200550/2241 Riverside Property LUST# 2241 King

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DEPT. OF ECOLOGY

Release 2241 Riverside Property Bothell

GROUNDWATER TECHNOLOGY
Groundwater Technology, Inc.
19033 W. Valley Highway, Suite D-104, Kent, WA 98032

September 8, 1993

9/13/94 DEPARTMENT OF ECOLOGY
NWRO/TCP TANK UNIT
INC # 2241
INTERIM CLEANUP REPORT ☑
SITE CHARACTERIZATION ☐
FINAL CLEANUP REPORT ☐
OTHER ☐
AFFECTED MEDIA: SOIL ☑
OTHER GW ☑
INSPECTOR (INIT.) RN DATE 9/30/94

Mr. D. Mark Wells, P.E.
Texaco Environmental Services
3400 188th Street SW, Suite 630
Lynnwood, WA 98037

RE: **Riverside Project Activity Update**
Plan of Action Completion
SR 522 and NE 180th Street

Dear Mr Wells:

This letter contains a Riverside project update covering the conclusion of activities outlined in the Plan of Action (POA) prepared by Groundwater Technology, Inc. (GT) dated June, 1992. The POA delineated several work steps to address the site conditions as they existed at that time. Each of the major POA tasks is listed below along with the completion date and a documentation reference. A review of the project noted several tasks which were completed but were not formally documented in correspondence. This letter documents those activities.

TASK	COMPLETION TIMEFRAME	METHOD DOCUMENTED
Soil stockpile characterization	July, 1992	Letter dated September 1, 1992.
Excavation water sampling and disposal	July, 1992	Letter dated September 1, 1992
Excavation sediment characterization	July, 1992	Letter dated September 1, 1992
Excavation sediment removal	September, 1992	This letter
Excavation Limits	July and September, 1992	This letter
Soil treatment (Biocell construction)	October, 1992	This letter
Biocell operation	October,1992 - April, 1993	Letters dated December 11, 1992 February 11, 1993 April 28, 1993
Biocell decommissioning	June, 1993	This letter
Groundwater assessment	July, 1992	Report dated September 18, 1992
Groundwater monitoring	February, 1993	Report dated September 3, 1993

Independent Action Report Update

Site Name: Riverside Property

Inc. #: 2241 Date of Report: 9/8/93

County: King Date Report Rec'd: 11/1/93

Reviewed by: R. Nye

Comments (please include: free prod., tank info., media, contaminant migration, GW conc. trends, PCS treated/fate?):

This report documents the completion of on-site remediation of 3,000 cu-yds of Class III PCS. The remediation consisted of construction of a "Biocell" where aeration piping was installed within the pcs to enhance bioremediation. The "Biocell" began operating 11/92 and operated for 5 months. At this time it was judged the Bioremediation was complete. The remediated PCS was compacted into the former UST excavation, and some was spread thinly over the site and covered with gravel.

Excavation Sediment Removal

The characterization of sediment and soil on the bottom of the former excavation delineated several areas which exceeded Washington Department of Ecology (WDOE) Model Toxics Control Act (MTCA) Method A Compliance Cleanup Levels (CCL) (Letter dated September 1, 1992). The delineated sediment and soil were removed from the excavation on September 3, 1992 by A.L. Sleister and Sons Construction, Inc. This work was supervised by a GT geologist. A mobile laboratory, Transglobal Environmental Geosciences (TEG) was utilized to analyze soil samples as excavation progressed. Approximately 200 cubic yards (yds) of petroleum contaminated soil (PCS) were removed from the bottom of the pit and stockpiled on plastic north of the open excavation. Seven confirmation soil samples were collected from the extent of the new excavation and analyzed by TEG for benzene, toluene, ethylbenzene, xylenes (BTEX), total petroleum hydrocarbons-as-gasoline (TPH-G), TPH-as-diesel (TPH-D), and TPH. The analytical methods used were EPA Method 8020 for BTEX, Washington Method WTPH-G and WTPH-D for TPH-G and TPH-D and Washington Method WTPH-418.1 for TPH.

The excavation commenced in the southeast corner of the pit where sample 9/3-1 was collected. This sample exceeded the CCL for TPH, therefore, the excavation was continued and samples 9/3-2, 3, and 4 were collected. The hydrocarbon concentrations reported in these samples were below CCLs. The excavation continued north, removing soil until the entire area previously defined as PCS was removed, as confirmed by samples 9/3-5 and 9/3-6. A drawing with the sample locations and former area of PCS is attached as Figure 1. Sample results are listed in Table 1. Complete analytical reports are attached.

