4

GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.

1000 Perimeter Park Drive, Suite I, Morrisville, NC 27560 USA
Tel: (919) 467-2227 Fax: (919) 467-2299

November 18, 1994

Ms. Sherri Knight
NCDEHNR
DEM - Groundwater Section
Winston-Salem Regional Office
8025 North Point Boulevard, Suite 100
Winston-Salem, North Carolina 27106-3203

RECEIVED
N.C. Dept. of EHNR
NOV 21 1994
Winston-Salem
Regional Office

Re: Quarterly Groundwater Sampling Results
Former Elm Street Sunoco 0275-7516
2903 S. Elm Street
Greensboro, North Carolina
Incident #10076

Dear Ms. Knight:

As recommended in the Comprehensive Site Assessment Report for the above referenced site dated July 1993, the groundwater monitoring wells at the site have been sampled quarterly for a period of one year to monitor the constituent levels in the wells and evaluate whether an active remedial action is necessary at the site (**Figure 1**). Results of the fourth quarterly groundwater sampling event conducted on June 15, 1994 are presented below.

During the fourth quarterly sampling event, groundwater elevation data were collected from wells MW-1 through MW-4 and VMW-5 prior to sampling the wells (**Table 1**). The data from the wells screened across the water table (wells MW-1 through MW-4) were used to construct a water table elevation contour map which is provided as **Figure 2**. Also during the fourth quarterly sampling event, groundwater samples were collected from wells MW-1 through MW-4 and VMW-5 for analysis of BTEX plus MTBE by modified EPA Method 602. Laboratory analytical results from the sampling event indicate that **benzene was detected at concentrations above the North Carolina Administrative Code Title 15A Subchapter 2L (NC 2L) groundwater quality standard of 1 μg/L in monitoring well MW-1. Analytical results also indicate that MTBE was detected above the NC 2L standard of 200 μg/L in well MW-2 (210 μg/L).** Constituents were not detected above the NC 2L standards in the remaining wells. 7.1

A summary of the groundwater analytical results for the fourth quarterly sampling event is presented in **Table 2** along with the results from previous sampling events for comparison. A dissolved benzene distribution map, a dissolved BTEX distribution map, and a dissolved MTBE isoconcentration contour map for the fourth quarterly event are attached as **Figures 3, 4, and 5**, respectively.

Based on the results of the site monitoring program, it appears that this site meets the criteria listed under NC 2L .0106 for remediation by natural process of degradation and attenuation of petroleum constituents. A corrective action plan presenting this approach is in preparation.

If you have any questions regarding this site, please feel free to contact me at (919) 467-2227.

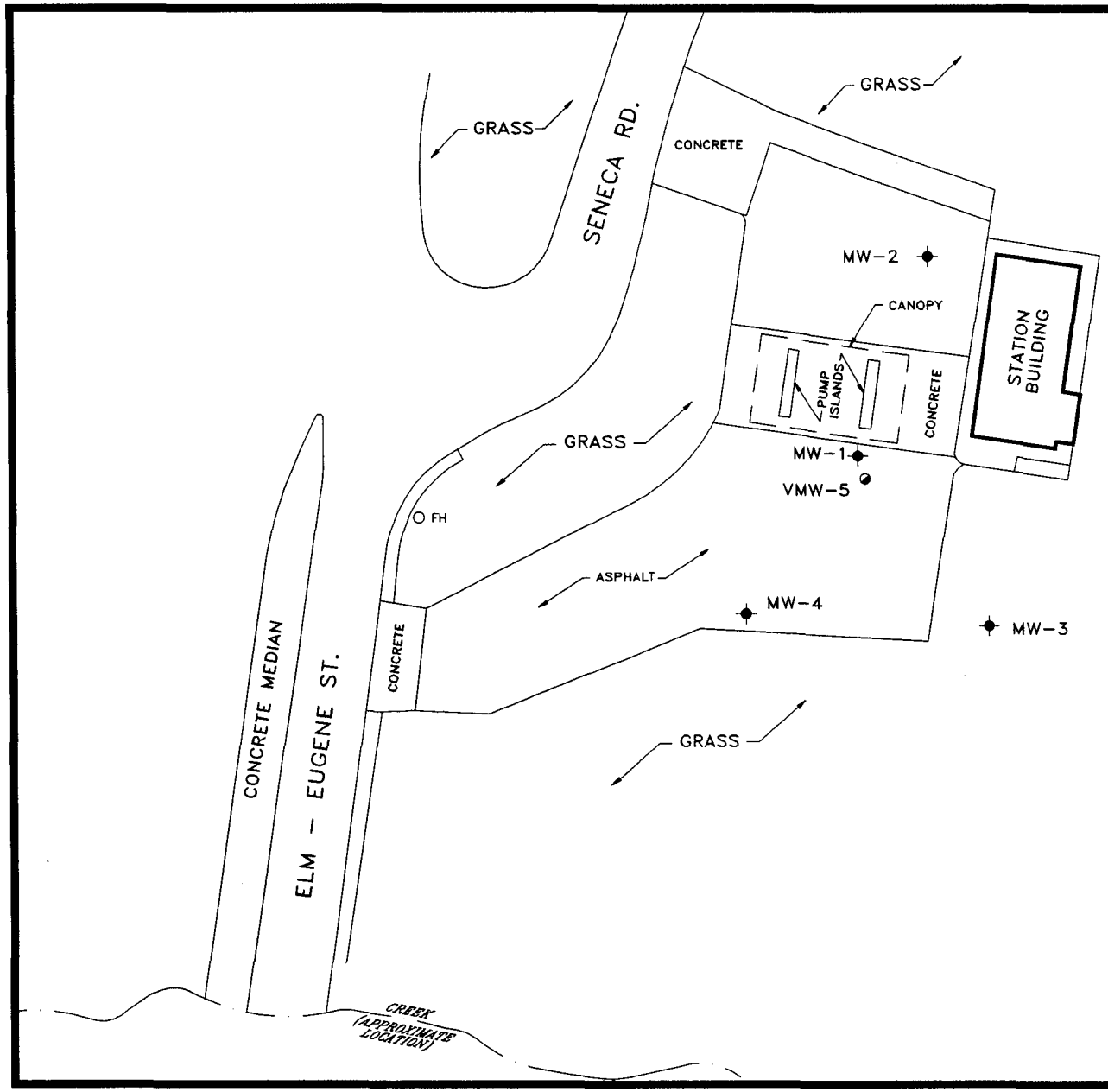
Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Karen A. Trimberger
Geologist

