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Underground Storage Tanks - FAP

Site Assessment

Texaco Service Station 63-057-0010

Anchorage, Alaska

October 31, 1997

For

Texaco

October 31, 1997

**Consulting Engineers
and Geoscientists**

Offices in Washington,
Oregon and Alaska

Texaco Refining and Marketing Inc. -
Environment, Health & Safety
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Lynnwood, Washington 98037

Attention: Mr. Anthony Palagyi

Site Assessment
Texaco Service Station 63-057-0010
Anchorage, Alaska
File No. 0401-064-18

INTRODUCTION AND BACKGROUND

This submittal presents the results of our site assessment of Texaco Service Station 63-057-0010. The station is located at 1501 Northern Lights Boulevard, in Anchorage, Alaska. We understand that the current service station facilities were installed in 1990. Existing site facilities include a service station building with a convenience store and an automotive maintenance facility, three service islands located east and south of the building, four product underground storage tanks (USTs) and associated buried product lines. The general layout of the service station facilities and the approximate location of the former waste oil UST are shown in Figure 1.

Construction services for a station facility upgrade were provided by Statewide Petroleum Services in September and October 1996. Statewide's scope of services for the 1996 facilities upgrade at this site included removal of a 550-gallon waste oil UST and replacement of fuel dispensers and associated product piping. Environmental compliance monitoring during the station facility upgrade was conducted by GeoEngineers. Samples of native soil, left in place, were collected from the floor and east sidewall of the former waste oil UST excavation. Diesel-range organics (DRO) were detected in the soil samples collected during the 1996 tank excavation at concentrations of 6,830 milligrams per kilogram (mg/kg) and 6,880 mg/kg. Lead was also detected in the soil samples at concentrations of 2.82 mg/kg and 3.69 mg/kg.

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Soil samples were also collected from beneath the existing fuel dispensing islands during the 1996 station facilities upgrade. Alaska Department of Environmental Conservation (ADEC) Level A cleanup guidelines were used during the 1996 upgrade activities as a comparative soil standard for contaminant concentrations in excavated soil at the site. For consistency, ADEC Level A cleanup guidelines were also used as a temporary comparative standard for contaminant concentrations detected in soils left in place. Gasoline-range organics (GRO) and benzene, ethylbenzene, toluene and xylenes (BETX) were detected at concentrations exceeding ADEC Level A cleanup guidelines in the samples collected from beneath the south dispensing island and beneath the northeast dispensing island. DRO was detected at concentrations exceeding ADEC Level A cleanup guidelines in these samples and in an additional sample collected from beneath the northeast dispensing island. DRO concentrations detected in the samples collected from the waste oil UST excavation were also greater than ADEC Level A soil cleanup guidelines. Analytical data for samples collected during the 1996 station facilities upgrade are summarized in a report dated March 13, 1997.

PURPOSE AND SCOPE

The purpose of GeoEngineers' services was to assess the soil and ground water in the vicinity of the former waste oil UST for petroleum hydrocarbon impacts and to further assess contamination identified in the vicinity of the northeast and southwest fuel dispensing islands. Our scope of services for this site assessment was divided into three tasks: soil borings, ground water sampling and reporting.

TASK 0100 - SOIL BORINGS

On August 6, 1997, GeoEngineers monitored the drilling of four soil borings to approximate depths of 15 feet below ground surface (bgs) to explore subsurface soil conditions. The purpose of this phase of work was to assess soil surrounding the waste oil UST and fuel dispensers for petroleum hydrocarbon contamination. The work was performed with a rotary drilling rig equipped with a hollow-stem auger operated by Discovery Drilling of Anchorage, Alaska. Details of the field exploration program and logs of the borings are presented in Attachment A.

Our specific scope of services performed for the Task 1 field work is summarized below.

1. A total of four on-site borings were drilled to approximate depths ranging from 14 feet bgs to 15.5 feet bgs. Boring B-1 was placed adjacent to the former waste oil UST on the northwest side of the station building. Borings B-2, B-3 and B-4 were placed as near as possible to the fuel dispensing islands where petroleum contamination was identified in 1996. Locations of the borings are shown in Figure 1.

2. Soil samples were obtained from each boring using a Dames & Moore 2.5-inch-diameter split spoon sampler at approximate 2.5-foot intervals. The borings were extended to the top of the ground water table.
3. Two to three samples from each boring were submitted on the basis of field screening (odor, sheen and headspace) to North Creek Analytical Services (NCA) in Bothell, Washington, for chemical analysis. The following analyses were requested for each soil sample: BETX by U.S. Environmental Protection Agency (EPA) Method 8020, GRO by Alaska Method AK101 and DRO by Alaska Method AK102. Select soil samples collected from the boring B-1 (adjacent to the former waste oil UST) were also analyzed for residual-range organics (RRO) by Alaska Method AK103, toxicity characteristic leaching procedure (TCLP) metals by EPA Series Methods 1311/6000/7000, halogenated volatile organic compounds (HVOC) by EPA Method 8010, polychlorinated biphenyls (PCB's) by EPA Method 8080 and for total petroleum hydrocarbons (TPH) by EPA Method 418.1.
4. All soil cuttings generated during drilling operations were contained in labeled 55-gallon steel drums and temporarily stored on site. Soil cuttings will be characterized for transport to an authorized facility for disposal, if necessary.
5. The split-spoon soil sampler was decontaminated with a thorough Alconox wash, tap-water rinse, and distilled water rinse prior to collection of each subsurface sample.

TASK 0200 - GROUND WATER SAMPLING

1. A 1-inch-diameter disposable, metal screen was advanced approximately 1 to 4 feet below the bottom of each of the four borings using a drive point.
2. Ground water samples were collected from each of the four borings using a new, disposable, ¾-inch-diameter bailer and cord to minimize the possibility of cross-contamination.
3. The ground water samples were submitted to NCA for chemical analysis. The following analyses were requested for each sample: BETX by EPA Method 8020, GRO by Alaska Method AK101 and DRO by Alaska Method AK102. The following additional analyses were requested for the water sample collected from boring B-1 located adjacent to the former waste oil UST: RRO by Alaska Method AK103, HVOCs by EPA Method 8010, metals by EPA Method 7000-6010, PCBs by EPA Method 8080 and TPH by EPA Method 418.1. The water sample collected from boring B-2 located down-gradient from the former waste oil UST was also analyzed for HVOCs by EPA Method 8010.
4. Each boring was backfilled with bentonite and capped with a cold emulsion asphalt patch.

TASK 0300 - REPORTING

1. Evaluated field and laboratory data generated during the site assessment with respect to existing regulatory concerns.
2. Prepared a written summary report that presents the results of our field observations and subsurface explorations of soil surrounding the waste oil UST and dispensing islands. The summary report includes a site plan in AutoCAD. This site plan depicts soil sample locations relative to the dispensing islands and the former UST, and approximate configuration of additional station facilities.

REGULATORY CRITERIA

ADEC established soil cleanup standards for sites where soil is affected by releases of petroleum hydrocarbons from UST systems in accordance with 18 AAC 78. ADEC soil matrix cleanup levels are based on five parameters: 1) depth to subsurface water, 2) mean annual precipitation, 3) soil type, 4) potential receptors (drinking water wells) and 5) volume of contaminated soil. GeoEngineers has scored the site based on the following data:

- 1) Depth to ground water - Between 5 and 15 feet bgs (Score=8)
- 2) Mean annual precipitation - 15.37 inches (Score=3)
- 3) Soil Type - Clean, coarse-grained soils (Score=10)
- 4) Potential Receptors - Reported water systems within ½ mile (Score=12)
- 5) Volume of contaminated soil (Score=5; Estimated less than 100 cubic yards)

The United States Geological Survey (USGS) reported a domestic water well within 500 feet of the site and two public water supply wells within 1,000 feet of the site. The wells were reportedly installed between 1951 and 1956. GeoEngineers obtained the driller's logs for these wells and visited the sites where they were formerly located. The wells could not be located. Interviews with current occupants of the respective properties indicated that no wells are present or currently in use at the locations reported by the USGS.

Based on these data, the total matrix score is 38, resulting in a Level B Soil Cleanup Standard for the site. ADEC Level B soil cleanup standards for compounds detected at the site are as follows:

<u>Compound</u>	<u>ADEC Level B Cleanup Standard</u>
Benzene	0.5 mg/kg
Total BETX	15 mg/kg
Gasoline-range organics	100 mg/kg
Diesel-range organics	200 mg/kg
Residual-range organics	2,000 mg/kg

mg/kg = milligrams per kilogram (parts per million)

Cleanup standards for ethylbenzene, toluene and xylene as separate compounds in soil have not been established.

ADEC's Interim Guidance for Surface and Ground Water Cleanup Levels, dated September 26, 1990, establishes water quality standards for certain contaminants based on state or federal maximum contaminant levels (MCLs). Ground water MCLs for compounds detected at the site are as follows:

<u>Compound</u>	<u>Ground Water MCL</u>
Benzene	0.005 mg/l
Ethylbenzene	0.7 mg/l
Toluene	2 mg/l
Xylenes	10 mg/l
Barium (Ba)	1.0 mg/l
Cadmium (Cd)	0.010 mg/l
Chromium (Cr)	0.05 mg/l
Mercury (Hg)	0.002 mg/l
Silver (Ag)	0.05 mg/l

mg/l = milligrams per liter

Ground water cleanup standards have not been established for GRO, DRO and RRO.

INVESTIGATIONS AND METHODOLOGY

SOIL BORINGS

The approximate locations of the soil borings and previously collected soil samples exceeding ADEC Level A soil cleanup standards are shown in Figure 1. Boring B-1 was drilled near the northwest corner of the station building, adjacent to the former waste oil UST. Borings B-2 and B-3 were drilled west and east, respectively, of the south dispensing island. Boring B-4 was drilled north of the northeast dispensing island.

Soils encountered at the site consisted predominantly of medium to coarse sand with gravel and intermittent native coal. Grain size appeared to increase with depth in each of the borings to sandy gravel near the shallow ground water table. Two to three soil samples collected from each of the borings were selected for analysis on the basis of field screening results. Field samples with the greatest indication of potential soil contamination were selected for laboratory analysis.

GROUND WATER INVESTIGATION

GeoEngineers observed ground water in all four of the borings drilled at the site. Approximate depths to ground water ranged from 13.75 feet bgs in boring B-4 to 15.25 feet bgs in boring B-2. Topography at the site suggests the shallow ground water gradient is toward the west-southwest. When ground water was encountered in each boring, a 1-inch-diameter

disposable screen was driven between 1 and 4 feet below the depth of the hollow-stem auger exposing the top 3 to 4 feet of the water table to the screen. Water samples were collected from the screened section of each boring using disposable ¾-inch-diameter polyethylene bailers. Ground water samples were placed in cold storage after collection and were transferred to the laboratory under chain-of-custody procedures.

DISCUSSION

SOIL CONDITIONS

Soil samples collected from each boring were field screened. The soil samples were visually examined and screened for evidence of possible petroleum contamination. No visual evidence of petroleum contamination was observed on soil samples collected from boring B-3. Petroleum odors were noted during field screening of samples collected from boring B-1. Headspace vapors from each of the soil samples were measured using a Photovac Microtip photoionization detector (PID). Headspace vapors were detected from all of the samples at concentrations ranging from 2.9 to 24.5 parts per million (ppm). Field screening results for all soil samples are summarized in Table 1 and shown on the well logs included in Attachment A.

A total of 10 soil samples (B1-3.5', B1-8.5', B1-13.5', B1-15.5', B2-3.5', B2-15.0', B3-13.5', B3-15.0', B4-11.0' and B4-13.5') were submitted to NCA for chemical analysis. All the samples were tested for BETX, GRO and DRO. Sample B1-13.5' was also tested for RRO, TCLP Metals, HVOCs, PCBs and TPH. Laboratory reports for soil samples collected on August 6, 1997, are presented in Attachment B, and results are summarized in Table 1.

BETX compounds were detected in all soil samples except for B1-13.5' and B1-15.5'. Benzene was detected only in soil samples collected from boring B-3 at concentrations of 0.0593 mg/kg in sample B3-13.5' and 0.0522 mg/kg in sample B3-15.0'. Total BETX compounds detected in these and the remaining samples ranged from 0.0689 mg/kg in sample B2-3.5' to 3.65 mg/kg in sample B2-15.0'.

GRO was not detected in any of the soil samples analyzed from borings B-1, B-3 or B-4. GRO was detected in sample B2-15.0' at a concentration of 82.9 mg/kg. DRO was not detected in samples B2-3.5', B3-13.5' and B4-13.5'. DRO was detected, however, in the remaining soil samples at concentrations ranging from 4.06 mg/kg in sample B3-15.0' to 523 mg/kg in sample B1-13.5'.

RRO was detected in sample B1-13.5' at a concentration of 1,800 mg/kg. TPH was also detected in sample B1-13.5' at a concentration of 6,220 mg/kg. HVOCs, PCBs, and TCLP metals were not detected in the B1-13.5' soil sample.

GROUND WATER CONDITIONS

Ground water samples from each of the borings were submitted to NCA for analysis. All water samples were analyzed for BETX, GRO and DRO. The samples collected from borings B-1

and B-2 were also analyzed for HVOCs, and the sample collected from boring B-1 was also analyzed for RRO, PCBs, TCLP Metals, Total Metals and TPH. Laboratory reports for the water samples are presented in Attachment B. Chemical analytical data for the water samples are summarized in Table 2.

BETX compounds were detected in all four of the water samples collected at the site. Benzene was detected in samples B-1, B-2 and B-3 at concentrations of 3.0 micrograms per liter ($\mu\text{g/l}$), 0.975 $\mu\text{g/l}$ and 1.12 $\mu\text{g/l}$, respectively. Other BETX compounds were detected in all of the water samples collected at concentrations ranging from 0.818 $\mu\text{g/l}$ ethylbenzene in sample B-3 to 3.23 $\mu\text{g/l}$ xylenes in sample B-3.

GRO was not detected in water samples B-1, B-2 or B-4. GRO was detected in sample B-3 at a concentration of 63.9 $\mu\text{g/l}$. DRO was detected in all four of the water samples collected at concentrations ranging from 0.468 mg/l in sample B-2 to 0.979 mg/l in sample B-3.

RRO was not detected in water sample B-1. TCLP metals, barium, cadmium, chromium and mercury were detected in the sample at concentrations ranging from 0.00113 mg/l mercury to 3.64 mg/l barium. The compound chloromethane was detected in the B-1 sample during the HVOC analysis at a concentration of 1.21 $\mu\text{g/l}$. HVOCs were not detected in the B-2 ground water sample. Sample B-1 was reanalyzed by the laboratory for Total Metals. Barium, chromium, mercury and silver were detected in the sample at concentrations ranging from 0.0122 mg/l mercury to 4.17 mg/l barium. Cadmium was not detected in the sample during the re-analysis, although it was detected during the TCLP analysis.

CONCLUSIONS

BETX compounds were detected at concentrations less than ADEC Level B cleanup guidelines in soil samples collected from each of the borings. GRO was detected in only one of the soil samples analyzed at a concentration of 82.9 mg/kg which is less than ADEC's Level B soil cleanup guideline. DRO was detected in soil samples collected from each boring at concentrations less than ADEC Level B cleanup guidelines, with one exception. DRO was detected in sample B1-13.5' at a concentration of 523 mg/kg, which exceeds ADEC's Level B soil cleanup guideline of 200 mg/kg. RRO was detected in soil sample B1-13.5' but at a concentration less than ADEC Level B soil cleanup guidelines.

BETX compounds were detected in each of the four water samples collected but at concentrations less than ADEC MCLs. GRO was detected in only one of the water samples collected (B-3) at a concentration of 0.0639 mg/l. DRO was detected in all of the water samples collected. ADEC MCLs for GRO and DRO in ground water have not been established. TPH, barium, cadmium and chromium were detected in the TCLP extract of water sample B-1 at concentrations exceeding ADEC's ground water MCLs. The sample was re-analyzed for Total Metals by EPA Methods 6000/7000. Results of this analysis indicated the presence of barium, chromium, mercury and silver at concentrations exceeding ADEC's MCLs. It should be noted

that metals detected in this sample represent total and not dissolved concentrations. Metals detected in the sample may be the result of soil digested in the analysis process. Accurate concentrations of dissolved metals in ground water at this location may be determined through collection of additional ground water samples.

DRO and RRO contamination in soil collected from boring B-1 and metals detected in the B-1 water sample are suggestive of waste oil contamination. DRO concentrations detected in the soil samples collected during the 1996 waste oil UST removal suggest that waste oil contaminated soils were present beneath and surrounding the former UST. Excavation of these contaminated soils is impractical due to the proximity of the adjacent service station building and a buried AWWU sewer line. The waste oil UST removed in August 1996 appeared to be in good condition, suggesting that waste oil contamination of soils and ground water in this area are possibly the result of historic releases from an older waste oil UST reportedly removed in 1990.

GRO contamination of soil above the ground water table in boring B-2 and of ground water in boring B-3 are suggestive of past releases around the south fuel dispensing island. On-site fuel USTs also represent potential sources of ground water contamination in boring B-3. Topography in the vicinity of the site suggests the shallow ground water gradient is toward the west-southwest.

LIMITATIONS

We have prepared this report for use by Texaco. This report may be made available to regulatory agencies and to other parties, as designated by Texaco. The report is not intended for use by others, and the information contained herein is not applicable to other sites.

Our interpretation of ground water conditions is based on field observations, our review of chemical analytical data and our review of information prepared by others.

Within the limitation of scope, schedule and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty or other conditions, expressed or implied, should be understood.



We appreciate the opportunity to be of service to Texaco Refining & Marketing - Environmental Health & Safety on this project. Please call if you have questions concerning this report.

Yours very truly,

GeoEngineers, Inc.

