

DATE
3-2-99



LIST #4016
Southland #14392
Seattle

FLUOR DANIEL GTI

DEPARTMENT OF ECOLOGY
NWRO/TCP TANKS UNIT

INTERIM CLEANUP REPORT
SITE CHARACTERIZATION
FINAL CLEANUP REPORT

OTHER

AFFECTED MEDIA: SOIL

OTHER GW

INSPECTOR (INIT.) DATE 2/6/99

August 25, 1998

Project No. 103437

Mr. Bob DeNinno
The Southland Corporation
10220 South Greenburg Road, Suite 470
Portland, OR 97223

RECEIVED

JAN 25 1999

DEPT. OF ECOLOGY

RE: SECOND QUARTER 1998 GROUNDWATER MONITORING RESULTS
SOUTHLAND FACILITY #14392
9 NICKERSON STREET
SEATTLE, WA

Dear Mr. DeNinno:

Fluor Daniel GTI completed groundwater monitoring and sampling at Southland Facility No. 14392, located at 9 Nickerson Street, Seattle, Washington (Figure 1). This letter was prepared under a Southland Environmental Work Order. The methods and results of groundwater monitoring are documented below.

General Introduction

In January 1993, one 10,000-gallon regular leaded gasoline underground storage tank (UST) and the associated piping were closed in-place. In March 1993, the in-place closure report was submitted. The remaining USTs were taken out of service (product and dispensers removed) in September 1993. In March 1994, three USTs and all associated piping were removed. In June 1994, a UST Decommissioning report was submitted. In September 1995, a remediation system was installed using both air sparge and vapor extraction technologies. The system operated from September 1995 to December 1997.

Groundwater Monitoring and Sampling

Prior to well purging and groundwater sample collection on July 30, 1998, Fluor Daniel GTI personnel gauged the groundwater monitoring wells (Figure 2) to determine the depth to water and the depth to liquid-phase hydrocarbons, if present. Depth to water was measured using an Oil Recovery Systems, Inc. (ORS) Interface Probe™ (IP). The IP was cleaned using Alconox and distilled water prior to use at each well. The well gauging and groundwater elevation data are presented in Table 1. The groundwater elevation data were used to prepare a groundwater gradient map (Figure 3).

Groundwater elevations in the monitoring wells ranged from 21.96 to 22.77 feet, relative to mean sea



DEPARTMENT OF ECOLOGY
INWROTEP TANKS UNIT

☐ INTERIM CLEANUP REPORT
☐ SITE CHARACTERIZATION
☐ FINAL CLEANUP REPORT
☐ OTHER

LECTED MEDIA: SOIL
OTHER GW
DATE 1102 (TIME) 1016

Inspector SB

Site address: 9 Nickerson St, Seattle

UST #: 8669

ERTS #:

LUST#:

Depth to GW: 11.1

Free product: 7.484

GW flow: NW

Media affected:

☒ GW ☐ Soil

Extent of contam. known:

☐ Yes ☒ No

LUST #: 1016

Site name: Southland #1392

County/city: Seattle

Report date: 8/25/98

Date received: 1/25/99

Project status:

- ☒ Cleanup started
☐ Awaiting cleanup
☐ Reported cleaned up

☒ Monitoring
☐ Unknown

Report status:

☒ interim
☐ final

Remediation method:

- ☐ Aeration/Vapor extraction
☐ Air stripping/Air sparging
☐ Biological treatment
☐ Carbon absorption
☐ Chemical destruction

- ☐ Incineration
☐ Off-site containment/Landfill
☐ On-site containment/Landfill
☐ Physical separation
☐ Reuse/Recycling

- ☐ Soil washing
☐ Solidification/Stabilization
☐ Solvent extraction
☐ Thermal desorption
☐ Vittrification
☐ Other

Comments:

- MW-1 exceeds MTC A levels
- GW flows NW - offsite migration appears likely.
- All MWs located onsite.

level. As depicted on the Groundwater Gradient Map (Figure 3), the groundwater flow direction was primarily northwesterly at a gradient of approximately 0.01 feet per foot. The groundwater flow direction was westerly in first quarter 1998.

Groundwater monitoring wells MW-1 through MW-3 were purged of approximately three (3) casing volumes, or until dry, prior to sampling. Each well was purged using a clean bailer or by pumping using a diaphragm-pump and clean, dedicated suction-tubing. Bailers were scrubbed with an Alconox solution and rinsed with distilled water prior to use at each well. Purge water was pumped through two 9-ounce carbon filters in series and discharged on site.

Wells which recharged slowly were allowed to recover to within 60 percent of the static water level prior to sample collection, or for two hours, whichever came first. Each well was sampled within 8 hours of purging, using a dedicated disposable bailer.

The samples were decanted into laboratory-supplied containers and stored in chilled coolers for shipment to North Creek Analytical in Bothell, Washington. A chain-of-custody form was filled out and accompanied the samples to the laboratory.

Analytical Results

Water samples collected from MW-1, MW-2, and MW-3 were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020, and total petroleum hydrocarbons-as-gasoline (TPH-G) by WDOE Method WTPH-G. Chemical analytical results and the Model Toxics Control Act (MTCA) Method A Compliance Cleanup Levels [CCL(a)s] for groundwater are summarized in Table 2. Complete laboratory results and chain-of custody forms for the July 30, 1998 sampling event are attached.

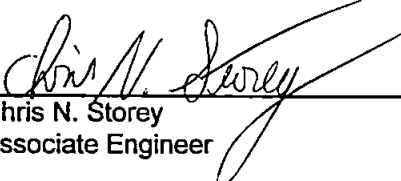
Benzene concentrations were reported above the CCL(a) in MW-1 at 6.10 micrograms per liter ($\mu\text{g/L}$). TPH-G concentrations were either not detected at the method detection limit or were reported to not exceed the CCL(a).

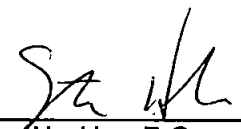
Recommendations

Fluor Daniel GTI recommends continued quarterly monitoring and sampling of monitoring wells MW-1 through MW-3.

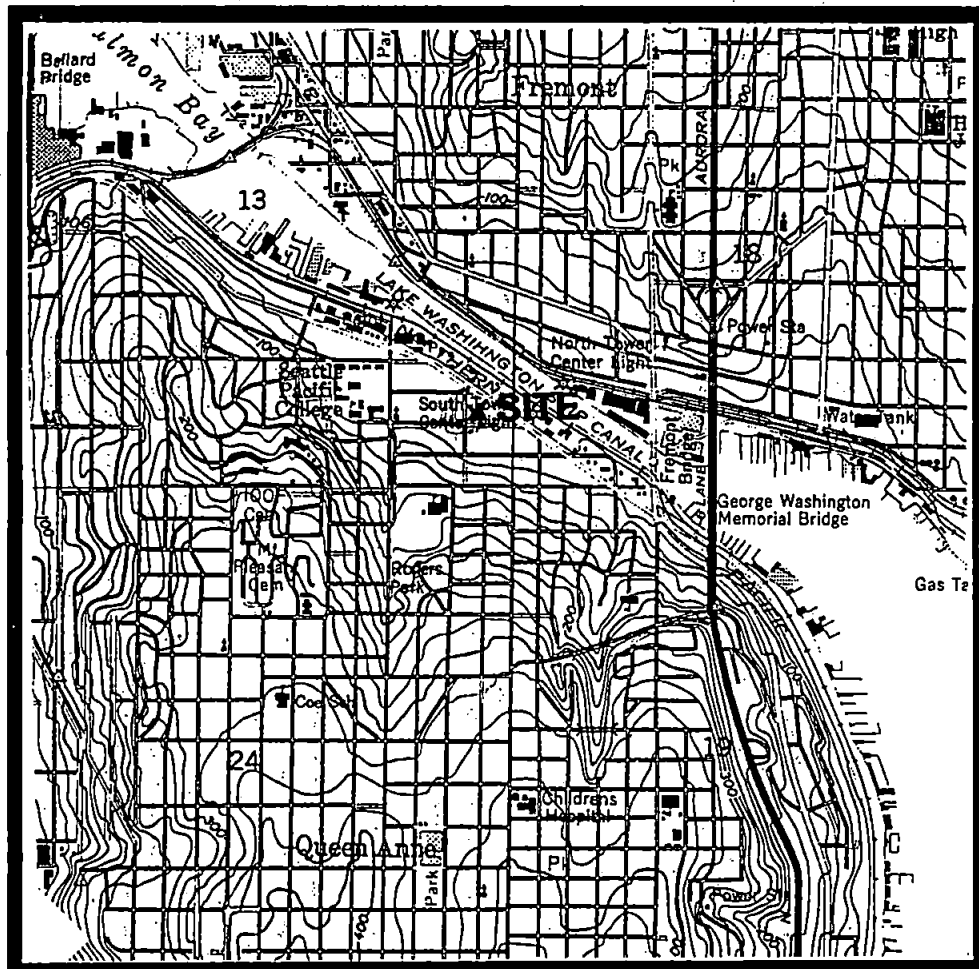
If you have any questions or comments regarding this report, please feel free to contact us.

Sincerely,
Fluor Daniel GTI


Chris N. Storey
Associate Engineer


Stan Haskins, R.G.
Lead Geologist/Project Manager

Attachments

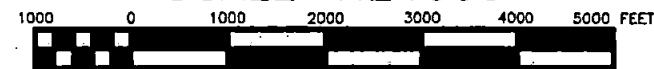


EXPLANATION

▲ SITE LOCATION



SCALE 1:24000



THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 14392

9 NICKERSON STREET
SEATTLE, WASHINGTON

020605375

DRAWN BY: L. CORNELL DATE: 04-11-94
DRAFTED BY: C. YOUNG DATE: 04-11-94
CHECKED BY: DATE:

SITE LOCATION

FIGURE 1

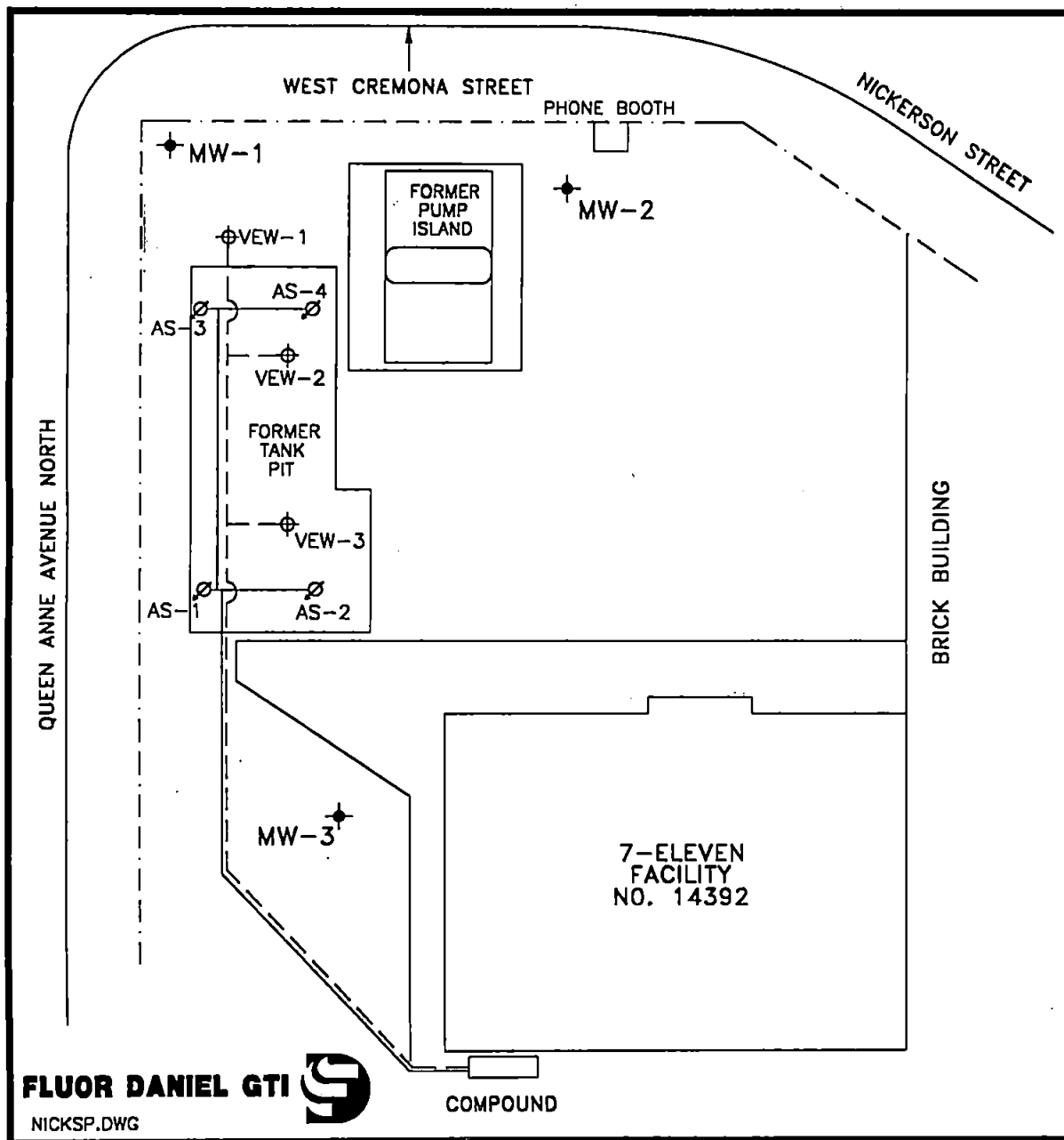
SOURCE: USGS SEATTLE NORTH QUADRANGLE, WASHINGTON - KING COUNTY. 7.5 MINUTE SERIES, 1968

FLUOR DANIEL GTI



0000-SL

Figure 1



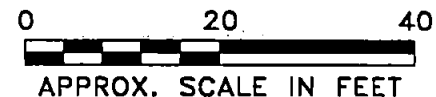
FLUOR DANIEL GTI



NICKSP.DWG

EXPLANATION

- ✦ MONITORING WELL
- ⊘ AIR SPARGE WELL
- ⊕ VAPOR EXTRACTION WELL
- APPROXIMATE PROPERTY BOUNDARY
- SPARGE MANIFOLD PIPING
- - - VAPOR EXTRACTION MANIFOLD PIPING



THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 14392

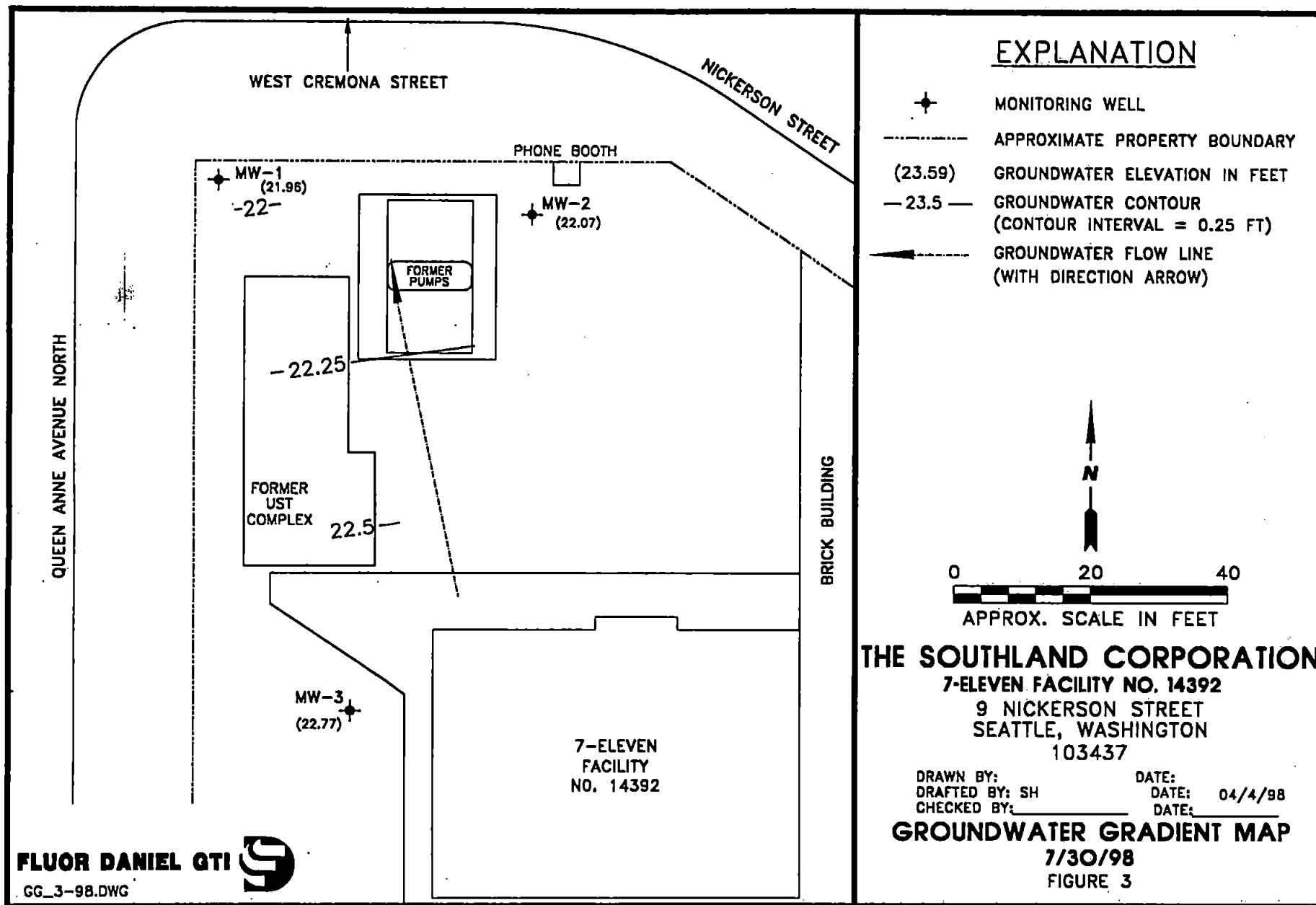
9 NICKERSON STREET
SEATTLE, WASHINGTON

020600223

DRAWN BY: ERIC RICH DATE: 02/24/95
DRAFTED BY: DEN HOLMES DATE: 06/16/94
CHECKED BY: _____ DATE: _____

SITE PLAN

FIGURE 2



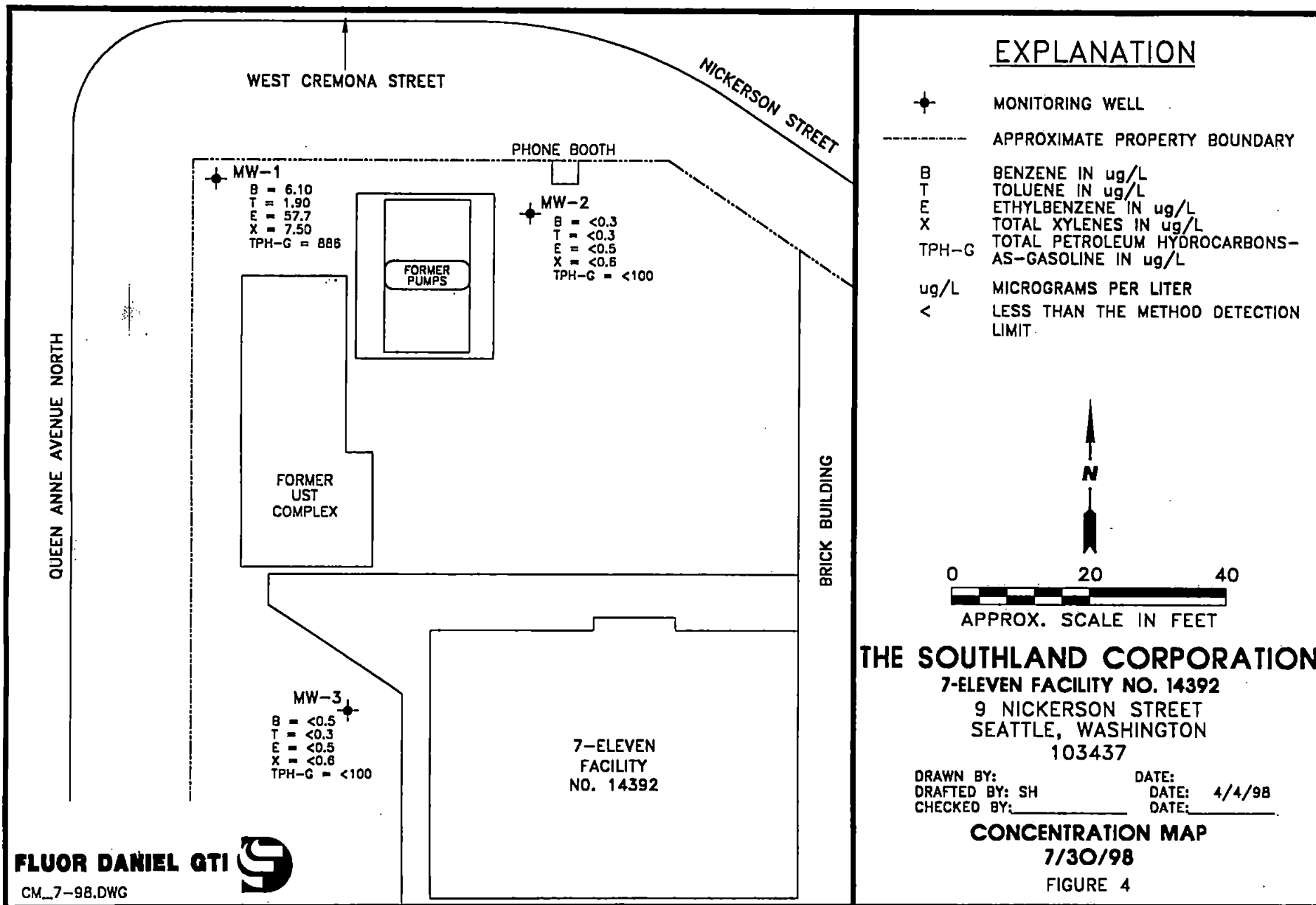


TABLE 1
CUMULATIVE GROUNDWATER ELEVATION DATA
SOUTHLAND FACILITY #14392
9 NICKERSON STREET, SEATTLE, WASHINGTON

Well ID	Date	TOC (ft)	DTW (ft)	GWE (ft)
MW-1	04/24/92	30.36	7.85	22.51
	09/10/93	30.36	8.69	21.67
	01/31/94	30.36	8.39	21.97
	09/07/94	30.36	9.09	21.27
	02/02/95	30.36	7.31	23.05
	05/11/95	30.36	7.49	22.87
	08/21/95	30.36	8.24	22.12
	09/20/95*	30.36	8.83	21.53
	12/05/95	30.36	7.75	22.61
	02/02/96	30.36	6.63	23.73
	05/20/96	30.36	7.10	23.26
	08/07/96	30.36	8.11	22.25
	11/22/96	30.36	7.48	22.88
	03/05/97	30.36	6.77	23.59
	05/07/97	30.36	7.03	23.33
	08/15/97	30.36	8.17	22.19
	12/23/97	30.36	7.47	22.89
	02/20/98	30.36	7.04	23.32
	7/30/98	30.36	8.40	21.96

TABLE 1
CUMULATIVE GROUNDWATER ELEVATION DATA
SOUTHLAND FACILITY #14392
9 NICKERSON STREET, SEATTLE, WASHINGTON

Well ID	Date	TOC (ft)	DTW (ft)	GWE (ft)
MW-2	04/24/92	30.00	7.35	22.65
	09/10/93	30.00	8.16	21.84
	01/31/94	30.00	7.59	22.41
	09/07/94	30.00	8.58	21.42
	02/02/95	30.00	6.65	23.35
	05/11/95	30.00	6.83	23.17
	08/21/95	30.00	7.97	22.03
	09/20/95*	30.00	8.32	21.68
	12/05/95	30.00	6.91	23.09
	02/02/96	30.00	6.30	23.70
	05/20/96	30.00	6.72	23.28
	08/07/96	30.00	7.57	22.43
	11/22/96	30.00	7.26	22.74
	03/05/97	30.00	7.21	22.79
	05/07/97	30.00	6.65	23.35
	08/15/97	30.00	7.63	22.37
	12/23/97	30.00	6.83	23.17
	02/20/98	30.00	6.17	23.83
	7/30/98	30.00	7.93	22.07

TABLE 1
CUMULATIVE GROUNDWATER ELEVATION DATA
SOUTHLAND FACILITY #14392
9 NICKERSON STREET, SEATTLE, WASHINGTON

Well ID	Date	TOC (ft)	DTW (ft)	GWE (ft)
MW-3	04/24/92	30.17	6.57	23.60
	09/10/93	30.17	7.50	22.67
	01/31/94	30.17	7.11	23.06
	09/07/94	30.17	8.04	22.13
	02/02/95	30.17	6.38	23.79
	05/11/95	30.17	6.58	23.59
	08/21/95	30.17	8.53	21.64
	09/20/95*	30.17	8.82	21.35
	12/05/95	30.17	8.94	21.23
	02/02/96	30.17	5.77	24.40
	05/20/96	30.17	6.31	23.86
	08/07/96	30.17	7.18	22.99
	11/22/96	30.17	7.08	23.09
	03/05/97	30.17	6.31	23.86
	05/07/97	30.17	6.18	23.99
	08/15/97	30.17	8.18	21.99
	12/23/97	30.17	6.44	23.73
	02/20/98	30.17	6.55	23.62
	7/30/98	30.17	7.4	22.77

DTW=Depth to water, referenced to TOC

GWE=Groundwater elevation

TOC=Top of casing elevation

Elevations are based on an assumed TOC elevation of 30 feet for MW-2.

* = DTW was measured on 9/20/95 to confirm the 8/21/95 gradient.

TABLE 2
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS
SOUTHLAND FACILITY #14392
9 NICKERSON STREET, SEATTLE, WASHINGTON

Well ID	Sample Date	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Xylenes µg/L	TPH-G µg/L	Total Lead µg/L
MW-1	04/24/92	130	5	ND	550	5,400	—
	09/10/93	190	17	58	35	840	—
	01/31/94	1,400	430	230	440	4,100	<5
	09/07/94	1,300	85	270	390	3,000	—
	02/02/95	1,200	280	660	1,700	12,000	—
	05/11/95	800	74	890	2,100	15,000	—
	08/21/95	660	9.7	850	770	10,000	—
	12/05/95	220	3.1	470	470	9,500	—
	02/02/96	180	56	440	370	7,100	—
	05/20/96	149	<5.0	681	367	9,190	—
	08/07/96	52.5	<5.0	452	114	5,670	—
	11/22/96	28.4	4.72	316	102	4,110	—
	03/05/97	21.9	1.02	323	103	4,530	—
	05/07/97	25.1	<2.5	240	74.5	4,300	—
	08/15/97	13.5	<2.5	186	41.7	2,570	—
	12/23/97	4.91	<1.25	64.4	10.9	1,220	—
	02/20/98	5.72	7.05	30.7	8.62	576	—
	07/30/98	6.10	1.90	57.7	7.50	886	—

TABLE 2
CUMULATIVE GROUNDWATER ANALYTICAL RESULTS
SOUTHLAND FACILITY #14392
9 NICKERSON STREET, SEATTLE, WASHINGTON

Well ID	Sample Date	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Xylenes µg/L	TPH-G µg/L	Total Lead µg/L
MW-2	04/24/92	ND	ND	ND	ND	ND	—
	09/10/93	<0.3	<0.3	<0.3	<0.5	<10	—
	01/31/94	<0.3	<0.3	<0.3	<0.5	<10	<5
	09/07/94	<0.3	<0.3	<0.3	<0.5	<10	—
	02/02/95	<0.3	<0.3	<0.3	<0.5	<10	—
	05/11/95	<0.3	<0.3	<0.3	<0.5	<50	—
	08/21/95	<0.3	<0.3	<0.3	<0.5	<50	—
	12/05/95	0.5	<0.3	<0.3	<0.5	<50	—
	02/02/96	<0.5	<0.5	<0.5	<1.0	<50	—
	05/20/96	<0.5	<0.5	<0.5	<1.0	<50	—
	08/07/96	<0.5	<0.5	<0.5	<1.0	<50	—
	11/22/96	<0.5	<0.5	<0.5	<1.0	<50	—
	03/05/97	<0.5	<0.5	<0.5	<1.0	<50	—
	05/07/97	<0.5	<0.5	<0.5	<1.0	<50	—
	08/15/97	<0.5	<0.5	<0.5	<1.0	<50	—
	12/23/97	<0.5	<0.5	<0.5	<1.0	<50	—
	02/20/98	<0.5	<0.5	<0.5	1.26	<50	—
	07/30/98	<0.3	<0.3	<0.5	<0.6	<100	—

TABLE 2 CUMULATIVE GROUNDWATER ANALYTICAL RESULTS SOUTHLAND FACILITY #14392 9 NICKERSON STREET, SEATTLE, WASHINGTON							
Well ID	Sample Date	Benzene µg/L	Toluene µg/L	Ethyl- benzene µg/L	Total Xylenes µg/L	TPH-G µg/L	Total Lead µg/L
MW-3	04/24/92	ND	ND	ND	ND	ND	—
	09/10/93	<0.3	<0.3	<0.3	<0.5	<10	—
	01/31/94	<0.3	<0.3	<0.3	<0.5	<10	10
	09/07/94	<0.3	<0.3	<0.3	<0.5	<10	—
	02/02/95	<0.3	<0.3	<0.3	<0.5	<10	—
	05/11/95	<0.3	<0.3	<0.3	<0.5	<50	—
	08/21/95	<0.3	<0.3	<0.3	<0.5	<50	—
	12/05/95	<0.3	<0.3	<0.3	<0.5	<50	—
	02/02/96	<0.5	<0.5	<0.5	<1.0	<50	—
	05/20/96	<0.5	<0.5	<0.5	<1.0	<50	—
	08/07/96	<0.5	<0.5	<0.5	<1.0	<50	—
	11/22/96	<0.5	<0.5	<0.5	<1.0	<50	—
	03/05/97	<0.5	<0.5	<0.5	<1.0	<50	—
	05/07/97	<0.5	<0.5	<0.5	<1.0	<50	—
	08/15/97	<0.5	<0.5	<0.5	<1.0	<50	—
	12/23/97	<0.5	<0.5	<0.5	<1.0	<50	—
	02/20/98	<0.5	<0.5	<0.5	<1.0	<50	—
	07/30/98	<0.3	<0.3	<0.5	<0.6	<100	—
MTCA-CCL[a]		5	40	30	20	1,000	5

TPH-G = Total petroleum hydrocarbons-as-gasoline

ND = Not detected at the method detection limits.

— = Not sampled or analyzed

< = Less than the method detection limits

µg/L = Micrograms per liter

MTCA-CCL[a] = Model Toxics Control Act Method A Compliance Cleanup Level

Bold values exceed the CCL(a)



CORE LABORATORIES

ANALYTICAL REPORT

JOB NUMBER: 981145

Prepared For:

Fluor Daniel GTI
555 S. Renton Village Pl.
Renton, WA 98055

Attention: Stan Haskins

Date: 08/13/98

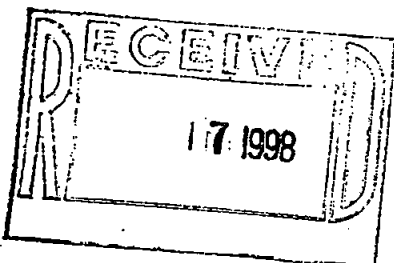
Signature

Name: Tim Scott

Title: Laboratory Manager

Date

1250 E. Gene Autry Way
Anaheim, CA 92805





Date: 08/13/98

Project Number.....: 97000269
Customer Project ID.....: STLD #14392/103437
Project Description.....: Southland - Renton WA

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
981145-1	MW-1	Water	07/30/98	11:57	08/04/98	10:30
981145-2	MW-2	Water	07/30/98	11:49	08/04/98	10:30
981145-3	MW-3	Water	07/30/98	12:05	08/04/98	10:30



CORE LABORATORIES

LABORATORY TEST RESULTS						
Job Number: 981145		Date: 08/13/98				
CUSTOMER: Fluor Daniel GTI	PROJECT: STLD #14392/103437	ATTN: Stan Haskins				
Customer Sample ID: MW-1 Date Sampled.....: 07/30/98 Time Sampled.....: 11:57 Sample Matrix.....: Water		Laboratory Sample ID: 981145-1 Date Received.....: 08/04/98 Time Received.....: 10:30				
TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8020A	Volatile Organics -Aromatics					
	Benzene, Liquids	6.10	0.3000	ug/L	08/12/98	rfl
	Ethylbenzene, Liquids	57.7	0.5000	ug/L	08/12/98	rfl
	Toluene, Liquids	1.90	0.3000	ug/L	08/12/98	rfl
	Xylenes (total), Liquids	7.50	0.6000	ug/L	08/12/98	rfl
EPA 8015Mod	Total Volatile Petroleum Hydrocarbons					
	Gasoline Range Petroleum Hydrocarbons, Liquids	886	100.0	ug/L	08/12/98	rfl



CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 981145

Date: 08/13/98

CUSTOMER: Fluor Daniel GTI

PROJECT: STLD #14392/103437

ATTN: Stan Haskins

Customer Sample ID: MW-2
Date Sampled.....: 07/30/98
Time Sampled.....: 11:49
Sample Matrix.....: Water

Laboratory Sample ID: 981145-2
Date Received.....: 08/04/98
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8020A	Volatile Organics -Aromatics					
	Benzene, Liquids	<0.3000	0.3000	ug/L	08/12/98	rfl
	Ethylbenzene, Liquids	<0.5000	0.5000	ug/L	08/12/98	rfl
	Toluene, Liquids	<0.3000	0.3000	ug/L	08/12/98	rfl
	Xylenes (total), Liquids	<0.6000	0.6000	ug/L	08/12/98	rfl
EPA 8015Mod	Total Volatile Petroleum Hydrocarbons					
	Gasoline Range Petroleum Hydrocarbons, Liquids	<100.0	100.0	ug/L	08/12/98	rfl



CORE LABORATORIES

LABORATORY TEST RESULTS

Job Number: 981145

Date: 08/13/98

CUSTOMER: Fluor Daniel GTI

PROJECT: STLD #14392/103437

ATTN: Stan Haskins

Customer Sample ID: MW-3
Date Sampled.....: 07/30/98
Time Sampled.....: 12:05
Sample Matrix.....: Water

Laboratory Sample ID: 981145-3
Date Received.....: 08/04/98
Time Received.....: 10:30

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	REPORTING LIMIT	UNITS	DATE	TECH
EPA 8020A	Volatile Organics -Aromatics					
	Benzene, Liquids	<0.3000	0.3000	ug/L	08/12/98	rfl
	Ethylbenzene, Liquids	<0.5000	0.5000	ug/L	08/12/98	rfl
	Toluene, Liquids	<0.3000	0.3000	ug/L	08/12/98	rfl
	Xylenes (total), Liquids	<0.6000	0.6000	ug/L	08/12/98	rfl
EPA 8015Mod	Total Volatile Petroleum Hydrocarbons					
	Gasoline Range Petroleum Hydrocarbons, Liquids	<100.0	100.0	ug/L	08/12/98	rfl



CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 981145

Date: 08/13/98

CUSTOMER: Fluor Daniel GTI

PROJECT: STLD #14392/103437

ATTN: Stan Haskins

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
---------	-------------	------------	--------	-----------------	------	------

Test Method.....: EPA 8020A

Batch.....: 2403

Analyst: rfl

Method Description.: Volatile Organics -Aromatics

Units.....: ug/L

IV	Initial Calibration Verification 8020	08030501A				08/10/98 1008
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	22.8		20.		114	% 85-115
Ethylbenzene	20.0		20.		100	% 85-115
Methyl-t-Butyl Ether (MTBE)	24.3		20.		122	% 70-130
Toluene	20.9		20.		104	% 85-115
Xylenes (total)	58.90		60.		98	% 85-115

MB	Method Blank					08/10/98 1109
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	ND					0.5000
Ethylbenzene	ND					0.5000
Methyl-t-Butyl Ether (MTBE)	ND					10.0000
Toluene	ND					0.5000
Xylenes (total)	0.00					0.5000

CV	Continuing Calibration Verification	08030501A				08/11/98 0512
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	19.289		20.		96	D 85-115
Ethylbenzene	16.524		20.		83	D 85-115
Methyl-t-Butyl Ether (MTBE)	16.345		20.		82	D 70-130
Toluene	17.607		20.		88	D 85-115
Xylenes (total)	49.15		60.		82	D 85-115

CV	Continuing Calibration Verification	08030501A				08/11/98 1137
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	22.2		20.		111	D 85-115
Ethylbenzene	19.5		20.		98	D 85-115
Methyl-t-Butyl Ether (MTBE)	16.2		20.		81	D 70-130
Toluene	20.4		20.		102	D 85-115
Xylenes (total)	57.30		60.		96	D 85-115

MB	Method Blank					08/11/98 0437
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	0					0.5000
Ethylbenzene	0					0.5000
Methyl-t-Butyl Ether (MTBE)	0					10.0000
Toluene	0					0.5000



CORE LABORATORIES

QUALITY CONTROL RESULTS

Job Number: 981145

Date: 08/13/98

CUSTOMER: Fluor Daniel GTI

PROJECT: STLD #14392/103437

ATTN: Stan Haskins

QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time
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MB	Method Blank				08/11/98	0437
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Xylenes (total)	0.00					0.5000

CV	Continuing Calibration Verification	08030501A				08/12/98 0857
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	21.092		20.		105	D 85-115
Ethylbenzene	18.667		20.		93	D 85-115
Methyl-t-Butyl Ether (MTBE)	18.490		20.		92	D 70-130
Toluene	19.796		20.		99	D 85-115
Xylenes (total)	54.09		60.		90	D 85-115

CV	Continuing Calibration Verification	08030501A				08/12/98 0311
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Benzene	20.0		20.		100	D 85-115
Ethylbenzene	17.9		20.		90	D 85-115
Methyl-t-Butyl Ether (MTBE)	17.6		20.		88	D 70-130
Toluene	18.9		20.		94	D 85-115
Xylenes (total)	52.4		60.		87	D 85-115

Test Method.....: EPA 8015Mod

Batch.....: 2426

Analyst: rfl

Method Description.: Total Volatile Petroleum Hydrocarbons

Units.....: ug/L

ICV	Initial Calibration Verification	08030601				08/10/98 1008
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	908		1000.0		91	% 85-115

MB	Method Blank					08/10/98 1109
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	0					100

CCV	Continuing Calibration Verification	08030601				08/11/98 0441
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	858		1000.0		86	% 85-115



CORE LABORATORIES

QUALITY CONTROL RESULTS						
Job Number: 981145			Date: 08/13/98			
CUSTOMER: Fluor Daniel GTI		PROJECT: STLD #14392/103437			ATTN: Stan Haskins	
QC Type	Description	Reag. Code	Lab ID	Dilution Factor	Date	Time

CCV	Continuing Calibration Verification	08030601			08/11/98	1107
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	869		1000.0		87	% 85-115

CCV	Continuing Calibration Verification	08030601			08/12/98	0307
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	901		1000.0		90	% 85-115

CCV	Continuing Calibration Verification	08030601			08/12/98	0829
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	983		1000.0		98	% 85-115

CCV	Continuing Calibration Verification	08030601			08/12/98	1445
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Parameter/Test Description	QC Result	QC Result	True Value	Orig. Value	Calc. Result	* Limits
Gasoline Range Petroleum Hydrocarbons	1050		1000.0		105	% 85-115



CORE LABORATORIES

SURROGATE RECOVERIES REPORT		
Job Number.: 981145	Report Date: 08/13/98	
CUSTOMER: Fluor-Daniel GTI	PROJECT: STLD #14392/103437	ATTN: Stan Haskins
Method.....: EPA 8020A	Batch.....: 2403	
Method Code.....: 8020BX	Analyst.....: rfl	

Surrogate	Units
4-Bromofluorobenzene	ug/L

Lab ID	Matrix	QC Type	Dilution	Result	True Value	Percent Recovery	Limits	Flag	Date	Time
		IV		95.7	100.000	95.7	64-147		08/10/98	1008
		MB		90.2	100.000	90.2	64-147		08/10/98	1109
981134-1	Solid		1	91.5	100.000	91.5	64-147		08/10/98	1139
981134-2	Solid		1	92.6	100.000	92.6	64-147		08/11/98	0009
981134-3	Solid		1	93.1	100.000	93.1	64-147		08/11/98	0039
981134-4	Solid		1	94.5	100.000	94.5	64-147		08/11/98	0110
981134-5	Solid		1	94.2	100.000	94.2	64-147		08/11/98	0140
981134-6	Solid		1	92.4	100.000	92.4	64-147		08/11/98	0210
981134-7	Solid		1	92.5	100.000	92.5	64-147		08/11/98	0240
981134-8	Solid		1	96.4	100.000	96.4	64-147		08/11/98	0311
981134-12	Solid		1	89.4	100.000	89.4	64-147		08/11/98	0341
981134-13	Solid		1	92.6	100.000	92.6	64-147		08/11/98	0411
		CV	1	94.0	100.000	94.0	64-147		08/11/98	0512
981134-14	Solid		1	105	100.000	105.0	64-147		08/11/98	0542
981134-15	Solid		1	105	100.000	105.0	64-147		08/11/98	0612
981134-17	Solid		1	95.0	100.000	95.0	64-147		08/11/98	0642
981134-1	Liquids		1	105	100.000	105.0	64-147		08/11/98	0713
981127-2	Liquids		1	98.6	100.000	98.6	64-147		08/11/98	0743
981127-3	Liquids		1	118	100.000	118.0	64-147		08/11/98	0813
981127-4	Liquids		1	101	100.000	101.0	64-147		08/11/98	0843
981127-5	Liquids		1	129	100.000	129.0	64-147		08/11/98	0914
981127-6	Liquids		1	124	100.000	124.0	64-147		08/11/98	1006
981127-7	Liquids		1	108	100.000	108.0	64-147		08/11/98	1036
		CV	1	95.8	100.000	95.8	64-147		08/11/98	1137
		MB	1	84.3	100.000	84.3	64-147		08/11/98	0437
981160-9	Solid		1	82.2	100.000	82.2	64-147		08/11/98	0505
981160-16	Liquids		1	102	100.000	102.0	64-147		08/11/98	0532
983477-52	Solid		1	0	100.000	0.0	64-147		08/12/98	0401
983477-53	Solid		1	0	100.000	0.0	64-147		08/12/98	0429
983477-54	Solid		1	0	100.000	0.0	64-147		08/12/98	0456
983477-55	Solid		1	0	100.000	0.0	64-147		08/12/98	0523
981141-1	Liquids		1	88.6	100.000	88.6	64-147		08/12/98	0641
981141-2	Liquids		1	86.1	100.000	86.1	64-147		08/12/98	0708
981141-3	Liquids		1	86.1	100.000	86.1	64-147		08/12/98	0735
981141-4	Liquids		1	92.2	100.000	92.2	64-147		08/12/98	0802
		CV	1	93.8	100.000	93.8	64-147		08/12/98	0857
981141-5	Liquids		1	82.8	100.000	82.8	64-147		08/12/98	0924
981141-6	Liquids		1	88.2	100.000	88.2	64-147		08/12/98	0951
981141-7	Liquids		1	87.7	100.000	87.7	64-147		08/12/98	1018
981141-8	Liquids		200	95.3	100.000	95.3	64-147		08/12/98	1122
981145-1	Liquids		1	93.9	100.000	93.9	64-147		08/12/98	1212
981145-2	Liquids		1	86.0	100.000	86.0	64-147		08/12/98	1237
981145-3	Liquids		1	84.6	100.000	84.6	64-147		08/12/98	0103
		CV	1	94.9	100.000	94.9	64-147		08/12/98	0311
981166-1	Solid		1	81.161	100.000	81.2	64-147		08/12/98	0244



CORE LABORATORIES

ANALYTICAL SUMMARY REPORT

Job Number: 981145

Report Date: 08/13/98

CUSTOMER: Fluor Daniel GTI

PROJECT: STLD #14392/103437

ATTN: Stan Haskins

BATCH	2426	ANALYTICAL METHOD	EPA 8015Mod	DESCRIPTION	Total Volatile Petroleum Hydrocarbons				ANALYST	rfl
Lab Sample ID	Client Sample Identification			Sample Matrix	Test Matrix	Sample Date	Sample Time	Analysis Date	Analysis Time	Dil/Corr. Factor
981145-1	MW-1			Water	Liquids	07/30/98	1157	08/12/98	1212	1
981145-2	MW-2			Water	Liquids	07/30/98	1149	08/12/98	1237	1
981145-3	MW-3			Water	Liquids	07/30/98	1205	08/12/98	0103	1

BATCH	2403	ANALYTICAL METHOD	EPA 8020A	DESCRIPTION	Volatile Organics -Aromatics				ANALYST	rfl
Lab Sample ID	Client Sample Identification			Sample Matrix	Test Matrix	Sample Date	Sample Time	Analysis Date	Analysis Time	Dil/Corr. Factor
981145-1	MW-1			Water	Liquids	07/30/98	1157	08/12/98	1212	1
981145-2	MW-2			Water	Liquids	07/30/98	1149	08/12/98	1237	1
981145-3	MW-3			Water	Liquids	07/30/98	1205	08/12/98	0103	1



CORE LABORATORIES

QUALITY ASSURANCE FOOTER

METHOD REFERENCES

- (1) EPA SW-846, Test Methods for Evaluating Solid Waste, Third Edition, September 1986, and Updates I, II, IIA, IIB, and III
- (2) Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992
- (3) EPA 600/4-79-020, Methods of Chemical Analysis for Waters and Wastes, March 1983
- (4) Federal Register, Friday, October 26, 1984 (40 CFR Part 136)
- (5) American Society for Testing and Materials, Volumes 5.01, 5.02, 5.03, 1992
- (6) EPA 600/4-89-001, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Fresh Water Organisms
- (7) EPA 600/4-90-027, Methods for Measuring the Acute Toxicity of Effluent and Receiving Waters to Fresh Water and Marine Organisms, Fourth Edition

COMMENTS

All methods of chemical analysis have a statistical uncertainty associated with the results. Unless otherwise indicated, the data in this report are within the limits of uncertainty as specified in the referenced method. Quality control acceptance criteria are based either on limits specified in the referenced method or on actual laboratory performance. The date and time of analysis indicated on the QC report may not reflect the actual time of analysis for QC samples. Data reported in the QA report may be lower than sample data due to dilution of samples into the calibration range of the analysis. Sample concentrations for solid samples are calculated on an as received (wet) basis unless otherwise indicated. Unless otherwise indicated, volatiles by gas chromatography (GC) are reported from a single column. Volatiles analyses by GC on low level soils are conducted at room temperature. TCLP extractions are performed at sample amounts, approved by the State of California.

FLAGS, FOOTNOTES, AND ABBREVIATIONS (as needed)

- | | |
|-----------------------------|--|
| NA = Not analyzed | N.I. = Not Ignitable |
| N/A = Not applicable | S.I. = Sustains Ignition |
| ug/L = Micrograms per liter | I(NS) = Ignites, but does not Sustain Ignition |
| mg/L = Milligrams per liter | RPD = Relative Percent Difference |
- ND = Not detected at a value greater than the reporting limit
NC = Not calculable due to values lower than the detection limit
- (a) = Surrogate recoveries were outside acceptable ranges due to matrix effects.
(b) = Surrogate recoveries were not calculated due to dilution of the sample below the detectable range for the surrogate.
(c) = Matrix spike recoveries were outside acceptable ranges due to matrix effects.
(d) = Relative Percent Difference (RPD) for duplicate analysis outside acceptance limits due to actual differences in the sample matrix.
(e) = The limit listed for flammability indicates the upper limit for the test. Samples are not tested at temperatures above 140 Fahrenheit since only samples which will sustain ignition at temperatures below 140 are considered flammable.
(f) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a diesel standard, however, the hydrocarbon pattern did not match a diesel pattern.
(g) = Results for this hydrocarbon range did not match a typical hydrocarbon pattern. Results were quantified using a gasoline standard, however, the hydrocarbon pattern did not match a gasoline pattern.
(h) = High dilution due to matrix effects

QC SAMPLE IDENTIFICATIONS

- | | |
|---|-----------------------------------|
| MB = Method Blank | SB = Storage Blank |
| RB = Reagent Blank | MS = Matrix Spike |
| ICB = Initial Calibration Blank | MSD = Matrix Spike Duplicate |
| CCB = Continuing Calibration Blank | MD = Matrix Duplicate |
| CS = Calibration Standard | BS = Blank Spike |
| ICV = Initial Calibration Verification | SS = Surrogate Spike |
| CCV = Continuing Calibration Verification | LCS = Laboratory Control Standard |
| | RS = Reference Standard |

SUBCONTRACTED LABORATORY LOCATIONS

- | | | |
|--------------------|-------------------------|-----|
| Core Laboratories: | Aurora, Colorado | *AU |
| | Casper, Wyoming | *CA |
| | Corpus Christi, Texas | *CC |
| | Edison, New Jersey | *ED |
| | Houston, Texas (Env) | *HE |
| | Houston, Texas (Pet) | *HP |
| | Indianapolis, Indiana | *IN |
| | Lake Charles, Louisiana | *LC |
| | Long Beach, California | *LB |
| | Valparaiso, Indiana | *VP |
| | Bakersfield, California | *BK |

1250 Gene Autry Way Autry Way
Anaheim, CA 92805
(714) 937-1094 /u/matt/logs_n_forms/footer.form

[illegible]

RUSH TURNAROUND MAY REQUIRE SURCHARGE

- | | | | | | |
|--|--|--|--|--|---|
| <p>Anaheim, CA
1260 E. Gene Autry Way
Anaheim, CA 92805
(714) 937-1024 Fax (714) 937-1170</p> | <p>Aurora, CO
10703 E. Bethany Drive
Aurora, CO 80014
(303) 751-1780 Fax (303) 751-1784</p> | <p>Casper, WY
420 W. First Street
Casper, WY 82601
(307) 235-5741 Fax (307) 266-1678</p> | <p>Corpus Christi, TX
1733 N. Padre Island Drive
Corpus Christi, TX 78408
(512) 285-2673 Fax (512) 285-2471</p> | <p>Edison, NJ
264 Raritan Center Parkway
Edison, NJ 08537
(908) 225-6700 Fax (908) 225-6777</p> | <p>Houston, TX (Env)
6310 Rothway Drive
Houston, TX 77040
(713) 690-4444 Fax (713) 690-5646</p> |
| <p>Houston, TX (Pet)
1010 Mosley Road
Houston, TX 77075
(713) 943-8776 Fax (713) 943-5644</p> | <p>Indianapolis, IN
7225 Miller Road
Indianapolis, IN 46268
(317) 876-5604 Fax (317) 872-6189</p> | <p>Lake Charles, LA
3545 Poydras Bayou
Superior, LA 70663
(518) 563-4926 Fax (518) 563-4929</p> | <p>Long Beach, CA
3700 Century Avenue
Long Beach, CA 90807
(310) 595-8401 Fax (310) 427-5174</p> | <p>Tampa, FL
5480 Beumont Center Blvd.
Tampa, FL 33634
(813) 884-8268 Fax (813) 885-4008</p> | <p>Valparaiso, IN
2400 Cumberland Drive
Valparaiso, IN 46383
(219) 464-2338 Fax (219) 462-2953</p> |

RECEIVED

JAN 25 1999

LETTER OF TRANSMITTAL

DEPT OF ECOLOGY

TO: WDOE
L.U.S.T. Group NW
3190 160th Avenue SE
Bellevue, Washington 98008-5452
ATTN: Steve Bremer

DATE: Jan. 22, 1999

RE: Southland Facility No.14392

We are sending you: ☒ Attached ☐ Under separate cover, the following:
☐ Technical Literature ☐ Proposal/Contract ☐ Plans ☐ Samples
☐ Specifications ☐ Copy of letter ☐ Change Order

Enclosure(s): One copy each of the "Second and Third Quarter 1998 Groundwater Monitoring Results "
for the above-referenced site.

These are transmitted as checked below:

☐ As requested ☒ For your use ☐ For approval ☐ For review and comment
☐ For bids due _____ 19__

Comments: _____

If enclosures received are not as listed above, notify at once.

Signed: Chris N. Storey (425) 228-9645
Chris N. Storey