GROUNDWATER TECHNOLOGY ®

Groundwater Technology, Inc.
19033 West Valley Highway, Suite D-104, Kent, WA 98032 USA
Tel: (206) 251-5441 Fax: (206) 251-8452

REPORT OF
PERMANENT UST DECOMMISSIONING AND
CLOSURE AT SOUTHLAND FACILITY #23929
17922 HIGHWAY 527
BOTHELL, WASHINGTON

GTI Project 020600127

August 11, 1995

Prepared for:

Mr. Bob Vasquez
The Southland Corporation
3146 Gold Camp Drive #300
Rancho Cordova, California

Groundwater Technology, Inc.
Submitted by:

Elizabeth C. Cornell
Associate Geologist

Groundwater Technology, Inc.
Approved by:

Stanley C. Haskins
Project Manager

N 22138

Independent Action Report Update

Site Name: Southland 23929

Inc. #: _____ Date of Report: 8-11-95

County: King Date Report Rec'd: 8.14.95

Reviewed by: Wally Moon

Comments (please include: free prod., tank info., contaminant migration, GW depth & flow, conc. trends, PCS treated?):

UST closure. 2 - 10K gallon, 1 - 6K gallon removed. Overexcavated 800 tons of pcs. Conducted.

EXECUTIVE SUMMARY

Groundwater Technology, Inc. (GTI) was contracted to observe, document and supervise the permanent closure of three (3) steel underground storage tanks (USTs) and ancillary piping at The Southland Corporation (Southland) Facility #23929 located at 17922 Highway 527, Bothell, Washington.

Observations and findings:

- Seven (7) soil samples, TP1-10', TP2-10', TP3-10', TP4-10', B1-17', B2-17', and B3-17', were collected from the UST excavation sidewalls and beneath the former tanks and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons-as-gasoline (TPH-g), and total lead. BTEX, TPH-g, and total lead concentrations in all the soil samples were below the Washington State Department of Ecology (WDOE) Model Toxics Control Act (MTCA) Method A Compliance Cleanup Levels (CCL[a]s) except for a TPH-g concentration of 430 milligrams per kilogram (mg/kg) in soil sample TP4-10', collected from the south sidewall.

- Two (2) soil samples, D1-3' and D2-3', were collected from beneath the former service island and analyzed for BTEX, TPH-g, and total lead. The results indicated analyte concentrations above CCL[a]s. Benzene concentrations were 20 and 7.6 mg/kg in samples D1-3' and D2-3', respectively. TPH-g concentrations were 7,700 and 8,900 mg/kg in samples D1-3' and D2-3', respectively. This area was subsequently excavated and samples SI-1-15', SI-2-10', SI-3-10', SI-3-10'-Dup., and SI-4-10' confirm the removal of petroleum contaminated soil.

- The UST excavation backfill was sand and was placed back in the excavation. The soil generated from the excavation of the north sidewall which included the service island area (to an approximate depth of 16 feet) was stockpiled on and covered with plastic sheeting to await transport and disposal.

- On April 27, 1995, McCon personnel began excavating the area to the north of the former service islands to install 3 new USTs. Petroleum contaminated soils were encountered and GTI personnel arrived on site to sample and arrange for disposal of the soils. Three (3) soil samples, NTP-B, NTP-E, and NTP-W, were collected from the bottom, east and west sidewalls of the new tank pit. BTEX, TPH-g, and total lead concentrations were not detected in soil samples NTP-B, NTP-E, and NTP-W.

- Three (3) discrete soil samples were collected from each of the three soil stockpiles generated during both the decommissioning activities (SP1, SP2, SP3) and the new tank pit excavation (SPA-1, SPA-2, SPA-3, SPB-1, SPB-2, and SPB-3). The samples were analyzed for BTEX, TPH-g, and total lead. Laboratory results indicated adsorbed concentrations of BTEX, TPH-g, and total lead in soil samples were below CCL(a)s.

- The two (2) 10,000-gallon steel and one (1) 6,000-gallon steel UST's decommissioned appeared to be in good condition prior to destruction and removal.

- A total of approximately 800 tons of petroleum contaminated soil excavated from the new tank pit and the dispenser island area were transported to and disposed of at the TPS Technologies facility in Tacoma, Washington on May 2, 3, and 4, 1995.

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1.0 INTRODUCTION

Groundwater Technology, Inc. (GTI) was contracted by The Southland Corporation to observe and document the permanent closure of three steel underground storage tanks (USTs) at Southland Facility #23929 located at 17922 Highway 527, in Bothell, Washington (Figure 1). Work steps performed included the removal by excavation of three underground storage tanks (USTs), and ancillary piping and the installation of three new USTs in a newly excavated tank pit by McCon Building and Petroleum Services, Inc. (McCon). Soil samples were collected by GTI personnel and analyzed by North Creek Analytical (NCA) laboratory located in Bothell, Washington and by Transglobal Environmental Geosciences Northwest, Inc. (TEG) on-site. The UST system closure was conducted in accordance with Washington Department of Ecology (WDOE) UST Site Check Assessment Guidelines (WAC 173-360).

2.0 SCOPE OF WORK

The following outline summarizes the specific work steps performed.

- Observed and documented the destruction and removal of three (3) steel USTs and all ancillary product piping.
- Collected and analyzed selected soil samples from the old tank pit excavation, the new tank pit excavation and the area beneath the former service islands (overexcavation) for benzene, toluene, ethylbenzene, and xylenes (BTEX), total petroleum hydrocarbons-as-gasoline (TPH-g), and total lead.
- Collected and analyzed soil samples from the stockpiled soil for characterization and disposal.
- Prepared this report which summarizes the work performed, including results and findings.

3.0 BACKGROUND

Prior to the UST decommissioning work, the Southland facility in Bothell, Washington was an active retail gasoline and convenience store, with two 10,000-gallon and one 6,000-gallon steel USTs in service containing regular, unleaded, and super unleaded gasoline. During the decommissioning and installation operations Southland operated the facility as a convenience store. Upon completion of decommissioning and installation operations, Southland again operates the site as a retail gasoline and convenience store.

4.0 SITE SETTING

The site is located in the southeast quarter of Section 7, Township 27 North, Range 5 East in an unincorporated area of Snohomish County, Washington (Figure 1). Situated in a commercial and residential area, the site is located at 17922 Highway 527, Bothell, Washington. Topographically, the site is approximately 280 feet above mean sea level (msl) approximately one-half mile east of North Creek. The surface topography in the immediate vicinity of the site is hilly.

5.0 UNDERGROUND STORAGE SYSTEM DECOMMISSIONING

On April 25, 1995, Don Sly, a marine chemist from Sound Testing, Inc., inerted the tanks with nitrogen, before the USTs were removed. On April 25 and 26, 1995 the USTs were removed by McCon Building and Petroleum Services, Inc. (McCon) of Vancouver, Washington. GTI personnel observed decommissioning by removal of the Southland UST system on April 25 and 26, 1995 (Figure 2). Two (2) 10,000-gallon steel and one (1) 6,000-gallon steel USTs and associated piping were removed by McCon. The USTs appeared to be in good condition prior to destruction. On April 25 and 26, 1995, the tanks were taken to West Pac Environmental in Seattle, Washington by McCon for disposal.

During the removal of the subgrade equipment and related soil excavation, soil samples were collected from the sidewalls of the former tank pit (TP1-10', TP2-10', TP3-10', and TP4-10'), from beneath the former tanks (B1-17', B2-17' and B3-17') and from beneath the former service island (D1-3' and D2-3')(Figure 2). Based on the analytical results of the soil pile samples, the soil pile generated during UST decommissioning was placed back in the tank pit and clean imported fill material was used to fill the remainder of the excavation.

McCon personnel began the excavation for the new tanks on April 27, 1995, and GTI was informed that the soils being excavated contained a strong product smell. GTI personnel arrived on the site on April 27, 1995, to coordinate the segregation of soils and to sample the extents of the new tank pit. Three soil samples (NTP-B, NTP-E and NTP-W) were collected from the new tank pit. Sample NTP-B was collected from the base of the excavation, approximately 13.5 feet below grade. Samples NTP-E and NTP-W were collected from the east and west sidewalls of the new excavation at approximately seven feet below grade (Figure 3). The soil from the new tank pit was segregated into two soil stockpiles, SPA and SPB. Three discrete samples were collected from each of the soil stockpiles (SPA-1, SPA-2, SPA-3, SPB-1, SPB-2, and SPB-3). Based on the results of laboratory testing, stockpile SPB was placed back in the tank pit and SPA was transported to and disposed of at TPS.