Laurie Jean Dworian
Staff Geologist

Scott E. Widness, P.E.
Principal

LJD:SEW:skl
Document ID: 04010641.ea

Attachments

Six copies submitted

TABLE 1 (Page 1 of 2)
SUMMARY OF FIELD SCREENING AND SOIL ANALYTICAL DATA¹
SITE ASSESSMENT
TEXACO SERVICE STATION NO. 63-057-0010
1501 NORTHERN LIGHTS BOULEVARD, ANCHORAGE, ALASKA
GEI JOB #0401-064-18

Sample ID	Field Screen Vapors ² (ppm)	BETX ³ EPA Method 8020 Modified (mg/kg)					GRO ⁴ (mg/kg)	DRO ⁵ (mg/kg)	Other
		B	E	T	X	Total BETX			
B-1 (northwest side of station building, former waste oil UST location)									
B1-3.5'	5.9	<0.05	<0.05	0.517	0.152	0.204	<5.0	38.1	--
B1-6.0'	20.5	--	--	--	--	--	--	--	--
B1-8.5'	10.6	<0.05	<0.05	<0.05	0.292	0.292	<5.0	110	--
B1-11.0'	15.6	--	--	--	--	--	--	--	--
B1-13.5' ⁶	9.9	<0.05	<0.05	<0.05	<0.1	--	<5.0	523	RRO = 1,800 mg/kg TPH = 6,220 mg/kg
B1-15.5'	6.7	<0.05	<0.05	<0.05	<0.1	--	<5.0	11.0	
B-2 (west side of south dispensing island)									
B2-3.5'	24.5	<0.05	<0.05	0.0689	<0.1	.0689	<5.0	<4.0	--
B2-6.0'	3.2	--	--	--	--	--	--	--	--
B2-8.5'	11.2	--	--	--	--	--	--	--	--
B2-11.0'	3.1	--	--	--	--	--	--	--	--
B2-13.5'	8.7	--	--	--	--	--	--	--	--
B2-15.0'	2.9	<0.1	1.25	0.987	1.41	3.65	82.9	5.84	--
B-3 (east side of south dispensing island)									
B3-3.5'	4.3	--	--	--	--	--	--	--	--
B3-6.0'	5.0	--	--	--	--	--	--	--	--
B3-8.5'	9.1	--	--	--	--	--	--	--	--
B3-11.0'	7.0	--	--	--	--	--	--	--	--
B3-13.5'	9.7	0.0593	<0.05	0.131	0.116	0.306	<5.0	<4.0	--
B3-15.0'	14.2	0.0522	<0.05	0.0681	0.167	0.287	<5.0	4.06	--
B-4 (north of northeast dispensing island)									
B4-3.5'	12.3	--	--	--	--	--	--	--	--
B4-6.0'	8.5	--	--	--	--	--	--	--	--
B4-8.5'	6.3	--	--	--	--	--	--	--	--
B4-11.0'	8.7	<0.05	0.0908	0.225	0.564	0.880	<5.0	6.65	--
B4-13.5'	5.1	<0.05	<0.05	<0.05	<0.1	--	<5.0	<4.0	--
Trip Blank	--	<0.05	<0.05	<0.05	<0.1	--	<5.0	<4.0	--
ADEC Level B Soil Cleanup Guidelines		0.5	--	--	--	15	100	200	RRO = 2,000 mg/kg

Notes appear on page 2 of 2.

TABLE 1 (Page 2 of 2)

Notes:

¹Soil samples collected on August 6, 1996, by GeoEngineers.

²Vapors measured using headspace technique in parts per million (ppm) with a Photovac Microtip photoionization detector calibrated to 100 ppm isobutylene. The lower level of significance for this application is 100 ppm.

³B = Benzene, E = Ethylbenzene, T = Toluene, X = Xylenes

⁴GRO = Gasoline-Range Organics by Alaska Method AK101

⁵DRO = Diesel-Range Organics by Alaska Method AK102

⁶Sample B1-13.5' also analyzed for RRO, PCBs, TCLP Metals, HVOCs and TPH. Analytes not detected unless noted.

ppm = parts per million

EPA = U.S. Environmental Protection Agency

mg/kg = milligrams per kilogram

UST = underground storage tank

"-" = not analyzed or not applicable

RRO = Residual-Range Organics by Alaska Method AK103

TPH = Total Petroleum Hydrocarbons by EPA Method 418.1

ADEC = Alaska Department of Environmental Conservation

PCBs = Polychlorinated Biphenyls by EPA Method 8081

TCLP = toxicity characteristic leaching procedure metals by EPA Series Methods 1311/6000/7000 (includes arsenic, barium, cadmium, chromium, lead, selenium, mercury and silver)

HVOCs = Halogenated Volatile Organic Compounds by EPA Method 8010 (includes 28 compounds)

Shading indicates concentrations greater than ADEC soil cleanup guidelines.

TABLE 2
SUMMARY OF GROUND WATER ANALYTICAL DATA¹
SITE ASSESSMENT
TEXACO SERVICE STATION NO. 63-057-0010
1501 NORTHERN LIGHTS BOULEVARD, ANCHORAGE, ALASKA
GEI JOB #0401-064-18

Sample ID	BETX ² EPA Method 8020 Modified (µg/l)				GRO ³ (µg/l)	DRO ⁴ (mg/l)	Other
	B	E	T	X			
B-1 ⁵	3.0	<0.5	2.82	1.64	<50	0.657	RRO = <0.750 mg/l TPH = 1.92 mg/l Barium = 4.17 mg/l Cadmium = <0.005 mg/l Chromium = 1.41 mg/l Mercury = 0.0122 mg/l Silver = 0.0615 mg/l Chloromethane = 1.21 µg/l
B-2 ⁶	0.975	1.01	1.44	2.21	<50	0.468	--
B-3	1.12	0.818	1.79	3.23	63.9	0.979	--
B-4	<0.5	<0.5	0.986	1.18	<50.0	0.585	--
Trip Blank	<0.5	<0.5	<0.5	<1.0	<50.0	--	--
ADEC Ground Water MCL	5	700	2,000	10,000	--	--	Barium = 1.0 mg/l Cadmium = 0.010 mg/l Chromium = 0.05 mg/l Mercury = 0.002 mg/l Silver = 0.05 mg/l

Notes:

¹Water samples collected on August 6, 1996, by GeoEngineers.²B = Benzene, E = Ethylbenzene, T = Toluene, X = Xylenes³GRO = Gasoline-Range Organics by Alaska Method AK101⁴DRO = Diesel-Range Organics by Alaska Method AK102⁵Sample B-1 also analyzed for RRO, PCBs, Total Metals, HVOCs and TPH. Analytes not detected unless noted.⁶Sample B-2 also analyzed for HVOCs. Analytes not detected unless noted.

EPA = U.S. Environmental Protection Agency

µg/l = micrograms per liter

mg/l = milligrams per liter

RRO = Residual-Range Organics by Alaska Method AK103

TPH = Total Petroleum Hydrocarbons by EPA Method 418.1

"--" = not analyzed or not applicable

ADEC = Alaska Department of Environmental Conservation

MCL = maximum contaminant level

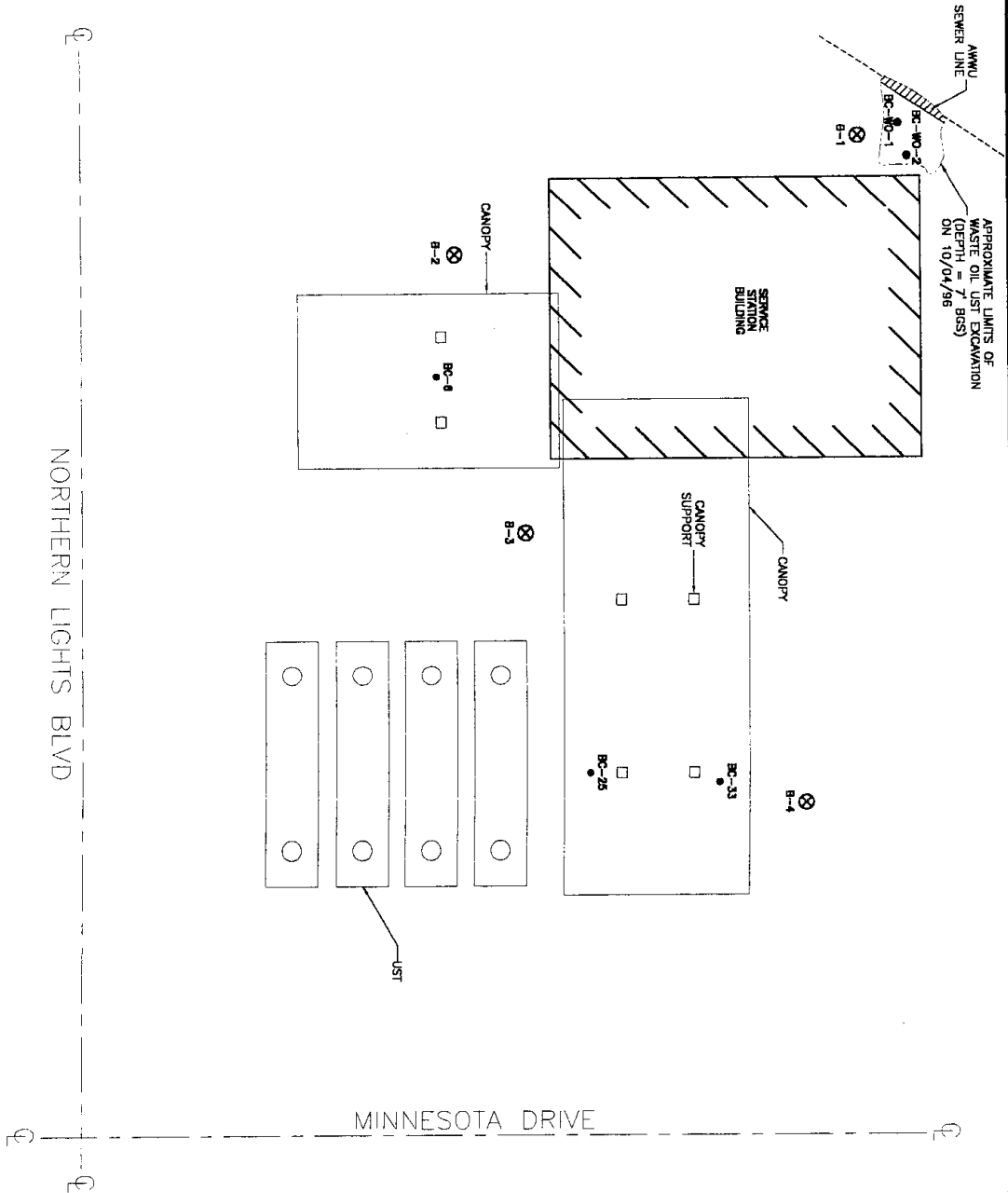
PCBs = Polychlorinated Biphenyls by EPA Method 8081

Total Metals by EPA Series Methods 6000/7000 (includes arsenic, barium, cadmium, chromium, lead, selenium, mercury and silver)

HVOCs = Halogenated Volatile Organic Compounds by EPA Method 8010 (includes 28 compounds)

Shading indicates concentrations greater than ADEC ground water cleanup standards.

Note: The locations of all features shown are approximate.



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EXPLANATION

- BC-6 SOIL SAMPLE BY GEOTECHNICAL ENGINEERS ON 09/24/96 AND 10/04/96
- BC-2 SOIL BORING LOCATION

TEXACO FACILITY No. 63-057-0010
1501 NORTHERN LIGHTS BLVD
ANCHORAGE, AK

Geo Engineers

SITE PLAN - SOIL BORING LOCATIONS

FIGURE 1

ATTACHMENT A

ATTACHMENT A

FIELD EXPLORATIONS

Subsurface soil conditions were explored at Texaco Service Station 63-057-0010 (1501 Northern Lights Boulevard, Anchorage, Alaska) by drilling four soil borings. A geologist from our staff determined the boring and test hole locations, examined and classified the soils encountered, and prepared a detailed log of the borings. Soils encountered were classified visually in general accordance with ASTM D2488-84, which is described in Figure A-1. An explanation of the field screening symbols is presented in Figure A-2. Soil samples were submitted for analytical testing based upon field screening results. The GeoEngineers representative wore clean, disposable nitrile gloves while collecting the soil samples. All soil samples submitted for analysis were placed in 2- or 8-ounce glass jars with either septum caps or teflon-lined caps in the field and kept cool under chain-of-custody procedures during transport to the laboratory. Samples analyzed for GRO by ADEC Method AK101 were preserved in the field with methanol.

SOIL BORING AND SAMPLING

Four soil borings (B-1 through B-4) were drilled and sampled on August 6, 1997, to depths ranging from 14.0 feet bgs to 15.5 feet bgs using hollow-stem auger drilling equipment operated by Discovery Drilling of Anchorage, Alaska. The approximate locations of the soil borings are shown in Figure 1. The boring logs are presented in Figures A-3 through A-6.

Soil samples were obtained from the borings using a split-spoon sampler (2.5-inch inside diameter). The sampler was driven 18 inches or until refusal by a 340-pound weight falling a vertical distance of 30 inches. The number of blows needed to advance the sampler the final 12 inches is termed the standard penetration resistance. This value is indicated to the left of the corresponding sample notations on the boring log.

Discovery Drilling steam cleaned their equipment (i.e., hollow stem auger, drill bits and center rod) prior to mobilizing for the site. The split-spoon samplers were cleaned prior to each sampling attempt with an Alconox wash, a tap water rinse and a distilled water rinse. The GeoEngineers representative wore clean, disposable nitrile gloves while handling the sampler during sample collection.

Ten soil samples from the monitoring well borings were selected for chemical analysis. Each soil sample analyzed is denoted in our boring log with a "CA".

FIELD SCREENING OF SOIL SAMPLES

A GeoEngineers representative field screened soil samples obtained from the soil borings. Field screening results are used as a general guideline to delineate areas of potential petroleum-related contamination. In addition, screening results are used to aid in the selection of soil samples for chemical analysis. The screening methods used include visual examination and headspace vapor screening using a Photovac Microtip PID.

Visual screening consists of inspecting the soil for stains indicative of fuel-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high.

Headspace vapor screening is a more sensitive method that has been effective in detecting petroleum contamination at concentrations less than regulatory cleanup guidelines. Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a Photovac Microtip PID is inserted into the bag and the PID measures the concentration of organic vapors present within the sample bag headspace. The PID measures organic vapor concentrations in parts per million (ppm) and is calibrated to isobutylene. The lower level of significance for this application is 100 ppm. Field screening results are site- and borehole-specific. The results vary with temperature, moisture content, soil type and type of contaminant.

GROUND WATER SAMPLING

Ground water samples were collected by GeoEngineers from borings B-1, B-2, B-3 and B-4 on August 6, 1997. Samples from each boring were collected using a disposable polyethylene bailer. A new bailer and cord were used to sample each monitoring well to minimize the possibility of cross-contamination.

The water samples were transferred to 40-milliliter septum vials preserved with hydrochloric acid, 70-milliliter plastic bottles preserved with nitric acid and 1-liter amber glass bottles in the field and kept cool during transport to the analytical laboratory. Chain-of-custody procedures were followed during transport to the analytical laboratory.

SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVEL MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND MORE THAN 50% OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS MORE THAN 50% PASSES NO. 200 SIEVE	SILT AND CLAY LIQUID LIMIT LESS THAN 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY LIQUID LIMIT 50 OR MORE	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

NOTES:

1. Field classification is based on visual examination of soil in general accordance with ASTM D2488-90.
2. Soil classification using laboratory tests is based on ASTM D2487-90.
3. Descriptions of soil density or consistency are based on interpretation of blowcount data, visual appearance of soils, and/or test data.

SOIL MOISTURE MODIFIERS:

Dry - Absence of moisture, dusty, dry to the touch

Moist - Damp, but no visible water

Wet - Visible free water or saturated, usually soil is obtained from below water table

LABORATORY TESTS:

CA Chemical Analysis

FIELD SCREENING TESTS:

Headspace vapor concentration data
given in parts per million

Sheen classification system:

NS No Visible Sheen

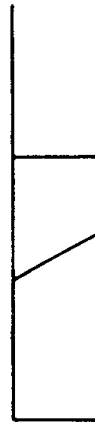
SS Slight Sheen

MS Moderate Sheen

HS Heavy Sheen

NT Not Tested

SOIL GRAPH:

SM Soil Group Symbol
(See Note 2)Distinct Contact Between
Soil StrataGradual or Approximate
Location of Change
Between Soil Strata

▽ Water Level

Bottom of Boring

BLOW-COUNT/SAMPLE DATA:

Blows required to drive a 2.4-inch I.D.
split-barrel sampler 12 inches or
other indicated distances using a
300-pound hammer falling 30 inches.

22 ■

Location of relatively
undisturbed sample

12 ☒

Location of disturbed sample

17 □

Location of sampling attempt
with no recoveryBlows required to drive a 1.5-inch I.D.
(SPT) split-barrel sampler 12 inches
or other indicated distances using
140-pound hammer falling 30 inches.

10 ▨

Location of sample obtained
in general accordance with
Standard Penetration Test
(ASTM D 1586) procedures

26 □

Location of SPT sampling
attempt with no recovery

▨

Location of grab sample

"P" indicates sampler pushed with
weight of hammer or against weight
of drill rig.

NOTES:

1. The reader must refer to the discussion in the report text, the Key to Boring Log Symbols and the exploration logs for a proper understanding of subsurface conditions.
2. Soil classification system is summarized in Figure A-1.

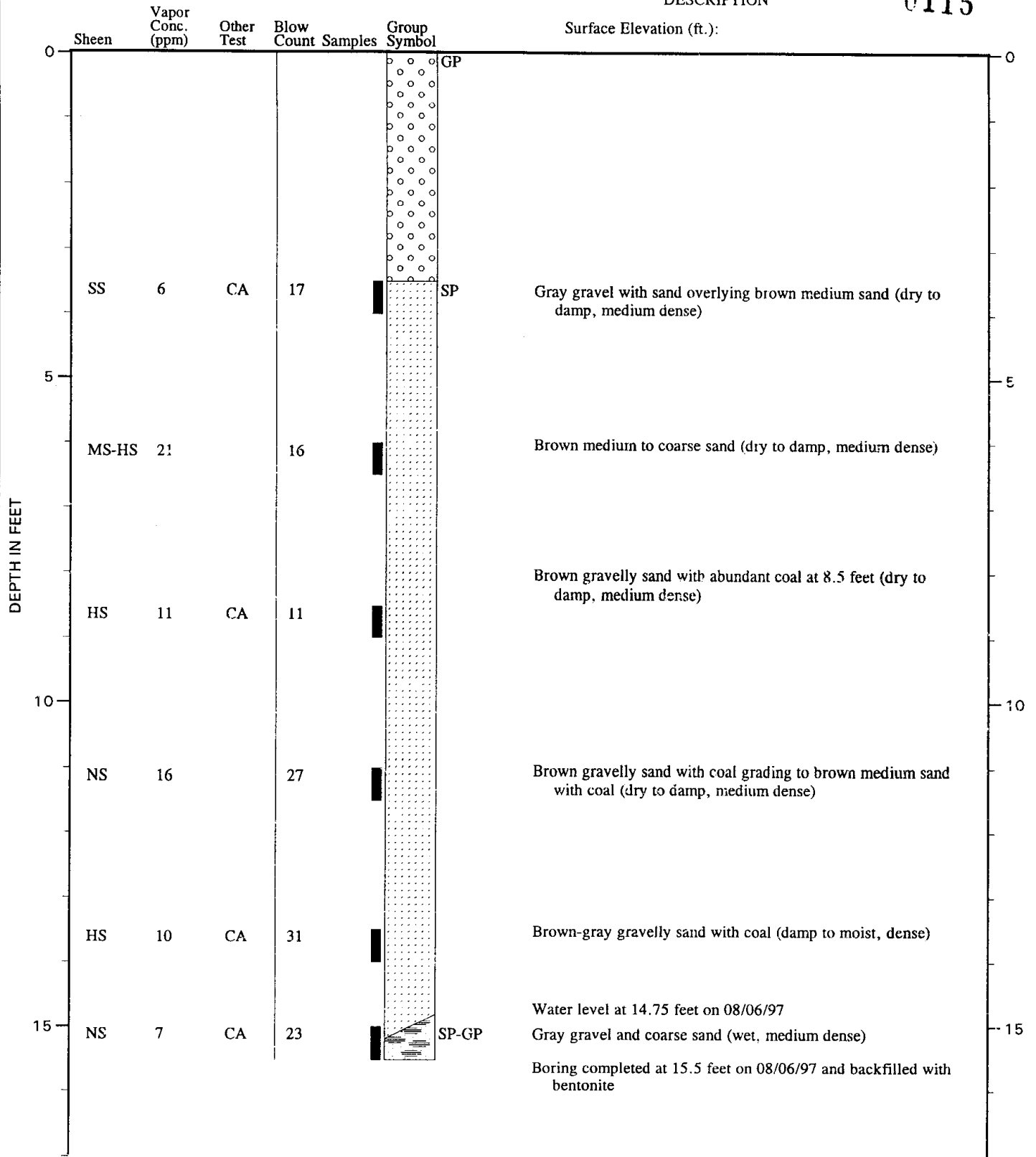
TEST DATA

BORING B-1

DESCRIPTION

0115

Surface Elevation (ft.):