TABLE 1
SOIL SAMPLE RESULTS
EXCAVATION SOIL AND SEDIMENT
Results in milligrams per Kilogram

Sample	Date	Benzene	Toluene	Ethyl-benzene	Xylene	TPH-G	TPH-D	TPH
MDL		0.05	0.05	0.05	0.05	10	10	10
9/3-1	9/3/93	ND	ND	ND	ND	ND	88	**350**
9/3-2	9/3/93	ND	ND	ND	ND	ND	ND	88
9/3-3	9/3/93	ND	ND	ND	ND	ND	ND	42
9/3-4	9/3/93	ND	ND	ND	ND	ND	ND	ND
9/3-5	9/3/93	ND	ND	ND	ND	ND	ND	ND
9/3-6	9/3/93	ND	ND	ND	ND	ND	ND	118
CCL		0.5	40	20	20	100	200	200

MDL - Method detection limit ND - Not detected at the MDL
CCL - WDOE MTCA Method A compliance cleanup level

EXCAVATION LIMITS

The POA called for one soil sample to be collected at the excavation extent on the north side of the pit. That sample, SW-7/31, was collected during the soil screening and characterization phase of the project in July, 1992. Sample SW-7/31 was collected from the sidewall of the excavation at a depth of approximately three feet. It was analyzed the same day by TEG at the site. The reported concentrations were non-detect for the BTEX, TPH-G, TPH-D, and TPH. A copy of the analytical report is attached.

BIOCELL CONSTRUCTION

A biocell was designed (Figure 2) that could be built within the confines of the former excavation, thus minimizing the amount of space required for the project. The excavation was pumped as dry as possible on October 6, 1992 and 500 yds of four inch rock was placed and compacted in the excavation as a base for future compaction. On top of the rock, 700 yds of fill was imported to the site and compacted in the excavation. These materials brought the grade within the pit to approximately five to six feet below the surrounding ground surface. This grade was also approximately one foot above the observed water level in the pit. The Class 2 soil previously stockpiled and analyzed in July, 1992 was compacted in the excavation on top of the imported material. The depth of the excavation was then approximately three to four feet below the surrounding ground surface. The biocell was then constructed of approximately 3,000 yds of non-compacted Class 3 soil as shown in Figure 2. The top of the finished cell was approximately three to four feet above the surrounding ground surface. This entire process of backfilling the excavation and constructing the biocell took approximately two weeks. The treatment equipment was installed in November, 1992 (refer to letter dated December 11, 1992) and the biocell commenced operation on November 20, 1992.

BIOCELL DECOMMISSIONING

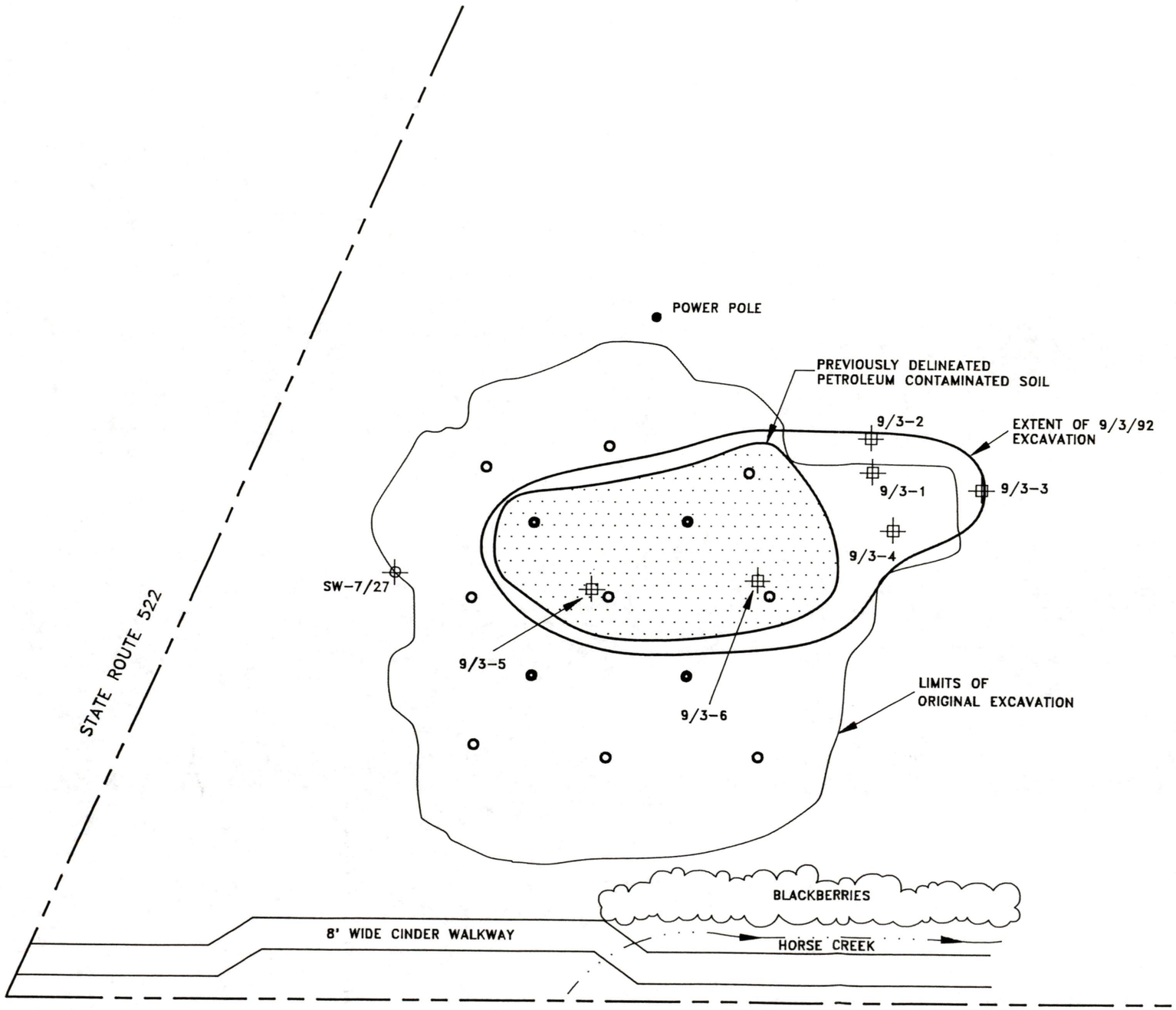
After operating the biocell for approximately five months, the bioremediation activity appeared to be complete (letter dated April 28, 1993), therefore the cell was decommissioned. The biocell was decommissioned by removing all of the treated soil from the excavation, down to the previously compacted level. This material was stockpiled adjacent to the excavation. After all of the soil was removed it was returned to the excavation and compacted in lifts. Approximately 1,200 yds of treated soil remained once the excavation was filled. This excess material was leveled and compacted on top of the former excavation location and the ground surface around it. Approximately 400 yds of one to two inch crushed rock were imported to the site and spread evenly across the area.