On May 2 and 3, 1995, a GTI geologist arrived on site to coordinate the excavation of soils from the dispenser island area between the former tank pit and the new tank pit to a depth of approximately

16 feet (Figure 4). Four samples were collected at the extent of overexcavation (SI-1-15', SI-2-10', SI-3-10', and SI-4-16'). Soil sample SI-1-15' was collected just above an approximately 6-inch thick concrete slab that was beneath the service island. Because of its size, the concrete slab was left in place and soil sample SI-4-16' was collected immediately adjacent to the edge of the concrete slab at approximately 16 feet below grade. All soils above the concrete slab were excavated and removed from the site.

A total of approximately 800 tons of petroleum contaminated soils were removed from the site and disposed of at the TPS facility in Tacoma, Washington. The soils sent to TPS were from the new tank pit excavation (soil pile SPA) and from the overexcavation of the dispenser area above the concrete slab.

6.0 LABORATORY ANALYSES-SOIL

Soil samples collected were either analyzed on-site by a TEG mobile laboratory or submitted to NCA. The laboratory analytical methods for the primary analyses performed are as follows:

Analysis	EPA\Washington Test Method
Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX)	EPA Method 8020
Total Petroleum Hydrocarbons-as-gasoline (TPH-g)	WTPH-G (modified EPA Method 8015)
Total Lead	EPA Method 6010

The following section discusses analytical results with respect to Model Toxics Control Act (MTCA) Method A Compliance Cleanup Levels (CCL[a]s). The pertinent CCL(a)s for soil are: benzene - 0.5 mg/kg, toluene - 40.0 mg/kg, ethylbenzene - 20.0 mg/kg, total xylenes - 20.0 mg/kg, TPH-g - 100.0 mg/kg, and total lead - 250.0 mg/kg. A summary of the analytical results from each of the sampling events are presented in Table 1, Table 2, and Table 3. Complete laboratory reports are presented in Appendix 1.

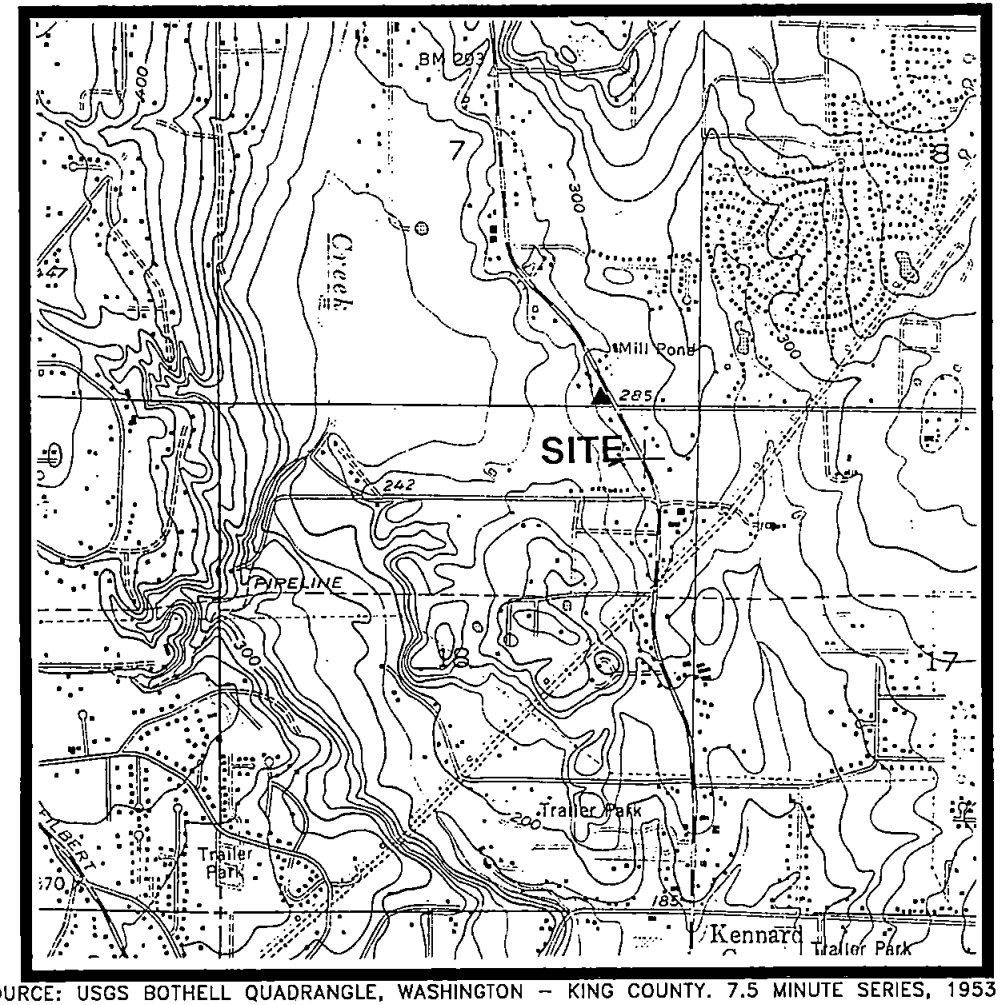
Soil samples TP1-10', TP2-10', TP3-10', TP4-10', B1-17', B2-17', B3-17', D1-3', D2-3', SP1, SP2, SP3, SP4, NTP-B, NTP-E, NTP-W, SPA-1, SPA-2, SPA-3, SPB-1, SPB-2, SPB-3, SI-1-15', SI-2-10', SI-3-10', SI-3-10'-Dup, and SI-4-16', were analyzed for BTEX, TPH-g, and total lead. Compounds with reported concentrations above CCL[a]s were benzene in samples D1-3' (20 milligrams per kilogram mg/kg) and D2-3' (7.6 mg/kg), total xylenes in sample SI-1-15' (34.6 mg/kg), and TPH-g in samples D1-3' (7,700 mg/kg), D1-3' (8,900 mg/kg), TP4-10' (430 mg/kg), and SI-1-15' (859 mg/kg).

7.0 CONCLUSIONS

Three USTs and ancillary piping were decommissioned as part of the closure of the former system at the Southland facility #23929 at 17922 Highway 527 in Bothell, Washington. The UST and subgrade equipment removal and destruction were conducted on April 25 and 26, 1995.

On May 2 and 3, 1995 overexcavation activities occurred at the site. During overexcavation activities, at a depth of 15' a concrete slab (approximately 6-inches thick) was encountered. Sample SI-1-15' was collected from the soil above the concrete slab which was removed from the site. Soil samples collected to the north (NTP-B), south (B1-17'), and east (SI-4-16') of the concrete slab did not contain concentrations of BTEX and TPH-g above CCL(a)s. Based on the results of this investigation and assessment, petroleum contaminated soil with concentrations above CCL(a)s have been removed from the site.

Based on the results of the tank closure investigation and laboratory analyses, no additional assessment or remedial activities are recommended.