Note: See Figure A-2 for explanation of symbols

TEST DATA

BORING B-2

0116

DESCRIPTION

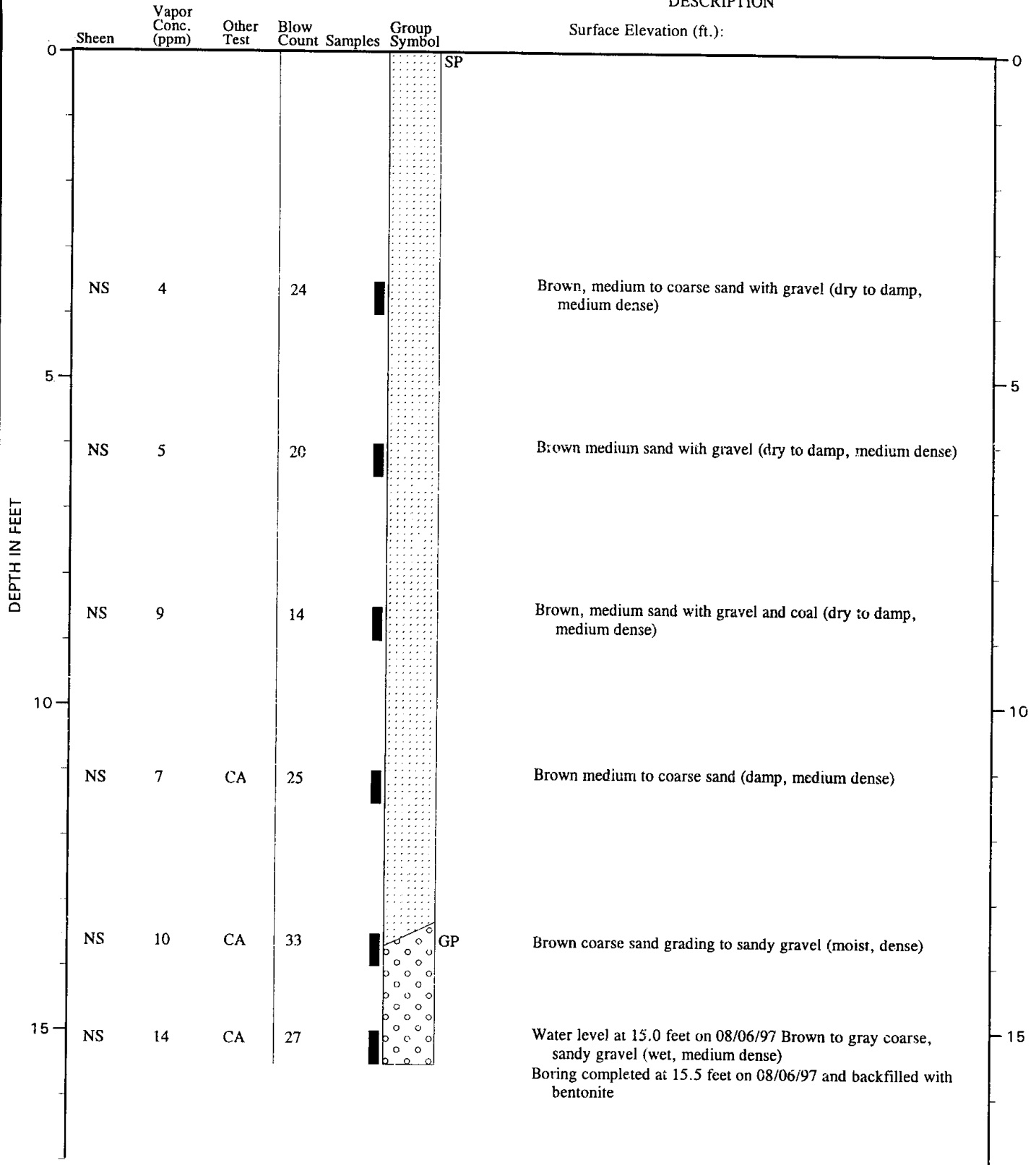
Surface Elevation (ft.):

Sheen	Vapor Conc. (ppm)	Other Test	Blow Count	Samples	Group Symbol	
0					SP	0
NS	25	CA	22			Brown, medium sand (dry to damp, medium dense)
5						5
NS	3		15			Brown medium to coarse sand with coal and trace gravel (damp, medium dense)
NS	11		14			Brown, gravelly coarse to medium sand with intermittent coal (damp, medium dense)
10						10
NS	3		23			Same as above grading to medium sand with decreasing coal (damp, medium dense)
NS	9		32			Brown coarse sand with gravel (moist, dense)
15						15
SS	3	CA	33			Brown coarse sand with gravel overlying gray coarse sand with gravel (wet, dense) Water level at 15.25 feet on 08/06/97 Boring completed at 15.5 feet on 08/06/97 and backfilled with bentonite

Note: See Figure A-2 for explanation of symbols

DESCRIPTION

Surface Elevation (ft.):

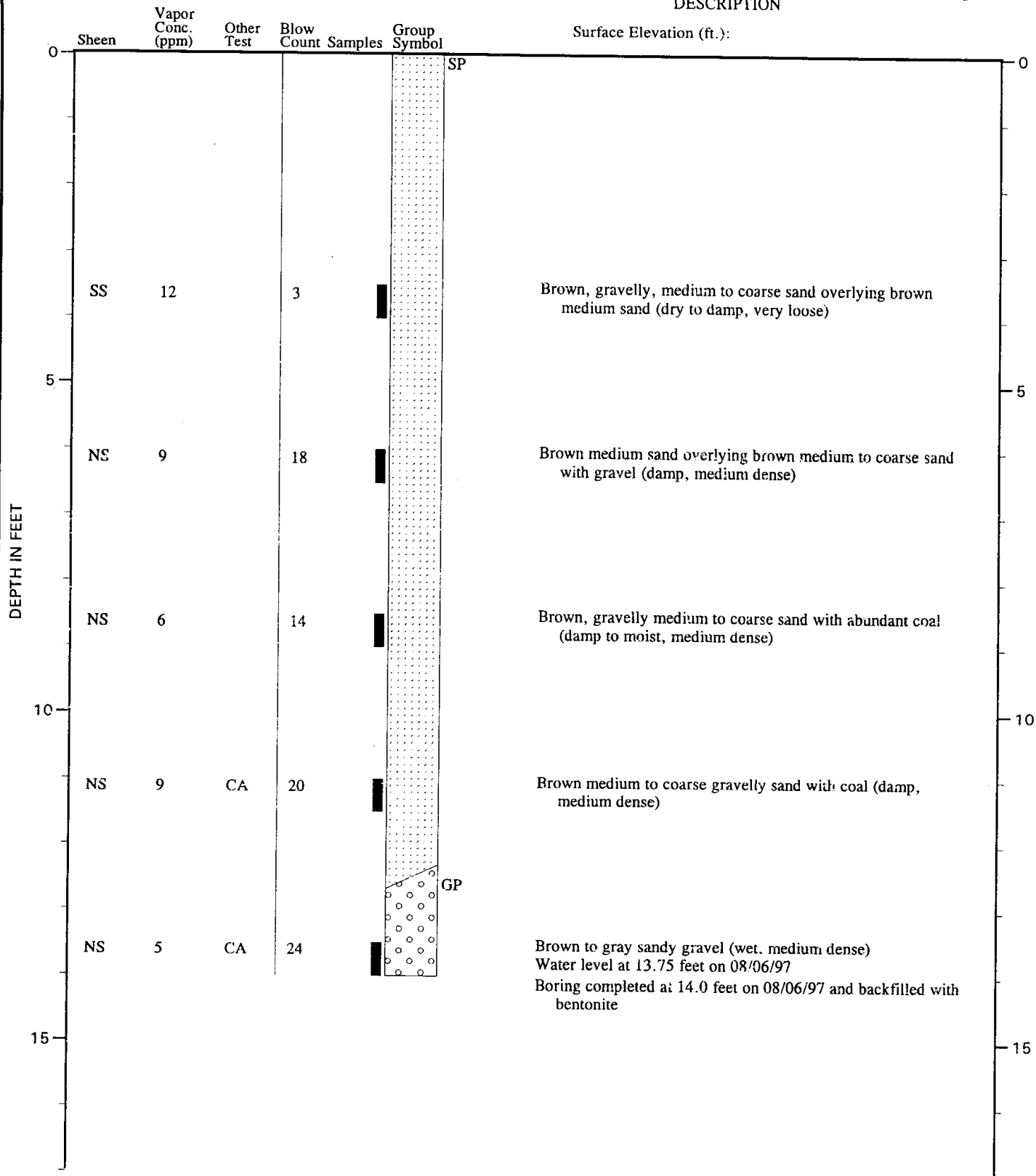


Note: See Figure A-2 for explanation of symbols

0118

DESCRIPTION

Surface Elevation (ft.):



Note: See Figure A-2 for explanation of symbols

0119

ATTACHMENT B

ATTACHMENT B

CHEMICAL ANALYTICAL PROGRAM

ANALYTICAL METHODS

Chain-of-custody procedures were followed during transport of the soil and ground water samples to North Creek Analytical Services' laboratory in Bothell, Washington. North Creek Analytical is approved by the ADEC's underground storage tank registration program for analytical laboratories. The samples were held in cold storage pending extraction and/or analysis.

The analytical results, analytical methods reference and laboratory quality assurance/quality control (QA/QC) records are included in this appendix. The analytical results are summarized in Table 1 of this report.

ANALYTICAL DATA REVIEW

Data Quality Goals

North Creek Analytical maintains an internal quality assurance program as documented in its laboratory quality assurance manual. North Creek uses a combination of method blank analysis, surrogate percent recovery, matrix spike recovery, matrix spike duplicate recovery, blank spike recovery, blank spike duplicate recovery and laboratory duplicates to evaluate the validity of analytical results. North Creek also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were supplied by North Creek. Each group of samples was compared with the existing data quality goals for the laboratory and evaluated using data validation guidelines from the following documents: "National Functional Guidelines for Organic Data Review," draft dated 1991; and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses," dated 1988. The data quality review is presented as follows.

Data Quality Review

Surrogates. Surrogates were added to soil and water samples analyzed for gasoline- and diesel-range organics and BETX prior to extraction and analysis to monitor sample handling procedures, matrix effects and purging efficiency. The surrogate recoveries for all soil and water samples tested were within recommended control limits.

Matrix Spike/Matrix Spike Duplicates (MS/MSD). Matrix spikes and matrix spike duplicates were analyzed by Alaska Method AK101, EPA Method 8020, EPA Method 8010B (modified) and EPA Method 6010/7000 to monitor matrix effects. The MS/MSD recoveries and relative percent differences were within recommended control limits with the following exceptions. Spike recoveries were outside of established control limits for QC samples for AK102 and AK103 analyses and for TCLP Metals analyses for lead. In addition, the relative percent difference (RPD) for the matrix spike duplicate for lead was greater than the established control

limit. Subsequent laboratory review of associated batch QCs indicates that recoveries for these analytes and the high RPD for lead do not represent out-of-control condition for the respective batches.

Blank Spike/Blank Spike Duplicates (BS/BSD). Blank spike and blank spike duplicates were analyzed for all analyses. The BS/BSD is a laboratory control sample that is spiked with analytes of interest from an independent source. All BS/BSD recoveries and relative percent differences were within recommended control limits.

Holding Times. All soil samples were extracted and analyzed within the recommended holding times.

Method Blanks. Method blanks were analyzed for all analyses to evaluate the possible presence of contaminants that may have been introduced during sample analysis. Contaminants were not detected in the method blanks.

Miscellaneous. The laboratory reported that results in the diesel organics range are primarily due to overlap from a heavy oil range product in soil samples B1-3.5', B1-15.5' and B1-13.5'. Similarly, the laboratory reported that diesel range organics present in sample B1-8.5' are partially due to overlap from hydrocarbons eluting in the heavy oil range.



Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
B1-3.5	B708125-01	Soil	8/6/97
B1-8.5	B708125-03	Soil	8/6/97
B1-13.5	B708125-05	Soil	8/6/97
B1-15.5	B708125-06	Soil	8/6/97
B1	B708125-07	Water	8/6/97
B2-3.5	B708125-08	Soil	8/6/97
B2-15.0	B708125-13	Soil	8/6/97
B2	B708125-14	Water	8/6/97
B3-13.5	B708125-19	Soil	8/6/97
B3-15.0	B708125-20	Soil	8/6/97
B3	B708125-21	Water	8/6/97
B4-13.5	B708125-25	Soil	8/6/97
B4-11.0	B708125-26	Soil	8/6/97
B4	B708125-27	Water	8/6/97
TRIP BLANK (MeOH)	B708125-28	Soil	8/6/97
TRIP BLANK	B708125-29	Water	8/6/97

GeoEngineers
ANCHORAGE

AUG 29 1997

Routing. ☒ ☐ ☐ ☐
File. 0401-064-18 ☐ ☐ ☐ ☐

North Creek Analytical, Inc.

*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.*

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworin	Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes
B1-3.5				B708125-01		Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/14/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	0.0517	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	0.152	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		107	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		94.5	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		115	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		98.4	"	
B1-8.5				B708125-03		Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/14/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	0.292	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		102	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		94.2	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		116	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		105	"	
B1-13.5				B708125-05		Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/14/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		102	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		93.3	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		105	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		94.5	"	
B1-15.5				B708125-06		Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
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Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B1-15.5 (continued)		B708125-06				Soil		
Surrogate: 4-BFB (FID)	0870347	8/12/97	8/13/97	60.0-120		82.7	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		75.6	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		88.1	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		78.0	"	
B1		B708125-07				Water		
Gasoline Range Hydrocarbons	0870421	8/14/97	8/14/97		50.0	ND	ug/l	
Benzene	"	"	"		0.500	3.00	"	
Toluene	"	"	"		0.500	2.82	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	1.64	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		94.8	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		104	"	
B2-3.5		B708125-08				Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	0.0689	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		96.4	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		93.5	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		114	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		107	"	
B2-15.0		B708125-13				Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/14/97		10.0	82.9	mg/kg dry	
Benzene	"	"	"		0.100	ND	"	
Toluene	"	"	"		0.100	0.987	"	
Ethylbenzene	"	"	"		0.100	1.25	"	
Xylenes (total)	"	"	"		0.200	1.41	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		NR	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		80.8	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		140	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		86.4	"	
B2		B708125-14				Water		
Gasoline Range Hydrocarbons	0870421	8/14/97	8/14/97		50.0	ND	ug/l	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes
B2 (continued)		B708125-14				Water		
Benzene	0870421	8/14/97	8/14/97		0.500	0.975	ug/l	
Toluene	"	"	"		0.500	1.44	"	
Ethylbenzene	"	"	"		0.500	1.01	"	
Xylenes (total)	"	"	"		1.00	2.21	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		93.1	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		97.5	"	
B3-13.5		B708125-19				Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	0.0593	"	
Toluene	"	"	"		0.0500	0.131	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	0.116	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		100	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		95.2	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		110	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		102	"	
B3-15.0		B708125-20				Soil		
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	0.0522	"	
Toluene	"	"	"		0.0500	0.0681	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	0.167	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		88.5	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		79.8	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		103	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		91.1	"	
B3		B708125-21				Water		
Gasoline Range Hydrocarbons	0870421	8/14/97	8/14/97		50.0	63.9	ug/l	
Benzene	"	"	"		0.500	1.12	"	
Toluene	"	"	"		0.500	1.79	"	
Ethylbenzene	"	"	"		0.500	0.818	"	
Xylenes (total)	"	"	"		1.00	3.23	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		103	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		84.8	"	

North Creek Analytical, Inc.

