIME |
|---|---|---|
| Received by: | 22499 | 900 |
| Received by: | | |

**SPECIALIZED ASSAYS, INC.**
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Lab Number: 99-A25993
Sample ID: SVE EFFLUENT
Sample Type: Air Bags
Site ID:

Date Collected: 2/23/99
Time Collected: 16:13
Date Received: 2/24/99
Time Received: 9:00

Project:
Project Name: EXXON 4-3998
Sampler: ALAN DUKE

| Analyte | Result | Units | PQL | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Toluene | 7.30 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Benzene | 5.50 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Xylene | 5.90 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Ethyl benzene | 0.800 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| TRPH Lo (C4-C10) | 66.3 | mg/m3 | 5.00 | 2/24/99 | 14:03 | C. Borski | EPA-18 |

Report Approved By: T.J. Duello  Report Date: 2/25/99

Theodore J. Duello, Ph.D., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 387

COPY 2

SPECIALIZED ASSAYS ENVIRONMENTAL
2960 Foster Creighton Dr.
Nashville, Tennessee 37204

1-800-765-0980
615-726-0177
Fax: 615-726-3404

132344

# EXXON COMPANY USA

## CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUESTED

LWR #: _____

Name: PIEDMONT INDUSTRIAL SERVIC Phone: 336-725-3788
TOM LENNON 8259 Fax: 336-723-0731

Address: 309 Sunset Drive
WINSTON SALEM, NC 27103

Client Project #
Name:

Project Mgr: Tom Lennon

Exxon Env. Work Release: 19900714

Exxon Contact: FRANK MEDLIN [circle one] EE or C&M Phone:

RAS #: 4-3998

Site Address: 4701 W. Market St. Greensboro

State ID #:

Cooler Seal
Seal Intact yes no Initial

Consultant Receipt
yes no Initial

Laboratory Receipt

Air Bill # 809950383518 ___ # of coolers

Sample Temperature ___ [°C] upon receipt

Sampled by [please print] Alan Duke

Sampler Signature: [signature]

Ship Date: 2-23-99

TAT REQUESTED 24hr 48hr. 72hr other _____ day Exxon Std TAT

| FIELD SAMPLE ID | SAE LAB # [for lab use only] | # CONT | Matrix: WATER | SOIL | AIR | SLUDGE | PRODUCT | OTHER | Method Preserved: HCL | HNO3 | H2SO4 | ICE | NON-PRES | OTHER SPECIFY | Sampling: DATE | TIME | BTEX 602 ☐ 8020 ☒ | MTBE ☐ | EDB METHOD ___ | PETROLEUM HYDROCARBONS, GC, 8015 GAS ☒ DIESEL ☐ | TRPH/OIL AND GREASE 418.1 ☐ 9070 ☐ 9071 ☐ 413.1 ☐ 413.2 ☐ | PURGEABLE HALOCARBONS 601 ☐ 8010 ☐ 8021 ☐ | PURGEABLE AROMATICS 602 ☐ 8020 ☐ 8021 ☐ | PCB's ☐ | VOLATILE ORGANICS 624 ☐ 8240 TCL ☐ 8260 ☐ | EXTRACTABLE ORGANICS 625 ☐ 8270 TCL ☐ | PAH's 610 ☐ 8310 ☐ 8100 ☐ 8270 ☐ | TCLP METALS ☐ VOA's ☐ BNA's ☐ P/H ☐ TOTAL ☐ | METALS RCRA ☐ PP ☐ TAL ☐ | LEAD 238.2 ☐ 200.7 ☐ 6010 ☐ 7421 ☐ | CORROSIVITY ☐ REACTIVITY ☐ | FP OPEN CUP ☐ CLOSED CUP ☐ | OTHER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SVE Effluent | 25993 | 1 | | | X | | | | | | | | | | 2/23 | 413 | X | | | X | | | | | | | | | | | | | | | | |

SPECIAL DETECTION LIMITS:

REPORTING LIMITS:

CLIENT REMARKS:

STORAGE LOCATION:

| | | DATE | TIME |
|---|---|---|---|
| Relinquished by Sampler: [signature] | | 2/23/99 | 730 |
| Company / Affiliation: P.I.S. | Received by: [signature] | 22499 | 900 |
| Relinquished by: | Received by: | | |
| Company / Affiliation: | | | |

**SPECIALIZED ASSAYS, INC.**
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Lab Number: 99-A25993
Sample ID: SVE EFFLUENT
Sample Type: Air Bags
Site ID:

Date Collected: 2/23/99
Time Collected: 16:13
Date Received: 2/24/99
Time Received: 9:00

Project:
Project Name: EXXON 4-3998
Sampler: ALAN DUKE

| Analyte | Result | Units | PQL | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Toluene | 7.50 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Benzene | 5.50 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Xylene | 5.50 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Ethyl benzene | 0.800 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| TPH Lo (C04-C10) | 66.3 | mg/m3 | 5.00 | 2/24/99 | 14:03 | C. Borski | EPA-18 |

Report Approved By: [signature] Report Date: 2/25/99

Theodore J. Duello, Ph.D., Lab Director
Michael W. Dunn, M.B.A., Technical Director
Johnny A. Mitchell, Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 997

COPY 2

**SPECIALIZED ASSAYS, INC.**
2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

# ANALYTICAL REPORT

08V2

PIEDMONT INDUSTRIAL SERVICES 8259
TOM LENNON
P.O. BOX 5061
WINSTON SALEM, NC 27103

Lab Number: 99-A25993
Sample ID: SVE EFFLUENT
Sample Type: Air Bags
Site ID:

Date Collected: 2/23/99
Time Collected: 16:13
Date Received: 2/24/99
Time Received: 9:00

Project:
Project Name: EXXON 4-3998
Sampler: ALAN DUKE

| Analyte | Result | Units | PQL | Date | Time | Analyst | Method |
|---|---|---|---|---|---|---|---|
| Toluene | 7.30 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Benzene | 5.30 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Xylene | 5.90 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| Ethyl benzene | 0.800 | mg/m3 | 0.500 | 2/24/99 | 14:03 | C. Borski | EPA-18 |
| TRPH Lo (TO3-C10) | 66.3 | mg/m3 | 5.00 | 2/24/99 | 14:03 | C. Borski | EPA-18 |

Report Approved By: [signature] Report Date: [illegible]

Theodore J. Dualla, Ph.D., Lab Director
[illegible], Technical Director
Johnny A. [illegible], Dir. Technical Services
Eric Smith, Assistant Technical Director

Laboratory Certification Number: 307

COPY 3