This update letter and the previously submitted reports and letters, document the POA activities completed over the last thirteen months at the Riverside property. Thank you for the opportunity to assist Texaco at this site. Please contact me if you have any questions.

Sincerely,
GROUNDWATER TECHNOLOGY, INC.

Stan Haskins, R.G.
Lead Geologist

PR
Attachments



APPROXIMATE LOCATION
NE 180TH STREET

LEGEND

- BOTTOM SOIL SAMPLE PREVIOUSLY COLLECTED
- SEDIMENT SAMPLE PREVIOUSLY COLLECTED
- SIDEWALL SAMPLE (7/27/92)
- SOIL SAMPLE (9/3/92)

N

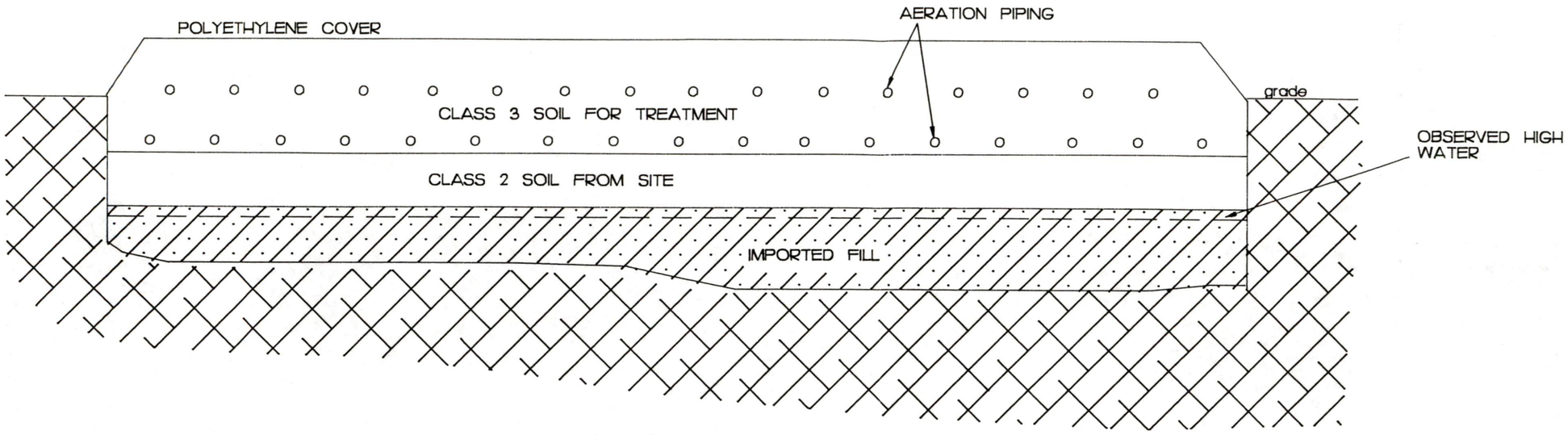
0 30 60
SCALE FEET

GROUNDWATER TECHNOLOGY
19033 W VALLEY HWY, D-104
KENT, WA
(206) 251-5441

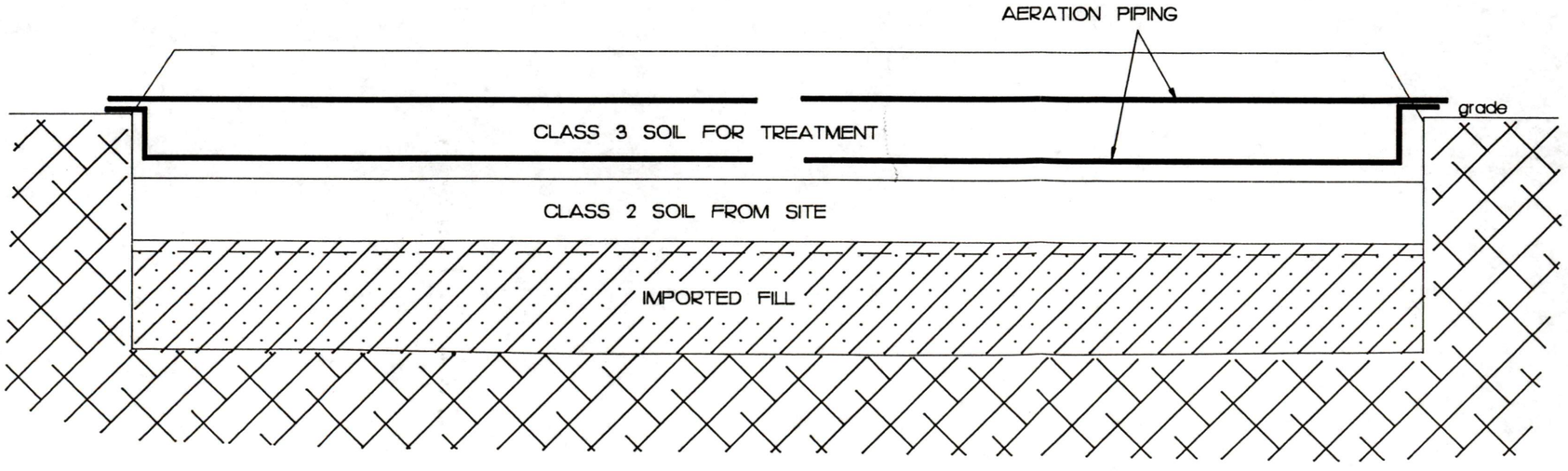
REV. NO.:	DATE:	ACAD FILE:
1	5/20/92	TRMI\RIVERBM

SITE PLAN

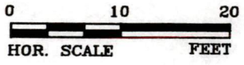
CLIENT: TEXACO ENVIRONMENTAL SERVICES			PM
LOCATION: RIVERSIDE PROPERTY HIGHWAY 522 AND 527 BOTHELL, WASHINGTON			PE/RG
DESIGNED: SH	DETAILED: CSY	PROJECT NO.: 02060	FIGURE: 1



LOOKING NORTH



LOOKING WEST



GROUNDWATER TECHNOLOGY
19033 W. VALLEY HWY.
SUITE D-104
KENT, WA
(206) 251-5441

REV. NO.:	DATE:	ACAD FILE:
1	9/10/92	TRMI\RIVSOLPL

EXCAVATION SECTIONS WITH TREATMENT CELL

CLIENT: TEXACO ENVIRONMENTAL SERVICES	PM
LOCATION: RIVERSIDE PROPERTY BOTHELL, WASHINGTON	PE/RG
DESIGNED: SH / DETAILED: / PROJECT NO.: 020602805	FIGURE: 2

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

7110 38th Drive SE
Lacey, Washington 98503

Mobile Environmental Laboratories

Telephone: 206-459-4670
Fax: 206-459-3432

Stan Haskins
Groundwater Technology, Inc.
19033 West Valley Hwy
Suite D104
Kent, WA 98032

September 4, 1992

Dear Mr. Haskins:

Please find enclosed the data reports for the on-site soil analyses from the Riverside Texaco Site, Texaco Project No. 51 DMW, Bothell, WA,. There were a total of 6 soil samples analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH) by EPA Method 418.1 (WTPH-418.1), and the same 6 samples were analyzed for Gasoline and Diesel by Mod. EPA Method 8015/WTPH-G, WTPH-D) and for Volatile Aromatic Hydrocarbons (BTEX) by EPA Method 8020. The work was conducted on-site on September 3rd.