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
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Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B4-13.5								
				B708125-25				
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	Soil mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		101	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		93.8	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		105	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		95.6	"	
B4-11.0								
				B708125-26				
Gasoline Range Hydrocarbons	0870347	8/12/97	8/13/97		5.00	ND	Soil mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	0.225	"	
Ethylbenzene	"	"	"		0.0500	0.0908	"	
Xylenes (total)	"	"	"		0.100	0.564	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		104	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		83.3	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		105	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		82.4	"	
B4								
				B708125-27				
Gasoline Range Hydrocarbons	0870421	8/14/97	8/14/97		50.0	ND	Water ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	0.986	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	1.18	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		97.1	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		103	"	
Trip Blank (MeOH)								
				B708125-28				
Gasoline Range Hydrocarbons	0870347	8/12/97	8/14/97		5.00	ND	Soil mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		98.8	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		103	"	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworin	Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes
Trip Blank (MeOH) (continued)				B708125-28			Soil	
Surrogate: 4-BFB (PID)	0870347	8/12/97	8/14/97	60.0-120		105	%	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		82.4	"	
TRIP BLANK				B708125-29			Water	
Gasoline Range Hydrocarbons	0870421	8/14/97	8/14/97		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		98.8	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		103	"	

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Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Diesel Hydrocarbons (C10-C25) by AK102 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B1-3.5				B708125-01			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		16.0	38.1	mg/kg dry	1
Surrogate: o-Terphenyl	"	"	"	50.0-150		88.5	%	
B1-8.5				B708125-03			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/11/97		4.00	110	mg/kg dry	2
Surrogate: o-Terphenyl	"	"	"	50.0-150		89.1	%	
B1-15.5				B708125-06			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	11.0	mg/kg dry	1
Surrogate: o-Terphenyl	"	"	"	50.0-150		89.0	%	
B2-3.5				B708125-08			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	ND	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		90.1	%	
B2-15.0				B708125-13			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	5.84	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		95.0	%	
B2				B708125-14			Water	
Diesel Range Hydrocarbons	0870305	8/11/97	8/12/97		0.100	0.468	mg/l	
Surrogate: o-Terphenyl	"	"	"	50.0-150		87.1	%	
B3-13.5				B708125-19			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	ND	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		96.1	%	
B3-15.0				B708125-20			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	4.06	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		97.1	%	
B3				B708125-21			Water	
Diesel Range Hydrocarbons	0870305	8/11/97	8/12/97		0.100	0.979	mg/l	
Surrogate: o-Terphenyl	"	"	"	50.0-150		88.8	%	
B4-13.5				B708125-25			Soil	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	ND	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		89.7	%	

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Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworlan	Reported: 8/22/97 14:18

Diesel Hydrocarbons (C10-C25) by AK102 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes
<u>B4-11.0</u>				<u>B708125-26</u>			<u>Soil</u>	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		4.00	6.65	mg/kg dry	
Surrogate: o-Terphenyl	"	"	"	50.0-150		94.1	%	
<u>B4</u>				<u>B708125-27</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0870305	8/11/97	8/12/97		0.100	0.585	mg/l	
Surrogate: o-Terphenyl	"	"	"	50.0-150		89.6	%	

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Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworian	Reported: 8/22/97 14:18

Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>B1-13.5</u>				<u>B708125-05</u>			<u>Soil</u>	
Diesel Range Hydrocarbons	0870298	8/11/97	8/12/97		44.0	523	mg/kg dry	1
Heavy Oil Range Hydrocarbons	"	"	"		275	1800	"	
Surrogate: o-Terphenyl	"	"	"	50.0-150		94.2	%	
Surrogate: Triacontane-d62	"	"	"	50.0-150		91.7	"	
<u>B1</u>				<u>B708125-07</u>			<u>Water</u>	
Diesel Range Hydrocarbons	0870305	8/11/97	8/12/97		0.100	0.657	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: o-Terphenyl	"	"	"	50.0-150		86.5	%	
Surrogate: Triacontane-d62	"	"	"	50.0-150		95.5	"	

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

TCLP Metals by EPA 1311/6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
				B708125-05				
B1-13.5							Soil	
Arsenic	0870509	8/18/97	8/20/97	EPA 6010A	0.200	ND	mg/l	
Barium	"	"	"	EPA 6010A	1.00	ND	"	
Cadmium	"	"	"	EPA 6010A	0.00500	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	ND	"	
Lead	"	"	"	EPA 6010A	0.200	ND	"	
Selenium	"	"	"	EPA 6010A	0.150	ND	"	
Mercury	0870499	"	8/18/97	EPA 7470A	0.00100	ND	"	
Silver	0870509	8/12/97	8/20/97	EPA 7760A	0.0200	ND	"	
				B708125-07				
B1							Water	
Arsenic	0870509	8/18/97	8/20/97	EPA 6010A	0.200	ND	mg/l	
Barium	"	"	"	EPA 6010A	1.00	3.64	"	
Cadmium	"	"	"	EPA 6010A	0.00500	0.0408	"	
Chromium	"	"	"	EPA 6010A	0.0100	0.125	"	
Lead	"	"	"	EPA 6010A	0.200	ND	"	
Selenium	"	"	"	EPA 6010A	0.150	ND	"	
Mercury	0870499	"	8/18/97	EPA 7470A	0.00100	0.00113	"	
Silver	0870509	8/12/97	8/20/97	EPA 7760A	0.0200	ND	"	

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NORTH CREEK ANALYTICAL

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Halogenated Volatile Organics by EPA Method 8010B (modified) North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B1-13.5				B708125-05			Soil	
Bromodichloromethane	0870312	8/11/97	8/12/97		0.0500	ND	mg/kg dry	
Bromoform	"	"	"		0.0500	ND	"	
Bromomethane	"	"	"		0.0500	ND	"	
Carbon tetrachloride	"	"	"		0.0500	ND	"	
Chlorobenzene	"	"	"		0.0500	ND	"	
Chloroethane	"	"	"		0.0500	ND	"	
Chloroform	"	"	"		0.0500	ND	"	
Chloromethane	"	"	"		0.0500	ND	"	
Dibromochloromethane	"	"	"		0.0500	ND	"	
1,2-Dichlorobenzene	"	"	"		0.0500	ND	"	
1,3-Dichlorobenzene	"	"	"		0.0500	ND	"	
1,4-Dichlorobenzene	"	"	"		0.0500	ND	"	
1,1-Dichloroethane	"	"	"		0.0500	ND	"	
1,2-Dichloroethane	"	"	"		0.0500	ND	"	
1,1-Dichloroethene	"	"	"		0.0500	ND	"	
cis-1,2-Dichloroethene	"	"	"		0.0500	ND	"	
trans-1,2-Dichloroethene	"	"	"		0.0500	ND	"	
1,2-Dichloropropane	"	"	"		0.0500	ND	"	
cis-1,3-Dichloropropene	"	"	"		0.0500	ND	"	
trans-1,3-Dichloropropene	"	"	"		0.0500	ND	"	
Methylene chloride	"	"	"		0.500	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		0.0500	ND	"	
Tetrachloroethene	"	"	"		0.0500	ND	"	
1,1,1-Trichloroethane	"	"	"		0.0500	ND	"	
1,1,2-Trichloroethane	"	"	"		0.0500	ND	"	
Trichloroethene	"	"	"		0.0500	ND	"	
Trichlorofluoromethane	"	"	"		0.0500	ND	"	
Vinyl chloride	"	"	"		0.0500	ND	"	
Surrogate: 4-BFB (ELCD)	"	"	"	50.0-150		107	%	

B1				B708125-07			Water	
Bromodichloromethane	0870414	8/13/97	8/14/97		1.00	ND	ug/l	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		1.00	ND	"	
Carbon tetrachloride	"	"	"		1.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		1.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	

North Creek Analytical, Inc.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworlan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Halogenated Volatile Organics by EPA Method 8010B (modified) North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes
B1 (continued)		B708125-07					Water	
Chloromethane	0870414	8/13/97	8/14/97		1.00	1.21	ug/l	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	
1,1-Dichloroethene	"	"	"		1.00	ND	"	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (ELCD)	"	"	"	50.0-150		100	%	

B2		B708125-14					Water	
Bromodichloromethane	0870414	8/13/97	8/14/97		1.00	ND	ug/l	
Bromoform	"	"	"		1.00	ND	"	
Bromomethane	"	"	"		1.00	ND	"	
Carbon tetrachloride	"	"	"		1.00	ND	"	
Chlorobenzene	"	"	"		1.00	ND	"	
Chloroethane	"	"	"		1.00	ND	"	
Chloroform	"	"	"		1.00	ND	"	
Chloromethane	"	"	"		1.00	ND	"	
Dibromochloromethane	"	"	"		1.00	ND	"	
1,2-Dichlorobenzene	"	"	"		1.00	ND	"	
1,3-Dichlorobenzene	"	"	"		1.00	ND	"	
1,4-Dichlorobenzene	"	"	"		1.00	ND	"	
1,1-Dichloroethane	"	"	"		1.00	ND	"	
1,2-Dichloroethane	"	"	"		1.00	ND	"	

North Creek Analytical, Inc.

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Geo Engineers - Alaska
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Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Halogenated Volatile Organics by EPA Method 8010B (modified) North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B2 (continued)				B708125-14			Water	
1,1-Dichloroethene	0870414	8/13/97	8/14/97		1.00	ND	ug/l	
cis-1,2-Dichloroethene	"	"	"		1.00	ND	"	
trans-1,2-Dichloroethene	"	"	"		1.00	ND	"	
1,2-Dichloropropane	"	"	"		1.00	ND	"	
cis-1,3-Dichloropropene	"	"	"		1.00	ND	"	
trans-1,3-Dichloropropene	"	"	"		1.00	ND	"	
Methylene chloride	"	"	"		5.00	ND	"	
1,1,2,2-Tetrachloroethane	"	"	"		1.00	ND	"	
Tetrachloroethene	"	"	"		1.00	ND	"	
1,1,1-Trichloroethane	"	"	"		1.00	ND	"	
1,1,2-Trichloroethane	"	"	"		1.00	ND	"	
Trichloroethene	"	"	"		1.00	ND	"	
Trichlorofluoromethane	"	"	"		1.00	ND	"	
Vinyl chloride	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (ELCD)	"	"	"	50.0-150		100	%	

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Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 8/22/97 14:18

Polychlorinated Biphenyls by EPA Method 8081 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
B1-13.5				B708125-05			Soil	3.4
Aroclor 1016	0870349	8/13/97	8/19/97		50.0	ND	ug/kg dry	
Aroclor 1221	"	"	"		50.0	ND	"	
Aroclor 1232	"	"	"		50.0	ND	"	
Aroclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
Aroclor 1254	"	"	"		50.0	ND	"	
Aroclor 1260	"	"	"		50.0	ND	"	
Aroclor 1262	"	"	"		50.0	ND	"	
Aroclor 1268	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	38.0-117		79.4	%	
B1				B708125-07			Water	3.4
Aroclor 1016	0870370	8/13/97	8/19/97		0.100	ND	ug/l	
Aroclor 1221	"	"	"		0.100	ND	"	
Aroclor 1232	"	"	"		0.100	ND	"	
Aroclor 1242	"	"	"		0.100	ND	"	
Aroclor 1248	"	"	"		0.100	ND	"	
Aroclor 1254	"	"	"		0.100	ND	"	
Aroclor 1260	"	"	"		0.100	ND	"	
Aroclor 1262	"	"	"		0.100	ND	"	
Aroclor 1268	"	"	"		0.100	ND	"	
Surrogate: TCX	"	"	"	40.0-130		82.8	%	

North Creek Analytical, Inc.

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Conventional Chemistry Parameters by APHA/EPA Methods North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>B1-13.5</u> Petroleum Oil Hydrocarbons	0870213	8/8/97	8/8/97	<u>B708125-05</u> EPA 418.1	5000	6220	<u>Soil</u> mg/kg dry	
<u>B1</u> Petroleum Oil Hydrocarbons	0870316	8/11/97	8/14/97	<u>B708125-07</u> EPA 418.1	1.00	1.92	<u>Water</u> mg/l	

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Sampled: 8/6/97
Received: 8/8/97
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Dry Weight Determination North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
B1-3.5	B708125-01	Soil	97.0	%
B1-8.5	B708125-03	Soil	96.2	%
B1-13.5	B708125-05	Soil	96.8	%
B1-15.5	B708125-06	Soil	83.0	%
B2-3.5	B708125-08	Soil	96.1	%
B2-15.0	B708125-13	Soil	89.9	%
B3-13.5	B708125-19	Soil	96.5	%
B3-15.0	B708125-20	Soil	93.2	%
B4-13.5	B708125-25	Soil	96.7	%
B4-11.0	B708125-26	Soil	93.2	%

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Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/Quality Control

North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870347										
Blank										
Date Prepared: 8/12/97										
0870347-BLK1										
Extraction Method: MeOH Extraction										
Gasoline Range Hydrocarbons	8/13/97			ND	mg/kg dry	5.00				
Benzene	"			ND	"	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	6.00		5.82	"	60.0-120	97.0			
Surrogate: a,a,a-TFT (FID)	"	6.00		5.99	"	50.0-150	99.8			
Surrogate: 4-BFB (PID)	"	6.00		6.78	"	60.0-120	113			
Surrogate: a,a,a-TFT (PID)	"	6.00		6.72	"	50.0-150	112			
LCS										
0870347-BS1										
Gasoline Range Hydrocarbons	8/13/97	62.5		48.1	mg/kg dry	60.0-120	77.0			
Surrogate: 4-BFB (FID)	"	6.02		6.70	"	60.0-120	111			
Surrogate: a,a,a-TFT (FID)	"	6.02		6.03	"	50.0-150	100			
LCS										
0870347-BS2										
Benzene	8/13/97	1.25		1.30	mg/kg dry	60.0-120	104			
Toluene	"	1.25		1.26	"	60.0-120	101			
Ethylbenzene	"	1.25		1.25	"	60.0-120	100			
Xylenes (total)	"	3.75		3.58	"	60.0-120	95.5			
Surrogate: 4-BFB (PID)	"	6.02		6.69	"	60.0-120	111			
Surrogate: a,a,a-TFT (PID)	"	6.02		5.88	"	50.0-150	97.7			
LCS Dup										
0870347-BSD1										
Gasoline Range Hydrocarbons	8/13/97	62.5		48.8	mg/kg dry	60.0-120	78.1	20.0	1.42	
Surrogate: 4-BFB (FID)	"	6.02		6.58	"	60.0-120	109			
Surrogate: a,a,a-TFT (FID)	"	6.02		6.04	"	50.0-150	100			
Matrix Spike										
0870347-MS1 B708125-05										
Benzene	8/13/97	0.343	ND	0.402	mg/kg dry	60.0-120	117			
Toluene	"	0.343	ND	0.395	"	60.0-120	115			
Ethylbenzene	"	0.343	ND	0.387	"	60.0-120	113			
Xylenes (total)	"	1.03	ND	1.14	"	60.0-120	111			
Surrogate: 4-BFB (PID)	"	1.64		1.88	"	60.0-120	115			
Surrogate: a,a,a-TFT (PID)	"	1.64		1.71	"	50.0-150	104			

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworin	Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Matrix Spike Dup	0870347-MSD1	B708125-05								
Benzene	8/13/97	0.343	ND	0.410	mg/kg dry	60.0-120	120	20.0	2.53	
Toluene	"	0.343	ND	0.409	"	60.0-120	119	20.0	3.42	
Ethylbenzene	"	0.343	ND	0.395	"	60.0-120	115	20.0	1.75	
Xylenes (total)	"	1.03	ND	1.16	"	60.0-120	113	20.0	1.79	
Surrogate: 4-BFB (PID)	"	1.64		1.88	"	60.0-120	115			
Surrogate: a,a,a-TFT (PID)	"	1.64		1.73	"	50.0-150	105			
Batch: 0870421	Date Prepared: 8/14/97					Extraction Method: EPA 5030				
Blank	0870421-BLK1									
Gasoline Range Hydrocarbons	8/14/97			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Surrogate: 4-BFB (FID)	"	48.0		45.0	"	60.0-120	93.8			
Surrogate: 4-BFB (PID)	"	48.0		56.0	"	60.0-120	117			
LCS	0870421-BS1									
Gasoline Range Hydrocarbons	8/14/97	500		528	ug/l	60.0-120	106			
Surrogate: 4-BFB (FID)	"	48.0		49.3	"	60.0-120	103			
LCS	0870421-BS2									
Benzene	8/14/97	10.0		9.13	ug/l	60.0-120	91.3			
Toluene	"	10.0		9.52	"	60.0-120	95.2			
Ethylbenzene	"	10.0		9.04	"	60.0-120	90.4			
Xylenes (total)	"	30.0		26.2	"	60.0-120	87.3			
Surrogate: 4-BFB (PID)	"	48.0		43.2	"	60.0-120	90.0			
LCS Dup	0870421-BSD1									
Gasoline Range Hydrocarbons	8/14/97	500		455	ug/l	60.0-120	91.0	20.0	15.2	
Surrogate: 4-BFB (FID)	"	48.0		46.1	"	60.0-120	96.0			
Matrix Spike	0870421-MS1	B708125-27								
Benzene	8/14/97	10.0	ND	11.2	ug/l	60.0-120	112			
Toluene	"	10.0	0.986	11.5	"	60.0-120	105			
Ethylbenzene	"	10.0	ND	10.6	"	60.0-120	106			
Xylenes (total)	"	30.0	1.18	29.9	"	60.0-120	95.7			
Surrogate: 4-BFB (PID)	"	48.0		46.1	"	60.0-120	96.0			

North Creek Analytical, Inc.

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Environmental Laboratory Services

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup	0870421-MSD1	B708125-27								
Benzene	8/14/97	10.0	ND	10.8	ug/l	60.0-120	108	20.0	3.64	
Toluene	"	10.0	0.986	10.9	"	60.0-120	99.1	20.0	5.78	
Ethylbenzene	"	10.0	ND	10.2	"	60.0-120	102	20.0	3.85	
Xylenes (total)	"	30.0	1.18	28.1	"	60.0-120	89.7	20.0	6.47	
Surrogate: 4-BFB (PID)	"	48.0		48.1	"	60.0-120	100			

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Diesel Hydrocarbons (C10-C25) by AK102/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Batch: 0870298										
Blank										
Date Prepared: 8/11/97										
0870298-BLK1										
Extraction Method: EPA 3550										
Diesel Range Hydrocarbons	8/11/97			ND	mg/kg dry	4.00				
Surrogate: o-Terphenyl	"	6.69		6.06	"	50.0-150	90.6			
LCS										
0870298-BS1										
Diesel Range Hydrocarbons	8/11/97	66.7		85.0	mg/kg dry	60.0-120	127			5
Surrogate: o-Terphenyl	"	6.69		5.91	"	50.0-150	88.3			
LCS Dup										
0870298-BSD1										
Diesel Range Hydrocarbons	8/11/97	66.7		89.6	mg/kg dry	60.0-120	134	20.0	5.36	5
Surrogate: o-Terphenyl	"	6.69		6.08	"	50.0-150	90.9			
Batch: 0870305										
Blank										
Date Prepared: 8/11/97										
0870305-BLK1										
Extraction Method: EPA 3520/600 Series										
Diesel Range Hydrocarbons	8/12/97			ND	mg/l	0.100				
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			
LCS										
0870305-BS1										
Diesel Range Hydrocarbons	8/12/97	2.00		2.81	mg/l	60.0-120	140			5
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			
LCS Dup										
0870305-BSD1										
Diesel Range Hydrocarbons	8/12/97	2.00		2.89	mg/l	60.0-120	145	20.0	3.51	5
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			

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Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870298										
Blank										
Date Prepared: 8/11/97										
Extraction Method: EPA 3550										
0870298-BLK1										
Diesel Range Hydrocarbons	8/11/97			ND	mg/kg dry	4.00				
Heavy Oil Range Hydrocarbons	"			ND	"	25.0				
Surrogate: o-Terphenyl	"	6.69		6.06	"	50.0-150	90.6			
Surrogate: Triacontane-d62	"	6.67		4.51	"	50.0-150	67.6			
LCS										
0870298-BS1										
Diesel Range Hydrocarbons	8/11/97	66.7		85.0	mg/kg dry	60.0-120	127			5
Heavy Oil Range Hydrocarbons	"	66.7		62.1	"	60.0-100	93.1			
Surrogate: o-Terphenyl	"	6.69		5.91	"	50.0-150	88.3			
Surrogate: Triacontane-d62	"	6.67		4.26	"	50.0-150	63.9			
LCS Dup										
0870298-BSD1										
Diesel Range Hydrocarbons	8/11/97	66.7		89.6	mg/kg dry	60.0-120	134	20.0	5.36	5
Heavy Oil Range Hydrocarbons	"	66.7		68.0	"	60.0-100	102	20.0	9.12	5
Surrogate: o-Terphenyl	"	6.69		6.08	"	50.0-150	90.9			
Surrogate: Triacontane-d62	"	6.67		4.37	"	50.0-150	65.5			
Batch: 0870305										
Blank										
Date Prepared: 8/11/97										
Extraction Method: EPA 3520/600 Series										
0870305-BLK1										
Diesel Range Hydrocarbons	8/12/97			ND	mg/l	0.100				
Heavy Oil Range Hydrocarbons	"			ND	"	0.750				
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			
Surrogate: Triacontane-d62	"	0.200		0.195	"	50.0-150	97.5			
LCS										
0870305-BS1										
Diesel Range Hydrocarbons	8/12/97	2.00		2.81	mg/l	60.0-120	140			5
Heavy Oil Range Hydrocarbons	"	2.00		2.11	"	60.0-100	105			5
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			
Surrogate: Triacontane-d62	"	0.200		0.195	"	50.0-150	97.5			
LCS Dup										
0870305-BSD1										
Diesel Range Hydrocarbons	8/12/97	2.00		2.89	mg/l	60.0-120	145	20.0	3.51	5
Heavy Oil Range Hydrocarbons	"	2.00		2.11	"	60.0-100	105	20.0	0	5
Surrogate: o-Terphenyl	"	0.201		0.178	"	50.0-150	88.6			
Surrogate: Triacontane-d62	"	0.200		0.194	"	50.0-150	97.0			

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Environmental Laboratory Services

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Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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TCLP Metals by EPA 1311/6000/7000 Series Methods/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Batch: 0870499										
Blank										
Mercury										
	8/18/97			ND	mg/l	0.00100				
LCS										
Mercury										
	8/18/97	0.00500		0.00517	mg/l	70.0-130	103			
Duplicate										
Mercury										
	8/18/97		ND	ND	mg/l			20.0		
Matrix Spike										
Mercury										
	8/18/97	0.00500	ND	0.00513	mg/l	75.0-125	103			
Matrix Spike Dup										
Mercury										
	8/18/97	0.00500	ND	0.00510	mg/l	75.0-125	102	20.0	0.976	
Batch: 0870509										
Blank										
Arsenic										
	8/20/97			ND	mg/l	0.200				
Barium										
	"			ND	"	1.00				
Cadmium										
	"			ND	"	0.00500				
Chromium										
	"			ND	"	0.0100				
Lead										
	"			ND	"	0.200				
Selenium										
	"			ND	"	0.150				
Silver										
	"			ND	"	0.0200				
LCS										
Arsenic										
	8/20/97	1.00		1.04	mg/l	80.0-120	104			
Barium										
	"	5.00		4.91	"	80.0-120	98.2			
Cadmium										
	"	1.00		0.966	"	80.0-120	96.6			
Chromium										
	"	1.00		0.929	"	80.0-120	92.9			
Lead										
	"	1.00		0.923	"	80.0-120	92.3			
Selenium										
	"	1.00		1.06	"	80.0-120	106			
Silver										
	"	1.00		0.991	"	75.0-125	99.1			
Duplicate										
Arsenic										
	8/20/97		ND	ND	mg/l			20.0		
Barium										
	"		ND	ND	"			20.0		
Cadmium										
	"		0.0426	0.0395	"			20.0	7.55	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 8/22/97 14:18

TCLP Metals by EPA 1311/6000/7000 Series Methods/Quality Control

North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate (continued)										
	0870509-DUP1		B708194-01							
Chromium	8/20/97		3.15	3.11	mg/l			20.0	1.28	
Lead	"		ND	ND	"			20.0		
Selenium	"		ND	ND	"			20.0		
Silver	"		ND	ND	"			20.0		
Matrix Spike										
	0870509-MS1		B708194-01							
Arsenic	8/20/97	1.00	ND	0.906	mg/l	80.0-120	90.6			
Barium	"	5.00	ND	4.55	"	80.0-120	91.0			
Cadmium	"	1.00	0.0426	0.990	"	80.0-120	94.7			
Chromium	"	1.00	3.15	4.05	"	80.0-120	90.0			
Lead	"	1.00	ND	1.00	"	80.0-120	100			
Selenium	"	1.00	ND	1.08	"	80.0-120	108			
Silver	"	1.00	ND	0.913	"	75.0-125	91.3			
Matrix Spike										
	0870509-MS2		B708194-01							
Arsenic	8/20/97	2.00	ND	2.13	mg/l	80.0-120	107			
Barium	"	10.0	ND	9.36	"	80.0-120	93.6			
Chromium	"	2.00	3.15	5.09	"	80.0-120	97.0			
Lead	"	2.00	ND	1.13	"	80.0-120	56.5			5
Selenium	"	2.00	ND	2.19	"	80.0-120	110			
Silver	"	2.00	ND	1.98	"	75.0-125	99.0			
Matrix Spike Dup										
	0870509-MSD1		B708194-01							
Arsenic	8/20/97	1.00	ND	1.00	mg/l	80.0-120	100	20.0	9.86	
Barium	"	5.00	ND	4.51	"	80.0-120	90.2	20.0	0.883	
Cadmium	"	1.00	0.0426	1.03	"	80.0-120	98.7	20.0	4.14	
Chromium	"	1.00	3.15	4.02	"	80.0-120	87.0	20.0	3.39	
Lead	"	1.00	ND	0.746	"	80.0-120	74.6	20.0	29.1	5,6
Selenium	"	1.00	ND	1.12	"	80.0-120	112	20.0	3.64	
Silver	"	1.00	ND	0.963	"	75.0-125	96.3	20.0	5.33	

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Halogenated Volatile Organics by EPA Method 8010B (modified)/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Note
Batch: 0870312		Date Prepared: 8/11/97		Extraction Method: MeOH Extraction						
Blank		0870312-BLK1								
Bromodichloromethane	8/11/97			ND	mg/kg dry	0.0500				
Bromoform	"			ND	"	0.0500				
Bromomethane	"			ND	"	0.0500				
Carbon tetrachloride	"			ND	"	0.0500				
Chlorobenzene	"			ND	"	0.0500				
Chloroethane	"			ND	"	0.0500				
Chloroform	"			ND	"	0.0500				
Chloromethane	"			ND	"	0.0500				
Dibromochloromethane	"			ND	"	0.0500				
1,2-Dichlorobenzene	"			ND	"	0.0500				
1,3-Dichlorobenzene	"			ND	"	0.0500				
1,4-Dichlorobenzene	"			ND	"	0.0500				
1,1-Dichloroethane	"			ND	"	0.0500				
1,2-Dichloroethane	"			ND	"	0.0500				
1,1-Dichloroethene	"			ND	"	0.0500				
cis-1,2-Dichloroethene	"			ND	"	0.0500				
trans-1,2-Dichloroethene	"			ND	"	0.0500				
1,2-Dichloropropane	"			ND	"	0.0500				
cis-1,3-Dichloropropene	"			ND	"	0.0500				
trans-1,3-Dichloropropene	"			ND	"	0.0500				
Methylene chloride	"			ND	"	0.500				
1,1,2,2-Tetrachloroethane	"			ND	"	0.0500				
Tetrachloroethene	"			ND	"	0.0500				
1,1,1-Trichloroethane	"			ND	"	0.0500				
1,1,2-Trichloroethane	"			ND	"	0.0500				
Trichloroethene	"			ND	"	0.0500				
Trichlorofluoromethane	"			ND	"	0.0500				
Vinyl chloride	"			ND	"	0.0500				
Surrogate: 4-BFB (ELCD)	"	2.00		2.48	"	50.0-150		124		
LCS		0870312-BS1								
Chlorobenzene	8/11/97	1.00		0.916	mg/kg dry	60.0-140		91.6		
1,1-Dichloroethene	"	1.00		1.02	"	60.0-140		102		
Trichloroethene	"	1.00		1.09	"	60.0-140		109		
Surrogate: 4-BFB (ELCD)	"	2.00		1.96	"	50.0-150		98.0		

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 8/6/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 8/8/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 8/22/97 14:18

Halogenated Volatile Organics by EPA Method 8010B (modified)/Quality Control

North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike	0870312-MS1		B708125-05							
Chlorobenzene	8/12/97	1.03	ND	0.967	mg/kg dry	60.0-140	93.9			
1,1-Dichloroethene	"	1.03	ND	1.04	"	60.0-140	101			
Trichloroethene	"	1.03	ND	1.05	"	60.0-140	102			
Surrogate: 4-BFB (ELCD)	"	2.07		2.05	"	50.0-150	99.0			

Matrix Spike Dup	0870312-MSD1		B708125-05							
Chlorobenzene	8/12/97	1.03	ND	0.934	mg/kg dry	60.0-140	90.7	30.0	3.47	
1,1-Dichloroethene	"	1.03	ND	1.09	"	60.0-140	106	30.0	4.83	
Trichloroethene	"	1.03	ND	1.05	"	60.0-140	102	30.0	0	
Surrogate: 4-BFB (ELCD)	"	2.07		2.00	"	50.0-150	96.6			

Batch: 0870414

Date Prepared: 8/13/97

Extraction Method: EPA 5030

Blank

0870414-BLK1

Bromodichloromethane	8/14/97	ND	ug/l	1.00
Bromoform	"	ND	"	1.00
Bromomethane	"	ND	"	1.00
Carbon tetrachloride	"	ND	"	1.00
Chlorobenzene	"	ND	"	1.00
Chloroethane	"	ND	"	1.00
Chloroform	"	ND	"	1.00
Chloromethane	"	ND	"	1.00
Dibromochloromethane	"	ND	"	1.00
1,2-Dichlorobenzene	"	ND	"	1.00
1,3-Dichlorobenzene	"	ND	"	1.00
1,4-Dichlorobenzene	"	ND	"	1.00
1,1-Dichloroethane	"	ND	"	1.00
1,2-Dichloroethane	"	ND	"	1.00
1,1-Dichloroethene	"	ND	"	1.00
cis-1,2-Dichloroethene	"	ND	"	1.00
trans-1,2-Dichloroethene	"	ND	"	1.00
1,2-Dichloropropane	"	ND	"	1.00
cis-1,3-Dichloropropene	"	ND	"	1.00
trans-1,3-Dichloropropene	"	ND	"	1.00
Methylene chloride	"	ND	"	5.00
1,1,2,2-Tetrachloroethane	"	ND	"	1.00
Tetrachloroethene	"	ND	"	1.00
1,1,1-Trichloroethane	"	ND	"	1.00
1,1,2-Trichloroethane	"	ND	"	1.00

North Creek Analytical, Inc.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Halogenated Volatile Organics by EPA Method 8010B (modified)/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Blank (continued)	0870414-BLK1									
Trichloroethene	8/14/97			ND	ug/l	1.00				
Trichlorofluoromethane	"			ND	"	1.00				
Vinyl chloride	"			ND	"	1.00				
Surrogate: 4-BFB (ELCD)	"	4.00		3.94	"	50.0-150	98.5			
LCS	0870414-BS1									
Chlorobenzene	8/14/97	10.0		9.26	ug/l	70.0-130	92.6			
1,1-Dichloroethene	"	10.0		12.0	"	70.0-130	120			
Trichloroethene	"	10.0		10.4	"	70.0-130	104			
Surrogate: 4-BFB (ELCD)	"	4.00		3.69	"	50.0-150	92.3			
Matrix Spike	0870414-MS1		B708178-01							
Chlorobenzene	8/14/97	10.0	ND	9.53	ug/l	70.0-130	95.3			
1,1-Dichloroethene	"	10.0	ND	10.9	"	70.0-130	109			
Trichloroethene	"	10.0	ND	10.7	"	70.0-130	107			
Surrogate: 4-BFB (ELCD)	"	4.00		3.68	"	50.0-150	92.0			
Matrix Spike Dup	0870414-MSD1		B708178-01							
Chlorobenzene	8/14/97	10.0	ND	9.67	ug/l	70.0-130	96.7	20.0	1.46	
1,1-Dichloroethene	"	10.0	ND	11.6	"	70.0-130	116	20.0	6.22	
Trichloroethene	"	10.0	ND	10.3	"	70.0-130	103	20.0	3.81	
Surrogate: 4-BFB (ELCD)	"	4.00		3.81	"	50.0-150	95.2			

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Polychlorinated Biphenyls by EPA Method 8081/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870349										
Date Prepared: 8/13/97										
Extraction Method: EPA 3550										
Blank	0870349-BLK1									
Aroclor 1016	8/19/97			ND	ug/kg dry	50.0				3,4
Aroclor 1221	"			ND	"	50.0				
Aroclor 1232	"			ND	"	50.0				
Aroclor 1242	"			ND	"	50.0				
Aroclor 1248	"			ND	"	50.0				
Aroclor 1254	"			ND	"	50.0				
Aroclor 1260	"			ND	"	50.0				
Aroclor 1262	"			ND	"	50.0				
Aroclor 1268	"			ND	"	50.0				
Surrogate: TCX	"	6.67		4.55	"	38.0-117	68.2			
LCS										
0870349-BS1										
Aroclor 1260	8/19/97	333		266	ug/kg dry	37.0-98.0	79.9			3,4
Surrogate: TCX	"	6.67		5.45	"	38.0-117	81.7			
Matrix Spike										
0870349-MS1										
B707406-06										
Aroclor 1260	8/19/97	394	ND	307	ug/kg dry	37.0-98.0	77.9			3,4
Surrogate: TCX	"	7.87		5.63	"	38.0-117	71.5			
Matrix Spike Dup										
0870349-MSD1										
B707406-06										
Aroclor 1260	8/19/97	394	ND	303	ug/kg dry	37.0-98.0	76.9	38.0	1.29	3,4
Surrogate: TCX	"	7.87		5.65	"	38.0-117	71.8			
Batch: 0870370										
Date Prepared: 8/13/97										
Extraction Method: EPA 3520/600 Series										
Blank	0870370-BLK1									
Aroclor 1016	8/19/97			ND	ug/l	0.100				3,4
Aroclor 1221	"			ND	"	0.100				
Aroclor 1232	"			ND	"	0.100				
Aroclor 1242	"			ND	"	0.100				
Aroclor 1248	"			ND	"	0.100				
Aroclor 1254	"			ND	"	0.100				
Aroclor 1260	"			ND	"	0.100				
Aroclor 1262	"			ND	"	0.100				
Aroclor 1268	"			ND	"	0.100				
Surrogate: TCX	"	0.200		0.153	"	40.0-130	76.5			

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NORTH CREEK ANALYTICAL

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworlan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Polychlorinated Biphenyls by EPA Method 8081/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
<u>LCS</u>	<u>0870370-BS1</u>									<u>3.</u>
Aroclor 1260	8/19/97	10.0		8.64	ug/l	33.0-122	86.4			
Surrogate: TCX	"	0.200		0.172	"	40.0-130	86.0			
<u>LCS Dup</u>	<u>0870370-BSD1</u>									<u>3.</u>
Aroclor 1260	8/19/97	10.0		8.65	ug/l	33.0-122	86.5	21.0	0.116	
Surrogate: TCX	"	0.200		0.175	"	40.0-130	87.5			

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 8/6/97 Received: 8/8/97 Reported: 8/22/97 14:18
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Conventional Chemistry Parameters by APHA/EPA Methods/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0870316										
Blank										
Petroleum Oil Hydrocarbons	8/14/97				ND	mg/l	1.00			
Extraction Method: TPH 418.1										
Date Prepared: 8/11/97										
0870316-BLK1										
LCS										
Petroleum Oil Hydrocarbons	8/14/97	5.00		4.67	mg/l	61.0-121	93.4			
LCS Dup										
Petroleum Oil Hydrocarbons	8/14/97	5.00		4.07	mg/l	61.0-121	81.4	57.0	13.7	
Duplicate										
Petroleum Oil Hydrocarbons	8/14/97		B708119-01 ND	ND	mg/l			57.0		
Duplicate										
Petroleum Oil Hydrocarbons	8/14/97		B708125-07 1.92	2.07	mg/l			57.0	7.52	

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 8/6/97
Received: 8/8/97
Reported: 8/22/97 14:18

Notes and Definitions

#	Note
1	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
2	Diesel range organics present are partially due to overlap from hydrocarbons eluting in the heavy oil range. TF 8/15/97
3	To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.
4	To reduce matrix interference, the sample extract has undergone copper clean-up, method 3660, which is specific to sulfur contamination.
5	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
6	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Laura L. Dutton, Director, Analytical Services

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TEXACO CHAIN OF CUSTODY REPORT

Work Order #: **B708125**

CONSULTANT: *Geo Engineers*
PROJECT MANAGER: *Laurie Jean Dvorion*
ADDRESS: *4951 Eagle St Anchorage AK 99503*
PHONE: *907/521-3478* FAX: *907/521-5723*
PROJECT NAME: *Texaco 63-057-0010*
PROJECT NUMBER: *0401-0611-1B*
SAMPLED BY: *Laurie Jean Dvorion*

TEXACO PROJECT MANAGER: *Tony Palagyi*
TEXACO FACILITY NUMBER: *63-057-0010*
SITE ADDRESS: *1501 Northern Lights Blvd. Anchorage AK*

TURNAROUND REQUEST in Business Days

Organic & Inorganic Analyses *

<input checked="" type="checkbox"/> 10	<input type="checkbox"/> 5	<input type="checkbox"/> 3	<input type="checkbox"/> 1
--	----------------------------	----------------------------	----------------------------

Air Analyses *

<input type="checkbox"/> 3	<input type="checkbox"/> 1
----------------------------	----------------------------

OTHER Specify:

* Standard Turnaround for Organic & Inorganic Analyses is 10 Days

* Standard Turnaround for Air Analyses is 3 Days

NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	Analysis Request:				MATRIX (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
			TPH-G/BTEX	TPH-D 4K 102	TPH-D Extended 4K 103	TPH-418.1			
B708125-01	1. B1-3.5'	8/6 8:45	X	X	X	X	S	4	Heads 1
-02	2. B1-6.0'	8:50		Hold					
-03	3. B1-8.5'	9:05	X						
-04	4. B1-11.0'	9:10		Hold					
-05	5. B1-13.5'	9:20	X	X	X	X			
-06	6. B1-15.5'	9:30	X	X	X	X			152
-07	7. B-1	9:45	X	X	X	X	W	6	HCl,
8.									
9.									
10.									

RELINQUISHED BY: *R.D.S.* DATE: *8/7/97*

PRINT NAME: *Laurie Jean Dvorion* FIRM: *Geo Engineers* TIME: *9:30*

RECEIVED BY: *[Signature]*

PRINT NAME: *B. Dightman* FIRM: *NCA* TIME: *11:30*

DATE: *8/8*

TIME: *11:30*

RELINQUISHED BY:

DATE:

RECEIVED BY:

DATE:

PRINT NAME:

FIRM:

TIME:

PRINT NAME:

TIME:

ADDITIONAL REMARKS: *please hold B1-6.0', B1-11.0'.*

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TEXACO CHAIN OF CUSTODY REPORT

Work Order #: B708125

CONSULTANT: Green Engineers		TEXACO INFORMATION	
PROJECT MANAGER: Laurie Jean Dvoran		TEXACO PROJECT MANAGER: Tony Palagyi	
ADDRESS: 4951 Eagle St Anchorage AK		TEXACO FACILITY NUMBER: 63-057-0010	
PHONE: 907/571-3478 FAX: 907/571-5123		SITE ADDRESS: 1501 Norman Light Blvd Anchorage AK	
PROJECT NAME: Texaco 63-057-0010		State Hydrocarbon Methods (please circle): WA OR AK ID	
PROJECT NUMBER: 0401-064-18		Analysis Request: AK 101	
SAMPLED BY: Laurie Jean Dvoran		TPH-G/BTEX	

NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	TPH-G/BTEX	TPH-D Extended	TPH-418.1	TPH-HCD	To/Diss Lead	Matrix (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
B708125-08	1. B2-3.5'	8/6 10:45	X	X				S	2	Methanol
-09	2. B2-6.0'	10:55						S	2	
-10	3. B2-8.5'	11:05						S	2	
-11	4. B2-11.0'	11:09						S	2	
-12	5. B2-13.5'	11:15						S	2	
-13	6. B2-15.0'	11:23	X					S	2	
-14	7. B-2	11:45	X				X	W	3	HCl 153
8.										
9.										
10.										

