



October 23, 2008

Mr. David Jacobi  
Wilson Smith Cochran Dickerson  
1700 Financial Center  
1215 Fourth Avenue  
Seattle, Washington 98161-1007

**Re: Soil and Groundwater Quality Investigation Results**  
Project No. 080129-001-01

Dear David:

This report presents the results of a soil and groundwater quality investigation completed by Aspect Consulting, LLC (Aspect) at the Ken's Texaco property (the Site), located at 101 East University Way in Ellensburg, Washington (Figure 1). The Site is approximately 0.4 acres in size, and is bounded to the west by North B Street, to the north by residential property, to the east by a parking lot and commercial property and to the south by East University Way. The Site is currently occupied by an unbranded service station and truck rental agency. A total of four underground storage tanks (USTs) are located beneath a concrete UST pad located west of the station building and pump island (Figure 2). It is our understanding that both gasoline and diesel fuel are currently sold at the Site.

Aspect's completed scope of work included the following elements:

- Drill four hollow-stem auger borings to water table, collecting soil samples for laboratory analysis during drilling;
- Complete three of the borings as 2-inch-diameter monitoring wells;
- Develop, purge, and sample the groundwater monitoring wells and submit the samples for laboratory analysis; and
- Prepare a report summarizing the findings of the investigation.

## Previous Site Investigations

A UST Site Assessment was completed in June 2006 by PBS Engineering and Environmental (PBS) and documented in *Limited Underground Storage Tank Assessment at the Texaco Service Station, 101 East University Way, Ellensburg, Washington*, dated July 5, 2006. The scope of this investigation included drilling six direct-push borings and collecting soil samples for laboratory analysis. Boring locations are shown on Figure 2. The PBS borings were advanced around the UST pad (locations GP-1, 5, and 4), along the southern property boundary outboard of the pump island (location GP-3), near the fuel lines (location GP-6), and inside the service bay (location GP-2).

Gasoline-range total petroleum hydrocarbons (TPH) was detected above the Washington State Department of Ecology (Ecology) MTCA Method A soil cleanup level for unrestricted land use at locations GP-4 and 5 near the UST nest, and at location GP-2 in the service bay. Oil-

Ken's Texaco  
F/S 66823128

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WA STATE  
DEPARTMENT OF ECOLOGY  
SW REGIONAL OFFICE

range TPH was also detected in the boring at location GP-2, but at concentrations below MTCA Method A cleanup level for unrestricted land use.

The PBS report cited the presence of an earlier UST system that was removed in 1968. The older UST system was reportedly in the same area as the new system. The PBS report concluded that affected soil appeared to be present in the same area as the former USTs, and suggested the possibility that "*contamination was already in place when the Texaco station was constructed*".

A former 280-gallon waste oil UST, located east of the station building, was removed in 1993. A site assessment was completed at the time of UST removal by Sage Earth Service, Inc. (*Closure Site Assessment for the Ken's Texaco, Inc. Facility, Ellensburg, Washington*, Sage Earth Sciences Inc., February 22, 1994). The assessment indicated that the tank was in apparent good condition, but that there were visual indicators of hydrocarbons in soil around the UST. Two sidewall samples and three stockpile samples were collected and analyzed for TPH by Method 418.1. The stockpile samples were also analyzed for total metals (lead, arsenic, cadmium, chromium, and mercury). The sidewall samples contained TPH at concentrations ranging from 60 to 28,779 milligrams per kilograms (mg/kg). The stockpile samples contained TPH at concentrations ranging from 5,977 to 48,536 mg/kg. No overexcavation of affected soil was attempted, and the soil excavated to accommodate UST removal was reportedly used to subsequently backfill the UST excavation.

## **Current Investigation**

The scope of the Aspect's investigation included drilling four hollow stem auger borings, collecting soil samples from the borings for laboratory analysis, installing three monitoring wells, developing the wells, and collecting groundwater samples for laboratory analysis. The following sections briefly describe field investigation methods and presents soil and groundwater sampling laboratory analytical results.

### **Soil Boring Installation and Soil Sampling**

Four borings (MW-1 through MW-4) were completed by Cascade Drilling, Inc. on July 21 and 22, 2008 at the locations shown on Figure 2. The borings were logged by an Aspect geologist, and boring logs are provided in Attachment A.

The borings were completed to depths of 24 to 29 feet below ground surface (bgs). Soils encountered during drilling generally consisted of 10 to 14 feet of gravelly silt to silty gravels overlying non-silty to silty sands and gravels. Groundwater was encountered during drilling at depths of between 16 and 24 feet bgs. Borings MW-1, MW-2 and MW-3 were completed as monitoring wells following the Minimum Standards for Construction and Maintenance of Wells, Washington Administrative Code (WAC) Chapter 173-160. Boring MW-4 was backfilled with hydrated bentonite chips upon completion of sampling activities. All drill cuttings were placed in Department of Transportation-approved 55-gallon drums and stored onsite.

Soil samples were collected from each boring at 2.5-foot intervals using a Dames and Moore split barrel sampler with a 300-pound slide hammer. All soil samples were field-screened for volatile organic vapors with a photoionization detector (PID), and by using visual and



olfactory methods. Any odor, sheen, or staining characteristics observed from the soil samples was documented on the boring logs. Soil descriptions were performed in general accordance with ASTM method D-2488-84, *Standard Method for Description and Identification of Soils (Visual/Manual Procedure)*, and are included on the boring logs in Attachment A.

A total of eight soil samples were selected for laboratory analysis. These samples were placed in laboratory provided iced cooler and submitted to Friedman and Bruya Inc. in Seattle, Washington under industry-standard chain-of-custody procedures.

### **Groundwater Sampling**

Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3 using low flow sampling techniques. The samples were collected using a down-hole bladder pump with disposable bladders and new polyethylene tubing for each well. Field parameters including temperature, pH, dissolved oxygen and conductivity were monitored during purging of the wells until parameter had stabilized to within +/- 10 percent of the previous reading. Once field parameters stabilized, samples were collected directly from the pump discharge tubing into laboratory-supplied sample containers. Groundwater samples were placed in an iced cooler and submitted to Friedman and Bruya Inc. in Seattle, Washington under industry-standard chain-of-custody procedures.

### **Hydrogeologic Conditions**

Groundwater was encountered at the Site in unconsolidated sands and gravel at a depth of approximately 16 feet bgs. Nearby surface water bodies include Wilson Creek, located 2,000 feet to the east, and Mercer Creek, located 1,700 feet to the west. Both creeks drain to Yakima River in a southwesterly direction. Regional groundwater flow in the Ellensburg area is expected to be to the south or southwest, towards the Yakima River. Local groundwater flow direction at the Site, based local topography and surface water occurrence, may be more southeast, towards Wilson Creek.

### **Soil Analytical Results**

All retained samples were analyzed for gasoline-range TPH by Method NWTPH-Gx, and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021 and for oil- and diesel-range TPH by Method NWTPH-Dx. Soil sample results are summarized on Table 1, and laboratory certificates are included in Attachment B. Gasoline-range TPH was detected in soil samples collected from borings MW-1, MW-2 and MW-3 at concentrations ranging from 3 mg/kg to 54 mg/kg. Detected concentrations in samples from MW-1 at 15.5 feet bgs and MW-3 at 4 feet bgs exceeded the MTCA Method A unrestricted land use cleanup level of 30 mg/kg for TPH as gasoline (when benzene is present). Gasoline-range TPH was not detected in the soil sample collected from boring MW-4.

Diesel- and oil-range TPHs were detected in soil samples collected from 4 feet bgs and 9 feet bgs in boring MW-3, located near the former water oil UST. The detected concentrations of TPH as oil in these samples were above the applicable MTCA Method A unrestricted land use cleanup level of 2,000 mg/kg.

Trace concentrations of one or more BTEX compounds were detected in soil samples collected from borings MW-1, MW-2 and MW-3. Benzene was detected in the sample from boring MW-22 at 22 feet bgs at a concentration of 0.11 mg/kg, which is marginally above the MTCA Method A unrestricted land use cleanup level of 0.03 mg/kg for benzene. All other detected BTEX compound concentrations in soil were below applicable Method A cleanup levels.

### **Groundwater Analytical Results**

Retained groundwater samples were analyzed for gasoline-range TPH by Method NWTPH-Gx, BTEX by EPA Method 8021 (MW-1 and 2), and oil- and diesel-range TPH by Method NWTPH-Dx. Given the proximity of MW-3 to the former waste oil tank, the groundwater sample from MW-3 was also analyzed for volatile organic compounds (VOCs) by EPA Method 8260B. Groundwater analytical results are summarized in Table 2, and laboratory certificates are included in Attachment B.

Gasoline-range TPH was detected in groundwater at concentrations above the MTCA Method A cleanup level of 800 micrograms per liter ( $\mu\text{g/L}$ ) in samples from wells MW-1 (910  $\mu\text{g/L}$ ) and MW-2 (3,000  $\mu\text{g/L}$ ). Benzene was also detected in well MW-2 at a concentration of 460  $\mu\text{g/L}$ , which is above the MTCA Method A groundwater cleanup level for benzene of 5  $\mu\text{g/L}$ . All other detected BTEX compound concentrations in groundwater were below applicable MTCA Method A cleanup levels.

Several non-BTEX VOC compounds were also detected in the groundwater sample from well MW-3. Detected VOC compounds included naphthalene, n-propylbenzene, isopropylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, and chloroform. These compounds, with the exception of chloroform, are VOCs typically associated with petroleum hydrocarbon mixtures. The chlorinated VOC chloroform is a common disinfectant by-product associated with municipal drinking water supplies, and the source of chloroform is likely an on-property or nearby septic drainfield.

Diesel-range TPH was detected above the MTCA Method A groundwater cleanup level of 500  $\mu\text{g/L}$  in the samples collected from well MW-2 (640  $\mu\text{g/L}$ ) and well MW-3 (1,600  $\mu\text{g/L}$ ). The groundwater sample from MW-3, located near the former waste oil UST, also contained oil-range TPH at a concentration of 2,000  $\mu\text{g/L}$ , which exceeds the MTCA Method A cleanup level of 500  $\mu\text{g/L}$  for TPH as oil.

### **Summary of Findings**

The results of the current and historic investigations confirm the presence of gasoline-, diesel- and oil-range TPH and related compounds in soil and groundwater at the Site at concentrations above current MTCA Method A cleanup levels. Affected soil and groundwater were documented to the south and west of the existing USTs, and also to the east of the station building near the location of the former waste oil UST. The full nature and extent of affected soil and groundwater at the Site has not been delineated.

Based on the distribution and nature of compounds present at the Site, historic leakage or spillage of gasoline and diesel fuel appears to have occurred in the vicinity of the present day UST system, which is reportedly in the same location as a pre-1968 UST system. Additionally,



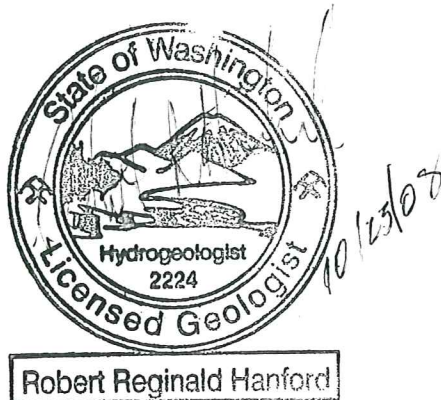
historic leakage or spillage is indicated in the area of former waste oil UST system that was removed in 1993. The timing, extent and magnitude of historic releases are currently unknown.

### Limitations

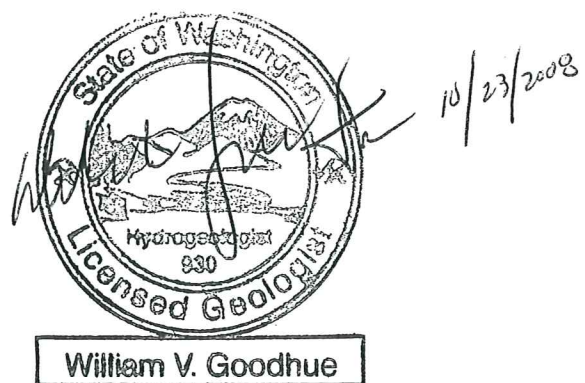
Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Wilson Smith Cochran Dickerson for specific application to the referenced property. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

Sincerely,

Aspect consulting, LLC



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Senior Project Geologist  
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**William V. Goodhue, LHG**  
Senior Associate Hydrogeologist  
cgoodhue@aspectconsulting.com

Attachments: Table 1 – Soil Sample Analytical Results Summary  
Table 2 – Groundwater Sample Analytical Results Summary  
Figure 1 – Site Location Map  
Figure 2 – Site and Exploration Plan  
Attachment A – Boring Logs  
Attachment B – Laboratory Certificates