cc: Dan Shine - Sun Company, Inc.

GROUNDWATER TECHNOLOGY ®

FIGURES



LEGEND

- MONITORING WELL
- VERTICAL DEFINITION MONITORING WELL
- FH FIRE HYDRANT

N

60 0 60

SCALE FEET

SOURCE: JAMES L. HAINES & ASSOC. - 6/16/93 SURVEY

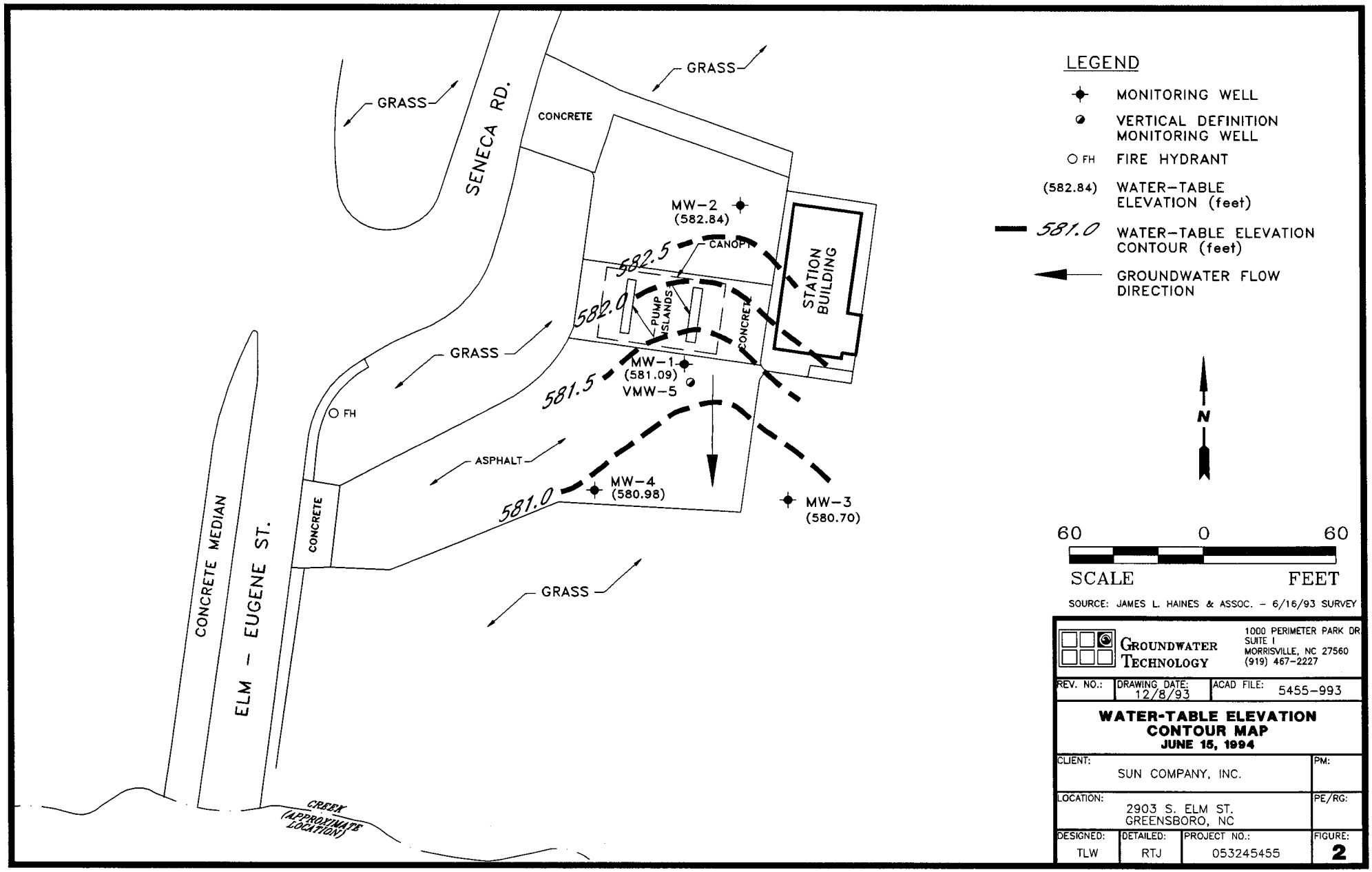
GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE I
MORRISVILLE, NC 27560
(919) 467-2227