The results of the analyses, reported on a dry weight basis, are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice that covers this work has been sent to Mark Wells at Texaco, along with a copy of this report.

TEG Northwest appreciates the opportunity to have provided analytical services to Groundwater Technology and Texaco for this project. If you have any further questions about the data report, please give me a call. Once again, it was a pleasure working with you, and I am looking forward to the opportunity to work together again.

Sincerely,

Michael A. Korosec

Michael A. Korosec
(President)

QA/QC FOR ANALYTICAL METHODS

GENERAL

The TEG Northwest Mobile Laboratory quality assurance and quality control (QA/QC) procedures are conducted following the guidelines and objectives which meet or exceed certification/accreditation requirements of California DOHS, Washington DOE, and Oregon DEQ. The Quality Control Program is a consistent set of procedures which assures data quality through the use of appropriate blanks, replicate analyses, surrogate spikes, and matrix spikes, and with the use of reference standards that meet or exceed EPA standards.

Because analyses are taking place on-site with the mobile lab, the need for Field Blanks or Travel/Trip Blanks is eliminated. If there is going to be a delay before sample preparation for analysis, the sample is stored at 4° C.

ANALYTICAL METHODS

TEG Northwest Mobile Labs use analytical methodologies which are in conformity with U. S. Environmental Protection Agency (EPA), Washington DOE, and Oregon DEQ methodologies. When necessary and appropriate due to the nature or composition of the sample, TEG may use variations of the methods which are consistent with recognized standards or variations used by the industry and government laboratories.

Purgeable Volatile Aromatics (BTEX, EPA 602/8020)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day if more than 10 samples have been run. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. At least 1 method blank is run per day.