TURNAROUND REQUEST in Business Days

Organic & Inorganic Analyses *
Air Analyses *
10 5 3 1
3 1

OTHER Specify:
* Standard Turnaround for Organic & Inorganic Analyses is 10 Days
* Standard Turnaround for Air Analyses is 3 Days

RELINQUISHED BY: [Signature]	DATE: 8/7/97	RECEIVED BY: [Signature]	DATE: 8/8
PRINT NAME: Laurie Jean Dvoran	FIRM: GRIE	PRINT NAME: B. Dightman	FIRM: WCA
TIME: 9:30	TIME: 11:30	DATE: [blank]	TIME: [blank]
RECEIVED BY: [blank]	DATE: [blank]	RECEIVED BY: [blank]	DATE: [blank]
PRINT NAME: [blank]	TIME: [blank]	PRINT NAME: [blank]	TIME: [blank]

ADDITIONAL REMARKS: Please hold B2-6.0' → B2-13.5'

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TEXACO CHAIN OF CUSTODY REPORT

Work Order #: **B708125**

CONSULTANT: Crookings		TEXACO PROJECT MANAGER: Tony Pulagay		TEXACO FACILITY NUMBER: 63-057-0010		SITE ADDRESS: 1501 Northern Ligh Blvd Anchorage AK		State Hydrocarbon Methods (please circle): Analysis: TPH-G/RTX TPH-D TPH-D Extended TPH-418.1 TPH-HClD Tot/Diss Lead		WA OR AK AK		ID	
PROJECT MANAGER: Laurie Jean Duvarion		PROJECT NAME: Texaco 63-057-0010		PROJECT NUMBER: 0401-064-12		SAMPLED BY: Laurie Jean Duvarion		OTHER Specify:		Organic & Inorganic Analytes * 10 5 3 1		Air Analytes * 3 1	
ADDRESS: 4951 E 2nd St Anchorage AK 99503		PHONE: 907/501-3478		FAX: 907/501-5123		TURNAROUND REQUEST in Business Days		MATRIX (W, S, O)		# OF CONTAINERS		COMMENTS & PRESERVATIVES USED	
1. B708125-15		CLIENT SAMPLE IDENTIFICATION: 1. B3-3.5'		SAMPLING DATE / TIME: 8/6 12:25				S		2		methanol	
-16		2. B3-6.0'		12:30				S		2			
-17		3. B3-8.5'		12:35				S		2			
-18		4. B3-11.0'		12:43				S		2			
-19		5. B3-13.5'		12:50		X		S		2			
-20		6. B3-15.0'		13:00		X		S		2			
-21		7. B-3		13:15		X		W		3		HCl 0154	
8.													
9.													
10.													
RELINQUISHED BY: Laurie Jean Duvarion		DATE: 8/7/97		RECEIVED BY: [Signature]		DATE: 8/8		PRINT NAME: B. Diglatman		FIRM: NCA		TIME: 11:30	
RELINQUISHED BY:		DATE:		RECEIVED BY:		DATE:		PRINT NAME:		FIRM:		TIME:	
PRINT NAME:		DATE:		RECEIVED BY:		DATE:		PRINT NAME:		FIRM:		TIME:	
ADDITIONAL REMARKS: please hold 63-3.5' -> 63-11.0'												PAGE 3 OF 4	



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TEXACO CHAIN OF CUSTODY REPORT Work Order #:

CONSULTANT: <i>Geo Engineers</i>		TEXACO INFORMATION		TURNAROUND REQUEST in Business Days						
PROJECT MANAGER: <i>Laurie Jean Dwarion</i>		TEXACO PROJECT MANAGER: <i>Tony Palagyi</i>		Organic & Inorganic Analyses *						
ADDRESS: <i>4951 Eagle St</i>		TEXACO FACILITY NUMBER: <i>63-057-0010</i>		Air Analyses *						
PHONE: <i>907/561-3478</i>		SITE ADDRESS: <i>1501 Northern Lights Blvd</i>		10 5 3 1						
FAX: <i>907/561-5723</i>		<i>Anchorage AK 995</i>		3 1						
PROJECT NAME: <i>Texaco 63-057-0010</i>		State Hydrocarbon Methods (please circle):		OTHER Specify:						
PROJECT NUMBER: <i>0401-064-18</i>		WA OR ID		* Standard Turnaround for Organic & Inorganic Analyses is 10 Days						
SAMPLED BY: <i>Laurie Jean Dwarion</i>		Analysis Request:		* Standard Turnaround for Air Analyses is 3 Days						
NCA SAMPLE NUMBER	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	TPH-G/TEX	TPH-D AK-102	TPH-D Extended	TPH-HCD	To/Diss Lead	MATRIX (W, S, O)	# OF CONTAINERS	COMMENTS & PRESERVATIVES USED
3708125-22	1. <i>B4-3.5'</i>	<i>8/6 13:47</i>	<i>X</i>	<i>X</i>				<i>S</i>	<i>2</i>	<i>Methanol</i>
-23	2. <i>B4-6.0'</i>	<i>13:53</i>	<i>X</i>	<i>X</i>				<i>S</i>		
-24	3. <i>B4-8.5'</i>	<i>14:05</i>	<i>X</i>	<i>X</i>				<i>S</i>		
-25	4. <i>B4-11.0'</i>	<i>14:10</i>	<i>X</i>	<i>X</i>				<i>S</i>		
-26	5. <i>B4-13.5'</i>	<i>14:20</i>	<i>X</i>	<i>X</i>				<i>S</i>		
-27	6. <i>B-4</i>	<i>14:45</i>	<i>X</i>	<i>X</i>				<i>W</i>	<i>3</i>	<i>HCl</i>
-28	7. <i>trip blank</i>		<i>X</i>	<i>X</i>				<i>Methanol</i>	<i>4</i>	<i>Methanol</i>
-29	8. <i>trip blank</i>		<i>X</i>	<i>X</i>				<i>W</i>	<i>1</i>	
9.										
10.										

RELINQUISHED BY: <i>LR Dwarion</i>	DATE: <i>8/7/97</i>	RECEIVED BY: <i>B. Dighman</i>	DATE: <i>8/8</i>
PRINT NAME: <i>Laurie Jean Dwarion</i>	TIME: <i>9:30</i>	PRINT NAME: <i>B. Dighman</i>	TIME: <i>11:30</i>
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME:	TIME:	PRINT NAME:	TIME:
FIRM: <i>G & T</i>		FIRM: <i>NCA</i>	
ADDITIONAL REMARKS: <i>pleas hold 64-3.5' -> 64-6.5'</i>		PAGE 4 OF 4	



NORTH CREEK ANALYTICAL

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1/16.0	B712081-01	Soil	12/2/97
MW-1/20.0	B712081-02	Soil	12/2/97
MW-1	B712081-03	Water	12/2/97

GeoEngineers
ANCHORAGE

DEC 19 1997

Routing.....
File.....

North Creek Analytical, Inc.

*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.*

Joy B Chang, Project Manager

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-1/16.0								
				B712081-01				
Gasoline Range Hydrocarbons	1270234	12/9/97	12/9/97		5.00	ND	Soil mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		69.5	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		127	"	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		75.5	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		131	"	
MW-1/20.0								
				B712081-02				
Gasoline Range Hydrocarbons	1270234	12/9/97	12/9/97		5.00	ND	Soil mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		108	%	
Surrogate: a,a,a-TFT (FID)	"	"	"	50.0-150		174	"	1
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		109	"	
Surrogate: a,a,a-TFT (PID)	"	"	"	50.0-150		182	"	1
MW-1								
				B712081-03				
Gasoline Range Hydrocarbons	1270239	12/9/97	12/10/97		50.0	ND	Water ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	60.0-120		76.9	%	
Surrogate: 4-BFB (PID)	"	"	"	60.0-120		84.0	"	

North Creek Analytical, Inc.

*Refer to end of report for text of notes and definitions.

Joy B Chang, Project Manager

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworin

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Diesel Hydrocarbons (C10-C25) by AK102 North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<u>MW-1/16.0</u>				<u>B712081-01</u>			<u>Soil</u>	
Diesel Range Hydrocarbons	1270105	12/4/97	12/5/97		4.00	429	mg/kg dry	
Surrogate: 2-FBP	"	"	"	50.0-150		96.9	%	
<u>MW-1/20.0</u>				<u>B712081-02</u>			<u>Soil</u>	
Diesel Range Hydrocarbons	1270105	12/4/97	12/5/97		4.00	239	mg/kg dry	
Surrogate: 2-FBP	"	"	"	50.0-150		106	%	
<u>MW-1</u>				<u>B712081-03</u>			<u>Water</u>	
Diesel Range Hydrocarbons	1270106	12/4/97	12/5/97		0.100	5.77	mg/l	
Surrogate: 2-FBP	"	"	"	50.0-150		72.3	%	



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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworin

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Total Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-1/16.0		B712081-01			Soil			
Arsenic	1270271	12/8/97	12/8/97	EPA 6010A	10.0	ND	mg/kg dry	
Barium	1270272	"	"	EPA 6010A	0.500	32.9	"	
Cadmium	1270221	"	"	EPA 6010A	0.250	ND	"	
Chromium	"	"	"	EPA 6010A	0.500	15.3	"	
Lead	"	"	"	EPA 6010A	10.0	ND	"	
Selenium	"	"	"	EPA 6010A	7.50	ND	"	
Mercury	1270227	12/9/97	12/9/97	EPA 7471A	0.0500	ND	"	
Silver	1270221	12/8/97	"	EPA 7760A	1.00	ND	"	
MW-1/20.0		B712081-02			Soil			
Arsenic	1270271	12/8/97	12/8/97	EPA 6010A	10.0	ND	mg/kg dry	
Barium	1270272	"	"	EPA 6010A	0.500	40.4	"	
Cadmium	1270221	"	"	EPA 6010A	0.250	ND	"	
Chromium	"	"	"	EPA 6010A	0.500	16.9	"	
Lead	"	"	"	EPA 6010A	10.0	ND	"	
Selenium	"	"	"	EPA 6010A	7.50	ND	"	
Mercury	1270227	12/9/97	12/9/97	EPA 7471A	0.0500	ND	"	
Silver	1270221	12/8/97	"	EPA 7760A	1.00	ND	"	



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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Dissolved Metals by EPA 6000/7000 Series Methods North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<u>MW-1</u>				<u>B712081-03</u>			<u>Water</u>	
Barium	1270217	12/8/97	12/8/97	EPA 6010A	0.0100	0.0286	mg/l	
Cadmium	"	"	"	EPA 6010A	0.00500	ND	"	
Chromium	"	"	"	EPA 6010A	0.0100	ND	"	
Arsenic	1270120	12/4/97	"	EPA 7060A	0.00400	ND	"	
Lead	"	"	12/5/97	EPA 7421	0.00200	ND	"	
Mercury	1270218	12/8/97	12/9/97	EPA 7470A	0.00100	ND	"	
Selenium	1270120	12/4/97	12/8/97	EPA 7740	0.00500	ND	"	
Silver	1270217	12/8/97	12/9/97	EPA 7760A	0.0200	0.0270	"	

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*Refer to end of report for text of notes and definitions.

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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Dry Weight Determination North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
MW-1/16.0	B712081-01	Soil	93.9	%
MW-1/20.0	B712081-02	Soil	94.4	%

North Creek Analytical, Inc.

Joy B Chang, Project Manager

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworlan

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1270234										
Blank										
		Date Prepared: 12/9/97			Extraction Method: EPA 5030 (MeOH)					
1270234-BLK1										
Gasoline Range Hydrocarbons	12/9/97			ND	mg/kg dry	5.00				
Benzene	"			ND	"	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	6.00		4.89	"	60.0-120	81.5			
Surrogate: a,a,a-TFT (FID)	"	6.00		6.24	"	50.0-150	104			
Surrogate: 4-BFB (PID)	"	6.00		4.97	"	60.0-120	82.8			
Surrogate: a,a,a-TFT (PID)	"	6.00		6.15	"	50.0-150	103			
LCS										
		1270234-BS1								
Gasoline Range Hydrocarbons	12/9/97	62.5		59.8	mg/kg dry	60.0-120	95.7			
Surrogate: 4-BFB (FID)	"	6.00		5.39	"	60.0-120	89.8			
Surrogate: a,a,a-TFT (FID)	"	6.00		6.54	"	50.0-150	109			
LCS Dup										
		1270234-BSD1								
Gasoline Range Hydrocarbons	12/9/97	62.5		58.9	mg/kg dry	60.0-120	94.2	20.0	1.58	
Surrogate: 4-BFB (FID)	"	6.00		5.26	"	60.0-120	87.7			
Surrogate: a,a,a-TFT (FID)	"	6.00		6.51	"	50.0-150	109			
Matrix Spike										
		1270234-MS1		B712081-01						
Benzene	12/9/97	0.0895	ND	0.0952	mg/kg dry	60.0-120	106			
Toluene	"	0.0895	ND	0.0972	"	60.0-120	109			
Ethylbenzene	"	0.0895	ND	0.0927	"	60.0-120	104			
Xylenes (total)	"	0.268	ND	0.282	"	60.0-120	105			
Surrogate: 4-BFB (PID)	"	0.429		0.312	"	60.0-120	72.7			
Surrogate: a,a,a-TFT (PID)	"	0.429		0.538	"	50.0-150	125			
Matrix Spike Dup										
		1270234-MSD1		B712081-01						
Benzene	12/9/97	0.0895	ND	0.0973	mg/kg dry	60.0-120	109	20.0	2.79	
Toluene	"	0.0895	ND	0.101	"	60.0-120	113	20.0	3.60	
Ethylbenzene	"	0.0895	ND	0.0896	"	60.0-120	100	20.0	3.92	
Xylenes (total)	"	0.268	ND	0.273	"	60.0-120	102	20.0	2.90	
Surrogate: 4-BFB (PID)	"	0.429		0.310	"	60.0-120	72.3			
Surrogate: a,a,a-TFT (PID)	"	0.429		0.535	"	50.0-150	125			

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NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 12/2/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 12/4/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 12/10/97 17:20

Gasoline Hydrocarbons (n-Hexane to <n-Decane) and BTEX by AK101/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1270239										
Blank										
Date Prepared: 12/9/97										
Extraction Method: EPA 5030 (P/T)										
1270239-BLK1										
Gasoline Range Hydrocarbons	12/9/97			ND	ug/l	50.0				
Benzene	"			ND	"	0.500				
Toluene	"			ND	"	0.500				
Ethylbenzene	"			ND	"	0.500				
Xylenes (total)	"			ND	"	1.00				
Surrogate: 4-BFB (FID)	"	48.0		38.8	"	60.0-120	80.8			
Surrogate: 4-BFB (PID)	"	48.0		39.0	"	60.0-120	81.3			
LCS										
1270239-BS1										
Gasoline Range Hydrocarbons	12/9/97	500		472	ug/l	60.0-120	94.4			
Surrogate: 4-BFB (FID)	"	48.0		40.7	"	60.0-120	84.8			
Duplicate										
1270239-DUP1 B712135-01										
Gasoline Range Hydrocarbons	12/9/97		124000	105000	ug/l			20.0	16.6	
Surrogate: 4-BFB (FID)	"	48.0		ND	"	60.0-120	NR			2
Matrix Spike										
1270239-MS1 B712176-01										
Benzene	12/9/97	10.0	ND	9.94	ug/l	60.0-120	99.4			
Toluene	"	10.0	ND	10.4	"	60.0-120	104			
Ethylbenzene	"	10.0	ND	9.35	"	60.0-120	93.5			
Xylenes (total)	"	30.0	ND	27.9	"	60.0-120	93.0			
Surrogate: 4-BFB (PID)	"	48.0		40.1	"	60.0-120	83.5			
Matrix Spike Dup										
1270239-MSD1 B712176-01										
Benzene	12/9/97	10.0	ND	9.90	ug/l	60.0-120	99.0	20.0	0.403	
Toluene	"	10.0	ND	10.1	"	60.0-120	101	20.0	2.93	
Ethylbenzene	"	10.0	ND	9.26	"	60.0-120	92.6	20.0	0.967	
Xylenes (total)	"	30.0	ND	27.1	"	60.0-120	90.3	20.0	2.95	
Surrogate: 4-BFB (PID)	"	48.0		40.1	"	60.0-120	83.5			

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Diesel Hydrocarbons (C10-C25) by AK102/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Recov. Limits	RPD %	RPD Limit	RPD %	Notes*
Batch: 1270105										
Blank										
1270105-BLK1										
Extraction Method: EPA 3550										
Diesel Range Hydrocarbons	12/5/97			ND	mg/kg dry	5.00				3
Surrogate: 2-FBP	"	11.9		11.0	"	50.0-150	92.4			
LCS										
1270105-BS1										
Diesel Range Hydrocarbons	12/5/97	66.7		82.6	mg/kg dry	60.0-120	124			4
Surrogate: 2-FBP	"	11.9		11.6	"	50.0-150	97.5			
LCS Dup										
1270105-BSD1										
Diesel Range Hydrocarbons	12/5/97	66.7		82.5	mg/kg dry	60.0-120	124	20.0	0	4
Surrogate: 2-FBP	"	11.9		11.4	"	50.0-150	95.8			
Batch: 1270106										
Blank										
1270106-BLK1										
Extraction Method: EPA 3520/600 Series										
Diesel Range Hydrocarbons	12/5/97			ND	mg/l	0.200				3
Surrogate: 2-FBP	"	0.364		0.331	"	50.0-150	90.9			
LCS										
1270106-BS1										
Diesel Range Hydrocarbons	12/5/97	2.00		2.40	mg/l	60.0-120	120			
Surrogate: 2-FBP	"	0.364		0.335	"	50.0-150	92.0			
LCS Dup										
1270106-BSD1										
Diesel Range Hydrocarbons	12/5/97	2.00		2.41	mg/l	60.0-120	121	20.0	0.830	4
Surrogate: 2-FBP	"	0.364		0.339	"	50.0-150	93.1			

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SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 12/2/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 12/4/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworin	Reported: 12/10/97 17:20