SOURCE: USGS BOTHELL QUADRANGLE, WASHINGTON – KING COUNTY. 7.5 MINUTE SERIES, 1953

EXPLANATION

▲ SITE LOCATION

N

SCALE 1:24000

1000 0 1000 2000 3000 4000 5000 FEET

THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 23929

17922 HIGHWAY 527
BOTHELL, WASHINGTON
020600127

DRAWN BY: L. CORNELL DATE: 04-08-94
DRAFTED BY: C. YOUNG DATE: 04-08-94
CHECKED BY:_____ DATE:_____

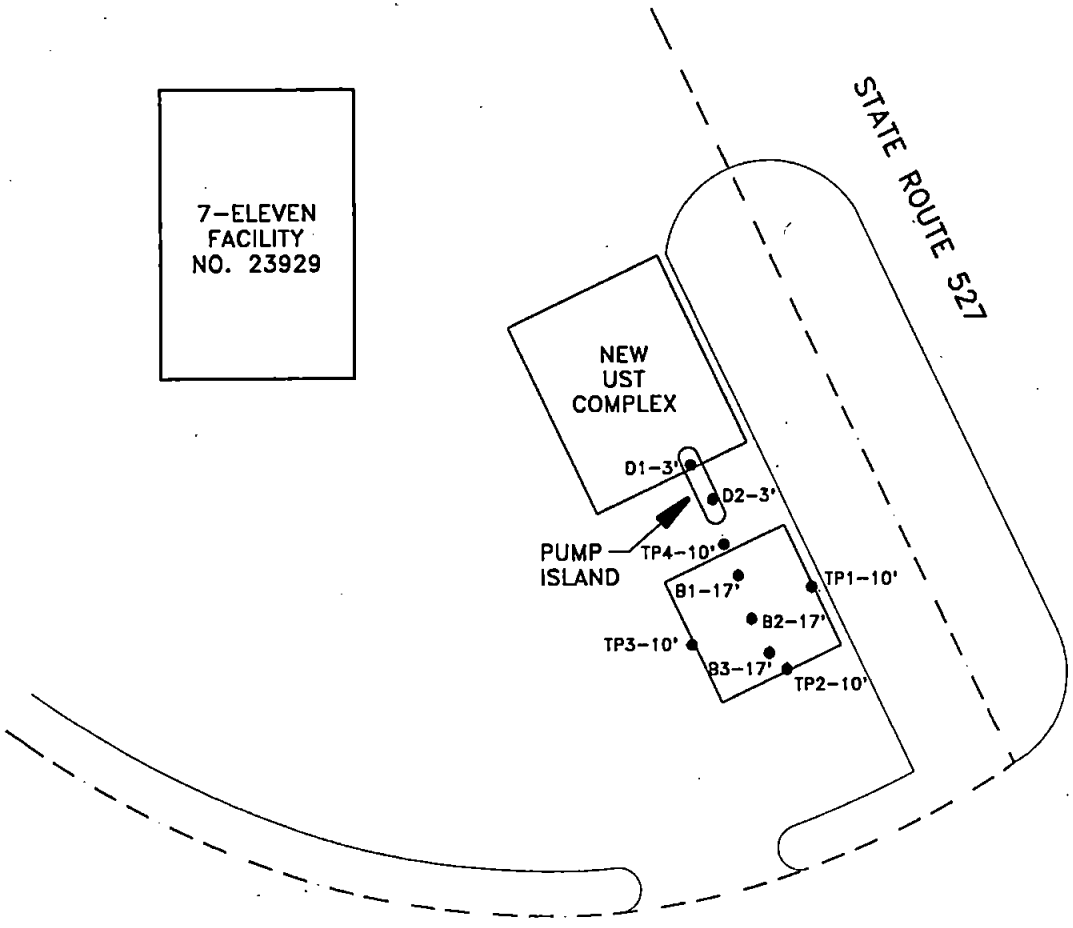
SITE LOCATION

FIGURE 1

GROUNDWATER TECHNOLOGY, INC.