TPH-Gasoline, TPH Diesel
(Gasoline and/or Diesel, Modified EPA 8015, WTPH-G and WTPH-D)

A blank and a calibration standard are run at the beginning of the day. The standard must be within 15% of the continuing calibration curve value. The standard is rerun at the end of the day. All samples are prepared with a surrogate spike, and the recovery must be between 65% and 135%. A duplicate sample is run at a rate of 1 per 10 samples (or a matrix spike sample is prepared and analyzed). At least 1 method blank is run per 10 samples analyzed.

TPH-Heavy Fuel Hydrocarbons
(EPA 418.1, WTPH-418.1)

Calibration plot values must produce a best fit line, with known values deviating from the plot by less than 10%. Prior to sample run, a blank, a calibration standard, and a method blank are run. One blank is run per 10 samples prepared. A sample duplicate is prepared for 10 percent of the samples to be run per day.

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology/TES Project # 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH	(mg/kg)
Blank	09/03/92	nd	
9/3-1	09/03/92	350	
9/3-2	09/03/92	88	
9/3-3	09/03/92	42	
9/3-4	09/03/92	nd	
9/3-5	09/03/92	nd	
9/3-6	09/03/92	118	
9/3-6 Dup	09/03/92	124	

Minimum Detection Limit equals 10 mg/kg

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology/TES Project # 51DMW

Gasoline and Diesel (EPA 8015/WTPHG, WTPHD) & 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)	Diesel (mg/kg)	Recov. (%)
Meth. Blank	09/03/92	nd	nd	nd	nd	nd	nd	--
9/3-1	09/03/92	nd	nd	nd	nd	nd	88	92
9/3-2	09/03/92	nd	nd	nd	nd	nd	nd	89
9/3-3	09/03/92	nd	nd	nd	nd	nd	nd	94
9/3-4	09/03/92	nd	nd	nd	nd	nd	nd	91
9/3-5	09/03/92	nd	nd	nd	nd	nd	nd	96
9/3-6	09/03/92	nd	nd	nd	nd	nd	nd	99
9/3-6 (Dup)	09/03/92	nd	nd	nd	nd	nd	nd	93
DETECTION LIMITS		0.05	0.05	0.05	0.05	10.00	10.00	

"nd" Indicates NOT DETECTED at the Listed Detection Limits
"int" Indicates that INTERFERENCES prevent determination
"Recovery" based on detection of Surrogate Spike (Chlorobenzene at 1.0 mg/kg).

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

COC-#1

CLIENT: Groundwater Technology Inc

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER:

DATE: 9/3/92 PAGE 1 OF

TEG PROJECT #: NW920903

LOCATION: Riverside Texaco Bothell WA

COLLECTOR: Stan Hoskins DATE OF COLLECTION: 9/3/92

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
9/3-1	6'	10:00	Soil	4oz glass Jar	X			X	X	X										Sheen on water	1	
9/3-2	6'	10:35	"	"	X			X	X	X											1	
9/3-3	6'	10:40	"	"	X			X	X	X											1	
9/3-4	7'	10:43	"	"	X			X	X	X											1	
9/3-5	7'	11:30	"	"	X			X	X	X											1	
9/3-6	7'	11:35	"	"	X			X	X	X											1	

RELINQUISHED BY: (Signature) DATE/TIME 9/3/92 1630 RECEIVED BY: (Signature) DATE/TIME 9/3/92

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

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

7110 38th Drive SE
Lacey, Washington 98503

Mobile Environmental Laboratory

Telephone: 206-459-4670
Fax: 206-459-3432

August 2, 1992

Stan Haskins
Groundwater Technology, Inc.
19033 West Valley Hwy
Suite D104
Kent, WA 98032

Dear Mr. Haskins:

Please find enclosed the data reports for the soil analyses from the Riverside Texaco Site, Texaco Project No. 51 DMW, Bothell, WA. There were a total of 96 soil samples analyzed for Total Recoverable Petroleum Hydrocarbons (TRPH) by EPA Method 418.1 (WTPH-418.1), and 19 soil samples were analyzed for Gasoline and Diesel by Mod. EPA Method 8015/WTPH-G, WTPH-D) and for Volatile Aromatic Hydrocarbons (BTEX) by EPA Method 8020. The work was conducted on-site from July 27th through July 31st.

The results of the analyses, reported on a dry weight basis, are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice that covers this work has been sent to Mark Wells at Texaco, along with a copy of this report.

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(President)

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(BTEX, EPA 602/8020)

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(Gasoline and/or Diesel, Modified EPA 8015, WTPH-G and WTPH-D)

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(EPA 418.1, WTPH-418.1)

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TRANSGLOBAL ENVIRONMENTAL GEOSCIENCES NORTHWEST, INC.