Total Metals by EPA 6000/7000 Series Methods/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1270221										
Blank										
Date Prepared: 12/8/97										
Extraction Method: EPA 3050										
Cadmium	12/8/97			ND	mg/kg dry	0.250				
Chromium	"			ND	"	0.500				
Lead	"			ND	"	10.0				
Selenium	"			ND	"	7.50				
Silver	12/9/97			ND	"	1.00				
LCS										
1270221-BLK1										
Cadmium	12/8/97	50.0		45.0	mg/kg dry	70.0-130	90.0			
Chromium	"	50.0		42.1	"	70.0-130	84.2			
Lead	"	50.0		48.3	"	70.0-130	96.6			
Selenium	"	50.0		38.3	"	70.0-130	76.6			
Silver	12/9/97	50.0		50.3	"	75.0-125	101			
LCS										
1270221-BS2										
Cadmium	12/8/97	58.8		50.3	mg/kg dry	70.0-130	85.5			
Chromium	"	90.2		76.7	"	70.0-130	85.0			
Lead	"	143		147	"	70.0-130	103			
Selenium	"	67.5		61.5	"	70.0-130	91.1			
Silver	12/9/97	73.3		66.3	"	75.0-125	90.5			
Duplicate										
1270221-DUP1 B712081-02										
Cadmium	12/8/97		ND	ND	mg/kg dry			20.0		
Chromium	"		16.9	13.9	"			20.0	19.5	
Lead	"		ND	ND	"			20.0		
Selenium	"		ND	ND	"			20.0		
Silver	12/9/97		ND	ND	"			20.0		
Matrix Spike										
1270221-MS1 B712081-02										
Cadmium	12/8/97	26.2	ND	21.6	mg/kg dry	70.0-130	82.4			
Chromium	"	26.2	16.9	35.6	"	70.0-130	71.4			
Lead	"	26.2	ND	31.3	"	70.0-130	119			
Selenium	"	26.2	ND	16.7	"	60.0-140	63.7			
Silver	12/9/97	26.2	ND	22.4	"	75.0-125	85.5			
Matrix Spike										
1270221-MS2 B712081-02										
Cadmium	12/8/97	52.2	ND	48.5	mg/kg dry	70.0-130	92.9			
Chromium	"	52.2	16.9	63.8	"	70.0-130	89.8			

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworjan

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Total Metals by EPA 6000/7000 Series Methods/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)										
	1270221-MS2		B712081-02							
Lead	12/8/97	52.2	ND	57.2	mg/kg dry	70.0-130	110			
Selenium	"	52.2	ND	48.8	"	60.0-140	93.5			
Silver	12/9/97	52.2	ND	50.7	"	75.0-125	97.1			
Matrix Spike Dup										
	1270221-MSD1		B712081-02							
Cadmium	12/8/97	26.1	ND	21.4	mg/kg dry	70.0-130	82.0	20.0	0.487	
Chromium	"	26.1	16.9	35.3	"	70.0-130	70.5	20.0	1.27	
Lead	"	26.1	ND	30.2	"	70.0-130	116	20.0	2.55	
Selenium	"	26.1	ND	18.9	"	60.0-140	72.4	20.0	12.8	
Silver	12/9/97	26.1	ND	22.3	"	75.0-125	85.4	20.0	0.117	
Batch: 1270227										
Blank										
Mercury	1270227-BLK1			Extraction Method: BrCl Digestion						
	12/9/97			ND	mg/kg dry	0.0500				
LCS										
Mercury	1270227-BS1									
	12/9/97	0.250		0.237	mg/kg dry	80.0-120	94.8			
Duplicate										
Mercury	1270227-DUP1		B712074-02							
	12/9/97		ND	ND	mg/kg dry			20.0		
Matrix Spike										
Mercury	1270227-MS1		B712074-02							
	12/9/97	0.302	ND	0.325	mg/kg dry	80.0-120	108			
Matrix Spike Dup										
Mercury	1270227-MSD1		B712074-02							
	12/9/97	0.285	ND	0.286	mg/kg dry	80.0-120	100	20.0	7.69	
Batch: 1270271										
Blank										
Arsenic	1270271-BLK1			Extraction Method: EPA 3050						
	12/8/97			ND	mg/kg dry	10.0				
LCS										
Arsenic	1270271-BS1									
	12/8/97	50.0		35.6	mg/kg dry	70.0-130	71.2			
LCS										
Arsenic	1270271-BS2									
	12/10/97	71.5		57.9	mg/kg dry	70.0-130	81.0			

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworin

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Total Metals by EPA 6000/7000 Series Methods/Quality Control North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate	1270271-DUP1		B712081-02							
Arsenic	12/8/97		ND	ND	mg/kg dry			20.0		
Matrix Spike	1270271-MS1		B712081-02							
Arsenic	12/8/97	26.4	ND	13.1	mg/kg dry	60.0-140	49.6			5,6
Matrix Spike	1270271-MS2		B712081-02							
Arsenic	12/8/97	52.7	ND	35.8	mg/kg dry	60.0-140	67.9			
Matrix Spike Dup	1270271-MSD1		B712081-02							
Arsenic	12/8/97	26.1	ND	ND	mg/kg dry	60.0-140	NR	20.0	NR	5,6
Batch: 1270272	Date Prepared: 12/8/97					Extraction Method: EPA 3050				
Blank	1270272-BLK1									
Barium	12/8/97			ND	mg/kg dry	0.500				
LCS	1270272-BS1									
Barium	12/8/97	50.0		40.8	mg/kg dry	70.0-130	81.6			
LCS	1270272-BS2									
Barium	12/8/97	91.1		73.3	mg/kg dry	70.0-130	80.5			
Duplicate	1270272-DUP1									
Barium	12/8/97	ND	ND		mg/kg dry			20.0		
Matrix Spike	1270272-MS1		B712081-02							
Barium	12/8/97	26.4	40.4	46.0	mg/kg dry	70.0-130	21.2			6,7
Matrix Spike	1270272-MS2		B712081-02							
Barium	12/8/97	52.2	40.4	89.2	mg/kg dry	70.0-130	93.5			
Matrix Spike Dup	1270272-MSD1		B712081-02							
Barium	12/8/97	26.4	40.4	54.8	mg/kg dry	70.0-130	54.5	20.0	88.0	6,7

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska 4951 Eagle Street Anchorage, AK 99503-7432	Project: Texaco #63-057-0010 (Big Corners) Project Number: 0401-064-18 Project Manager: Laurie Jean Dworjan	Sampled: 12/2/97 Received: 12/4/97 Reported: 12/10/97 17:20
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Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control

North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
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Batch: 1270120

Date Prepared: 12/4/97

Extraction Method: EPA 3020

Blank

1270120-BLK1

Arsenic	12/8/97			ND	mg/l	0.00400				
Lead	12/5/97			ND	"	0.00200				
Selenium	12/8/97			ND	"	0.00500				

LCS

1270120-BS1

Arsenic	12/8/97	0.0500		0.0404	mg/l	75.0-125	80.8			
Lead	12/5/97	0.0250		0.0261	"	75.0-125	104			
Selenium	12/8/97	0.0250		0.0263	"	75.0-125	105			

Duplicate

1270120-DUP1

B711391-01

Arsenic	12/8/97		ND	ND	mg/l				20.0	
Lead	12/5/97		ND	ND	"				20.0	
Selenium	12/8/97		ND	ND	"				20.0	

Matrix Spike

1270120-MS1

B711391-01

Arsenic	12/8/97	0.0500	ND	0.0372	mg/l	70.0-130	74.4			
Lead	12/5/97	0.0250	ND	0.0268	"	70.0-130	107			
Selenium	12/8/97	0.0250	ND	0.0228	"	70.0-130	91.2			

Matrix Spike Dup

1270120-MSD1

B711391-01

Arsenic	12/8/97	0.0500	ND	0.0403	mg/l	70.0-130	80.6	20.0	8.00	
Lead	12/5/97	0.0250	ND	0.0269	"	70.0-130	108	20.0	0.930	
Selenium	12/8/97	0.0250	ND	0.0242	"	70.0-130	96.8	20.0	5.96	

Batch: 1270217

Date Prepared: 12/8/97

Extraction Method: EPA 3010

Blank

1270217-BLK1

Barium	12/8/97			ND	mg/l	0.0100				
Cadmium	"			ND	"	0.00500				
Chromium	"			ND	"	0.0100				
Silver	12/9/97			ND	"	0.0200				

LCS

1270217-BS1

Barium	12/8/97	1.00		1.06	mg/l	80.0-120	106			
Cadmium	"	1.00		1.02	"	80.0-120	102			
Chromium	"	1.00		0.994	"	80.0-120	99.4			
Silver	12/9/97	1.00		0.932	"	75.0-125	93.2			

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Environmental Laboratory Services

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Geo Engineers - Alaska	Project: Texaco #63-057-0010 (Big Corners)	Sampled: 12/2/97
4951 Eagle Street	Project Number: 0401-064-18	Received: 12/4/97
Anchorage, AK 99503-7432	Project Manager: Laurie Jean Dworjan	Reported: 12/10/97 17:20

Dissolved Metals by EPA 6000/7000 Series Methods/Quality Control

North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Duplicate	1270217-DUP1	B711391-01								
Barium	12/8/97		0.0142	0.0214	mg/l			20.0	40.4	8
Cadmium	"		ND	ND	"			20.0		
Chromium	"		ND	ND	"			20.0		
Silver	12/9/97		ND	ND	"			20.0		
Matrix Spike	1270217-MS1	B711391-01								
Barium	12/8/97	1.00	0.0142	1.03	mg/l	80.0-120	102			
Cadmium	"	1.00	ND	0.972	"	80.0-120	97.2			
Chromium	"	1.00	ND	0.951	"	80.0-120	95.1			
Silver	12/9/97	1.00	ND	0.979	"	75.0-125	97.9			
Matrix Spike Dup	1270217-MSD1	B711391-01								
Barium	12/8/97	1.00	0.0142	1.02	mg/l	80.0-120	101	20.0	0.985	
Cadmium	"	1.00	ND	0.959	"	80.0-120	95.9	20.0	1.35	
Chromium	"	1.00	ND	0.955	"	80.0-120	95.5	20.0	0.420	
Silver	12/9/97	1.00	ND	0.988	"	75.0-125	98.8	20.0	0.915	
Batch: 1270218	Date Prepared: 12/8/97	Extraction Method: BrCl Digestion								
Blank	1270218-BLK1									
Mercury	12/9/97			ND	mg/l	0.00100				
LCS	1270218-BS1									
Mercury	12/9/97	0.00500		0.00461	mg/l	70.0-130	92.2			
Duplicate	1270218-DUP1	B712081-03								
Mercury	12/9/97		ND	ND	mg/l			20.0		
Matrix Spike	1270218-MS1	B712081-03								
Mercury	12/9/97	0.00500	ND	0.00448	mg/l	75.0-125	89.6			
Matrix Spike Dup	1270218-MSD1	B712081-03								
Mercury	12/9/97	0.00500	ND	0.00464	mg/l	75.0-125	92.8	20.0	3.51	



NORTH CREEK ANALYTICAL

Environmental Laboratory Services

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BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
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Geo Engineers - Alaska
4951 Eagle Street
Anchorage, AK 99503-7432

Project: Texaco #63-057-0010 (Big Corners)
Project Number: 0401-064-18
Project Manager: Laurie Jean Dworian

Sampled: 12/2/97
Received: 12/4/97
Reported: 12/10/97 17:20

Notes and Definitions

#	Note
---	------

- | | |
|--------|--|
| 1 | The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition. |
| 2 | The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample. |
| 3 | Reporting limit was raised due to slight lab contamination just above the reporting limit. Quality of data was not affected. |
| 4 | The systematically high recovery for this analyte is due to differences in the composition and chromatographic behavior between the calibration mixture specified in the method and the commercial diesel solution used for the preparation of the spikes. |
| 5 | The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch. |
| 6 | The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference. |
| 7 | Review of the postspike indicates low Recovery and RPD was due to matrix effects. |
| 8 | Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit. |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| Recov. | Recovery |
| RPD | Relative Percent Difference |

North Creek Analytical, Inc.

Joy B Chang Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

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Quantitation Report

Data File : C:\HPCHEM\3\DATA\L09014.D\FID1A.CH
 Acq On : 9 Dec 1997 12:39 pm
 Sample : b712081-01
 Misc : 100 uL
 IntFile : events.e

Vial: 14
 Operator: lac
 Inst : GC #6
 Multiplr: 1.00

0171

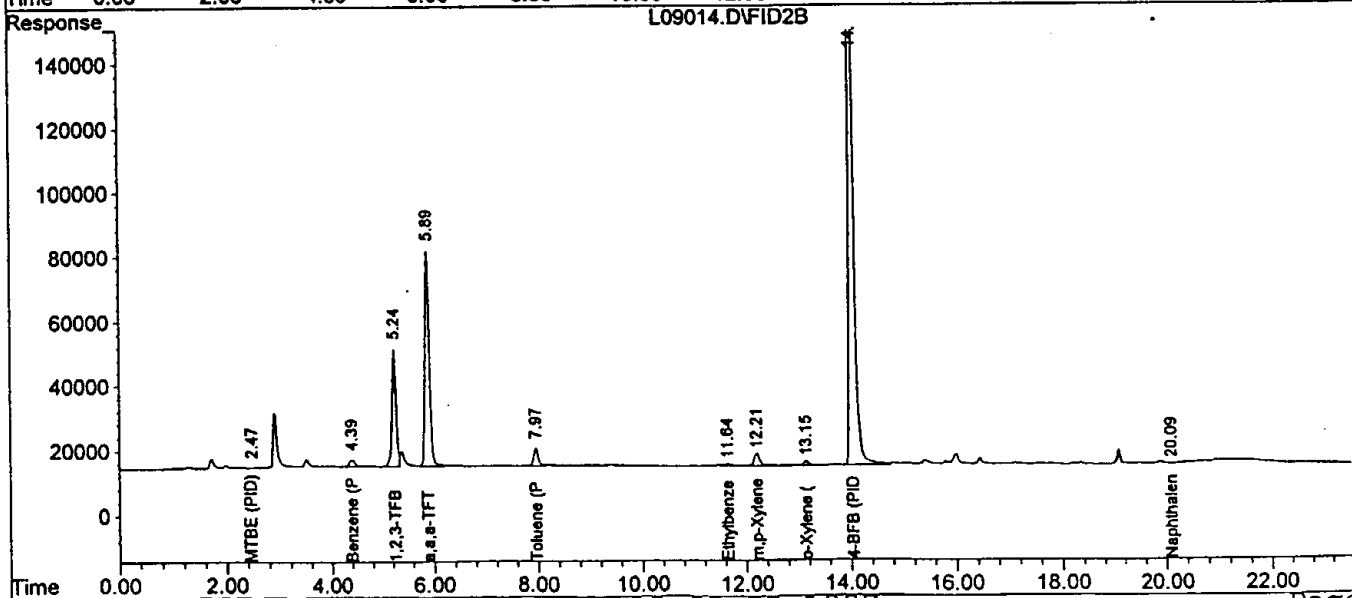
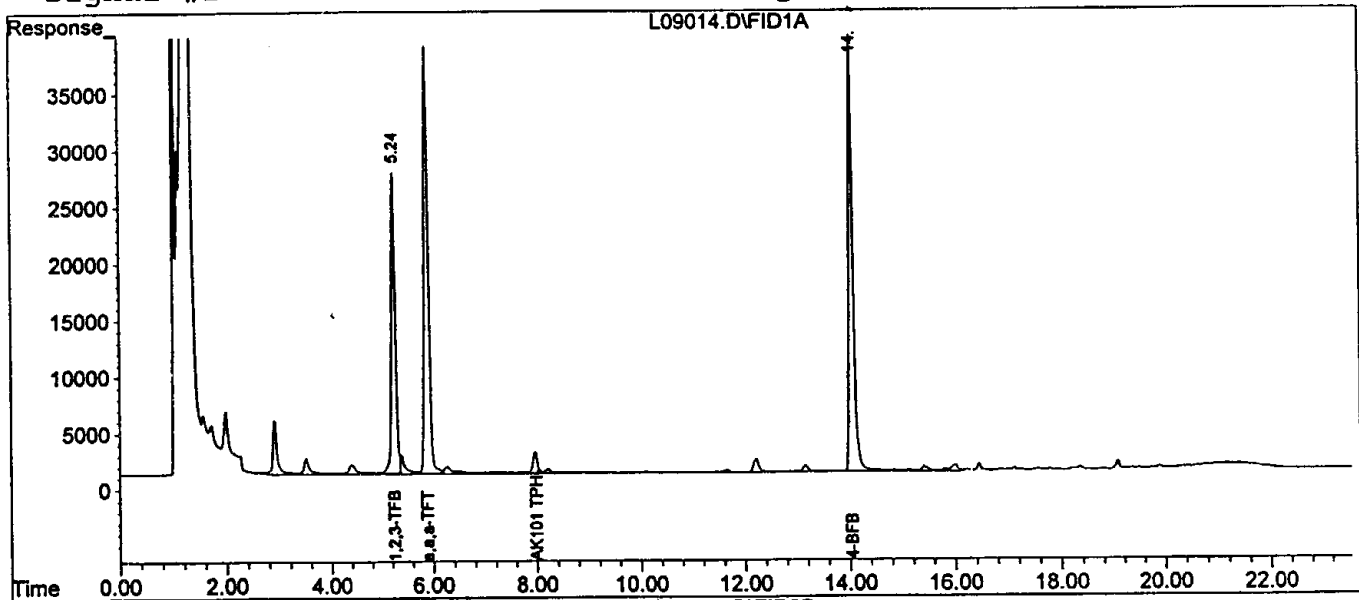
Data File : C:\HPCHEM\3\DATA\L09014.D\FID2B.CH
 Acq On : 9 Dec 97 12:39 pm
 Sample : b712081-01
 Misc : 100 uL
 IntFile : events2.e

Vial: 14
 Operator: lac
 Inst : GC #6
 Multiplr: 1.00

Quant Time: Dec 9 13:02 1997 Quant Results File: AK101S.RES

Quant Method : C:\HPCHEM\3\METHODS\AK101S.M (Chemstation Integrator)
 Title : AK101 Soil Method
 Last Update : Mon Aug 18 09:14:07 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : AK101S.M

Volume Inj. :
 Signal #1 Phase :
 Signal #1 Info :
 Signal #2 Phase :
 Signal #2 Info :



Quantitation Report

0172

Data File : C:\HPCHEM\3\DATA\L09015.D\FID1A.CH
Acq On : 9 Dec 1997 1:08 pm
Sample : b712081-02
Misc : 100 uL
IntFile : events.e

Vial: 15
Operator: lac
Inst : GC #6
Multiplr: 1.00

Data File : C:\HPCHEM\3\DATA\L09015.D\FID2B.CH
Acq On : 9 Dec 97 1:08 pm
Sample : b712081-02
Misc : 100 uL
IntFile : events2.e

Vial: 15
Operator: lac
Inst : GC #6
Multiplr: 1.00

Quant Time: Dec 9 13:32 1997 Quant Results File: AK101S.RES

Quant Method : C:\HPCHEM\3\METHODS\AK101S.M (Chemstation Integrator)
Title : AK101 Soil Method
Last Update : Mon Aug 18 09:14:07 1997
Response via : Multiple Level Calibration
DataAcq Meth : AK101S.M