0000-SL

Figure 1



EXPLANATION

- SOIL SAMPLE LOCATION
- PROPERTY BOUNDARY

N

0 40 80

APPROX. SCALE IN FEET

THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 23929

17922 HIGHWAY 527
BOTHELL, WASHINGTON
020600127

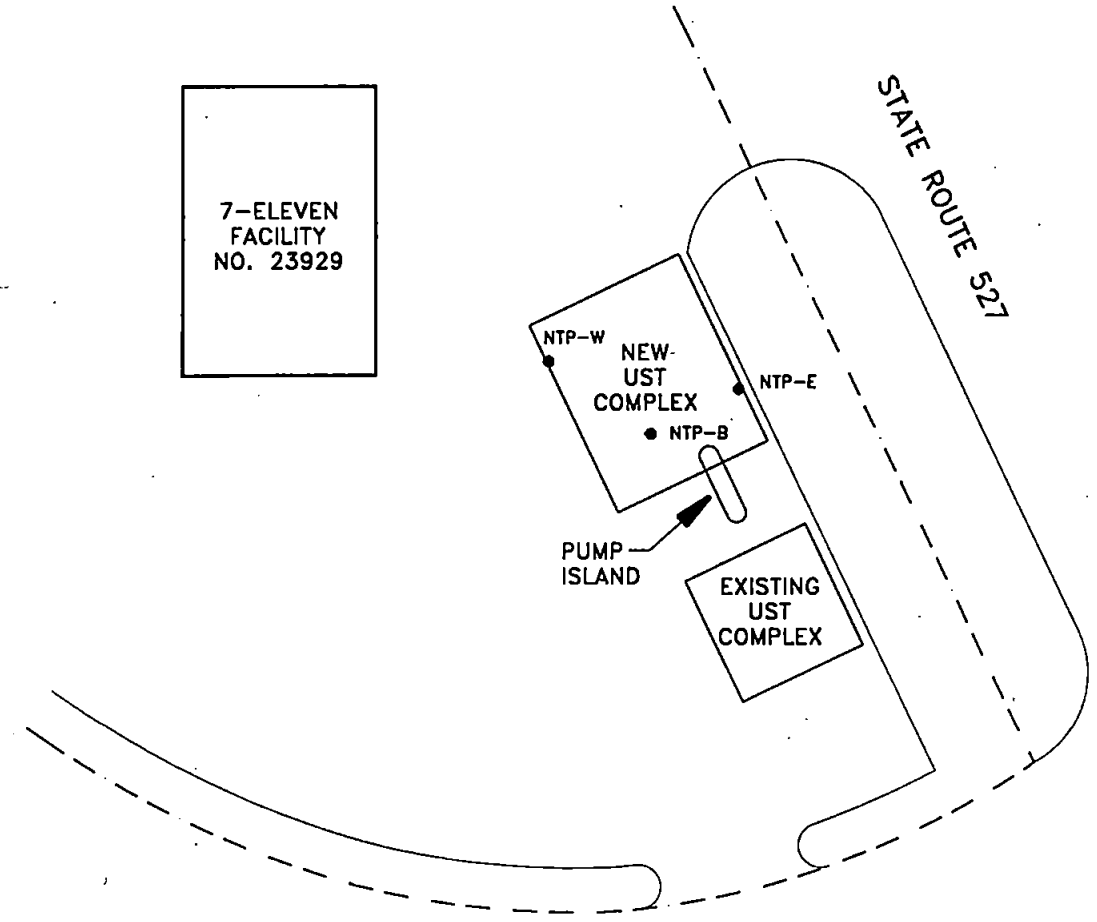
DRAWN BY: DATE:
DRAFTED BY: C. YOUNG DATE: 7/28/95
CHECKED BY:_____ DATE:_____

**SOIL SAMPLE LOCATION MAP-
TANK CLOSURE SAMPLES
(4/25-26/95)**

FIGURE 2

GROUNDWATER TECHNOLOGY

SSLM-TCS



EXPLANATION

- SOIL SAMPLE LOCATION
- PROPERTY BOUNDARY

N

0 40 80

APPROX. SCALE IN FEET

THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 23929

17922 HIGHWAY 527
BOTHELL, WASHINGTON
020600127

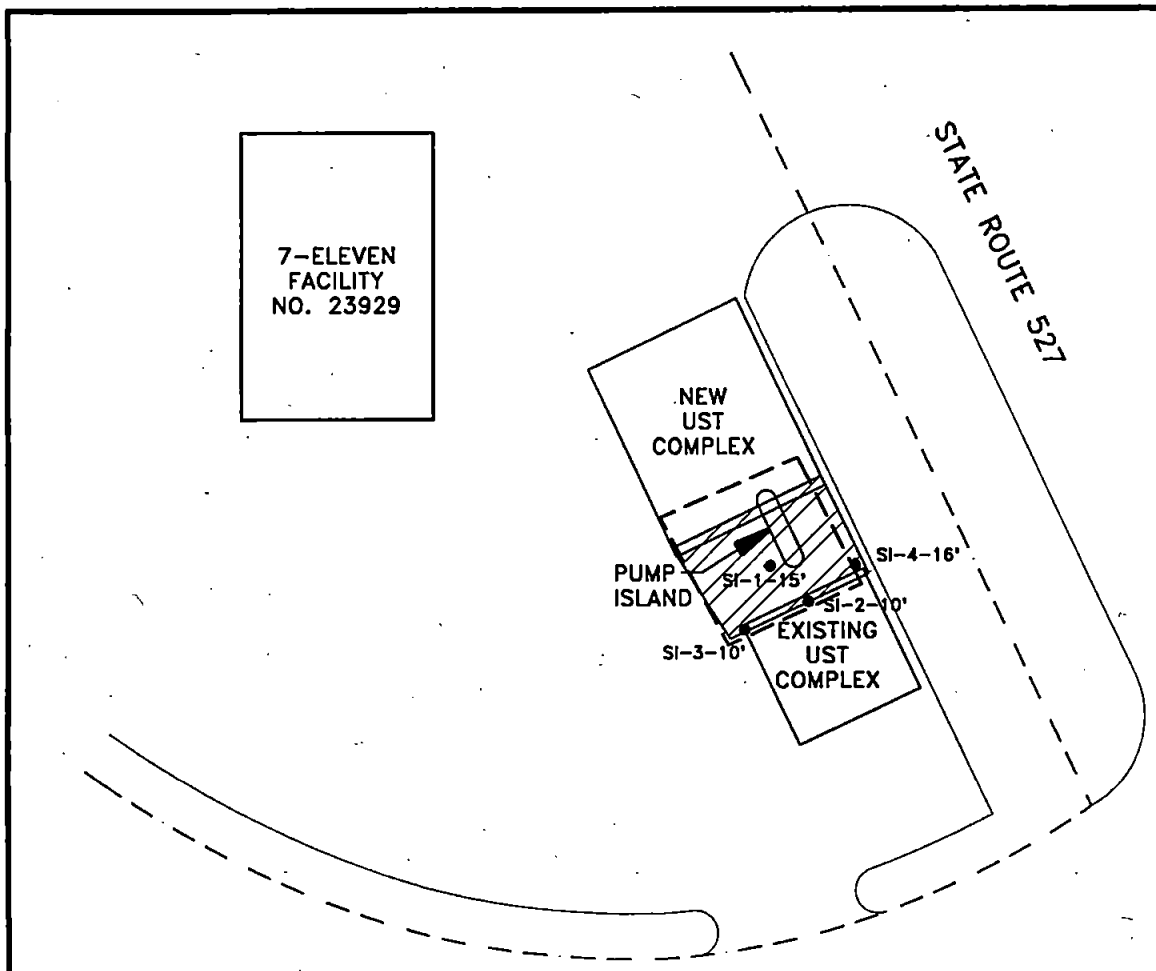
DRAWN BY: DATE:
DRAFTED BY: C. YOUNG DATE: 7/28/95
CHECKED BY:_____ DATE:_____

**SOIL SAMPLE LOCATION MAP-
NEW TANK PIT
(4/27/95)**

FIGURE 3

GROUNDWATER TECHNOLOGY

SSLM-NTP



EXPLANATION

- SOIL SAMPLE LOCATION
- PROPERTY BOUNDARY
- APPROXIMATE AREA OF OVEREXCAVATION
- APPROXIMATE LOCATION OF CONCRETE SLAB

N

0 40 80

APPROX. SCALE IN FEET

THE SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 23929

17922 HIGHWAY 527
BOTHELL, WASHINGTON
020600127

DRAWN BY: DATE:
DRAFTED BY: C. YOUNG DATE: 7/28/95
CHECKED BY:_____ DATE:_____

**SOIL SAMPLE LOCATION MAP-
OVEREXCAVATION
(5/2-3/95)**

FIGURE 4

GROUNDWATER TECHNOLOGY

SSLM-OVR

TABLE 1
ANALYTICAL RESULTS OF SOIL SAMPLES-Decommissioning
April 25 and 26, 1995
Southland Store # 23929
17922 Highway 527
Bothell, WA

SAMPLE ID	Date Sampled	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	TPH-G (mg/Kg)	Total Lead (mg/Kg)
TP1-10'	04/25/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
TP2-10'	04/25/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
TP3-10'	04/26/95	<0.05	<0.05	<0.05	0.17	<1.0	<10
TP4-10'	04/26/95	<0.05	0.089	0.42	3.4	**430**	<10
B1-17'	04/26/95	<0.05	<0.05	<0.05	0.20	3.3	<10
B2-17'	04/26/95	<0.05	<0.05	<0.05	0.23	1.5	<10
B3-17'	04/25/95	<0.05	<0.05	<0.05	0.16	4.9	<10
D1-3'	04/25/95	**20**	**460**	**150**	**860**	**7,700**	<10
D2-3'	04/25/95	**7.6**	**210**	**35**	**880**	**8,900**	<10
SP1	04/25/95	<0.05	<0.05	<0.05	0.42	13	<10
SP2	04/25/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
SP3	04/25/95	<0.05	<0.05	0.056	0.69	66	<10
SP4	04/26/95	<0.05	<0.05	<0.05	0.26	1.9	<10
MTCA-CCL[a]		0.5	40.0	20.0	20.0	100.0	250.0

< = Less than the method detection limit.
mg/kg = Milligrams per kilogram.
MTCA-CCL[a] = Model Toxics Control Act Method A Compliance Cleanup Level
Bold values exceed CCL[a]s

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TABLE 2
ANALYTICAL RESULTS OF SOIL SAMPLES-New Tank Pit
April 27, 1995
Southland Store # 23929
17922 Highway 527
Bothell, WA

SAMPLE ID	Sample Date	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl Benzene (mg/Kg)	Total Xylenes (mg/Kg)	TPH-G (mg/Kg)	Total Lead (mg/Kg)
NTP-B	04/27/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
NTP-E	04/27/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
NTP-W	04/27/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
SPA-1	04/27/95	<0.05	<0.05	<0.05	0.38	38	<10
SPA-2	04/27/95	<0.05	0.056	0.11	0.72	54	<10
SPA-3	04/27/95	<0.05	0.061	0.087	0.60	42	<10
SPB-1	04/27/95	<0.05	<0.05	0.056	0.18	6.1	<10
SPB-2	04/27/95	<0.05	<0.05	<0.05	<0.10	2.2	<10
SPB-3	04/27/95	<0.05	<0.05	<0.05	<0.10	<1.0	<10
MTCA-CCL[a]		0.5	40.0	20.0	20.0	100.0	250.0

< = Less than the method detection limit.
mg/kg = Milligrams per kilogram.
MTCA-CCL[a] = Model Toxics Control Act Method A Compliance Cleanup Level

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TABLE 3
ANALYTICAL RESULTS OF SOIL SAMPLES-Overexcavation
May 2 and 3, 1995
Southland Store # 23929
17922 Highway 527
Bothell, WA

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Total Xylenes (mg/kg)	TPH-G (mg/kg)
SI-1-15'	05/02/95	0.19	0.75	4.23	**34.6**	**859**
SI-2-10'	05/02/95	<0.05	<0.05	<0.05	0.32	<10
SI-3-10'	05/02/95	<0.05	<0.05	<0.05	0.07	<10
SI-3-10'-Dup	05/02/95	<0.05	<0.05	<0.05	0.10	<10
SI-4-16'	05/03/95	<0.05	<0.05	<0.05	<0.05	<10
MTCA-CCL[a]		0.5	40.0	20.0	20.0	100.0

< = Less than the method detection limit.
mg/kg = Milligrams per kilogram.
MTCA-CCL[a] = Model Toxics Control Act Method A Compliance Cleanup Level
Bold values exceed CCL[a]s

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APPENDIX 1
LABORATORY ANALYTICAL REPORTS

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Project Name: Southland #23929
Client Project #: #020600127/6504
NCA Project #: B504402

Relogged: Apr 27, 1995
Reported: Apr 28, 1995

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B504402-01	D1-3'	Soil	4/25/95
B504402-02	D2-3'	Soil	4/25/95
B504402-03	B3-17'	Soil	4/25/95
B504402-04	TP1-10'	Soil	4/25/95
B504402-05	TP2-10'	Soil	4/25/95
B504402-06	SP1	Soil	4/25/95
B504402-07	SP2	Soil	4/25/95
B504402-08	SP3	Soil	4/25/95

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

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East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
First Sample #: B504402-01