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

Gasoline and Diesel (EPA 8015/WTPHG, WTPHD) & 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)	Diesel (mg/kg)	Recov. (%)
Meth. Blank	07/28/92	nd	nd	nd	nd	nd	nd	--
C-1	07/28/92	nd	0.10	nd	nd	nd	nd	87
C-2	07/28/92	nd	0.12	nd	nd	nd	nd	89
C-3	07/28/92	nd	nd	nd	nd	nd	nd	94
C-4	07/28/92	nd	nd	nd	nd	nd	nd	91
C-5	07/28/92	nd	nd	nd	nd	nd	nd	90
C-6	07/28/92	nd	nd	nd	nd	nd	nd	97
C-6 (Dup)	07/28/92	nd	nd	nd	nd	nd	nd	95
Blank	07/29/92	nd	nd	nd	nd	nd	nd	--
7/29-4	07/29/92	0.18	0.20	0.16	0.60	90	350	--
7/27-7	07/29/92	nd	0.44	nd	nd	13	800	--
7/28-6	07/29/92	nd	nd	nd	nd	64	972	--
7/28-20	07/29/92	0.96	0.96	2.64	2.00	85	424	--
Blank	07/30/92	nd	nd	nd	nd	nd	nd	--
7/30-3	07/30/92	nd	nd	nd	nd	nd	98	92
7/30-6	07/30/92	0.14	0.16	0.60	0.60	17	123	97
7/30-9	07/30/92	0.10	0.14	0.28	0.82	24	118	87
7/30-12	07/30/92	nd	0.06	0.08	0.14	nd	53	99
7/30-15	07/30/92	nd	nd	nd	nd	nd	57	93
Blank	07/31/92	nd	nd	nd	nd	nd	nd	--
7/31-2	07/31/92	nd	0.10	0.80	0.24	15	78	86
7/31-4	07/31/92	nd	0.08	0.30	0.63	14	93	87
7/31-11	07/31/92	nd	nd	nd	nd	nd	nd	96
SW-7/31	07/31/92	nd	nd	nd	nd	nd	nd	95
DETECTION LIMITS		0.05	0.05	0.05	0.05	10.00	10.00	

"nd" Indicates NOT DETECTED at the Listed Detection Limits
"int" Indicates that INTERFERENCES prevent determination

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH (mg/kg)
Blank	07/27/92	nd
C-1	07/27/92	152
C-1 (Dup)	07/27/92	103
C-2	07/27/92	155
C-3	07/27/92	80
C-4	07/27/92	88
7/27-1	07/27/92	1332
7/27-2	07/27/92	838
7/27-3	07/27/92	526
7/27-4	07/27/92	890
7/27-5	07/27/92	2834
7/27-6	07/27/92	1722
7/27-7	07/27/92	2130
7/27-8	07/27/92	972
Blank	07/27/92	nd

MDL = 10 mg/kg

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH (mg/kg)
Blank	07/28/92	nd
C-5	07/28/92	157
C-5 (Dup)	07/28/92	150
C-6	07/28/92	137
7/28-1	07/28/92	1400
7/28-2	07/28/92	1686
7/28-3	07/28/92	1344
7/28-4	07/28/92	1724
7/28-5	07/28/92	2140
7/28-6	07/28/92	2975
7/28-7	07/28/92	1722
7/28-8	07/28/92	1088
7/28-9	07/28/92	1934
7/28-10	07/28/92	821
7/28-11	07/28/92	974
7/28-12	07/28/92	1155
7/28-13	07/28/92	592
7/28-14	07/28/92	1338
7/28-15	07/28/92	1416
7/28-15 (Dup)	07/28/92	1442
7/28-16	07/28/92	1222
7/28-17	07/28/92	1418
7/28-18	07/28/92	1728
7/28-19	07/28/92	1794
7/28-20	07/28/92	1740
7/28-21	07/28/92	1618
7/28-22	07/28/92	1492
7/28-23	07/28/92	1515
7/28-24	07/28/92	1517

MDL = 10 mg/kg

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH (mg/kg)
Blank	07/29/92	nd
7/29-1	07/29/92	1243
7/29-2	07/29/92	1962
7/29-3	07/29/92	1299
7/29-4	07/29/92	1856
7/29-5	07/29/92	1535
7/29-6	07/29/92	1093
7/29-7	07/29/92	917
7/29-8	07/29/92	1380
7/29-9	07/29/92	1433
7/29-10	07/29/92	924
7/29-11	07/29/92	844
7/29-12	07/29/92	1563
7/29-13	07/29/92	2125
7/29-14	07/29/92	4155
7/29-14 (Dup)	07/29/92	4650
7/29-15	07/29/92	1534
7/29-16	07/29/92	1344
7/29-17	07/29/92	1312
7/29-18	07/29/92	1792
7/29-19	07/29/92	1523
7/29-19 (Dup)	07/29/92	1488
7/29-20	07/29/92	770
7/29-21	07/29/92	840
7/29-22	07/29/92	616
7/29-23	07/29/92	484

MDL = 10 mg/kg

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH (mg/kg)
Blank	07/30/92	nd
7/29-24	07/30/92	1422
7/29-25	07/30/92	761
7/29-25 (Dup)	07/30/92	693
7/30-1	07/30/92	627
7/30-2	07/30/92	554
7/30-3	07/30/92	589
7/30-4	07/30/92	810
7/30-5	07/30/92	1176
7/30-6	07/30/92	715
7/30-7	07/30/92	1140
7/30-8	07/30/92	963
7/30-9	07/30/92	1450
7/30-10	07/30/92	335
7/30-11	07/30/92	557
7/30-12	07/30/92	450
7/30-13	07/30/92	256
7/30-14	07/30/92	259
7/30-15	07/30/92	258
7/30-16	07/30/92	205
7/30-17	07/30/92	372
7/30-18	07/30/92	203
7/30-19	07/30/92	208
7/30-19 (Dup)	07/30/92	215

