4.

RECEIVED
N.C. Dept. of EHNR
MAR 24 1994
Winston-Salem
Regional Office

GROUNDWATER TECHNOLOGY

Groundwater Technology, Inc.
1000 Perimeter Park Drive, Suite 1, Morrisville, NC 27560 USA
Tel: (919) 467-2227

March 22, 1994

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

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

Dear Ms. Knight:

As indicated in the Comprehensive Site Assessment for the above referenced site, the groundwater monitoring wells at the site are being sampled quarterly for a period of one year to monitor the contaminant levels and determine whether active remedial action is necessary at the site. The first quarterly groundwater sampling event for the period of July through September 1993 was conducted on September 24, 1993. Results of the second and third quarterly groundwater sampling events conducted on December 7, 1993 and February 15, 1994 are presented below.

During both sampling events, groundwater samples were collected from wells MW-1 through VMW-5 for analysis of BTEX plus MTBE by modified EPA Method 602. In addition, groundwater samples collected in February 1994 were also analyzed for the presence of naphthalene by EPA Method 610. Laboratory analytical results from both sampling events indicate that dissolved benzene was not detected at concentrations above the NCDEHNR water quality standard of 1 μg/L in any of the monitoring wells at the site. **Analytical results also indicate that dissolved MTBE was detected above the NCDEHNR standard of 200 μg/L in wells MW-1 and MW-2 for both sampling events.** Dissolved MTBE was not detected above the NCDEHNR standard in the remaining wells.

A summary of the groundwater analytical results for the second and third quarterly sampling events are presented in Table 1, along with the results of the previous sampling event for comparison. A site map depicting the distribution of dissolved MTBE in groundwater for February 15, 1994 is attached.

The 4th quarterly groundwater sampling event for the period of April through June 1994 will be conducted in June 1994 and a report of the groundwater results will be submitted to the Winston-Salem Regional Office in July 1994. If you have any questions regarding this site, please feel free to contact me at (919) 467-2227.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Teresa Watson

Teresa Watson
Geologist

Attachments

cc: Dan Shine - Sun Company, Inc.

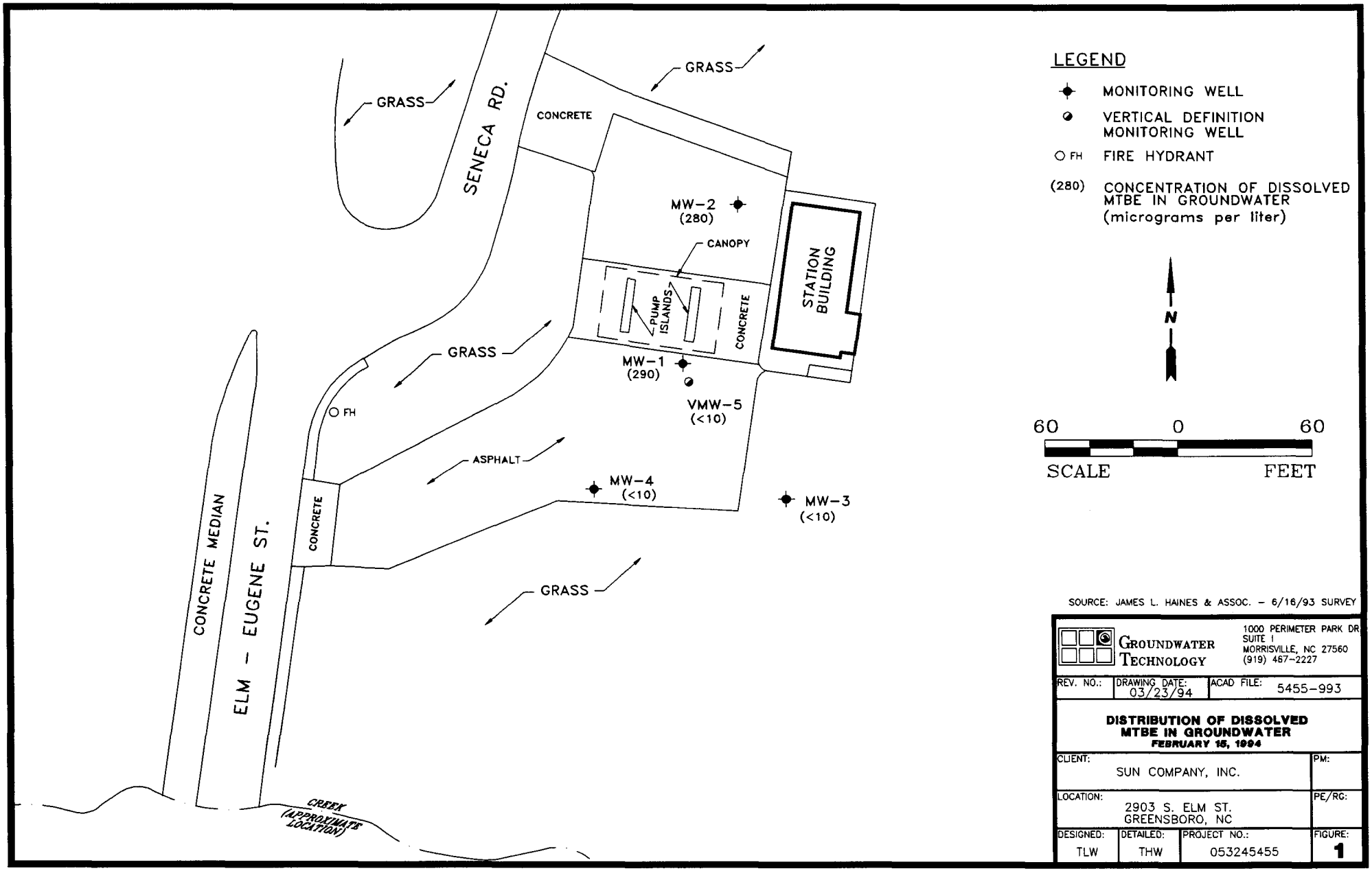
GROUNDWATER TECHNOLOGY

TABLE 1
GROUNDWATER ANALYTICAL RESULTS
FOR BTEX AND MTBE
Sun Company, Inc
2903 South Elm Street
Greensboro, North Carolina

WELL ID	ANALYTE Units: ug/L	SAMPLE DATE Initial 6/15/93	1st Quarter 9/24/93	2nd Quarter 12/7/93	3rd Quarter 2/15/94	4th Quarter --
MW-1	BTEX	13	2	1.2	0.7	--
	MTBE	230	300	410	290	--
MW-2	BTEX	BDL	0.5	BDL	BDL	--
	MTBE	290	220	270	280	--
MW-3	BTEX	1	2.1	BDL	BDL	--
	MTBE	5	24	19	<10	--
MW-4	BTEX	BDL	3	0.7	BDL	--
	MTBE	<5	<5	<5	<10	--
VMW-5	BTEX	1.1	BDL	BDL	BDL	--
	MTBE	5	<5	<5	<10	--

Notes:
BDL – Below Detection Limit

GROUNDWATER TECHNOLOGY


GRASS
SENECA RD.
CONCRETE
GRASS
MW-2
(280)
CANOPY
PUMP ISLANDS
CONCRETE
STATION BUILDING
GRASS
MW-1
(290)
VMW-5
(<10)
FH
ASPHALT
MW-4
(<10)
MW-3
(<10)
CONCRETE
CONCRETE MEDIAN
ELM - EUGENE ST.
GRASS
CREEK (APPROXIMATE LOCATION)
LEGEND
MONITORING WELL
VERTICAL DEFINITION MONITORING WELL
FH FIRE HYDRANT
(280) CONCENTRATION OF DISSOLVED MTBE IN GROUNDWATER (micrograms per liter)
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: 03/23/94
ACAD FILE: 5455-993
DISTRIBUTION OF DISSOLVED MTBE IN GROUNDWATER
FEBRUARY 15, 1994
CLIENT: SUN COMPANY, INC.
PM:
LOCATION: 2903 S. ELM ST. GREENSBORO, NC
PE/RG:
DESIGNED: TLW
DETAILED: THW
PROJECT NO.: 053245455
FIGURE: 1

CANCELLED DEC 2 2 1993
RECEIVED DEC 2 2 1993

Client Number: 053245455
Project ID: Greensboro, NC
Work Order Number: C3-12-0139

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

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

December 21, 1993

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

Enclosed please find the analytical results for samples received by GTEL Environmental Laboratories, Inc. on 12/08/93, under chain of custody record 30686.

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.

GTEL is certified by the California State Department of Health Services, Laboratory certification number E1075, to perform analyses for drinking water, wastewater, and hazardous waste materials according to EPA protocols.

If you have any questions concerning 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

Client Number: 053245455
Project ID: Greensboro, NC
Work Order Number: C3-12-0139

Table 1

ANALYTICAL RESULTS

Aromatic Volatile Organics and MTBE in Water

EPA Methods 5030 and 602[a]

GTEL Sample Number		01	02	03	04
Client Identification		VMW5	MW4	MW3	MW2
Date Sampled		12/07/93	12/07/93	12/07/93	12/07/93
Date Analyzed		12/15/93	12/14/93	12/14/93	12/15/93
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	<0.3	<0.3	<0.3	<0.3
Toluene	0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene	0.3	<0.3	0.7	<0.3	<0.3
Xylene, total	0.5	<0.5	0.7	<0.5	<0.5
Methyl-tert-butyl-ether	5	<5	<5	19	270
Detection Limit Multiplier		1	1	1	1
BFB surrogate, % recovery		106	108	98.8	99.2

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. BFB surrogate recovery acceptability limits are 70-130%.

GTEL ENVIRONMENTAL LABORATORIES, INC.

Client Number: 053245455
Project ID: Greensboro, NC
Work Order Number: C3-12-0139

Table 1 (Continued)

ANALYTICAL RESULTS

Aromatic Volatile Organics and
MTBE in Water

EPA Methods 5030 and 602[a]

GTEL Sample Number		05	Q121493		
Client Identification		MW1	METHOD BLANK		
Date Sampled		12/07/93	--		
Date Analyzed		12/15/93	12/14/93		
Analyte	Detection Limit, ug/L	Concentration, ug/L			
Benzene	0.3	0.9	<0.3		
Toluene	0.3	<0.3	<0.3		
Ethylbenzene	0.3	0.3	<0.3		
Xylene, total	0.5	<0.5	<0.5		
Methyl-tert-butyl-ether	5	410	<5		
Detection Limit Multiplier		1	1		
BFB surrogate, % recovery		100	98.3		

a. Test Methods for Evaluating Solid Waste, SW-846, Third Edition, Revision 0, US EPA November 1986. BFB surrogate recovery acceptability limits are 70-130%.

GTEL ENVIRONMENTAL LABORATORIES, INC.

GTEL ENVIRONMENTAL LABORATORIES, INC.

4080 PIKE LANE, SUITE C
CONCORD, CA 94520
(510) 685-7852
(800) 423-7143

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

30686

Company Name: GTI

Phone #: 919 467 2227

FAX #: 919 467 2299

Company Address: Morrisville, NC

Site location: Greensboro, NC

Project Manager: T. Watson

Client Project ID: (#) 05 32 45 455

(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 ☐ 7421 ☐ 6010 ☐	Organic Lead ☐	Corrosivity ☐ Flash Point ☐ Reactivity ☐
VMW5 ND	01	3	X						X			X			12/7	1215	X																		
MW4 NT	02	3	X						X			X				1223	X																		
MW3 NT	03	3	X						X			X				1230	X																		
MW2 NT	04	3	X						X			X				1238	X																		
MW1 NT	05	3	X						X			X				1245	X																		

TAT

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

Special Handling

GTEL Contact
Quote/Contract #
Confirmation #
PO #

QA / QC LEVEL

BLUE ☐ CLP ☐ OTHER

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS

FAX ☒

REMARKS

Lab Use Only Lot #

Storage Location: T-Box

Work Order # C3120139

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:
Aaron Hill	12/7/93	1500	Fed Ex Hickory
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	12/8/93	9:30	Kevin Molander

Waybill #

Rev. 7/91

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Southeast Region
10500 University Center Drive, Suite 160
Tampa, FL 33612
(813) 979-9092 800-933-GTEL (4835)
FAX: 813-979-6914

Project Number: 053245455
Project ID: ELM STREET, GREENSBORO, NC
Work Order Number: F4-02-0148

RECEIVED FEB 25 1994

February 24, 1994

Ms. Teresa Watson
Groundwater Technology, Inc.
1000 Perimeter Park Dr., Suite I
Morrisville, NC 27560

Dear Ms. Watson,

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on February 16, 1994 under Chain of Custody # 27549.

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.

GTEL Tampa is certified (approved) by the State of Florida under Certificate HRS# E84196, by the State of South Carolina under Certificate #96025 and by the State of Tennessee for UST list.

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

Sincerely,

GTEL Environmental Laboratories, Inc.

Harold Vernon

Harold Vernon
Laboratory Director

Project Number: 053245455
Project ID: ELM STREET, GREENSBORO, NC
Work Order Number: F4-02-0148

ANALYTICAL RESULTS

Purgeable Aromatics in Water
EPA Method 602 (modified)[a]

GTEL Sample Number		020148-01	020148-02	020148-03	020148-04
Client Identification		VMW 5	MW 4	MW 3	MW 2
Date Sampled		02-15-94	02-15-94	02-15-94	02-15-94
Date Analyzed		02-19-94	02-19-94	02-19-94	02-19-94
Analyte	RL, ug/L[b]	Concentration, ug/L			
Benzene	0.5	<RL	<RL	<RL	<RL
Toluene	1.0	<RL	<RL	<RL	<RL
Ethyl Benzene	1.0	<RL	<RL	<RL	<RL
Xylenes (total)[a]	5.0	<RL	<RL	<RL	<RL
BTEX (total)	--	--	--	--	--
Methyl tert-Butyl Ether[a]	10.0	<RL	<RL	<RL	**280**
Dilution Multiplier[c]		1	1	1	1

a CFR 40, July 1, 1989. Method modified to include additional compounds.
b RL = Reporting Limit
c The Dilution Multiplier indicates the factor necessary for the adjustment of the reporting limits due to sample dilutions.

Project Number: 053245455
Project ID: ELM STREET, GREENSBORO, NC
Work Order Number: F4-02-0148

ANALYTICAL RESULTS

Purgeable Aromatics in Water
EPA Method 602 (modified)[a]

GTEL Sample Number		020148-05	--	--	--
Client Identification		MW 1	--	--	--
Date Sampled		02-15-94	--	--	--
Date Analyzed		02-19-94	--	--	--
Analyte	RL, ug/L[b]	Concentration, ug/L			
Benzene	0.5	**0.7**	--	--	--
Toluene	1.0	<RL	--	--	--
Ethyl Benzene	1.0	<RL	--	--	--
Xylenes (total)[a]	5.0	<RL	--	--	--
BTEX (total)	--	**0.7**	-	--	--
Methyl tert-Butyl Ether[a]	10.0	**290**	--	--	--
Dilution Multiplier[c]		1	--	--	--

a CFR 40, July 1, 1989. Method modified to include additional compounds.
b RL = Reporting Limit
c The Dilution Multiplier indicates the factor necessary for the adjustment of the reporting limits due to sample dilutions.

ANALYTICAL RESULTS

Polynuclear Aromatic Hydrocarbons in Water
EPA Method 610 (modified)[a]

GTEL Sample Number		020148-01	020148-02	020148-03	020148-04
Client Identification		VMW 5	MW 4	MW 3	MW 2
Date Sampled		02-15-94	02-15-94	02-15-94	02-15-94
Date Extracted		02-22-94	02-22-94	02-22-94	02-22-94
Date Analyzed		02-23-94	02-23-94	02-23-94	02-23-94
Analyte	RL, ug/L[b]	Concentration, ug/L			
Naphthalene	2.0	<RL	<RL	<RL	<RL
Acenaphthylene	3.0	<RL	<RL	<RL	<RL
1-Methylnaphthalene[a]	2.0	<RL	<RL	<RL	<RL
2-Methylnaphthalene[a]	2.0	<RL	<RL	<RL	<RL
Acenaphthene	2.0	<RL	<RL	<RL	<RL
Fluorene	0.5	<RL	<RL	<RL	<RL
Phenanthrene	0.5	<RL	<RL	<RL	<RL
Anthracene	0.5	<RL	<RL	<RL	<RL
Fluoranthene	0.5	<RL	<RL	<RL	<RL
Pyrene	0.5	<RL	<RL	<RL	<RL
Benzo[*a*]anthracene	0.5	<RL	<RL	<RL	<RL
Chrysene	0.5	<RL	<RL	<RL	<RL
Benzo[*b*]fluoranthene	0.5	<RL	<RL	<RL	<RL
Benzo[*k*]fluoranthene	0.5	<RL	<RL	<RL	<RL
Benzo[*a*]pyrene	0.5	<RL	<RL	<RL	<RL
Indeno[1,2,3-*cd*]pyrene	0.5	<RL	<RL	<RL	<RL
Dibenzo[*a,h*]anthracene	0.5	<RL	<RL	<RL	<RL
Benzo[*g,h,i*]perylene	0.5	<RL	<RL	<RL	<RL
Dilution Multiplier[c]		1	1	1	1

a CFR 40, July 1, 1989. Method modified to include additional compounds.
b RL = Reporting Limit.
c The Dilution Multiplier indicates the factor necessary for the adjustment of the reporting limits due to sample dilutions.

ANALYTICAL RESULTS

Polynuclear Aromatic Hydrocarbons in Water
EPA Method 610 (modified)[a]

GTEL Sample Number		020148-05	--	--	--
Client Identification		MW 1	--	--	--
Date Sampled		02-15-94	--	--	--
Date Extracted		02-22-94	--	--	--
Date Analyzed		02-23-94	--	--	--
Analyte	RL, ug/L[b]	Concentration, ug/L			
Naphthalene	2.0	<RL	--	--	--
Acenaphthylene	3.0	<RL	--	--	--
1-Methylnaphthalene[a]	2.0	<RL	--	--	--
2-Methylnaphthalene[a]	2.0	<RL	--	--	--
Acenaphthene	2.0	<RL	--	--	--
Fluorene	0.5	<RL	--	--	--
Phenanthrene	0.5	<RL	--	--	--
Anthracene	0.5	<RL	--	--	--
Fluoranthene	0.5	<RL	--	--	--
Pyrene	0.5	<RL	--	--	--
Benzo[*a*]anthracene	0.5	<RL	--	--	--
Chrysene	0.5	<RL	--	--	--
Benzo[*b*]fluoranthene	0.5	<RL	--	--	--
Benzo[*k*]fluoranthene	0.5	<RL	--	--	--
Benzo[*a*]pyrene	0.5	<RL	--	--	--
Indeno[1,2,3-*cd*]pyrene	0.5	<RL	--	--	--
Dibenzo[*a,h*]anthracene	0.5	<RL	--	--	--
Benzo[*g,h,i*]perylene	0.5	<RL	--	--	--
Dilution Multiplier[c]		1	--	--	--

a CFR 40, July 1, 1989. Method modified to include additional compounds.
b RL = Reporting Limit.
c The Dilution Multiplier indicates the factor necessary for the adjustment of the reporting limits due to sample dilutions.

GTEL ENVIRONMENTAL LABORATORIES, INC. TAL INC.

10500 UNIVERSITY CENTER DRIVE
TAMPA, FL 33612
(813) 979-9092

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST

27549

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: (#) 053245455
(NAME) Sun- Elmst.
I attest that the proper field sampling procedures were used during the collection of these samples.
Sampler Name (Print): Aaron Hill

ANALYSIS REQUEST / OTHER

Field Sample ID	GTEL Lab # (Lab Use only)	# CONTAINERS	Matrix: WATER	SOIL	AIR	SLUDGE	PRODUCT	OTHER	Method Preserved: HCl	HNO3	H2SO4	ICE	UNPRESERVED	OTHER (Specify)	Sampling: DATE 94	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 ☐
VMW5	01	4	X						X			X	X		2/15	1300	X													X							
MW4	02	4	X						X			X	X		↓	1307	X													X							
MW3	03	4	X						X			X	X		↓	1314	X													X							
MW2	04	4	X						X			X	X		↓	1321	X													X							
MW1	05	4	X						X			X	X		↓	1328	X													X							

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

Special Handling
GTEL Contact
Quote/Contract #
Confirmation #
P.O. #

QA/QC Level
Blue ☐ CLP ☐ Other ☐

SPECIAL DETECTION LIMITS

SPECIAL REPORTING REQUIREMENTS
FAX ☒

REMARKS:
- BTEX/602 + MTBE samples acidified w/ HCL
- EPA 610 samples unacidified

Lab Use Only Lot #:
Storage Location 3-1A 5-2
Work Order #: F4020148

CUSTODY RECORD

Relinquished by Sampler:	Date	Time	Received by:
Aaron Hill	2/15/94	1700	Fed EX RDU
Relinquished by:	Date	Time	Received by:
Relinquished by:	2-16-94	0900	Received by Laboratory: GTEL

Waybill # Fed EXP# 5384106792