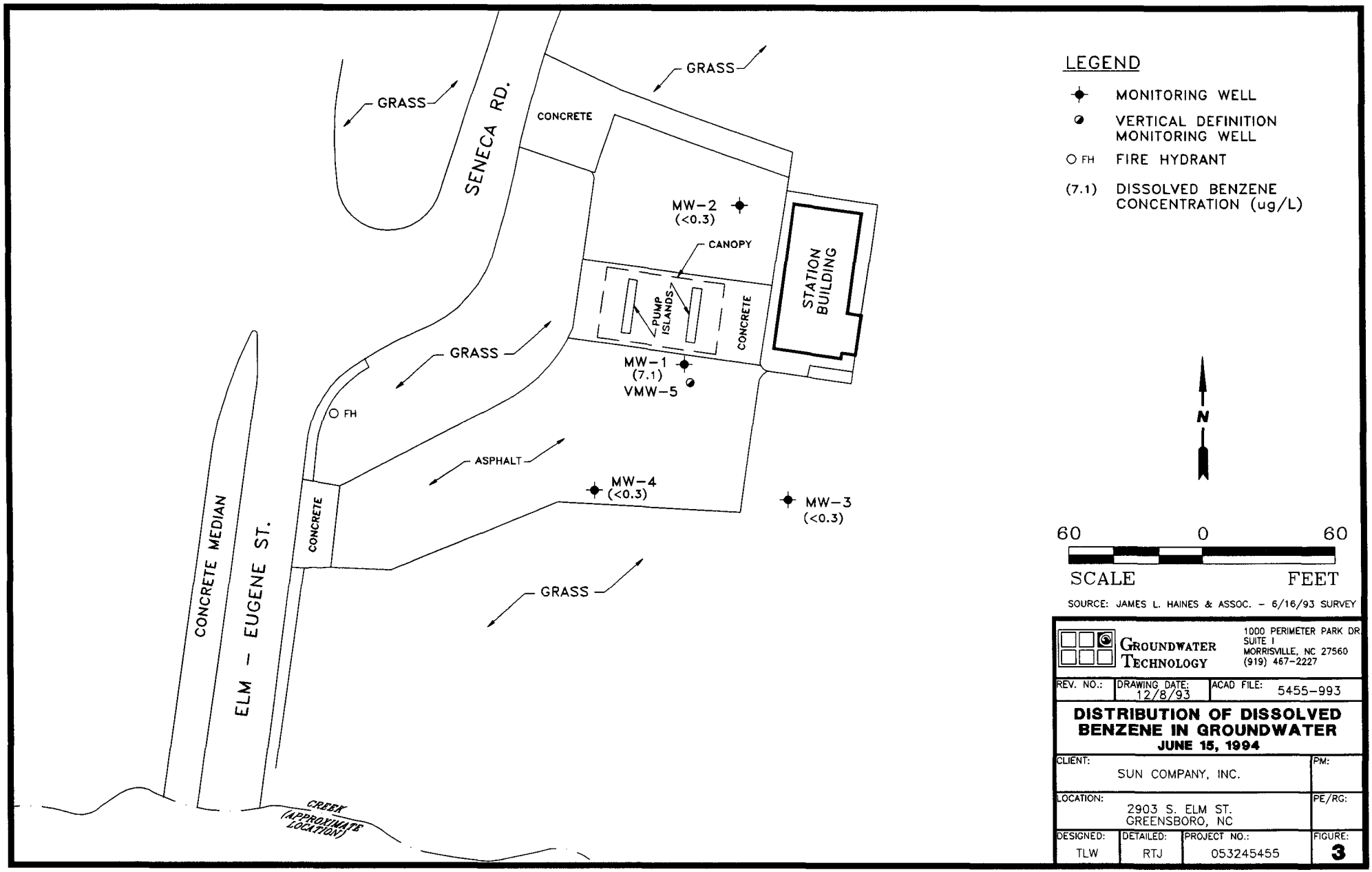
REV. NO.:	DRAWING DATE: 12/8/93	ACAD FILE: 5455-993