Relogged: Apr 27, 1995
Reported: Apr 28, 1995

TOTAL SOLIDS & MOISTURE CONTENT REPORT

Sample Number	Sample Description	Total Solids %	Moisture Content %
B504402-01	D1-3'	95	5.0
B504402-02	D2-3'	93	7.0
B504402-03	B3-17'	86	14
B504402-04	TP1-10'	91	9.0
B504402-05	TP2-10'	88	12
B504402-06	SP1	92	8.0
B504402-07	SP2	91	9.0
B504402-08	SP3	92	8.0

The enclosed analytical results for soils, sediments and sludges have been converted to a DRY WEIGHT reporting basis.
To attain the wet weight "as received" equivalent, multiply the dry weight result by the decimal fraction of percent Total Solids.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 25, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	WTPH-G	Analyzed:	Apr 26-28, 1995
Attention: Stan Haskins	First Sample #:	B504402-01	Reported:	Apr 28, 1995

TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE

Sample Number	Sample Description	Sample Result mg/kg (ppm)	Surrogate Recovery %
B504402-01	D1-3'	7,700	S-2
B504402-02	D2-3'	8,900	S-2
B504402-03	B3-17'	4.9	99
B504402-04	TP1-10'	N.D.	95
B504402-05	TP2-10'	N.D.	100
B504402-06	SP1	13	100
B504402-07	SP2	N.D.	96
B504402-08	SP3	66	106
BLK042695	Method Blank	N.D.	110

Reporting Limits	1.0

4-Bromofluorobenzene surrogate recovery control limits are 50 - 150 %.
Volatile Total Petroleum Hydrocarbons are quantitated as Gasoline Range Organics (toluene - dodecane).
Analytes reported as N.D. were not detected above the stated Reporting Limit. The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL, Inc.

Shannon Stowell
Project Manager

Please Note:
S-2 = The Surrogate Recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.

NORTH CREEK ANALYTICAL

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: WTPH-G
Units: mg/kg (ppm)

Analyst: B. Christlieb, F. Shino
Analyzed: Apr 26, 1995
Reported: Apr 28, 1995

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Gasoline

Spike Conc. Added:	5.0
Spike Result:	4.3
% Recovery:	86
Upper Control Limit %:	115
Lower Control Limit %:	33

PRECISION ASSESSMENT
Sample Duplicate

Gasoline Range Hydrocarbons

Sample Number:	B504370-01
Original Result:	1,700
Duplicate Result:	1,600
Relative % Difference:	6.1
Maximum RPD:	67

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

% Recovery: $\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled: Apr 25, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged: Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 8020	Analyzed: Apr 26-28, 1995
Attention: Stan Haskins	First Sample #:	B504402-01	Reported: Apr 28, 1995

BTEX DISTINCTION

Sample Number	Sample Description	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
B504402-01	D1-3'	20	460	150	860	S-2
B504402-02	D2-3'	7.6	210	35	880	S-2
B504402-03	B3-17'	N.D.	N.D.	N.D.	0.16	93
B504402-04	TP1-10'	N.D.	N.D.	N.D.	N.D.	92
B504402-05	TP2-10'	N.D.	N.D.	N.D.	N.D.	105
B504402-06	SP1	N.D.	N.D.	N.D.	0.42	93
B504402-07	SP2	N.D.	N.D.	N.D.	N.D.	96
B504402-08	SP3	N.D.	N.D.	0.056	0.69	94
BLK042695	Method Blank	N.D.	N.D.	N.D.	N.D.	102
Reporting Limits:		**0.050**	**0.050**	**0.050**	**0.10**	

4-Bromofluorobenzene surrogate recovery control limits are 34 - 166 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Please Note:
S-2 = The Surrogate Recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: EPA 8020
Units: mg/kg (ppm)
QC Sample #: B504402-05

Analyst: B. Christlieb, F. Shino
Analyzed: Apr 26, 1995
Reported: Apr 28, 1995

MATRIX SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Sample Result:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.57	0.57	0.57	1.71
Spike Result:	0.39	0.39	0.40	1.29
Spike % Recovery:	68%	68%	70%	75%
Spike Dup. Result:	0.45	0.47	0.49	1.46
Spike Duplicate % Recovery:	79%	82%	86%	85%
Upper Control Limit %:	111	118	120	128
Lower Control Limit %:	59	55	61	55
Relative % Difference:	14%	19%, Q-7	18%, Q-7	12%
Maximum RPD:	17	16	17	17

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Please Note:
Q-7 = The RPD value for this QC sample is outside of the advisory limit established by NCA. Additional sources for assessment of method precision, such as field dups, should be referenced.

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Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 25, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 7420	Digested:	Apr 27, 1995
Attention: Stan Haskins	First Sample #:	B504402-01	Analyzed:	Apr 27, 1995
			Reported:	Apr 28, 1995

METALS ANALYSIS FOR: TOTAL LEAD

Sample Number	Sample Description	Reporting Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
B504402-01	D1-3'	10	N.D.
B504402-02	D2-3'	10	N.D.
B504402-03	B3-17'	10	N.D.
B504402-04	TP1-10'	10	N.D.
B504402-05	TP2-10'	10	N.D.
B504402-06	SP1	10	N.D.
B504402-07	SP2	10	N.D.
B504402-08	SP3	10	N.D.
BLK042795	Method Blank	10	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix : Soil
Units: mg/kg (ppm)

Analyst: A. Shephard
K. Gendron

Digested: Apr 27, 1995
Reported: Apr 28, 1995

METALS QUALITY CONTROL DATA REPORT

ANALYTE
Lead

EPA Method: 7420
Date Analyzed: Apr 27, 1995

ACCURACY ASSESSMENT

LCS Spike Conc. Added: 50

LCS Spike Result: 43

LCS Spike % Recovery: 86

Upper Control Limit: 130

Lower Control Limit: 70

Matrix Spike Sample #: B504402-01

Matrix Spike % Recovery: 108

PRECISION ASSESSMENT

Sample #: B504402-01

Original: N.D.

Duplicate: 11

Relative % Difference: RPD values are not reported at sample concentration levels <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Lab Control Sample % Recovery: $\frac{\text{Conc. of L.C.S.}}{\text{L.C.S. Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

East 11115 Montgomery, Suite L, Spokane, [illegible] 9206 (509) [illegible]00 [illegible]4-92
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CHAIN OF CUSTODY REPORT

CLIENT: GTI
ADDRESS: 19033 W. Valley Hwy Ste D104
Kent, WA 98032
PHONE: (206) 251-5441 FAX: (206) 251-5442
PROJECT NAME: Shell/23929/17922 Hwy 527
PROJECT NUMBER: [redacted] 0206001 27/6504
SAMPLED BY: E.C. Correll

REPORT TO: S. Haskins
BILLING TO:
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 | 5 | 3 | 2 | 1 (Please Select One)
Fuels & Hydrocarbon Analyses: 5 | 3 | 2 | 1
* Turnaround Requests less than standard will incur Rush Charges.
FAX RESULTS BY:

SAMPLE IDENTIFICATION (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	Analysis Request: BTEX	WTPH-G	Lead	Hold	24 hr TAT (4-27-95)	Normal TAT (4-27-95)	COMMENTS & PRESERVATIVES USED	NCA SAMPLE NUMBER
1. D1-3'	4/25/95 1416	S	1	X	X	X		X			B504402-01
2. D2-3'	1417							X			-02
3. B3-17'	1612							X			-03
4. TP1-10'	1619							X			-04
5. TP2-10'	1614							X			-05
6. SP1	1628						X	X			-06
7. SP2	1632						X	X			-07
8. SP3	1635						X	X			-08
9.											
10.											

RELINQUISHED BY: L. Correll DATE: 4-25-95
PRINT NAME: L. Correll FIRM: GTI TIME: 1717
RECEIVED BY: Jeff Carrier DATE: 4/25/95
PRINT NAME: Jeff Carrier FIRM: NCA TIME: 5:17

RELINQUISHED BY: DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY: Dana Hess DATE: 4/27/95
PRINT NAME: RELOG FIRM: TIME: 1500

ADDITIONAL REMARKS: ~~Run all Samples on 24hr TAT (4-26-95 11:46)~~ Run SP1, SP2, SP3 on 24hr TAT 4-27-95

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Project Name: Southland #23929
Client Project #: #020600127/6504
NCA Project #: B504403

Relogged: Apr 27, 1995
Reported: May 1, 1995

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B504403-01	SP4	Soil	4/26/95
B504403-02	B1-17'	Soil	4/26/95
B504403-03	B2-17'	Soil	4/26/95
B504403-04	TP3-10'	Soil	4/26/95
B504403-05	TP4-10'	Soil	4/26/95

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
First Sample #: B504403-01

Relogged: Apr 27, 1995
Reported: May 1, 1995

TOTAL SOLIDS & MOISTURE CONTENT REPORT

Sample Number	Sample Description	Total Solids %	Moisture Content %
B504403-01	SP4	92	8.0
B504403-02	B1-17'	92	8.0
B504403-03	B2-17'	83	17
B504403-04	TP3-10'	91	9.0
B504403-05	TP4-10'	91	9.0

The enclosed analytical results for soils, sediments and sludges have been converted to a DRY WEIGHT reporting basis.
To attain the wet weight "as received" equivalent, multiply the dry weight result by the decimal fraction of percent Total Solids.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 26, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	WTPH-G	Analyzed:	Apr 29, 1995
Attention: Stan Haskins	First Sample #:	B504403-01	Reported:	May 1, 1995

TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE

Sample Number	Sample Description	Sample Result mg/kg (ppm)	Surrogate Recovery %
B504403-01	SP4	1.9	98
B504403-02	B1-17'	3.3	99
B504403-03	B2-17'	1.5	93
B504403-04	TP3-10'	N.D.	99
B504403-05	TP4-10'	430	122
BLK042995	Method Blank	N.D.	110

Reporting Limits	1.0

4-Bromofluorobenzene surrogate recovery control limits are 50 - 150 %.
Volatile Total Petroleum Hydrocarbons are quantitated as Gasoline Range Organics (toluene - dodecane).
Analytes reported as N.D. were not detected above the stated Reporting Limit. The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: WTPH-G
Units: mg/kg (ppm)

Analyst: B. Christlieb, F. Shino
Analyzed: Apr 29, 1995
Reported: May 1, 1995

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Gasoline

Spike Conc. Added:	5.0
Spike Result:	4.3
% Recovery:	86
Upper Control Limit %:	115
Lower Control Limit %:	33

PRECISION ASSESSMENT
Sample Duplicate

Gasoline Range Hydrocarbons

Sample Number:	B504402-07
Original Result:	N.D.
Duplicate Result:	N.D.
Relative % Difference:	Relative Percent Difference values are not reported at sample concentration levels less than 10 times the Detection Limit.
Maximum RPD:	67

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

% Recovery: $\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

NORTH CREEK ANALYTICAL

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Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled: Apr 26, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged: Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 8020	Analyzed: Apr 29, 1995
Attention: Stan Haskins	First Sample #:	B504403-01	Reported: May 1, 1995

BTEX DISTINCTION

Sample Number	Sample Description	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
B504403-01	SP4	N.D.	N.D.	N.D.	0.26	84
B504403-02	B1-17'	N.D.	N.D.	N.D.	0.20	93
B504403-03	B2-17'	N.D.	N.D.	N.D.	0.23	88
B504403-04	TP3-10'	N.D.	N.D.	N.D.	0.17	95
B504403-05	TP4-10'	N.D.	0.089	0.42	3.4	101
BLK042995	Method Blank	N.D.	N.D.	N.D.	N.D.	102
Reporting Limits:		**0.050**	**0.050**	**0.050**	**0.10**	

4-Bromofluorobenzene surrogate recovery control limits are 34 - 166 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: EPA 8020
Units: mg/kg (ppm)
QC Sample #: B504402-05

Analyst: B. Christlieb, F. Shino
Analyzed: Apr 29, 1995
Reported: May 1, 1995

MATRIX SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Sample Result:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.57	0.57	0.57	1.71
Spike Result:	0.39	0.39	0.40	1.29
Spike % Recovery:	68%	68%	70%	75%
Spike Dup. Result:	0.45	0.47	0.49	1.46
Spike Duplicate % Recovery:	79%	82%	86%	85%
Upper Control Limit %:	111	118	120	128
Lower Control Limit %:	59	55	61	55
Relative % Difference:	14%	19%, Q-7	18%, Q-7	12%
Maximum RPD:	17	16	17	17

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Please Note:
Q-7 = The RPD value for this QC sample is outside of the advisory limit established by NCA. Additional sources for assessment of method precision, such as field dups, should be referenced.

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 26, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Relogged:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 7420	Digested:	Apr 27, 1995
Attention: Stan Haskins	First Sample #:	B504403-01	Analyzed:	Apr 27, 1995
			Reported:	Apr 28, 1995

METALS ANALYSIS FOR: TOTAL LEAD

Sample Number	Sample Description	Reporting Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
B504403-01	SP4	10	N.D.
B504403-02	B1-17'	10	N.D.
B504403-03	B2-17'	10	N.D.
B504403-04	TP3-10'	10	N.D.
B504403-05	TP4-10'	10	N.D.
BLK042795	Method Blank	10	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix : Soil
Units: mg/kg (ppm)

Analyst: A. Shephard, K. Gendron
Digested: Apr 27, 1995
Reported: Apr 28, 1995

METALS QUALITY CONTROL DATA REPORT

ANALYTE: Lead

EPA Method: 7420
Date Analyzed: Apr 27, 1995

ACCURACY ASSESSMENT

LCS Spike Conc. Added:	50
LCS Spike Result:	43
LCS Spike % Recovery:	86
Upper Control Limit:	130
Lower Control Limit:	70
Matrix Spike Sample #:	B504402-01
Matrix Spike % Recovery:	108

PRECISION ASSESSMENT

Sample #:	B504402-01
Original:	N.D.
Duplicate:	11
Relative % Difference:	RPD values are not reported at sample concentration levels <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Lab Control Sample % Recovery: $\frac{\text{Conc. of L.C.S.}}{\text{L.C.S. Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

CLIENT: GTI
ADDRESS: 19033 W. Valley Hwy Ste D104 Kent, WA 98032
PHONE: (206) 251-5441 FAX: 251-
PROJECT NAME: Shell/23925/17922 Hwy 527
PROJECT NUMBER: 020600127/16504
SAMPLED BY: E.C. Cornell

REPORT TO: S. Haskins
BILLING TO:
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 5 3 2 1 (Please Select One)
Fuels & Hydrocarbon Analyses: ~~5~~ 3 2 1
* Turnaround Requests less than standard will incur Rush Charges.
FAX RESULTS BY:

Analysis Request: BTEX, WTPH-G, Lead, ~~Hold~~, 24hr TAT (4-27-95) L.C., Normal TAT (4-27-95) L.C.

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	BTEX	WTPH-G	Lead	~~Hold~~		24hr TAT	Normal TAT			COMMENTS & PRESERVATIVES USED	NCA SAMPLE NUMBER
1. SP4	4/26/95 936	S	1	X	X	X	~~X~~		X					B504403-01
2. B1-17'	↓ 930	↓	↓	↓	↓	↓			~~↓~~	X				-02
3. B2-17'	821									↓				-03
4. TP3-10'	826													-04
5. TP4-10'	↓ 932	↓	↓	↓	↓	↓				↓				
6.														
7.														
8.														
9.														
10.														

RELINQUISHED BY: Elizabeth C. Cornell DATE: 4-26-95
PRINT NAME: EC Cornell FIRM: GTI TIME: 1007
RECEIVED BY: Jeff Carrer DATE: 4/25/9.
PRINT NAME: Jeff Carrer FIRM: NCA TIME: 10:10

RELINQUISHED BY: DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY: Dana Hey DATE: 4/27/95
PRINT NAME: RELOG FIRM: TIME: 1500

ADDITIONAL REMARKS:
~~Run all Samples on 24hr TAT (4-26-95) 11:46~~ L.C.
Please Run SP-4 on 24hr TAT 4-27-95

COC Rev 6, 10/94 PAGE OF

NORTH CREEK ANALYTICAL

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Project Name: Southland #23929
Client Project #: #020600127.6504
NCA Project #: B504441

Received: Apr 27, 1995
Reported: May 5, 1995

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B504441-01	SPA-1	Soil	4/27/95
B504441-02	SPA-2	Soil	4/27/95
B504441-03	SPA-3	Soil	4/27/95
B504441-04	SPB-1	Soil	4/27/95
B504441-05	SPB-2	Soil	4/27/95
B504441-06	SPB-3	Soil	4/27/95
B504441-07	NTP-B	Soil	4/27/95
B504441-08	NTP-E	Soil	4/27/95
B504441-09	NTP-W	Soil	4/27/95

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
First Sample #: B504441-01

Received: Apr 27, 1995
Reported: May 5, 1995

TOTAL SOLIDS & MOISTURE CONTENT REPORT

Sample Number	Sample Description	Total Solids %	Moisture Content %
B504441-01	SPA-1	92	8.0
B504441-02	SPA-2	94	6.0
B504441-03	SPA-3	93	7.0
B504441-04	SPB-1	93	7.0
B504441-05	SPB-2	93	7.0
B504441-06	SPB-3	94	6.0
B504441-07	NTP-B	92	8.0
B504441-08	NTP-E	87	13
B504441-09	NTP-W	96	4.0

The enclosed analytical results for soils, sediments and sludges have been converted to a DRY WEIGHT reporting basis.
To attain the wet weight "as received" equivalent, multiply the dry weight result by the decimal fraction of percent Total Solids.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	WTPH-G	Analyzed:	Apr 30, 1995
Attention: Stan Haskins	First Sample #:	B504441-01	Reported:	May 1, 1995

TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE

Sample Number	Sample Description	Sample Result mg/kg (ppm)	Surrogate Recovery %
B504441-01	SPA-1	38	94
B504441-02	SPA-2	54	92
B504441-03	SPA-3	42	91
B504441-04	SPB-1	6.1	90
B504441-05	SPB-2	2.2	85
B504441-06	SPB-3	N.D.	84
BLK043095	Method Blank	N.D.	97

Reporting Limits	**1.0**

4-Bromofluorobenzene surrogate recovery control limits are 50 - 150 %.
Volatile Total Petroleum Hydrocarbons are quantitated as Gasoline Range Organics (toluene - dodecane).
Analytes reported as N.D. were not detected above the stated Reporting Limit. The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: WTPH-G
Units: mg/kg (ppm)

Analyst: B. Christlieb, F. Shino
Analyzed: Apr 30, 1995
Reported: May 1, 1995

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Gasoline

Spike Conc. Added:	5.0
Spike Result:	4.1
% Recovery:	82
Upper Control Limit %:	115
Lower Control Limit %:	33

PRECISION ASSESSMENT
Sample Duplicate

Gasoline Range Hydrocarbons

Sample Number:	B504441-01
Original Result:	38
Duplicate Result:	30
Relative % Difference:	22
Maximum RPD:	67

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

% Recovery: $\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 8020	Analyzed:	Apr 30, 1995
Attention: Stan Haskins	First Sample #:	B504441-01	Reported:	May 1, 1995

BTEX DISTINCTION

Sample Number	Sample Description	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
B504441-01	SPA-1	N.D.	N.D.	N.D.	0.38	93
B504441-02	SPA-2	N.D.	0.056	0.11	0.72	91
B504441-03	SPA-3	N.D.	0.061	0.087	0.60	90
B504441-04	SPB-1	N.D.	N.D.	0.056	0.18	92
B504441-05	SPB-2	N.D.	N.D.	N.D.	N.D.	92
B504441-06	SPB-3	N.D.	N.D.	N.D.	N.D.	90
BLK043095	Method Blank	N.D.	N.D.	N.D.	N.D.	92
Reporting Limits:		**0.050**	**0.050**	**0.050**	**0.10**	

4-Bromofluorobenzene surrogate recovery control limits are 34 - 166 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
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Groundwater Technology Inc.	Client Project ID: Southland #23929	Analyst: B. Christlieb, F. Shino
19033 W. Valley HWY, D-104	Sample Matrix: Soil	
Kent, WA 98032	Analysis Method: EPA 8020	
Attention: Stan Haskins	Units: mg/kg (ppm)	Analyzed: Apr 30, 1995
	QC Sample #: B504441-08	Reported: May 1, 1995

MATRIX SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Sample Result:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.57	0.57	0.57	1.72
Spike Result:	0.45	0.43	0.41	1.25
Spike % Recovery:	79%	75%	72%	73%
Spike Dup. Result:	0.47	0.45	0.43	1.31
Spike Duplicate % Recovery:	82%	79%	75%	76%
Upper Control Limit %:	111	118	120	128
Lower Control Limit %:	59	55	61	55
Relative % Difference:	4.3%	4.5%	4.8%	4.7%
Maximum RPD:	17	16	17	17

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

$$\%\ \text{Recovery:} = \frac{\text{Spike Result - Sample Result}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Spike Result - Spike Dup. Result}}{(\text{Spike Result + Spike Dup. Result}) / 2} \times 100$$

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Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 7420	Digested:	Apr 28, 1995
Attention: Stan Haskins	First Sample #:	B504441-01	Analyzed:	Apr 28, 1995
			Reported:	Apr 28, 1995

METALS ANALYSIS FOR: TOTAL LEAD

Sample Number	Sample Description	Reporting Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
B504441-01	SPA-1	10	N.D.
B504441-02	SPA-2	10	N.D.
B504441-03	SPA-3	10	N.D.
B504441-04	SPB-1	10	N.D.
B504441-05	SPB-2	10	N.D.
B504441-06	SPB-3	10	N.D.
BLK042895	Method Blank	10	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix : Soil
Units: mg/kg (ppm)

Analyst: A. Shephard
K. Gendron

Digested: Apr 28, 1995
Reported: Apr 28, 1995

METALS QUALITY CONTROL DATA REPORT

ANALYTE	Lead
EPA Method:	7420
Date Analyzed:	Apr 28, 1995

ACCURACY ASSESSMENT

LCS Spike Conc. Added:	50
LCS Spike Result:	49
LCS Spike % Recovery:	98
Upper Control Limit:	130
Lower Control Limit:	70
Matrix Spike Sample #:	B504441-01
Matrix Spike % Recovery:	104

PRECISION ASSESSMENT

Sample #:	B504441-01
Original:	N.D.
Duplicate:	N.D.
Relative % Difference:	RPD values are not reported at sample concentration levels <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Lab Control Sample % Recovery: $\frac{\text{Conc. of L.C.S.}}{\text{L.C.S. Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	WTPH-G	Analyzed:	May 2-3, 1995
Attention: Stan Haskins	First Sample #:	B504441-07	Reported:	May 5, 1995

TOTAL PETROLEUM HYDROCARBONS-GASOLINE RANGE

Sample Number	Sample Description	Sample Result mg/kg (ppm)	Surrogate Recovery %
B504441-07	NTP-B	N.D.	92
B504441-08	NTP-E	N.D.	91
B504441-09	NTP-W	N.D.	100
BLK050295	Method Blank	N.D.	104

Reporting Limits	1.0

4-Bromofluorobenzene surrogate recovery control limits are 50 - 150 %.
Volatile Total Petroleum Hydrocarbons are quantitated as Gasoline Range Organics (toluene - dodecane).
Analytes reported as N.D. were not detected above the stated Reporting Limit. The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: WTPH-G
Units: mg/kg (ppm)

Analyst: B. Christlieb
F. Shino

Analyzed: May 2-3, 1995
Reported: May 5, 1995

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Gasoline

Spike Conc. Added:	5.0
Spike Result:	3.6
% Recovery:	72
Upper Control Limit %:	115
Lower Control Limit %:	33

PRECISION ASSESSMENT
Sample Duplicate

Gasoline Range Hydrocarbons

Sample Number:	B504202-06
Original Result:	N.D.
Duplicate Result:	N.D.
Relative % Difference:	Relative Percent Difference values are not reported at sample concentration levels less than 10 times the Detection Limit.
Maximum RPD:	67

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

$$\% \text{ Recovery:} \quad \frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$$

$$\text{Relative \% Difference:} \quad \frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY; D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 8020	Analyzed:	May 2-3, 1995
Attention: Stan Haskins	First Sample #:	B504441-07	Reported:	May 5, 1995

BTEX DISTINCTION

Sample Number	Sample Description	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)	Surrogate Recovery %
B504441-07	NTP-B	N.D.	N.D.	N.D.	N.D.	93
B504441-08	NTP-E	N.D.	N.D.	N.D.	N.D.	99
B504441-09	NTP-W	N.D.	N.D.	N.D.	N.D.	100
BLK050295	Method Blank	N.D.	N.D.	N.D.	N.D.	100
Reporting Limits:		**0.050**	**0.050**	**0.050**	**0.10**	

4-Bromofluorobenzene surrogate recovery control limits are 34 - 166 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL, Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix: Soil
Analysis Method: EPA 8020
Units: mg/kg (ppm)
QC Sample #: B504444-21

Analyst: B. Christlieb, F. Shino
Analyzed: May 2-3, 1995
Reported: May 5, 1995

MATRIX SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl Benzene	Xylenes
Sample Result:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	0.70	0.70	0.70	2.12
Spike Result:	0.46	0.46	0.48	1.55
Spike % Recovery:	66%	66%	69%	73%
Spike Dup. Result:	0.50	0.50	0.52	1.70
Spike Duplicate % Recovery:	71%	71%	74%	80%
Upper Control Limit %:	111	118	120	128
Lower Control Limit %:	59	55	61	55
Relative % Difference:	8.7%	8.7%	8.0%	9.7%
Maximum RPD:	17	16	17	17

NORTH CREEK ANALYTICAL, Inc.

Shannon Stowell
Project Manager

$$\%\ \text{Recovery:} = \frac{\text{Spike Result - Sample Result}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Spike Result - Spike Dup. Result}}{(\text{Spike Result + Spike Dup. Result}) / 2} \times 100$$

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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

Groundwater Technology Inc.	Client Project ID:	Southland #23929	Sampled:	Apr 27, 1995
19033 W. Valley HWY, D-104	Sample Matrix:	Soil	Received:	Apr 27, 1995
Kent, WA 98032	Analysis Method:	EPA 7420	Digested:	Apr 28, 1995
Attention: Stan Haskins	First Sample #:	B504441-07	Analyzed:	Apr 28, 1995
			Reported:	May 5, 1995

METALS ANALYSIS FOR: TOTAL LEAD

Sample Number	Sample Description	Reporting Limit mg/kg (ppm)	Sample Result mg/kg (ppm)
B504441-07	NTP-B	10	N.D.
B504441-08	NTP-E	10	N.D.
B504441-09	NTP-W	10	N.D.
BLK042895	Method Blank	10	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.
The results reported above are on a dry weight basis.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

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Groundwater Technology Inc.
19033 W. Valley HWY, D-104
Kent, WA 98032
Attention: Stan Haskins

Client Project ID: Southland #23929
Sample Matrix : Soil
Units: mg/kg (ppm)

Analyst: A. Shephard
K. Gendron

Digested: Apr 28, 1995
Reported: May 5, 1995

METALS QUALITY CONTROL DATA REPORT

ANALYTE

Lead

EPA Method: 7420
Date Analyzed: Apr 28, 1995

ACCURACY ASSESSMENT

LCS Spike Conc. Added: 50

LCS Spike Result: 49

LCS Spike % Recovery: 98

Upper Control Limit: 130

Lower Control Limit: 70

Matrix Spike Sample #: B504441-01

Matrix Spike % Recovery: 104

PRECISION ASSESSMENT

Sample #: B504441-01

Original: N.D.

Duplicate: N.D.

Relative % Difference: RPD values are not reported at sample concentration levels <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

Lab Control Sample % Recovery:	Conc. of L.C.S. / L.C.S. Spike Conc. Added	x 100
Relative % Difference:	Original Result - Duplicate Result / (Original Result + Duplicate Result) / 2	x 100

NCA
NORTH CREEK ANALYTICAL

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9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

CLIENT: Groundwater Technology Inc.
ADDRESS: 19033 West Valley Hwy # D-104
Kent WA 98032
PHONE: 251-5441 FAX: 251-8452
PROJECT NAME: STLD/17922 Bothell-Everett Hwy
PROJECT NUMBER: 020-00127.6504
SAMPLED BY: Steve Hartman

REPORT TO: Stan Haskins
BILLING TO:
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 | 5 | 3 | 2 | 1
(Please Select One)

Fuels & Hydrocarbon Analyses: 5 | 3 | 2 | 1

** Turnaround Requests less than standard will incur Rush Charges.*

FAX RESULTS BY :

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	Analysis Request: BTEX, TPHG	Lead	COMMENTS & PRESERVATIVES USED	NCA SAMPLE NUMBER
1. SPA-1	4/27 1440	S	1	X	X	24 hr. TAT	504441-01
2. SPA-2	1450						02
3. SPA-3	1455						03
4. SPB-1	4 1615						04
5. SPB-2	4 1615						05
6. SPB-3	4 1615						06
7. NTP-B	4 1610					5 day TAT	07
8. NTP-E	1435						08
9. NTP-W	1505						09
10.							

RELINQUISHED BY: Steven Hartman DATE: 4/27/95
PRINT NAME: Steve Hartman FIRM: GTI TIME: 16:00

RECEIVED BY: Dana Heim DATE: 4/27/95
PRINT NAME: DANA HEIM FIRM: NCA TIME: 1600

RELINQUISHED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1

COC Rev 6, 10/94

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

SOUTHLAND 23929 PROJECT
Bothell, Washington
Groundwater Technology, Inc.

Gasoline (WTPH-G) & BTEX (EPA 8020) Analyses for Soils

Sample Number	Date Analyzed	Benzene mg/kg	Toluene mg/kg	Eth Benz mg/kg	Xylene mg/kg	Gasoline mg/kg	Recovery (%)
Meth. Blank	05/03/95	nd	nd	nd	nd	nd	94
SI-4-16'	05/03/95	nd	nd	nd	nd	nd	92
Detection Limits		0.05	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interferences prevent determination.

TEG ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

CLIENT: Southland (GTI)
ADDRESS: 19033 W. Valley Hwy Suite D-114 Kent WA 98032
PHONE: (206) 251-5441 FAX: (206) 251-8452
CLIENT PROJECT #: 02160002?? PROJECT MANAGER: [illegible]

DATE: [illegible] PAGE 1 OF 1
TEG PROJECT #: [illegible]
LOCATION: [illegible]
COLLECTOR: DATE OF COLLECTION:

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES:	Total Number Of Containers	Laboratory Note Number
	SI-4-16	16'	8:30	S	8 oz		X				X												

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	[illegible]	[signature]
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY NOTES:

WHITE COPY - Original (Accompanies Samples) YELLOW COPY - Collector PINK COPY - Project Manager

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST INC.

SOUTHLAND 23929 PROJECT
Bothell, Washington
Groundwater Technology, Inc.

Gasoline (WTPH-G) & BTEX (EPA 8020) Analyses for Soils

Sample Number	Date Analyzed	Benzene mg/kg	Toluene mg/kg	Eth Benz mg/kg	Xylene mg/kg	Gasoline mg/kg	Recovery (%)
Meth. Blank	05/02/95	nd	nd	nd	nd	nd	97
SI-1-15'	05/02/95	0.19	0.75	4.23	34.6	859	107
SI-2-10'	05/02/95	nd	nd	nd	0.32	nd	93
SI-3-10'	05/02/95	nd	nd	nd	0.07	nd	96
SI-3-10'-Dup	05/02/95	nd	nd	nd	0.10	nd	105
Detection Limits		0.05	0.05	0.05	0.05	10	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interferences prevent determination.

teg

ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

CLIENT: Groundwater Technology, Inc.

ADDRESS: 19033 [illegible]

PHONE: [illegible] FAX: [illegible]

CLIENT PROJECT #: [illegible] PROJECT MANAGER: [illegible]

DATE: 5/12/95 PAGE ___ OF ___

TEG PROJECT #: [illegible]

LOCATION: [illegible]

COLLECTOR: _____ DATE OF COLLECTION: _____

Boring or Well Number	Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES:	Total Number Of Containers	Laboratory Note Number
ST-1	B	15'	9:45	Soil	8oz	X				X												1	
ST-2		10'	9:50	Soil	"	X				X												1	
ST-3		10'	9:55	Soil	"	X				X												1	

RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature)

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