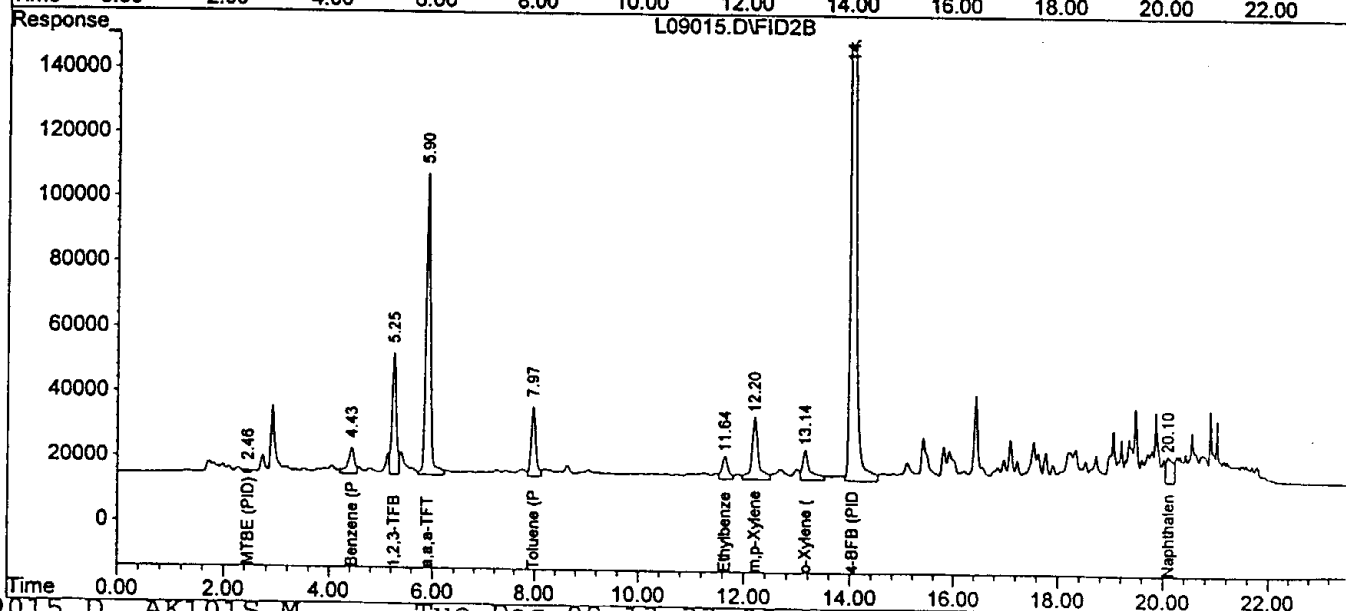
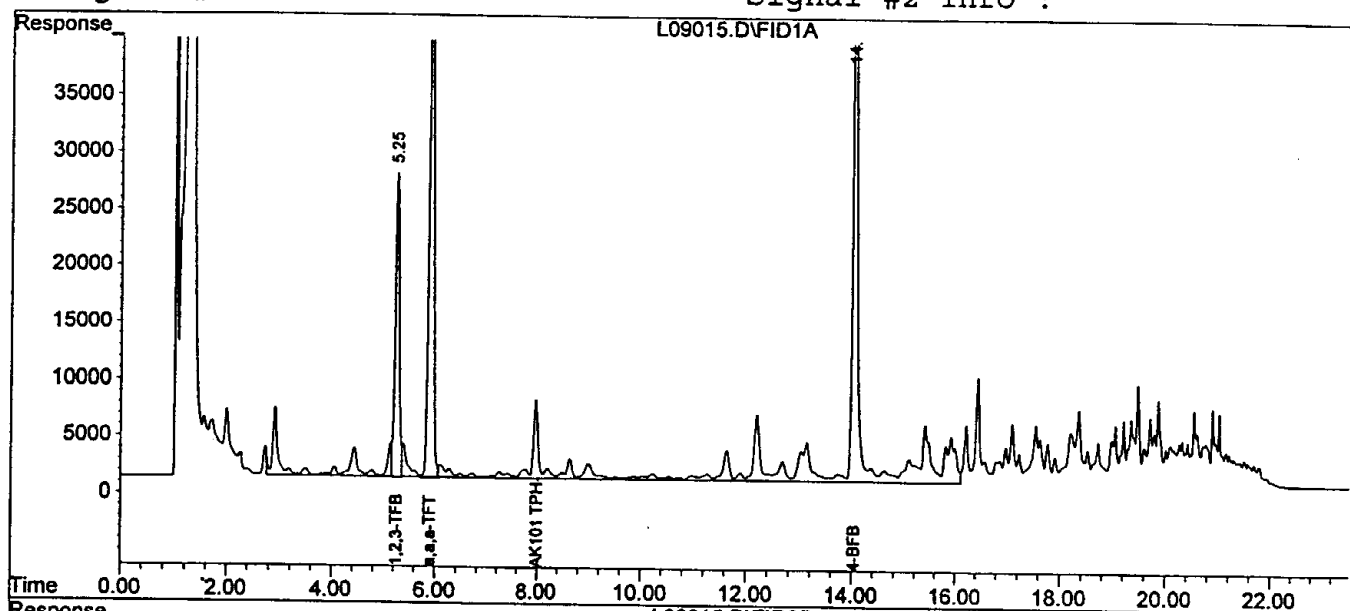
Volume Inj. :

Signal #1 Phase :

Signal #1 Info :

Signal #2 Phase:

Signal #2 Info :



Quantitation Report

Data File : C:\HPCHEM\2\DATA\L10007.D\FID1A.CH
 Acq On : 10 Dec 1997 8:44 am
 Sample : b712081-03 r1
 Misc : 5 mL
 IntFile : SURR.E

Vial: 7
 Operator: lac
 Inst : GC #4
 Multiplr: 1.00

0173

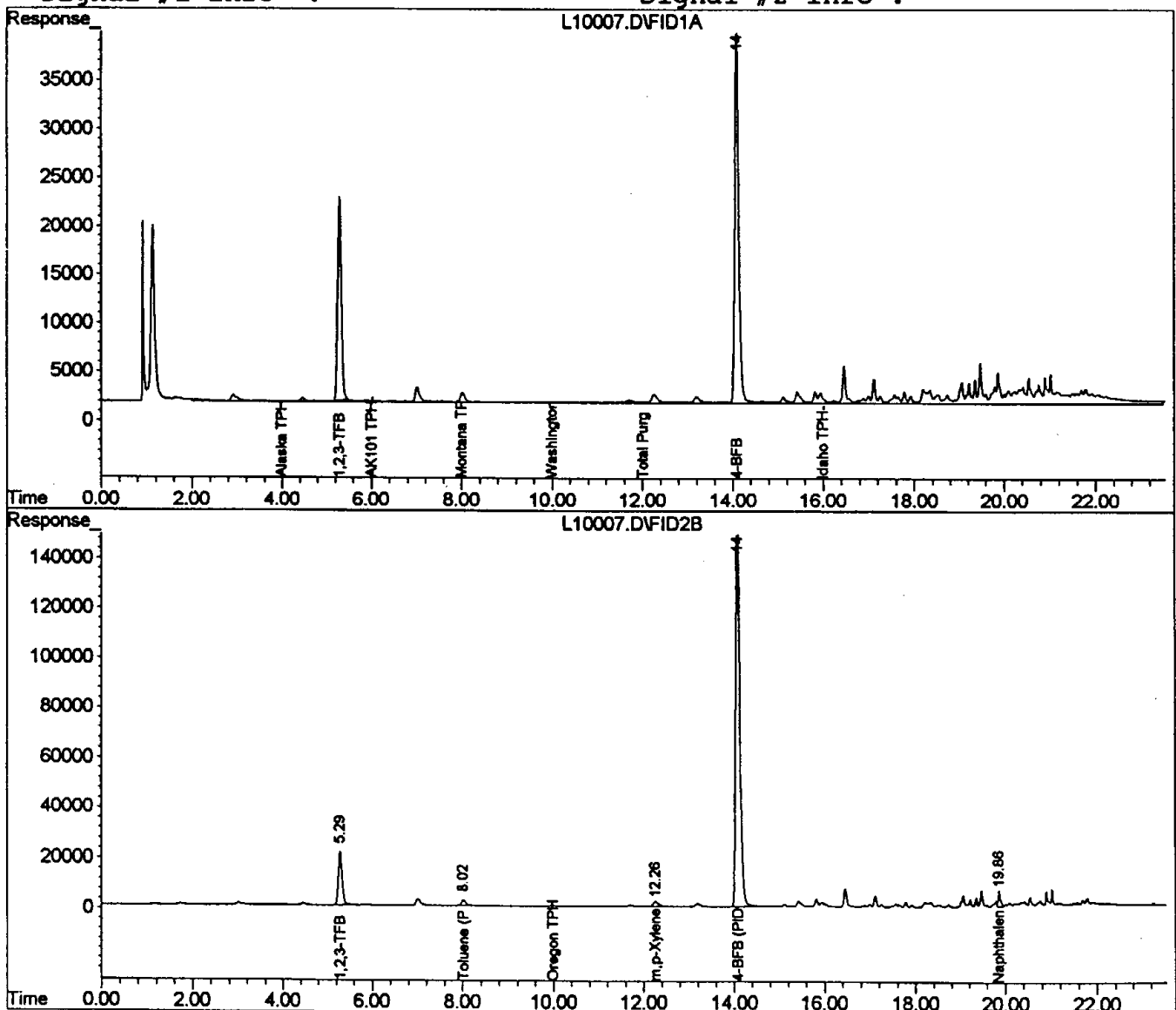
Data File : C:\HPCHEM\2\DATA\L10007.D\FID2B.CH
 Acq On : 10 Dec 97 8:44 am
 Sample : b712081-03 r1
 Misc : 5 mL
 IntFile : SURR2.E

Vial: 7
 Operator: lac
 Inst : GC #4
 Multiplr: 1.00

Quant Time: Dec 10 9:09 1997 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\2\METHODS\TPHG.M (Chemstation Integrator)
 Title : TPH-G Water Method
 Last Update : Tue Dec 02 07:57:55 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : TPHG.M

Volume Inj. :
 Signal #1 Phase :
 Signal #1 Info :
 Signal #2 Phase :
 Signal #2 Info :



0174

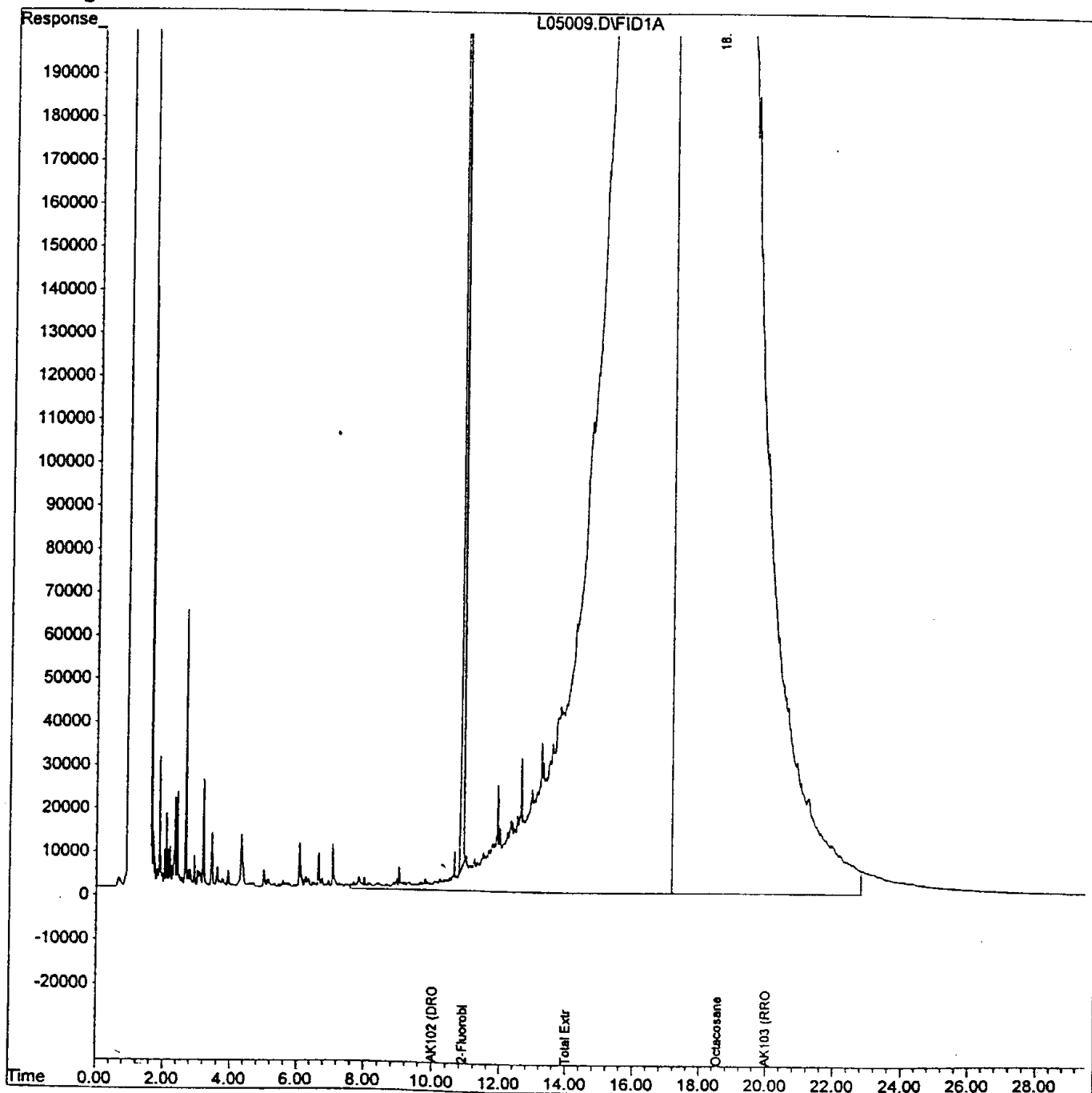
Data File : C:\HPCHEM\3\DATA\L05009.D
Acq On : 5 Dec 1997 16:25
Sample : b712081-01
Misc : s
IntFile : SURR.E

Vial: 8
Operator:
Inst : GC #5
Multiplr: 1.00

Quant Time: Dec 5 16:55 1997 Quant Results File: AK102.RES

Quant Method : C:\HPCHEM\3\METHODS\AK102.M (Chemstation Integrator)
Title : AK102 Front Method
Last Update : Fri Dec 05 13:26:45 1997
Response via : Multiple Level Calibration
DataAcq Meth : AK102.M

Volume Inj. :
Signal Phase :
Signal Info :



Data File : C:\HPCHEM\3\DATA\L05010.D
 Acq On : 5 Dec 1997 17:03
 Sample : b712081-02
 Misc : s
 IntFile : SURR.E
 Quant Time: Dec 5 17:33 1997

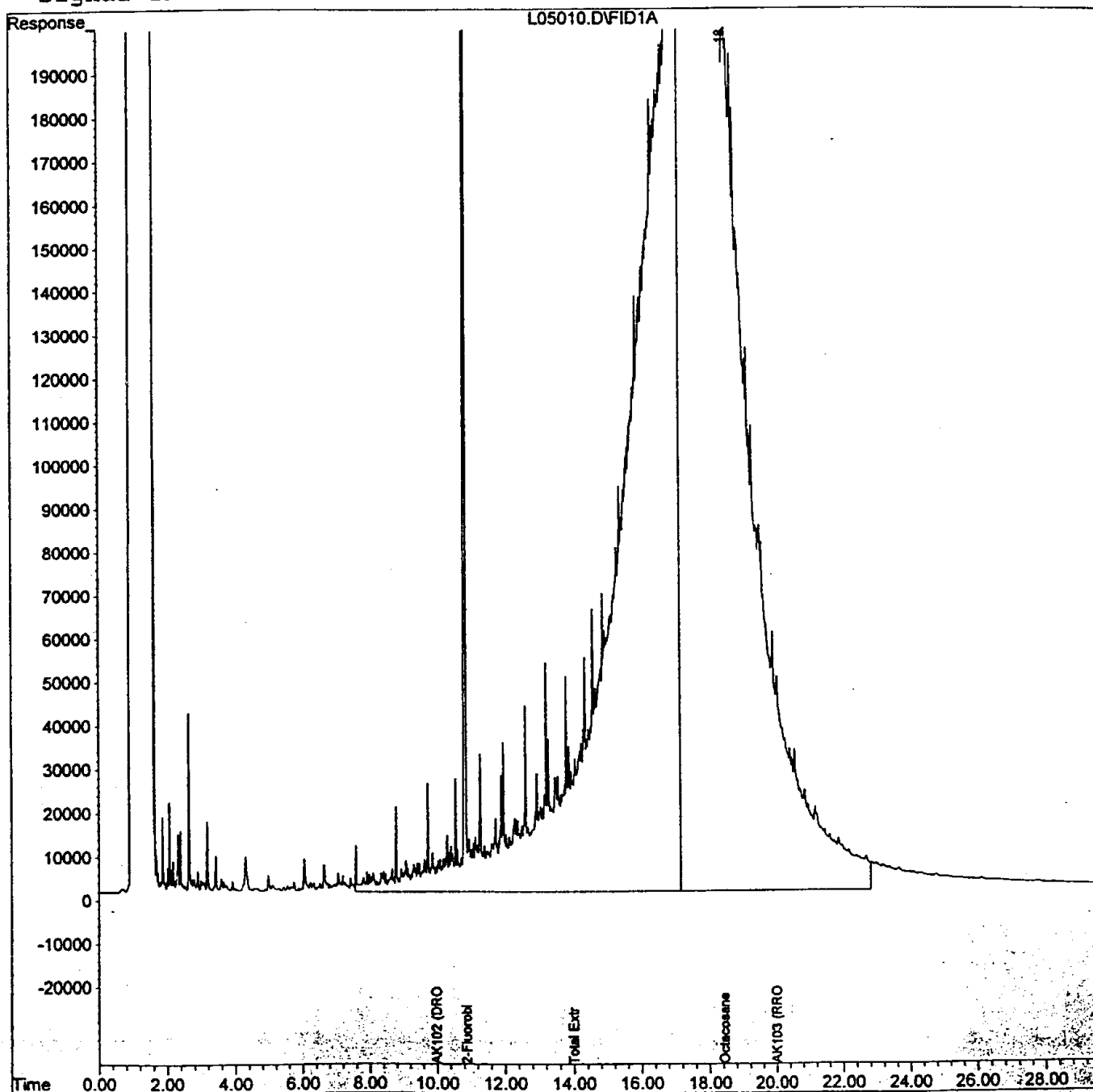
Vial: 9
 Operator:
 Inst : GC #5
 Multiplr: 1.00

0175

Quant Results File: AK102.RES

Quant Method : C:\HPCHEM\3\METHODS\AK102.M (Chemstation Integrator)
 Title : AK102 Front Method
 Last Update : Fri Dec 05 13:26:45 1997
 Response via : Multiple Level Calibration
 DataAcq Meth : AK102.M

Volume Inj. :
 Signal Phase :
 Signal Info :



Data File : C:\HPCHEM\3\DATA\L05017.D

Acq On : 5 Dec 1997 21:25

Sample : b712081-03

Misc : s

IntFile : SURR.E

Quant Time: Dec 6 9:55 1997 Quant Results File: AK102.RES

Vial: 15

Operator:

Inst : GC #5

Multiplr: 1.00

0176

Quant Method : C:\HPCHEM\3\METHODS\AK102.M (Chemstation Integrator)

Title : AK102 Front Method

Last Update : Fri Dec 05 13:26:45 1997

Response via : Multiple Level Calibration

DataAcq Meth : AK102.M

Volume Inj. :

Signal Phase :

Signal Info :