MDL = 10 mg/kg

RIVERSIDE TEXACO
Bothell, WA
Groundwater Technology Inc.
Texaco Project No. 51DMW

EPA 418.1 Analysis for Soil (WTPH 418.1)

Sample	Date	TRPH (mg/kg)
Blank	07/30/92	nd
7/30-20	07/31/92	232
7/31-1	07/31/92	341
7/31-2	07/31/92	316
7/31-3	07/31/92	520
7/31-4	07/31/92	249
7/31-4 (Dup)	07/31/92	259
7/31-5	07/31/92	259
7/31-6	07/31/92	442
7/31-7	07/31/92	273
7/31-8	07/31/92	156
7/31-9	07/31/92	422
7/31-10	07/31/92	76
7/31-10 (Dup)	07/31/92	97
7/31-11	07/31/92	47
7/31-12	07/31/92	nd
SW-7/31	07/31/92	nd

MDL = 10 mg/kg

teg

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

(1)

CLIENT: Groundwater Technology Inc / Texaco

ADDRESS:

PHONE: 206-251-5441 FAX: 206-251-8452

CLIENT PROJECT #: 51 DMW Texaco PROJECT MANAGER: Stan Haskins Mark Wells

DATE: 7/27/92 PAGE 1 OF

TEG PROJECT #: NW920727

LOCATION: Riverside / Bothell, Wa

COLLECTOR: Stan Haskins. DATE OF COLLECTION: 7/27

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)	PNA 610/8100	PEST/PCBs 8080	HEX CHROME	ORGANIC LEAD	TOTAL LEAD	pH	ASBESTOS	FIELD NOTES	Total Number Of Containers	Laboratory Note Number
C1		9:37	Soil	Brass Tube	X			X	X											1	
7/27-1		10:30	Soil	~~Brass~~ 4oz glass				X												1	
7/27-2		11:~~40~~	Soil	4 oz				X												1	
7/27-3		11:25	Soil	4 oz				X												1	
C2		11:40	Soil	4oz	X			X	X											1	
7/27-4		11:55	Soil	4oz				X												1	
7/27-5		12:45	Soil	4oz				X												1	
~~7/27~~ 7/27-6		13:15	Soil	4oz				X												1	
C3		13:40	Soil	4oz	X			X	X											1	
7/27-7		14:50	"	4oz				X												1	
7/27-8		15:40	Soil	4oz				X												1	
C4		15:41	Soil	4oz	X			X	X											1	

RELINQUISHED BY: (Signature) Stan Haskins DATE/TIME 7/27/92 16:55 RECEIVED BY: (Signature) M. Chad Kennedy DATE/TIME 7/27/92

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

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

(2)

CLIENT: Groundwater Tech Texaco

ADDRESS:

PHONE: 206 251 5441 FAX: 206 251 8452

CLIENT PROJECT #: 51 DMW (Texaco) PROJECT MANAGER: Stan Haskins Mark Wells

DATE: 7/28/92 PAGE 1 OF

TEG PROJECT #: NW920727

LOCATION: Riverside Bothell WA

COLLECTOR: Stan Haskins DATE OF COLLECTION: 7/28/92

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
7-28-1		6:59	Soil	4oz glass jar				X													1	
7-28-2		7:30	"	"				X													1	
7-28-3		7:57	Soil	4oz				X														
7/28-4		8:20	Soil	4oz				X														
C-5		9:45	Soil	4oz		X		X	X													
7/28-5		9:12	Soil	4oz				X														
7/28-6		9:37	Soil	4oz				X														
C-6		10:00	Soil	4oz		X		X	X													
7/28-7		10:06	Soil	4oz				X														
7/28-9		10:35	Soil	4oz				X														
7/28-9		10:48	Soil	4oz				X														
7/28-10		11:05	Soil	4oz				X														
7/28-11		11:16	Soil	4oz				X														
7/28-12		12:40	Soil	4oz				X														
7/28-13		12:30	Soil	"				X														
7/28-14		1:10	Soil	"				X														
7/28-15		1:23	Soil	"				X														
7/28-16		2:00	Soil	4oz				X														

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Stan Hale	7/28/92 17:20	Michael A Kennedy	7/28/92
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

3

CLIENT: Groundwater Tech / Texaco

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: 51 DMW PROJECT MANAGER: Stan Hasking

DATE: 7/29/92 PAGE 1 OF

TEG PROJECT #: NW 920727

LOCATION: Riverside / Bothell WA

COLLECTOR: DATE OF COLLECTION:

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: 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
7/29-17		2:10	Soil	4oz				X													1	
7/29-18		3:00	Soil	4 oz				X													1	
7/29-19		3:20	Soil	4 oz				X													1	
7/29-20		3:32	Soil	4 oz				X													1	
7/29-21		3:55	Soil	4oz				X													1	
7/29-22		4:23	Soil	4oz				X													1	
7/29-23		4:35	Soil	4oz				X													1	
7/28-24		4:47	Soil	4oz				X													1	

RELINQUISHED BY: (Signature) Stan Hask DATE/TIME 7/29/92 17:20 RECEIVED BY: (Signature) Michael A Kenner DATE/TIME