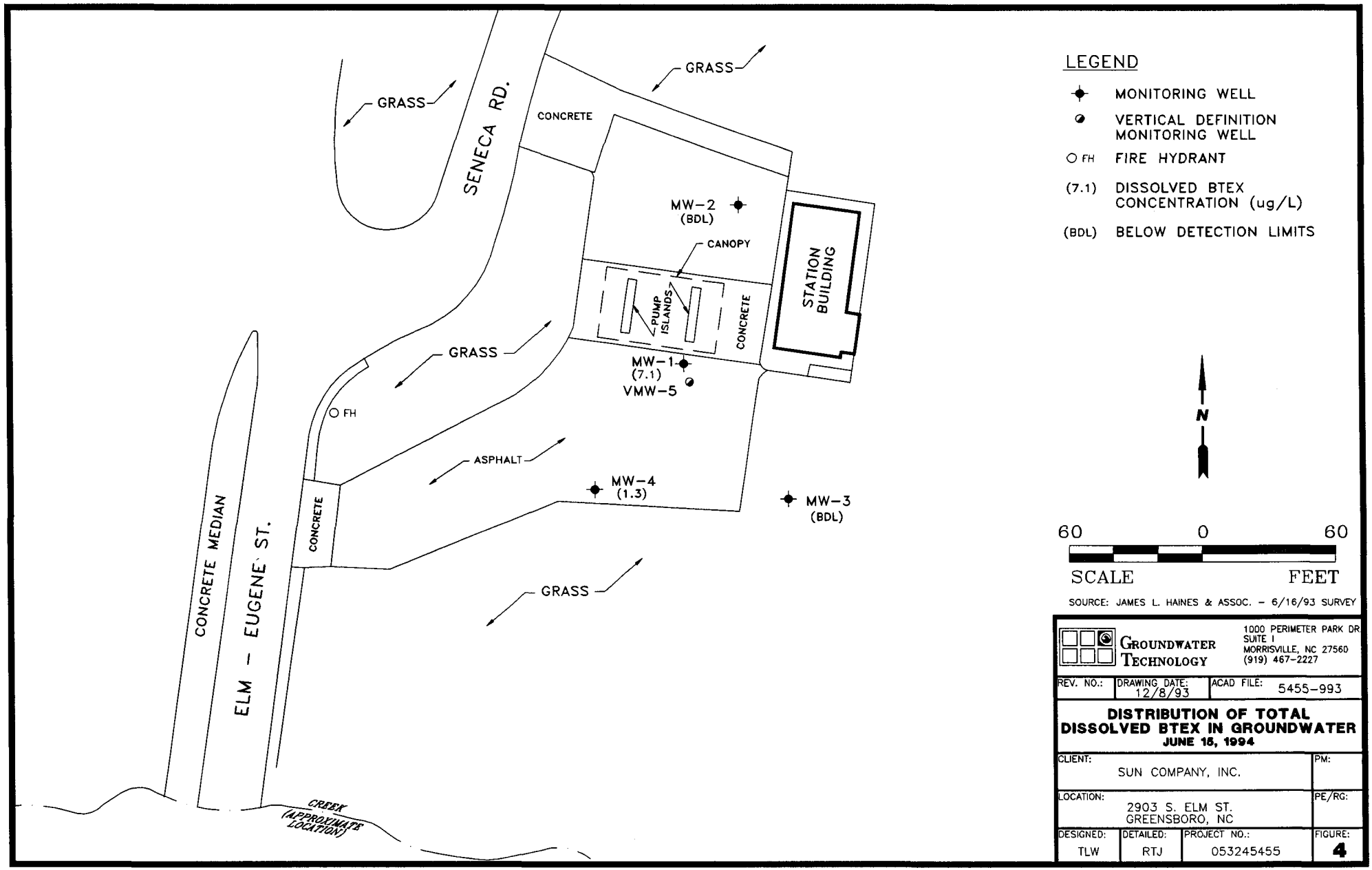
SITE MAP

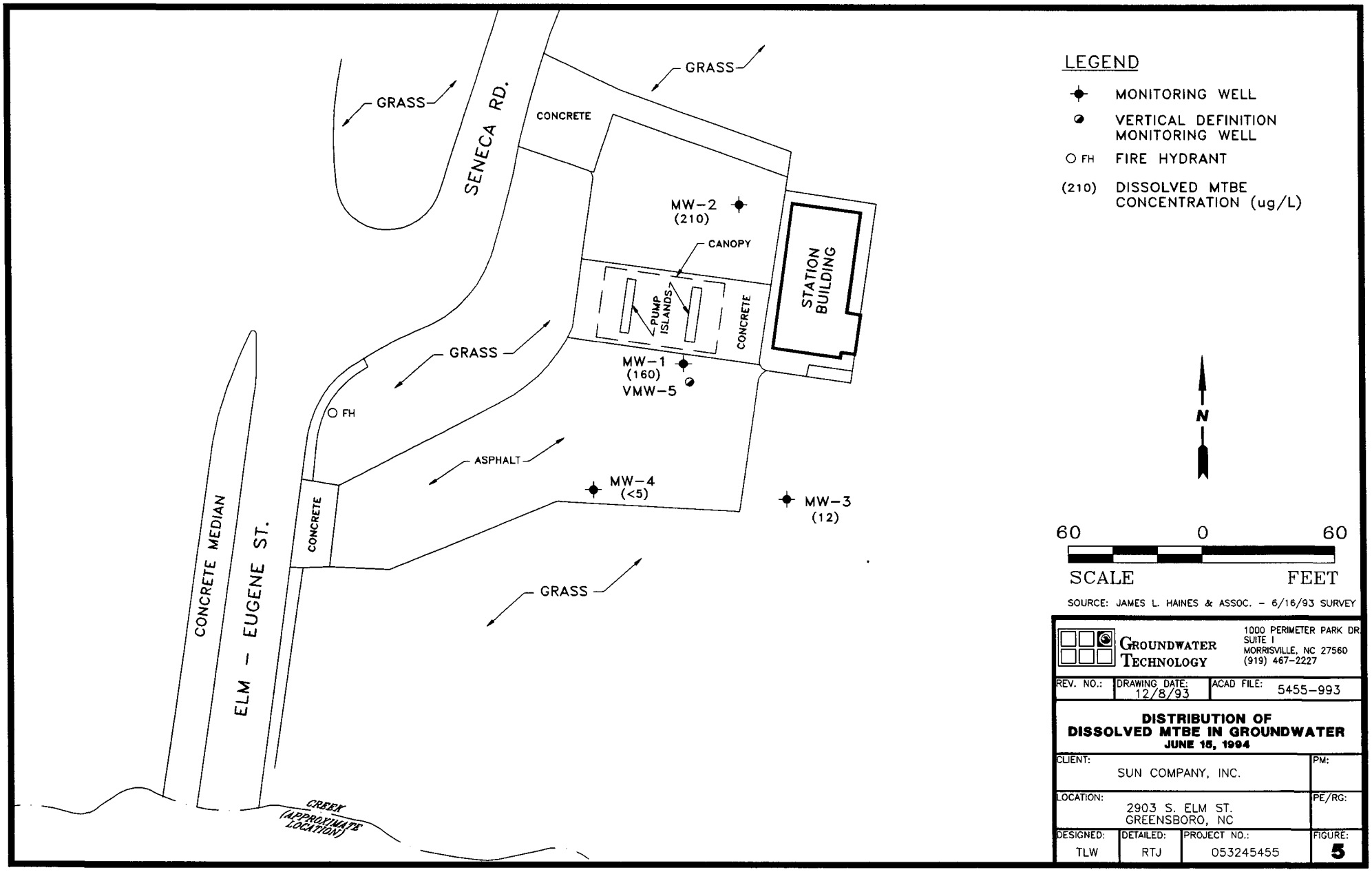
CLIENT: SUN COMPANY, INC.	PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC	PE/RG:

DESIGNED:	DETAILED:	PROJECT NO.:	FIGURE:
TLW	RTJ	053245455	1


GRASS
SENECA RD.
CONCRETE
GRASS
MW-2
(582.84)
CANOPY
582.5
582.0
PUMP ISLANDS
CONCRETE
STATION BUILDING
GRASS
MW-1
(581.09)
VMW-5
581.5
FH
ASPHALT
MW-4
(580.98)
581.0
MW-3
(580.70)
CONCRETE
CONCRETE MEDIAN
ELM - EUGENE ST.
GRASS
CREEK (APPROXIMATE LOCATION)
LEGEND
MONITORING WELL
VERTICAL DEFINITION MONITORING WELL
FH FIRE HYDRANT
(582.84) WATER-TABLE ELEVATION (feet)
581.0 WATER-TABLE ELEVATION CONTOUR (feet)
GROUNDWATER FLOW DIRECTION
N
60 0 60
SCALE FEET
SOURCE: JAMES L. HAINES & ASSOC. - 6/16/93 SURVEY
GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE I
MORRISVILLE, NC 27560
(919) 467-2227
REV. NO.:
DRAWING DATE: 12/8/93
ACAD FILE: 5455-993
WATER-TABLE ELEVATION CONTOUR MAP
JUNE 15, 1994
CLIENT: SUN COMPANY, INC.
PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC
PE/RG:
DESIGNED: TLW
DETAILED: RTJ
PROJECT NO.: 053245455
FIGURE: 2


GRASS
SENECA RD.
CONCRETE
GRASS
MW-2
(<0.3)
CANOPY
STATION BUILDING
PUMP ISLANDS
CONCRETE
GRASS
MW-1
(7.1)
VMW-5
FH
ASPHALT
MW-4
(<0.3)
MW-3
(<0.3)
CONCRETE
CONCRETE MEDIAN
ELM - EUGENE ST.
GRASS
CREEK (APPROXIMATE LOCATION)
LEGEND
MONITORING WELL
VERTICAL DEFINITION MONITORING WELL
FH FIRE HYDRANT
(7.1) DISSOLVED BENZENE CONCENTRATION (ug/L)
N
60 0 60
SCALE FEET
SOURCE: JAMES L. HAINES & ASSOC. - 6/16/93 SURVEY
GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE I
MORRISVILLE, NC 27560
(919) 467-2227
REV. NO.:
DRAWING DATE: 12/8/93
ACAD FILE: 5455-993
DISTRIBUTION OF DISSOLVED BENZENE IN GROUNDWATER
JUNE 15, 1994
CLIENT: SUN COMPANY, INC.
PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC
PE/RG:
DESIGNED: TLW
DETAILED: RTJ
PROJECT NO.: 053245455
FIGURE: 3


GRASS
SENECA RD.
CONCRETE
GRASS
MW-2
(BDL)
CANOPY
PUMP ISLANDS
CONCRETE
STATION BUILDING
GRASS
MW-1
(7.1)
VMW-5
FH
ASPHALT
MW-4
(1.3)
MW-3
(BDL)
CONCRETE
CONCRETE MEDIAN
ELM - EUGENE ST.
GRASS
CREEK
(APPROXIMATE LOCATION)
LEGEND
MONITORING WELL
VERTICAL DEFINITION MONITORING WELL
FH FIRE HYDRANT
(7.1) DISSOLVED BTEX CONCENTRATION (ug/L)
(BDL) BELOW DETECTION LIMITS
N
60 0 60
SCALE FEET
SOURCE: JAMES L. HAINES & ASSOC. - 6/16/93 SURVEY
GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR
SUITE I
MORRISVILLE, NC 27560
(919) 467-2227
REV. NO.:
DRAWING DATE: 12/8/93
ACAD FILE: 5455-993
DISTRIBUTION OF TOTAL DISSOLVED BTEX IN GROUNDWATER
JUNE 15, 1994
CLIENT: SUN COMPANY, INC.
PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC
PE/RG:
DESIGNED: TLW
DETAILED: RTJ
PROJECT NO.: 053245455
FIGURE: 4


GRASS
SENECA RD.
CONCRETE
GRASS
MW-2
(210)
CANOPY
PUMP ISLANDS
CONCRETE
STATION BUILDING
GRASS
MW-1
(160)
VMW-5
FH
ASPHALT
MW-4
(<5)
MW-3
(12)
CONCRETE
CONCRETE MEDIAN
ELM - EUGENE ST.
GRASS
CREEK (APPROXIMATE LOCATION)
LEGEND
MONITORING WELL
VERTICAL DEFINITION MONITORING WELL
FH FIRE HYDRANT
(210) DISSOLVED MTBE CONCENTRATION (ug/L)
N
60 0 60
SCALE FEET
SOURCE: JAMES L. HAINES & ASSOC. - 6/16/93 SURVEY
GROUNDWATER TECHNOLOGY
1000 PERIMETER PARK DR.
SUITE I
MORRISVILLE, NC 27560
(919) 467-2227
REV. NO.:
DRAWING DATE: 12/8/93
ACAD FILE: 5455-993
DISTRIBUTION OF
DISSOLVED MTBE IN GROUNDWATER
JUNE 15, 1994
CLIENT: SUN COMPANY, INC.
PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC
PE/RG:
DESIGNED: TLW
DETAILED: RTJ
PROJECT NO.: 053245455
FIGURE: 5

TABLES

GROUNDWATER TECHNOLOGY ®

TABLE 1
WATER–TABLE ELEVATIONS
DATE: 6/15/94
Former Sunoco Station
2903 S. Elm Street
Greensboro, NC

WELL IDENTIFICATION	CASING ELEVATION (Feet)	DEPTH TO WATER (Feet)	DEPTH TO PRODUCT (Feet)	PRODUCT THICKNESS	WATER–TABLE ELEVATION (Feet)	COMMENTS
MW–1	597.04	15.95	--	--	581.09	
MW–2	596.61	13.77	--	--	582.84	
MW–3	596.36	15.66	--	--	580.70	
MW–4	596.47	15.49	--	--	580.98	
VMW–5	597.10	15.72	--	--	581.38	

Notes:
Depth to water measured relative to top of casing.
Well head elevations measured relative to site – specific datum.

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TABLE 2
GROUNDWATER ANALYTICAL RESULTS (ug/L)
Former Sunoco Station
2903 S. Elm Street
Greensboro, North Carolina

SAMPLE DESIGNATION:	MW-1					MW-2					MW-3					MW-4					VMW-5					NC
SAMPLE DATE:	6/15/93	9/24/93	12/7/93	2/15/94	6/15/94	6/15/93	9/24/93	12/7/93	2/15/94	6/15/94	6/15/93	9/24/93	12/7/93	2/15/94	6/15/94	6/15/93	9/24/93	12/7/93	2/15/94	6/15/94	6/15/93	9/24/93	12/7/93	2/15/94	6/15/94	Standards
Volatile Organic Compounds EPA Method 602																										
Benzene	5	1	0.9	0.7	7.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	1
Toluene	8	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	1	0.9	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	1000
Ethylbenzene	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	2	0.7	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	29
Xylene, total	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	1	0.7	<0.5	1.3	0.5	<0.5	<0.5	<0.5	<0.5	530
BTEX, total	13	1.7	0.9	0.7	7.1	--	0.5	--	--	--	1	2.1	--	--	--	--	3	1.4	--	1.3	1.1	--	--	--	--	--
MTBE	230	300	410	290	160	290	220	270	280	210	5	24	19	<10	12	<5	<5	<5	<10	<5	5	<5	<5.0	<10	<5.0	200

FILE C:\CLIENT\SUN\ELM2.wk1

LABORATORY ANALYTICAL REPORTS

GROUNDWATER TECHNOLOGY ®

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Western Region
4080 Pike Lane, Suite C
Concord, CA 94520
(510) 685-7852
(800) 544-3422 Inside CA
FAX (510) 825-0720

June 21, 1994

Teresa Watson
Groundwater Technology, Inc.
1000 Perimeter Park Drive, Ste. I
Morrisville, NC 27560

RE: GTEL Client ID: 053245455
Login Number: C4060282
Project ID (number):
Project ID (name): Sun Elm St., Greensboro, NC

Dear Teresa Watson:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 06/16/94 under Chain-of-Custody Number(s) 62522.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Rashmi Shah
Laboratory Director

GTEL Client ID: 053245455
Login Number: C4060282
Project ID (number): 053245455
Project ID (name): Sun Elm St., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 602
Matrix: Aqueous

GTEL Sample Number		C4060282-01	C4060282-02	C4060282-03	C4060282-04
Client ID		VMW 5	MW 4	MW 3	MW 2
Date Sampled		06/15/94	06/15/94	06/15/94	06/15/94
Date Analyzed		06/17/94	06/17/94	06/17/94	06/17/94
Dilution Factor		1.00	1.00	1.00	1.00
Analyte	Reporting Limit / Units	Concentration:			
Benzene	0.3 ug/L	< 0.3	< 0.3	< 0.3	< 0.3
Toluene	0.3 ug/L	< 0.3	< 0.3	< 0.3	< 0.3
Ethylbenzene	0.3 ug/L	< 0.3	< 0.3	< 0.3	< 0.3
Xylenes (total)	0.5 ug/L	< 0.5	1.3	< 0.5	< 0.5
MTBE	5.0 ug/L	< 5.0	< 5.0	12.	210
BFB (Surrogate)	-- %	93.6	100.	99.6	99.7

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 602:

"Test Procedures for Analysis of Organic Pollutants". Code of Federal Regulations, 40CFR Section 136, Appendix A, July 1992. Analyte list modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 053245455
Login Number: C4060282
Project ID (number): 053245455
Project ID (name): Sun Elm St., Greensboro, NC

ANALYTICAL RESULTS

Volatile Organics
Method: EPA 602
Matrix: Aqueous

GTEL Sample Number	C4060282-05	--	--	--
Client ID	MW 1	--	--	--
Date Sampled	06/15/94	--	--	--
Date Analyzed	06/18/94	--	--	--
Dilution Factor	1.00	--	--	--

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.3	ug/L	7.1 J	--	--	--
Toluene	0.3	ug/L	< 0.3	--	--	--
Ethylbenzene	0.3	ug/L	< 0.3	--	--	--
Xylenes (total)	0.5	ug/L	< 0.5	--	--	--
MTBE	5.0	ug/L	160	--	--	--
BFB (Surrogate)	--	%	102.	--	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 602:

"Test Procedures for Analysis of Organic Pollutants". Code of Federal Regulations. 40CFR Section 136. Appendix A. July 1992. Analyte list modified to include additional compounds.

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL Client ID: 053245455
Login Number: C4060282
Project ID (number): 053245455
Project ID (name): Sun Elm St., Greensboro, NC

QUALITY CONTROL RESULTS

Volatile Organics
Method: EPA 602
Matrix: Aqueous

Method Blank Results

QC Batch No: Q061794-5
Date Analyzed: 17-JUN-94

Analyte	Method:EPA 602	Concentration: ug/L
Benzene	< 0.30	
Toluene	< 0.30	
Ethylbenzene	< 0.30	
Xylenes (Total)	< 0.50	
MTBE	< 5.0	

Notes:

GTEL ENVIRONMENTAL LABORATORIES, INC

GTEL ENVIRONMENTAL LABORATORIES, INC.

[redacted] GTEL Concord

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

62522

Company Name: GTI

Phone #: 919 467 2227

FAX #: 919 467 2299

Company Address: Morrisville, NC

Site location: Greensboro, NC

Project Manager: Teresa Watson

Client Project ID: (#) 05324 5455

(NAME) Sun-Elm St

I attest that the proper field sampling procedures were used during the collection of these samples.

Sampler Name (Print): Aaron Hill

Field Sample ID	GTEL Lab # (Lab use only)	# Containers	Matrix: WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	Method Preserved: HCl	HNO_3	H_2SO_4	ICE	UNPRESERVED	OTHER (SPECIFY)	Sampling: DATE	TIME	BTEX/602 ☒ 8020 ☐ with MTBE ☒	BTEX/Gas Hydrocarbons PID/FID ☐ with MTBE ☐	Hydrocarbons GC/FID Gas ☐ Diesel ☐ Screen ☐	Hydrocarbon Profile (SIMDIS) ☐	Oil and Grease 413.1 ☐ 413.2 ☐ SM 503 ☐	TPH/IR 418.1 ☐ SM 503 ☐	EDB by 504 ☐ DBCP by 504 ☐	EPA 503.1 ☐ EPA 502.2 ☐	EPA 601 ☐ EPA 8010 ☐	EPA 602 ☐ EPA 8020 ☐	EPA 608 ☐ 8080 ☐ PCB only ☐	EPA 624/PPL ☐ 8240/TAL ☐ NBS (+15) ☐	EPA 625/PPL ☐ 8270/TAL ☐ NBS (+25) ☐	EPA 610 ☐ 8310 ☐	EP TOX Metals ☐ Pesticides ☐ Herbicides ☐	TCLP Metals ☐ VOA ☐ Semi-VOA ☐ Pest ☐ Herb ☐	EPA Metals - Priority Pollutant ☐ TAL ☐ RCRA ☐	CAM Metals TTLC ☐ STLC ☐	Lead 239.2 ☐ 200.7 ☐ 7420 ☐ 7421 ☐ 6010 ☐	Organic Lead ☐	Corrosivity ☐ Flash Point ☐ Reactivity ☐
UMW5	01	3	X						X			X			6/15	1405	X																		
MW4	02	↓	↓						↓			↓			↓	1415	↓																		
MW3	03															1423																			
MW2	04															1430																			
MW1	05															1440																			

TAT

- Priority (24 hr) ☐
- Expedited (48 hr) ☐
- 7 Business Days ☐
- Other STD
- Business Days ☐

Special Handling

GTEL Contact: Bill Sivoda

Quote/Contract #

Confirmation #

PO #

QA / QC LEVEL

BLUE ☐ CLP ☐ OTHER

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS

FAX ☒

REMARKS

Lab Use Only Lot #: 5°C

Storage Location:

Work Order #: C4060282

CUSTODY RECORD

Relinquished by:	Date	Time	Received by:
Aaron Hill	6/15/94	1700	Fed Ex RDU
	6/16/94	09:15	Received by Laboratory: Ronald C. Jensen

Waybill #

Rev. 7/91