# Table 1 - Soil Sample Analytical Results Summary

Ken's Texaco - Ellensburg, Washington

Sample Information		Analytical Method						
Sample Identification	Sample Date	Gasoline by NWTPH-Gx	BTEX Compounds by EPA Method 8021				NWTPH-Dx	
		Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	Diesel (mg/kg)	Motor Oil (mg/kg)
MW-1-15.5	7/21/2008	51	<0.02	0.09	<0.02	0.52	<50	<250
MW-1-20.5	7/21/2008	25	<0.02	0.06	<0.02	0.41	<50	<250
MW-2-14.5	7/21/2008	10	<0.02	<0.02	<0.02	0.16	<50	<250
MW-2-22.0	7/21/2008	3	<b>0.11</b>	<0.02	0.05	0.1	<50	<250
MW-3-4.0	7/21/2008	<b>54</b>	<0.02	0.06	0.13	1.8	1700 <sup>1</sup>	<b>7100</b>
MW-3-9.0	7/21/2008	16	<0.02	<0.02	0.03	0.23	1600 <sup>1</sup>	<b>6700</b>
MW-3-19.5	7/21/2008	8	<0.02	<0.02	<0.02	<0.06	100	<250
MW-4-22.0	7/22/2008	<2	<0.02	<0.02	<0.02	<0.06	<50	<250
<b>MTCA Method A Soil Cleanup Levels for Unrestricted Land Use</b>		<b>30<sup>2</sup></b>	<b>0.03</b>	<b>7</b>	<b>6</b>	<b>9</b>	<b>2000</b>	<b>2000</b>

54 - Exceedance of MTCA Method A cleanup level shown in bold italics.

<sup>1</sup> Laboratory narrative indicates the pattern of peaks present is not indicative of diesel.

<sup>2</sup> Cleanup level for gasoline when benzene is not present.





**Table 2 - Groundwater Sample Analytical Results Summary**

Ken's Texaco - Ellensburg, Washington

Sample Information		Analytical Method					
Sample Identification	Sample Date	Gasoline by NWTPH-Gx	BTEX Compounds by EPA Method 8021 or EPA Method 8260B			NWTPH-Dx	
		Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-Benzene (µg/L)	Total Xylenes (µg/L)	Diesel (µg/L) Motor Oil (µg/L)
MW-1- 72208 <sup>1</sup>	7/28/2008	910	4	6	4	6	490 <250
MW-2-072208 <sup>1</sup>	7/28/2008	3,000	460	21	160	190	640 <250
MW-3-072208 <sup>2</sup>	7/28/2008	180	3.2	<1	4.2	11.1	1,600 2,000
<b>MTCA Method A Groundwater Cleanup Levels</b>		800 <sup>3</sup>	5	1,000	700	1,000	500 500

460 - Exceedance of MTCA Method A cleanup level shown in bold italics.

<sup>1</sup> BTEX by Method 8021

<sup>2</sup> BTEX by Method 8260B

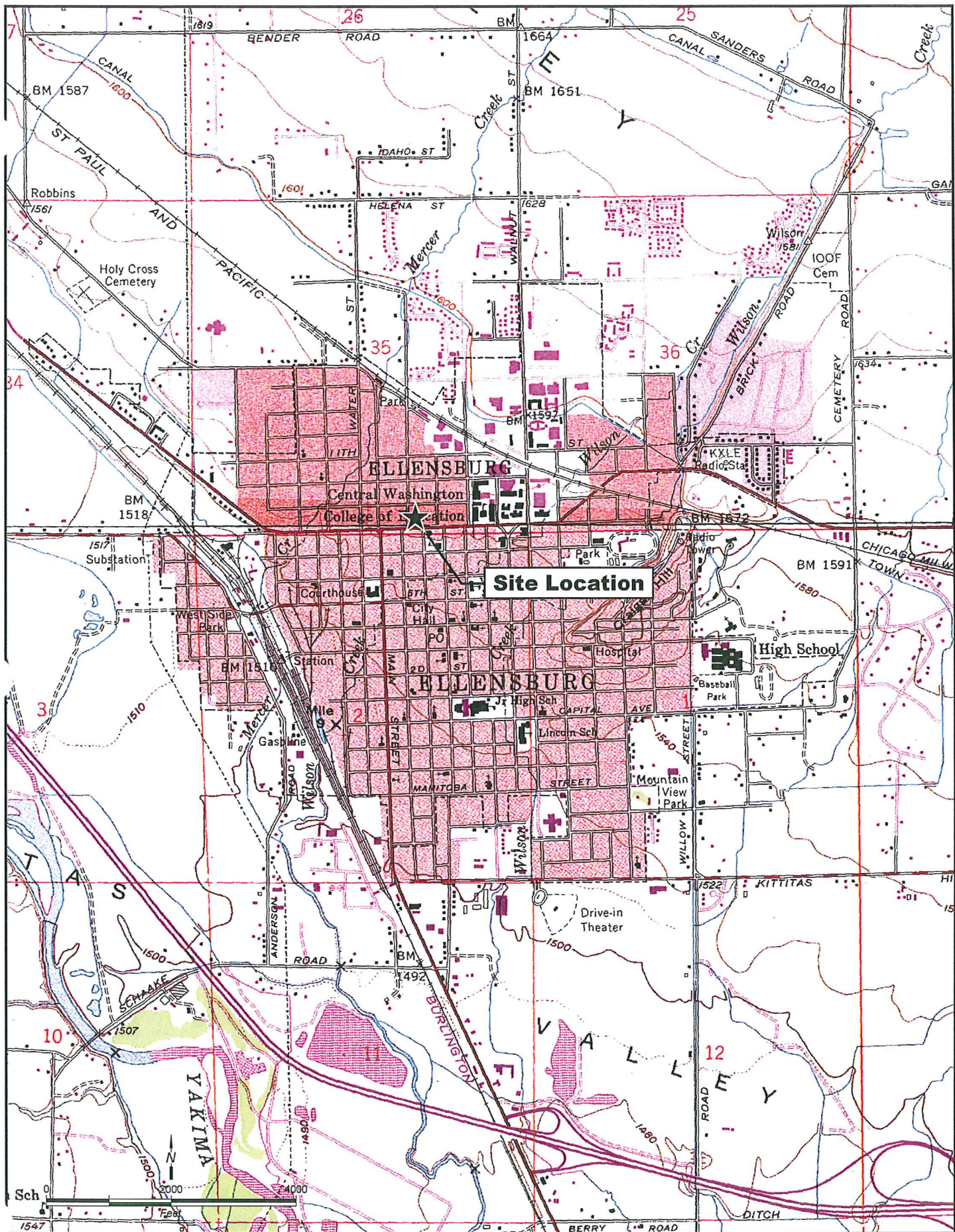
<sup>3</sup> Cleanup level for gasoline when benzene present.

Aspect Consulting, LLC

10/23/2008

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## Site Location Map

Ken's Texaco

101 East University Way, Ellensburg, Washington

**Aspect consulting**  
earth+water  
www.aspectconsulting.com

a limited liability company

DATE: Aug 2008  
DESIGNED BY: RRH  
DRAWN BY: PMB  
REVISED BY:

PROJECT NO.

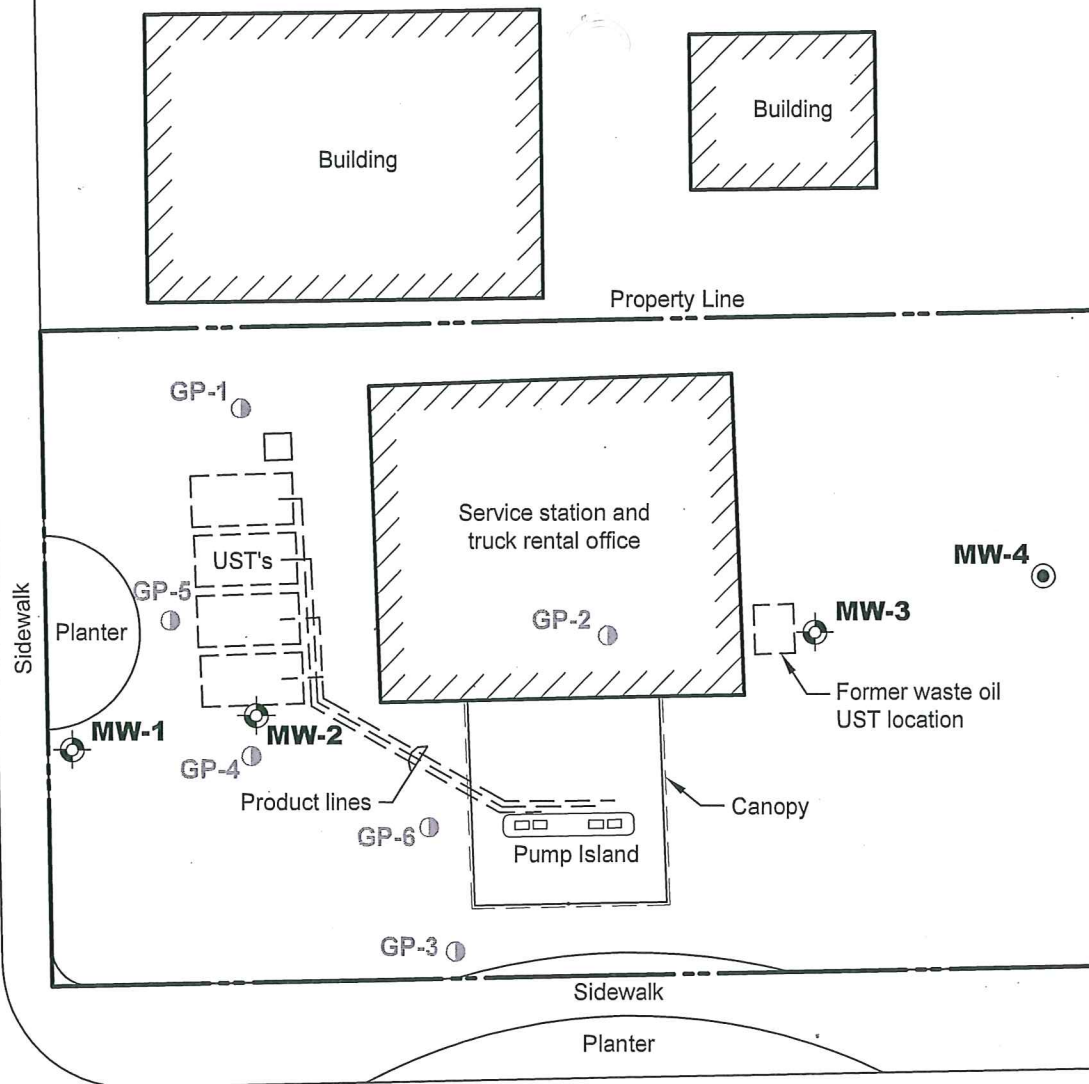
**080129**

FIGURE NO.




**1**

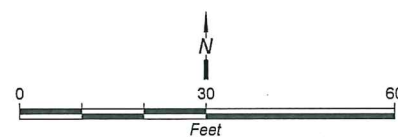


NORTH B STREET



## Legend

- MW-1**  Approximate location of monitoring well
- MW-4**  Approximate location of monitoring well
- GP-1**  Approximate location of previous soil boring



## Site and Exploration Plan

Ken's Texaco  
101 East University Way, Ellensburg, Washington

DATE:	Aug 2008	PROJECT NO.	
DESIGNED BY:	RRH		<b>080129</b>
DRAWN BY:	PMB	FIGURE NO.	
REVISED BY:			<b>2</b>



**ATTACHMENT A**

**Boring Logs**





# Boring Log

 Project Number  
**080129**

 Boring Number  
**MW-1**

 Sheet  
**1 of 1**

 Project Name  
**Ken's Texaco**

 Ground Surface Elev **104.77** Relative Site

 Location  
**Ellensburg, WA**

 Driller/Method  
**Cascade Drilling / Hollow Stem Auger**

 Depth to Water **16.20**

 Sampling Method **D&M, 300 lb. Jars / Hammer Weight: 300 lb / Hammer Drop:**

 Start/Finish Date **7/21/2008**

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
	8" flushmount monument, 2" J-plug well cap, concrete seal, 0'-1'						Very dense, slightly moist, brown, slightly sandy, slightly silty GRAVEL (GM). Coarse gravel, 3 in.	
5	2" diameter schedule 40 PVC casing, threaded connection, 0'-14'			0.0	12 50/6			5
	Hydrated bentonite chips 1'-12'			0.0	12 17 22		Slightly clayey, silty.	
10		MW-1-10.5		0.5	8 16 17			10
	#2/12 silica sand filter pack, 12'-24'			100	50/6		Moist.	
15		MW-1-15.5	TPH-D, TPH-G, BTEX	14.5	12 12 6		Medium dense, very moist, olive gray, slightly clayey SILT (ML). Slight petroleum odor.	15
	2" diameter, schedule 40 PVC screen, 10-slot, 14'-24'			146	5 3 2		Loose.	
20		MW-1-20.5	TPH-D, TPH-G, BTEX	15.8	5 3 3			20
	Threaded PVC endcap			1.4	18 50/6		Very dense, wet, olive gray, clayey, silty, SAND/GRAVEL (SC-GC), with root fragments. Fine sand, medium gravel.	
25							Boring terminated at 24 ft BGS.	25

Sampler Type:

- ☐ No Recovery
- ☒ 3.25" OD D&M Split-Spoon
- ☐ Ring Sampler

PID - Photoionization Detector (Headspace Measurement)

- ☒ Static Water Level
- ☐ Water Level (ATD)

 Logged by: **BMS**

 Approved by: **RRH**

 Figure No. **A - 2**

# Boring Log

 Project Number  
**080129**

 Boring Number  
**MW-2**

 Sheet  
**1 of 1**

 Project Name **Ken's Texaco**

 Ground Surface Elev **104.63 Relative Site**

 Location **Ellensburg, WA**

 Driller/Method **Cascade Drilling / Hollow Stem Auger**

 Depth to Water **16.35**

 Sampling Method **D&M, 300 lb. Jars / Hammer Weight: 300 lb / Hammer Drop:**

 Start/Finish Date **7/21/2008**



Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
	8" flushmount monument, 2" J-plug well cap, concrete seal, 0'-1'						Loose, slightly moist, brown, slightly clayey, slightly sandy SILT (ML). Coarse angular sand.	
5	2" diameter schedule 40 PVC casing, threaded connection 0'-16.5'				2 3 3			5
	Hydrated bentonite chips, 1'-14.5'				3 3 3		Slightly gravelly. Fine subrounded gravel.	
10		MW-2-10.5		8.2	2 2 3		Very moist, gray to black. No clay.	10
				44.7	50/6		Loose, dark gray, very moist, gravelly SAND (SP). Medium sand. Coarse gravel, 3 in. Petroleum odor.	
							Very stiff, wet, dark gray, slightly silty SAND/GRAVEL (SP-GP). Medium to coarse sand. Subangular gravel. Petroleum odor.	
15	#2/12 silica sand filter pack 14.5'-26.5'	MW-2-14.5	TPH-D, TPH-G, BTEX	237	4 3 4		Loose, gray to orange, clayey, silty.	15
							Loose, moist, brown yellow SILT (ML). Slight petroleum odor.	
							Loose, moist, gray, fine SAND (SP).	
							Loose, moist, yellow red, slightly clayey SILT (ML).	
	2" diameter, schedule 40 PVC screen, 10-slot, 16.5'-26.5'			0.5	3 4 6			
20					3 2 2		Very dense, gray, very moist, clayey, silty, fine SAND (SC-SM).	20
		MW-2-22.0	TPH-D, TPH-G, BTEX	3.9	14 25 31		Moist, green gray to olive gray, slightly silty SAND (SW). Medium to coarse sand. Petroleum odor.	
25				0.6	50/5		Very stiff, wet, brown, silty, very gravelly SAND (SP). Fine sand. Coarse subangular gravel, 2 in.	25
	Threaded PVC endcap						Boring terminated at 26.5 ft BGS.	

Sampler Type:

PID - Photoionization Detector (Headspace Measurement)

 Logged by: **BMS**

-  No Recovery
-  3.25" OD D&M Split-Spoon
-  Ring Sampler

-  Static Water Level
-  Water Level (ATD)

 Approved by: **RRH**

 Figure No. **A - 3**



Project Name **Ken's Texaco**

 Ground Surface Elev **104.03 Relative Site**

 Location **Ellensburg, WA**

 Driller/Method **Cascade Drilling / Hollow Stem Auger**

 Depth to Water **16.55**

 Sampling Method **D&M, 300 lb. Jars**



 Start/Finish Date **7/21/2008**

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	8" flushmount monument, 2" J-plug well cap, concrete seal, 0'-1'						Very loose, moist, dark gray, clayey, gravelly, SILT (ML). Fine to coarse gravel, subangular. Slight petroleum odor.	1
2								2
3								3
4	2" diameter schedule 40 PVC casing, threaded connection 0'-16.5'	MW-3-4.0	TPH-D, TPH-G, BTEX	51.1	2 1 1			4
5								5
6								6
7	Hydrated bentonite chips, 1'-17'			49.5	2 2 2		Slightly gravelly.	7
8								8
9		MW-3-9.0	TPH-D, TPH-G, BTEX		50/6		Very stiff, very gravelly.	9
10								10
11								11
12				13.5	50/		Slightly moist, olive gray.	12
13								13
14								14
15				22.2	7 7 15		Medium dense, slightly moist, olive gray, slightly clayey SILT/GRAVEL (GM-ML). Coarse gravel. Slight petroleum odor.	15
16								16
17				15.	50/6		Very stiff, moist, brown, slightly clayey, very gravelly SILT (ML). Coarse gravel, 2in., subangular. Slight petroleum odor.	17
18	#2/12 silica sand filter pack 17'-29'							18
19		MW-3-19.5	TPH-D, TPH-G, BTEX		3 3 6		Loose, slightly moist, olive gray to brown, silty CLAY (CL). Slight petroleum odor.	19
20				4.2				20
21	2" diameter, schedule 40 PVC screen, 10-slot, 19'-29'	MW-3-23.0			5 6 8		Stiff, moist, brown yellow, sandy SILT (ML). Fine sand. Very slight petroleum odor.	21
22				0.0				22
23								23
24				0.0	12 50/2		Very stiff, very moist, brown yellow, silty, very gravelly SAND (SM). Medium sand. Coarse gravel, 3in. Very	24

Sampler Type:

- ☐ No Recovery
- ☒ 3.25" OD D&M Split-Spoon
- ☐ Ring Sampler

PID - Photoionization Detector (Headspace Measurement)

-  Static Water Level
-  Water Level (ATD)

 Logged by: **BMS**

 Approved by: **RRH**

 Figure No. **A - 4**

# Boring Log

 Project Number  
 080129

 Boring Number  
 MW-3

 Sheet  
 2 of 2

 Project Name **Ken's Texaco**

 Ground Surface Elev **104.03 Relative Site**

 Location **Ellensburg, WA**

 Driller/Method **Cascade Drilling / Hollow Stem Auger**

 Depth to Water **16.55**

 Sampling Method **D&M, 300 lb. Jars**

 Start/Finish Date **7/21/2008**

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
26							slight petroleum odor.	26
27		MW-3-27.0		0.0	50/5		Very stiff, wet, silty, very sandy GAVEL (GP). Coarse sand. Fine gravel.	27
28								28
29	Threaded PVC endcap							29
30								30
31								31
32								32
33								33
34								34
35								35
36								36
37								37
38								38
39								39
40								40
41								41
42								42
43								43
44								44
45								45
46								46
47								47
48								48
49								49

Sampler Type:

- ☐ No Recovery
- ☒ 3.25" OD D&M Split-Spoon Ring Sampler

PID - Photoionization Detector (Headspace Measurement)

- ☒ Static Water Level
- ☐ Water Level (ATD)

 Logged by: **BMS**

 Approved by: **RRH**

 Figure No. **A - 4**



Project Name **Ken's Texaco**

Ground Surface Elev \_\_\_\_\_

 Location **Ellensburg, WA**

 Driller/Method **Cascade Drilling / Hollow Stem Auger**

 Depth to Water **24 (ATD)**

 Sampling Method **D&M, 300 lb. Jars**

 Start/Finish Date **7/22/2008**



Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
1	Hydrated bentonite chip backfill						Very dense, slightly moist, brown, SILT/GRAVEL (GM-ML). Fine to coarse gravel, subrounded.	1
2								2
3								3
4					12			4
5				0.1	15			5
6					50			6
7				0.0	50/1		Very dense, slightly moist, brown, gravelly SILT (ML). Fine gravel, subangular.	7
8								8
9				0.0	18		Brown to brown yellow. Fine to coarse gravel.	9
10					50/2			10
11								11
12		MW-4-12.0		0.0	4		Medium dense.	12
13					4			13
14					10			14
15								15
16								16
17				0.0	22		Very dense, slightly moist, brown, slightly clayey, slightly gravelly, very silty SAND (SM). Fine sand. Coarse gravel, 2 in.	17
18					50/6			18
19				0.0	12		Dense, moist, dark brown, gravelly, clayey SILT (ML). Fine gravel, subangular.	19
20		MW-4-19.0			15			20
21					16			21
22		MW-4-22.0	TPH-D, TPH-G, BTEX	0.0	2		Medium dense, moist, dark brown, silty, gravelly SAND (SM).	22
23					3		Medium dense, moist, light brown, slightly gravelly, silty CLAY (CL). Coarse gravel, angular.	23
24					10		Very dense, wet, brown, silty, very sandy GRAVEL (GW). Fine to medium sand. Medium to coarse gravel, subangular.	24
24		MW-4-24.5		0.0	50/6			24
Boring terminated at 24.5 ft BGS								

Sampler Type:

PID - Photoionization Detector (Headspace Measurement)

 Logged by: **BMS**

- ☐ No Recovery
- ☒ 3.25" OD D&M Split-Spoon
- ☐ Ring Sampler

-  Static Water Level
-  Water Level (ATD)

 Approved by: **RRH**

 Figure No. **A - 5**

**ATTACHMENT B**

**Laboratory Certificates**



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Charlene Morrow, M.S.  
Yelena Aravkina, M.S.  
Bradley T. Benson, B.S.  
Kurt Johnson, B.S.

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

July 31, 2008

Chip Goodhue, Project Manager  
Aspect Consulting  
179 Madrone Lane North  
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on July 22, 2008 from the Ken's Texaco, F&BI 807226 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
c: Bob Hanford  
ASP0731R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on July 22, 2008 by Friedman & Bruya, Inc. from the Aspect Consulting Ken's Texaco, F&BI 807226 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
807226-01	MW-1-10.5
807226-02	MW-1-15.5
807226-03	MW-1-20.5
807226-04	MW-2-10.5
807226-05	MW-2-14.5
807226-06	MW-2-22.0
807226-07	MW-3-4.0
807226-08	MW-3-9.0
807226-09	MW-3-19.5
807226-10	MW-3-24.0
807226-11	MW-3-28.5
807226-12	MW-4-12.0
807226-13	MW-4-19.0
807226-14	MW-4-22.0
807226-15	MW-4-24.5

All quality control requirements were acceptable.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/31/08  
 Date Received: 07/22/08  
 Project: Ken's Texaco, F&BI 807226  
 Date Extracted: 07/28/08  
 Date Analyzed: 07/28/08 and 07/29/08

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES  
 FOR BENZENE, TOLUENE, ETHYLBENZENE,  
 XYLENES AND TPH AS GASOLINE  
 USING EPA METHOD 8021B AND NWTPH-Gx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 50-150)
MW-1-15.5 807226-02	<0.02	0.09	<0.02	0.52	51	104
MW-1-20.5 807226-03	<0.02	0.06	<0.02	0.41	25	104
MW-2-14.5 807226-05	<0.02	<0.02	<0.02	0.16	10	93
MW-2-22.0 807226-06	0.11	<0.02	0.05	0.10	3	81
MW-3-4.0 807226-07	<0.02	0.06	0.13	1.8	54	81
MW-3-9.0 807226-08	<0.02	<0.02	0.03	0.23	16	71
MW-3-19.5 807226-09	<0.02	<0.02	<0.02	<0.06	8	101
MW-4-22.0 807226-14	<0.02	<0.02	<0.02	<0.06	<2	81
Method Blank	<0.02	<0.02	<0.02	<0.06	<2	82

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/31/08  
Date Received: 07/22/08  
Project: Ken's Texaco, F&BI 807226  
Date Extracted: 07/25/08  
Date Analyzed: 07/26/08

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 50-150)
MW-1-15.5 807226-02	<50	<250	101
MW-1-20.5 807226-03	<50	<250	102
MW-2-14.5 807226-05	<50	<250	101
MW-2-22.0 807226-06	<50	<250	115
MW-3-4.0 807226-07	1,700 x	7,100	106
MW-3-9.0 807226-08	1,600 x	6,700	103
MW-3-19.5 807226-09	100	<250	103
MW-4-22.0 807226-14	<50	<250	101
Method Blank	<50	<250	103



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/31/08

Date Received: 07/22/08

Project: Ken's Texaco, F&BI 807226

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES, AND TPH AS GASOLINE  
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 807263-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<2	<2	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	90	70-130
Toluene	mg/kg (ppm)	0.5	88	70-130
Ethylbenzene	mg/kg (ppm)	0.5	86	70-130
Xylenes	mg/kg (ppm)	1.5	91	70-130
Gasoline	mg/kg (ppm)	20	82	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 07/31/08

Date Received: 07/22/08

Project: Ken's Texaco, F&BI 807226

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: 807265-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	11,000	136 b	172 b	50-150	23 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	121	70-130



**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

807226  
 V53/B03  
 ME 07/22/08

Sample Chain of Custody

Send Report To: Chip Goodhue  
 Company: Aspect  
 Address: 179 Madison Lane Bainbridge Island  
 City, State, ZIP: WA 98110  
 Phone #: (206) 780-7714 Fax #:

SAMPLERS (signature): [Signature]  
 PROJECT NAME/NO.: Nest Texaco  
 PO #:

REMARKS: Call chip before  
removing analysis

TURNAROUND TIME  
☒ Standard (2 Weeks)  
☐ RUSH  
 Rush charges authorized by:

SAMPLE DISPOSAL  
☐ Dispose after 30 days  
☐ Return samples  
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED						Notes
						TPH-Diesel	TPH-Gasoline	RTX by 8021B	VOCs by 8260	SVOCs by 8270	IIFS	
MW-1-10.5	01 A-E	7-21	0945	Soil	5	X	X	X			X	
MW-1-15.5	02 A-E	7-21	0955		5	X	X	X				
MW-1-20.5	03 A-E	7-21	1005		5	X	X	X				
MW-2-10.5	04 A-D	7-21	1140		4							
MW-2-14.5	05 A-D	7-21	1150		5	X	X	X				
MW-2-17.5		7-21										
MW-2-22.0	06 A-E	7-21	1300	Soil	5	X	X	X				
MW-3-4.0	07 A-E	7-21	1407		5	X	X	X				
MW-3-9.0	08 A-E	7-21	1416		5	X	X	X				
MW-3-19.5	09 A-E	7-21	1449		5	X	X	X				

Friedman & Bruya, Inc.		SIGNATURE		PRINT NAME		COMPANY		DATE		TIME	
3012 16th Avenue West		Relinquished to: <u>[Signature]</u>		Bill Sullivan		Aspect		7-22-08		1502	
Seattle, WA 98119-2029		Received by: <u>[Signature]</u>		Robert Hanford		ic ic		ic		ic	
Ph. (206) 285-8282		Relinquished to: <u>[Signature]</u>		Robert Hanford		ic ic		7-22-08		1735	
Fax (206) 3-5044		Received by: <u>[Signature]</u>		Dr. Gordon Matheson		F/R		ic		ic	



VS. B03

11

PROJECT NAME/NO.

Mens Texaco

REMARKS Call Chip before  
conducting analysis

Phone # 206 780-7741 Fax #

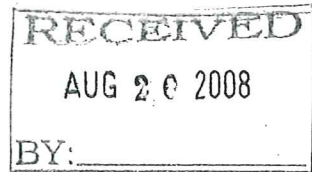
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <i>[Signature]</i>	Bill Sullivan	Aspect	7-22-08	1502
Received by: <i>[Signature]</i>	Robert Hanford	Aspect	7-22-08	1502
Relinquished by: <i>[Signature]</i>	Robert Hanford	Aspect	7-22-08	1735
Received by: <i>[Signature]</i>	Alexander, George	F/R	7-22-08	1735

**Friedman & Bruya, Inc.**  
3012 16th Avenue West  
Seattle, WA 98119-2029  
Ph. (206) 285-8282  
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Charlene Morrow, M.S.  
Yelena Aravkina, M.S.  
Bradley T. Benson, B.S.  
Kurt Johnson, B.S.



3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

August 11, 2008

Chip Goodhue, Project Manager  
Aspect Consulting  
179 Madrone Lane North  
Bainbridge Island, WA 98110

Dear Mr. Goodhue:

Included are the results from the testing of material submitted on July 25, 2008 from the 080129 Ken's Texaco, F&BI 807267 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

A handwritten signature in cursive script, appearing to read "Michael Erdahl".

Michael Erdahl  
Project Manager

Enclosures  
c: Bob Hanford  
ASP0811R.DOC

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### CASE NARRATIVE

This case narrative encompasses samples received on July 25, 2008 by Friedman & Bruya, Inc. from the Aspect Consulting 080129 Ken's Texaco, F&BI 807267 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Aspect Consulting</u>
807267-01	MW-1-072208
807267-02	MW-2-072208
807267-03	MW-3-072208

The 8260B naphthalene detection for sample MW-3-072208 is partially due to carryover from a previous sample injection. All other quality control requirements were acceptable.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

Date Extracted: 07/28/08

Date Analyzed: 07/29/08

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-G<sub>x</sub>**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Gasoline Range</u>	Surrogate (% Recovery) (Limit 51-134)
MW-3-072208 807267-03	180	102
Method Blank	<100	101

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

Date Extracted: 07/28/08

Date Analyzed: 07/28/08 and 07/29/08

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
FOR BENZENE, TOLUENE, ETHYLBENZENE,  
XYLENES AND TPH AS GASOLINE  
USING EPA METHOD 8021B AND NWTPH-Gx**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 52-124)
MW-1-072208 807267-01	4	6	4	6	910	115
MW-2-072208 d 807267-02 1/10	460	21	160	190	3,000	123
Method Blank	<1	<1	<1	<3	<100	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08  
Date Received: 07/25/08  
Project: 080129 Ken's Texaco, F&BI 807267  
Date Extracted: 07/28/08  
Date Analyzed: 07/29/08

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL AND MOTOR OIL  
USING METHOD NWTPH-Dx  
Results Reported as ug/L (ppb)**

<u>Sample ID</u> Laboratory ID	<u>Diesel Range</u> (C <sub>10</sub> -C <sub>25</sub> )	<u>Motor Oil Range</u> (C <sub>25</sub> -C <sub>36</sub> )	<u>Surrogate</u> (% Recovery) (Limit 51-132)
MW-1-072208 x 807267-01	490	<250	115
MW-2-072208 x 807267-02	640	<250	112
MW-3-072208 x 807267-03	1,600	2,000	128
Method Blank	<50	<250	111



# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID: MW-3-072208  
 Date Received: 07/25/08  
 Date Extracted: 07/28/08  
 Date Analyzed: 07/28/08  
 Matrix: Water  
 Units: ug/L (ppb)

Client: Aspect Consulting  
 Project: 080129 Ken's Texaco, F&BI 807267  
 Lab ID: 807267-03  
 Data File: 072811.D  
 Instrument: GCMS5  
 Operator: MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	79	69	124
1,2-Dichloroethane-d4	83	67	131
Toluene-d8	87	73	132
4-Bromofluorobenzene	118	81	146

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<1	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	4.2
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	7.8
Methylene chloride	<5	o-Xylene	3.3
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	1.0
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	2.6
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	1.4	1,3,5-Trimethylbenzene	1.7
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	3.2	1,2,4-Trimethylbenzene	14
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	4.4 cp
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Volatile Compounds By EPA Method 8260B

Client Sample ID:	Method Blank	Client:	Aspect Consulting
Date Received:	NA	Project:	080129 Ken's Texaco, F&BI 807267
Date Extracted:	07/28/08	Lab ID:	081188 mb
Date Analyzed:	07/28/08	Data File:	072806.D
Matrix:	Water	Instrument:	GCMS5
Units:	ug/L (ppb)	Operator:	MB

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Dibromofluoromethane	76	69	124
1,2-Dichloroethane-d4	76	67	131
Toluene-d8	85	73	132
4-Bromofluorobenzene	134	81	146

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<1	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon Tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<1	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<1
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE  
USING METHOD NWTPH-Gx**

Laboratory Code: 807255-12 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	80	69-134



# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 807255-12 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	91	65-118
Toluene	ug/L (ppb)	50	92	72-122
Ethylbenzene	ug/L (ppb)	50	101	73-126
Xylenes	ug/L (ppb)	150	98	74-118
Gasoline	ug/L (ppb)	1,000	80	69-134

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
DIESEL EXTENDED USING METHOD NWTPH-D<sub>x</sub>**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	102	101	67-141	1

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## ENVIRONMENTAL CHEMISTS

Date of Report: 08/11/08

Date Received: 07/25/08

Project: 080129 Ken's Texaco, F&BI 807267

### QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260B

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	115	104	22-164	10
Chloromethane	ug/L (ppb)	50	106	105	43-147	1
Vinyl chloride	ug/L (ppb)	50	103	102	48-142	1
Bromomethane	ug/L (ppb)	50	105	107	37-160	2
Chloroethane	ug/L (ppb)	50	102	92	28-161	10
Trichlorofluoromethane	ug/L (ppb)	50	104	98	52-143	6
Acetone	ug/L (ppb)	50	96	95	21-187	1
1,1-Dichloroethene	ug/L (ppb)	50	104	95	61-127	9
Methylene chloride	ug/L (ppb)	50	85	90	56-136	6
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	102	97	82-119	5
trans-1,2-Dichloroethene	ug/L (ppb)	50	103	98	78-118	5
1,1-Dichloroethane	ug/L (ppb)	50	97	96	78-117	1
2,2-Dichloropropane	ug/L (ppb)	50	92	89	62-139	3
cis-1,2-Dichloroethene	ug/L (ppb)	50	97	96	81-118	1
Chloroform	ug/L (ppb)	50	91	90	78-120	1
2-Butanone (MEK)	ug/L (ppb)	50	91	89	53-159	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	94	93	74-128	1
1,1,1-Trichloroethane	ug/L (ppb)	50	103	101	70-135	2
1,1-Dichloropropene	ug/L (ppb)	50	94	93	83-120	1
Carbon Tetrachloride	ug/L (ppb)	50	90	88	65-140	2
Benzene	ug/L (ppb)	50	92	91	79-115	1
Trichloroethene	ug/L (ppb)	50	96	95	80-114	1
1,2-Dichloropropane	ug/L (ppb)	50	97	96	80-117	1
Bromodichloromethane	ug/L (ppb)	50	96	95	79-127	1
Dibromomethane	ug/L (ppb)	50	93	92	85-116	1
4-Methyl-2-pentanone	ug/L (ppb)	50	100	100	57-163	0
cis-1,3-Dichloropropene	ug/L (ppb)	50	103	101	85-121	2
Toluene	ug/L (ppb)	50	90	91	82-116	1
trans-1,3-Dichloropropene	ug/L (ppb)	50	105	106	83-125	1
1,1,2-Trichloroethane	ug/L (ppb)	50	96	98	81-114	2
2-Hexanone	ug/L (ppb)	50	100	101	60-167	1
1,3-Dichloropropane	ug/L (ppb)	50	97	98	81-115	1
Tetrachloroethene	ug/L (ppb)	50	91	91	83-115	0
Dibromochloromethane	ug/L (ppb)	50	92	92	77-128	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	99	99	81-117	0
Chlorobenzene	ug/L (ppb)	50	89	90	80-109	1
Ethylbenzene	ug/L (ppb)	50	93	93	82-113	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	104	105	74-126	1
m,p-Xylene	ug/L (ppb)	100	95	95	82-115	0
o-Xylene	ug/L (ppb)	50	92	92	83-116	0
Styrene	ug/L (ppb)	50	91	91	85-116	0
Isopropylbenzene	ug/L (ppb)	50	86	86	83-120	0
Bromoform	ug/L (ppb)	50	96	96	77-119	0
n-Propylbenzene	ug/L (ppb)	50	90	90	77-122	0
Bromobenzene	ug/L (ppb)	50	94	93	80-112	1
1,3,5-Trimethylbenzene	ug/L (ppb)	50	92	92	80-119	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	94	94	72-115	0
1,2,3-Trichloropropane	ug/L (ppb)	50	96	96	77-114	0
2-Chlorotoluene	ug/L (ppb)	50	91	91	76-116	0
4-Chlorotoluene	ug/L (ppb)	50	90	90	78-116	0
tert-Butylbenzene	ug/L (ppb)	50	91	91	77-121	0
1,2,4-Trimethylbenzene	ug/L (ppb)	50	91	90	80-120	1
sec-Butylbenzene	ug/L (ppb)	50	90	90	77-122	0
p-Isopropyltoluene	ug/L (ppb)	50	94	92	84-119	2
1,3-Dichlorobenzene	ug/L (ppb)	50	91	91	78-114	0
1,4-Dichlorobenzene	ug/L (ppb)	50	90	89	79-110	1
1,2-Dichlorobenzene	ug/L (ppb)	50	89	89	80-114	0
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	93	94	84-125	1
1,2,4-Trichlorobenzene	ug/L (ppb)	50	96	96	76-113	0
Hexachlorobutadiene	ug/L (ppb)	50	101	98	65-129	3
Naphthalene	ug/L (ppb)	50	96	96	68-114	0
1,2,3-Trichlorobenzene	ug/L (ppb)	50	95	95	74-124	0

Note: The calibration verification result for chloromethane and 4-bromofluorobenzene exceeded 15% deviation. The average deviation for all compounds was not greater than 15%; therefore, the calibration is considered valid.



**Data Qualifiers & Definitions**

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

cp - The presence of the analyte indicated may be partially due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - The sample was extracted outside of holding time. Results should be considered estimates.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

505/V1

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