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

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

teg

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

4

CLIENT: Groundwater Technology / Texaco

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: 51 DMW PROJECT MANAGER: Stan Hoskins

DATE: 7/29/92 PAGE ___ OF ___

TEG PROJECT #: NW920727

LOCATION: Riverside, Bothell WA

COLLECTOR: Stan Hoskins DATE OF COLLECTION: 7/29

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: 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
7/29-1		7:35	Soil	4oz glass jar				X													1	
7/29-2		9:06	Soil	4oz				X													1	
7/29-3		8:45	Soil	4oz				X													1	
7/29-4		8:52	Soil	4oz		X		X			X										1	
7/29-5		9:35	Soil	4				X													1	
7/29-6		9:40	Soil	4				X													1	
7/29-7		9:45	Soil	4				X													1	
7/29-8		10:15	Soil	4				X													1	
7/29-9		10:30	Soil	4				X													1	
7/29-10		10:52	Soil	4				X													1	
7/29-11		11:17	Soil	4				X													1	
7/29-12		11:40	Soil	4				X													1	
7/29-13		11:55	Soil	4				X													1	
7/29-14		1:03	Soil	4				X													1	
7/29-15		1:25	Soil	4				X													1	
7/29-16		1:40	Soil	4				X													1	
7/29-17		2:15	Soil	4				X													1	
7/29-18		2:30	Soil	4oz				X													1	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Stan Hoskins	7/29/92 17:10	Michael A Korosec	7/29/92
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

teg

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

5

CLIENT: Groundwater Tech / Texaco

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: 51 DMW PROJECT MANAGER: Stan Haskins

DATE: 7/29/92 PAGE ___ OF ___

TEG PROJECT #: NW 920727

LOCATION: Riverside, Bothell, WA

COLLECTOR: Stan Haskins DATE OF COLLECTION: 7/29/92

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES: 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
7/29-19		2:55		40z				X													1	
7/29-20		4:01		40z				X													1	
7/29-21		3:50		40z				X													1	
7/29-22		3:50		40z				X													1	
7/29-23		4:00		40z				X													1	
7/29-24		4:46		40z				X													1	
7/29-25		4:48		40z				X													1	

RELINQUISHED BY: (Signature) Stan Haskins DATE/TIME 7/29/92 17:10 RECEIVED BY: (Signature) Michael C Kerwin DATE/TIME 7/29

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

SAMPLE DISPOSAL INSTRUCTIONS

[ ] TEG DISPOSAL @ $2.00 each [ ] Return [ ] Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

6

CLIENT: Groundwater Tech

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER:

DATE: 7/30/92 PAGE 1 OF

TEG PROJECT #: NW920727

LOCATION: Riverside, Bothell, WA

COLLECTOR: S. Haskins DATE OF COLLECTION: 7/30/92

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
7/30-1		8:00	Soil	40z				Y													1	
7/30-2		9:01	"	"				Y													1	
7/30-3		8:03	"	"		X		Y			X										1	
7/30-4		8:40	"	"				Y													1	
7/30-5		8:45	"	"				X													1	
7/30-6		9:15	"	"		X		X			X										1	
7/30-7		10:45	"	"				Y													1	
7/30-8		10:50	"	"				Y													1	
7/30-9		10:55	"	"		Y		Y			Y										1	
7/30-10		11:50						Y													1	
7/30-11		11:55						Y													1	
7/30-12		12:00				Y		X			X										1	
7/30-13		2:15						Y													1	
7/30-14		2:20						Y													1	
7/30-15		2:21				X		X			X										1	
7/30-16		3:00						X													1	
7/30-17		3:05						Y													1	
7/30-18		3:45						X													1	

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	7/30/92 16:04	Michael D Kovacs	7/29
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

TRANSGLOBAL ENVIRONMENTAL GEOCHEMISTRY, INC.

CHAIN-OF-CUSTODY RECORD

7

CLIENT: Groundwater Tech

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER:

DATE: 7/31/92 PAGE ___ OF ___

TEG PROJECT #: NW926727

LOCATION: Riverside / Bothell, WA

COLLECTOR: S. Hatkin

DATE OF COLLECTION: 7/30-7/31/92

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
7/30-19		3:50	Soil	40z jar				X													1	
7/31-1		7:50	Soil	40z jar				X													1	
7/31-2		9:03	Soil	4		X		X			X										1	
7/30-20		8:15	Soil	4				X													1	
7/31-3		8:40	Soil	4				X													1	
7/31-4		9:15	Soil	4		X		X			X										1	
7/31-5		9:37	Soil	4				X													1	
7/31-6		10:15	Soil	"				X													1	
7/31-7		10:30	Soil	"				X													1	
7/31-8		11:15	Soil	"				X													1	
7/31-9		12:15	Soil	"				X													1	
7/31-10		11:20	Soil	"				X													1	
7/31-11		11:22	Soil	"		X		X			X										1	
7/31-12		11:24	Soil	"				X													1	
SW-7/31		11:40	Soil	4		X		X			X										1	

RELINQUISHED BY: (Signature) DATE/TIME: 7/31/92 12:50 RECEIVED BY: (Signature) Michael A Koczera DATE/TIME: 7/31/92

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

SAMPLE DISPOSAL INSTRUCTIONS

☐ TEG DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES: