Consulting Engineers
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GeoEngineers

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Results of Quarterly Ground Water Monitoring and Sampling
March 2002
Texaco Service Station
1501 West Northern Lights Boulevard
Anchorage, Alaska

June 5, 2002

For
Shell Oil Products-US

GeoEngineers

June 5, 2002

0003

Shell Oil Products-US
10602 NE 38th Place
Kirkland, Washington 98033

Attention: Anthony J. Palagyi

Results of Quarterly Ground Water
Monitoring and Sampling
March 2002
Texaco Service Station
1501 West Northern Lights Boulevard
Anchorage, Alaska
ADEC File No. L25.20
GEI File No. 9876-004-00

INTRODUCTION

This letter presents the results of GeoEngineers' March 5, 2002, ground water monitoring and sampling at the Texaco Service Station located at 1501 West Northern Lights Boulevard in Anchorage, Alaska. The Alaska Department of Environmental Conservation (ADEC) file number for this site is L25.20. The site relative to surrounding physical features is shown on Figure 1. 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 station also operates an automated car wash along the northwest corner of the site. The general layout of the service station facilities and approximate locations of the monitoring wells are shown on Figure 2.

Statewide Petroleum Services removed a 550-gallon waste oil UST and replaced the fuel dispensers in October 1996. GeoEngineers provided environmental compliance monitoring and sampling during removal of the tank. In 1997, GeoEngineers performed a site assessment consisting of drilling four borings (B-1 through B-4). Monitoring well MW-1 was installed by GeoEngineers in the vicinity of the former waste oil UST in December 1997. Four monitoring wells, MW-A through MW-D, were installed by GeoEngineers in November 1999. The wells were positioned to monitor ground water contamination from the former waste oil UST, the northeast dispensing island and the south dispensing island. Two additional downgradient wells

GeoEngineers, Inc.
4951 Eagle Street
Anchorage, AK 99503-7432
Telephone (907) 561-3478
Fax (907) 561-5123
anchorage@geoengineers.com

(MW-E and MW-F) were installed by GeoEngineers in August 2001 to further characterize the extent of ground water contamination.

The purpose of our services in March 2002 was to monitor ground water conditions beneath the site. All wells to be monitored quarterly were sampled during this sampling event. Monitoring wells MW-A and MW-B were not sampled during this ground water monitoring event. The ground water samples from monitoring wells MW-C, MW-D, MW-E and MW-F were analyzed for benzene, ethylbenzene, toluene and xylenes (BETX) and gasoline-range organics (GRO) by Method AK101. Additionally, the ground water sample collected from MW-1 was analyzed for GRO/BETX by Method AK101, diesel-range organics (DRO) by Method AK102 and residual-range organics (RRO) by Method AK103.

Furthermore, a second round of oxygenate sampling from monitoring wells MW-C and MW-E was conducted as part of a voluntary program initiated by Shell Oil Products-US. These wells were selected based on historical BETX and GRO concentrations. The oxygenates tested were methyl tertiary-butyl ether (MTBE), tertiary-butyl alcohol (TBA), diisopropyl ether (DIPE), ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME) and ethanol.

The following sections discuss ground water monitoring. Monitoring and analytical data are presented in Tables 1 and 2, and on Figure 2 and 3.

GROUND WATER MONITORING AND SAMPLING

- The measured depths to ground water in the monitoring wells on March 5, 2002, ranged from 13.33 feet below the top of the well casing at MW-E to 14.88 feet below the top of the well casing at MW-D. Ground water elevations measured from August 2001 through March 2002 are presented in Table 1.
- The apparent shallow ground water flow direction calculated from the March 2002 depth to ground water measurements is generally toward the southwest, which is consistent with previous ground water monitoring data.
- Free product was not encountered during our monitoring activities.
- No purge water was generated during the sampling event. The representative ground water samples were collected with new, disposable bailers using no-purge sampling techniques, as authorized by ADEC in a letter dated February 24, 1998.
- A field duplicate ground water sample was collected from monitoring well MW-C. The sample was identified as "Duplicate" on the laboratory chain-of-custody. BETX and GRO compounds were detected in samples from MW-C and the duplicate sample. A comparison of these values indicated that the relative percent differences (RPD) were within acceptable control limits for benzene and GRO. The RPD for ethylbenzene, toluene and xylenes were outside of the accepted control limits.
- Benzene concentrations increased noticeably in monitoring wells MW-D, MW-E and MW-F. GRO concentrations increased noticeably in monitoring well MW-F and decreased in monitoring well MW-E.

- The ground water BETX, GRO, DRO and RRO chemical analytical data for samples collected on March 5, 2002, are summarized in Table 2 and shown on Figure 3.
- GRO detections in MW-C and MW-E were identified by the laboratory chromatograms as not being typical for a gasoline pattern. We will analyze these wells for halogenated volatile organic compounds (HVOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B during the next quarterly sampling event to identify the eluting compounds accounting for the GRO detections.
- No oxygenates were detected in the samples from MW-C and MW-E.
- The laboratory reports and chain-of-custody records for the ground water samples collected in March 2002 are included in Attachment A.

FUTURE MONITORING AND SAMPLING

- Measure ground water levels and collect representative ground water samples from accessible monitoring wells on a quarterly basis for the same parameters listed in this report.
- Submit ground water from MW-C and MW-E for additional analysis by EPA Method 8260B to identify the eluting compounds accounting for GRO detections.
- The next quarterly monitoring event is scheduled for June 2002.

LIMITATIONS

We have prepared this report for use by Shell Oil Products-US. This report may be made available to regulatory agencies and to other parties, as designated by Shell. 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, express or implied, should be understood.

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We appreciate the opportunity to be of service to Shell Oil Products-US. Please contact us if you have questions regarding this project.

Yours very truly,

GeoEngineers, Inc.

Jamie J. Oakley
Geologist

Scott E. Widness, P.E.
Principal

JJO:SEW:skl
Document ID: Anch\0987004\00\Final\987600400qr1.doc

Attachments

Two copies submitted

cc: Robert Weimer
ADEC - Anchorage Office

TABLE 1
SUMMARY OF GROUND WATER ELEVATION DATA
TEXACO SERVICE STATION
1501 WEST NORTHERN LIGHTS BOULEVARD
ANCHORAGE, ALASKA
GEI JOB #9876-004-00

Monitoring Well	Top of Casing Elevation[1] (feet)	Date	Depth to Water From Top of Casing (feet)	Ground Water Elevation (feet)
MW-1	98.99	08/07/01	13.74	85.25
		11/08/01	14.18	84.81
		03/05/02	14.53	84.46
MW-A	98.35	08/07/01	12.97	85.38
		11/08/01	13.43	84.92
		03/05/02	13.78	84.57
MW-B	98.37	08/07/01	13.21	85.16
		11/08/01	13.66	84.71
		03/05/02	14.05	84.32
MW-C	98.69	08/07/01	13.31	85.38
		11/08/01	13.76	84.93
		03/05/02	13.95	84.74
MW-D	99.27	08/07/01	14.18	85.09
		11/08/01	14.60	84.67
		03/05/02	14.88	84.39
MW-E	97.66	08/07/01	12.70	84.96
		11/08/01	13.08	84.58
		03/05/02	13.33	84.33
MW-F	98.14	08/07/01	13.19	84.95
		11/08/01	13.59	84.55
		03/05/02	13.88	84.26

Notes:
[1] Elevations are relative to an assumed site datum (southeast building corner)

TABLE 2 (Page 1 of 2)
SUMMARY OF RECENT AND HISTORICAL CHEMICAL ANALYTICAL RESULTS - GROUND WATER[1]
TEXACO SERVICE STATION
1501 WEST NORTHERN LIGHTS BOULEVARD, ANCHORAGE, ALASKA
GEI JOB #9876-004-00

Well ID	Date Sampled	BETX[2] ADEC Method AK101 (µg/l) B	E	T	X	GRO[3] (µg/l)	DRO[4] (mg/l)	RRO[5] (mg/l)	Dissolved Metals[6] (mg/l)	PAH[7] (µg/l)
MW-1	08/07/01	--	--	--	--	--	0.581 [8]	1.69	--	ND
	11/08/01	--	--	--	--	--	0.433 [8]	1.12	--	--
	03/05/02	<0.200	<0.500	<0.500	<1.00	<50.0	0.228 [8]	<0.750	--	--
MW-C	08/07/01	1.96	3.34	0.867	54.2	1,490	--	--	--	--
	08/07/01 *	5.54	7.70	1.98	107	3,440	--	--	--	--
	11/08/01 [9]	1.35	1.46	0.907	10.3	1,620	--	--	--	--
	03/05/02 [9]	1.43	0.568	0.911 [10]	13.1	885 [11]	--	--	--	--
	03/05/02 *	1.90	1.63	1.28 [10]	18.2 [10]	998 [11]	--	--	--	--
MW-D	08/07/01	4.38	39.6	0.675	72.1	1,030	--	--	--	--
	11/08/01	4.31	49.7	<1.00	104	1,120	--	--	--	--
	03/05/02	6.92	32.4	0.901 [10]	84.0	1,180	--	--	--	--
MW-E	08/07/01	25.0	231	61.9	3,110	4,850	0.957 [10]	<0.750	--	Naphthalene = 8.29
	11/08/01 [9]	20.9	173	<10.0	1,720	5,390	--	--	--	--
	11/08/01 *	22.2	170	<10.0	1,690	5,340	--	--	--	--
	03/05/02 [9]	36.3	63.2	8.78	735	1,640 [11]	--	--	--	--
MW-F	08/07/01	2.20	28.4	0.728	45.6	487	0.273 [10]	<0.750	--	Naphthalene = 0.309
	11/08/01	3.38	40.2	1.49 [10]	62.2	771	--	--	--	--
	03/05/02	7.84	66.0	1.89 [10]	172	2,940	--	--	--	--
ADEC Ground Water Cleanup Levels		5	700	1,000	10,000	1,300	1.5	1.1	Barium = 2.0 Silver = 0.18 Chromium = 0.1	Naphthalene = 1,460

Notes appear on page 2 of 2.

TABLE 2 (Page 2 of 2)

Notes:

[1]Laboratory analysis conducted by North Creek Analytical in Bothell, Washington.

[2]B = benzene, E = ethylbenzene, T = toluene, X = xylenes

[3]GRO = Gasoline-Range Organics by ADEC Method AK101

[4]DRO = Diesel-Range Organics by ADEC Method AK102

[5]RRO = Residual-Range Organics by ADEC Method AK103

[6]Dissolved Metals by U.S. Environmental Protection Agency (EPA) Method Series 6000/7000. Includes arsenic, barium, cadmium, chromium, lead, selenium, mercury and silver. These metals were not detected in the sample unless noted otherwise.

[7]PAH = Polynuclear Aromatic Hydrocarbons by EPA Method 8270-SIM

[8]Laboratory chromatrograms indicate that results in the diesel range are primarily due to overlap from a heavy-oil-range product.

[9]Sample was also tested for oxygenates by EPA Method 8260B and for ethanol by EPA Method 8015B (see lab data for results).

[10]Laboratory reporting limit for this sample was raised to account for interference from coeluting organic compounds present in the sample.

[11]Laboratory chromatrograms indicate that results in this sample do not resemble a typical gasoline pattern.

ADEC = Alaska Department of Environmental Conservation

µg/l = micrograms per liter (parts per billion)

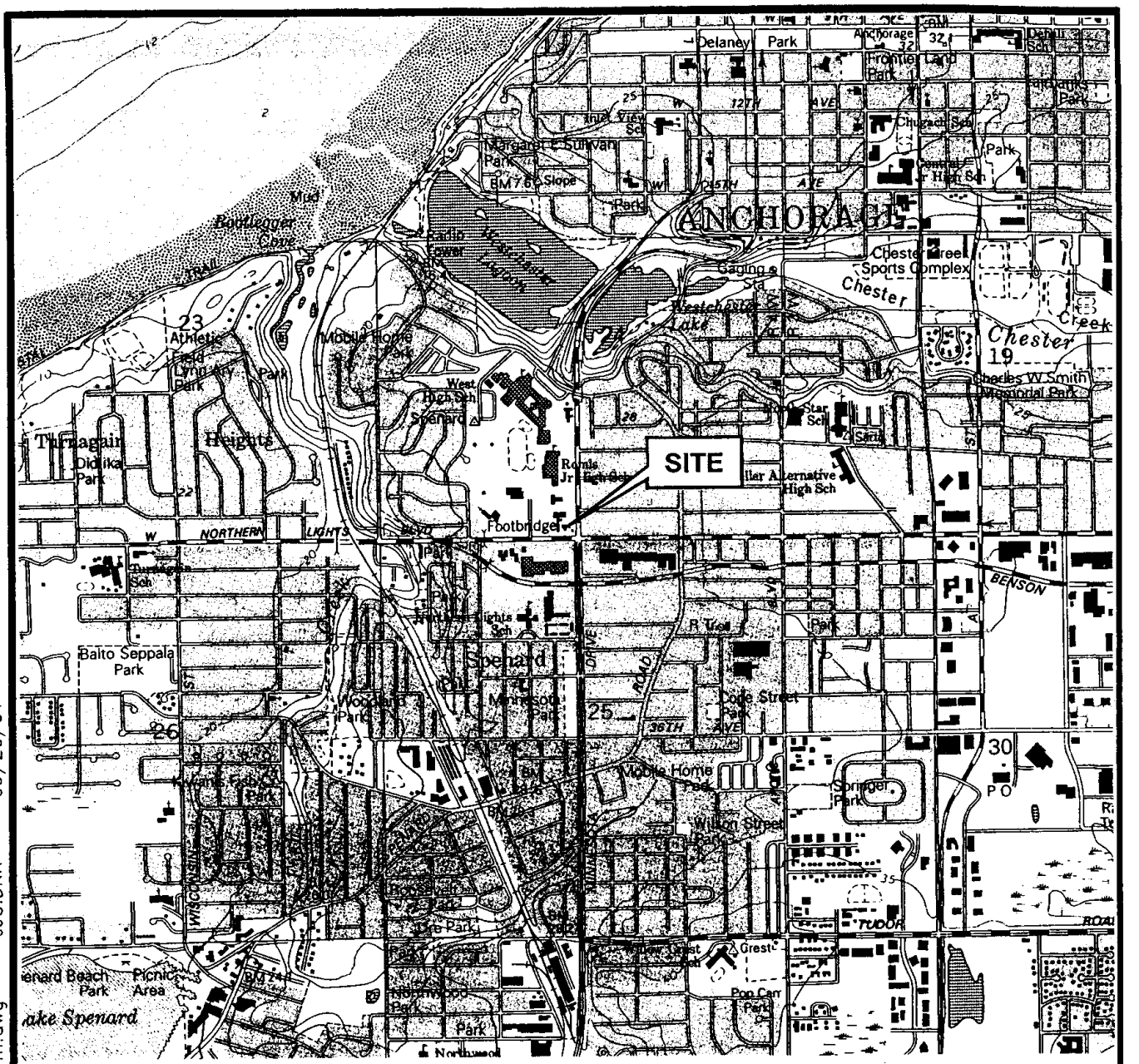
mg/l = milligrams per liter (parts per million)

"–" = not analyzed

"<" or ND = analyte not detected at or above laboratory method reporting limits

"*" = duplicate sample

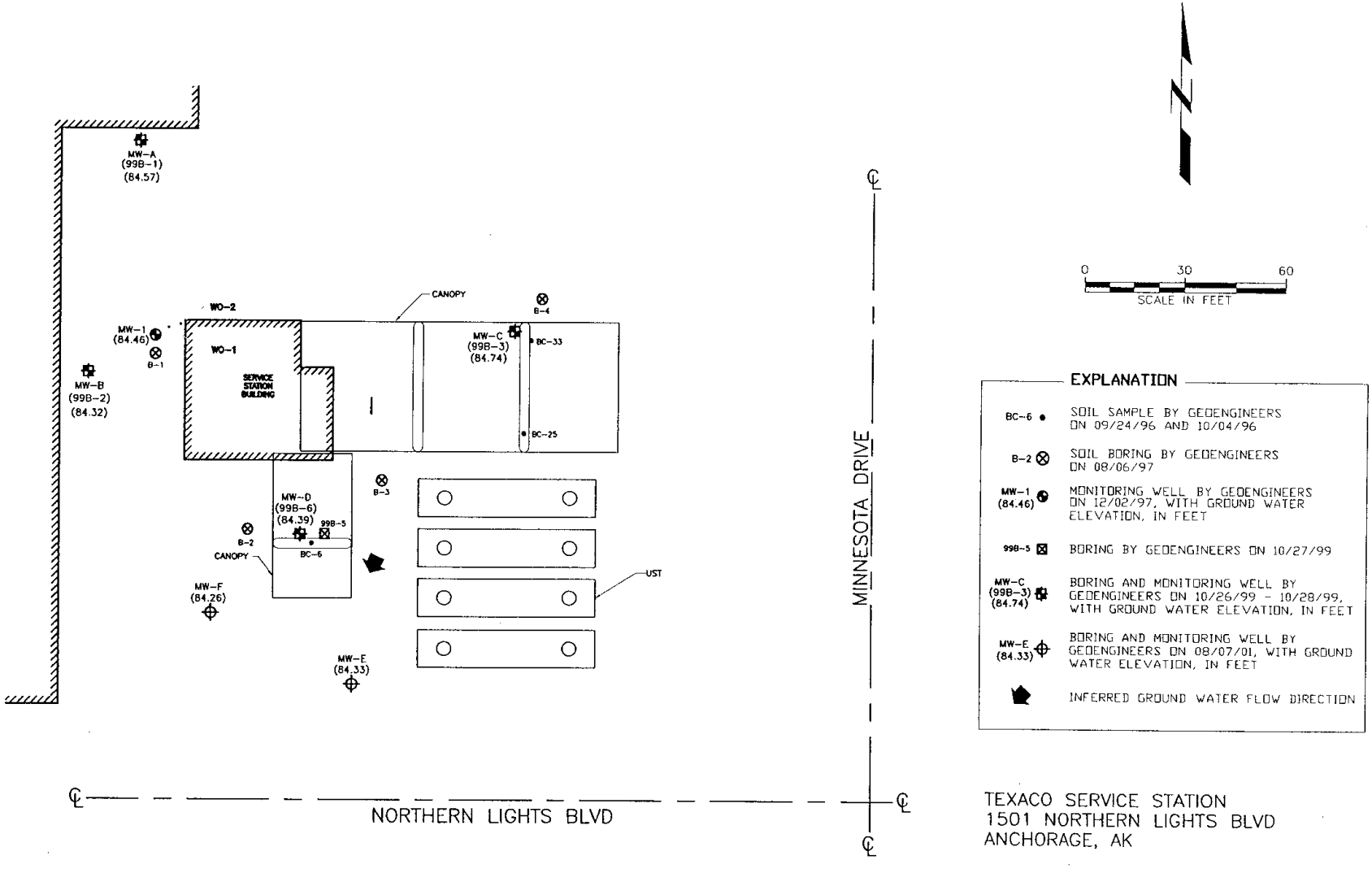
Shading indicates concentrations greater than ADEC ground water cleanup levels.



Reference:
USGS 7.5' topographic quadrangle map "Anchorage A–8, NW, AK." 1979 photorevised in 1994.

Anchorage P:\0401064\02\AutoCAD\040106402 F1 vm.dwg 09/20/01 JO:DKR

Geo Engineers	**VICINITY MAP**
	FIGURE 1



EXPLANATION

BC-6 •	SOIL SAMPLE BY GEOENGINEERS ON 09/24/96 AND 10/04/96
B-2 ⊗	SOIL BORING BY GEOENGINEERS ON 08/06/97
MW-1 (84.46)	MONITORING WELL BY GEOENGINEERS ON 12/02/97, WITH GROUND WATER ELEVATION, IN FEET
99B-5 ⊠	BORING BY GEOENGINEERS ON 10/27/99
MW-C (99B-3) (84.74)	BORING AND MONITORING WELL BY GEOENGINEERS ON 10/26/99 - 10/28/99, WITH GROUND WATER ELEVATION, IN FEET
MW-E (84.33)	BORING AND MONITORING WELL BY GEOENGINEERS ON 08/07/01, WITH GROUND WATER ELEVATION, IN FEET
	INFERRED GROUND WATER FLOW DIRECTION

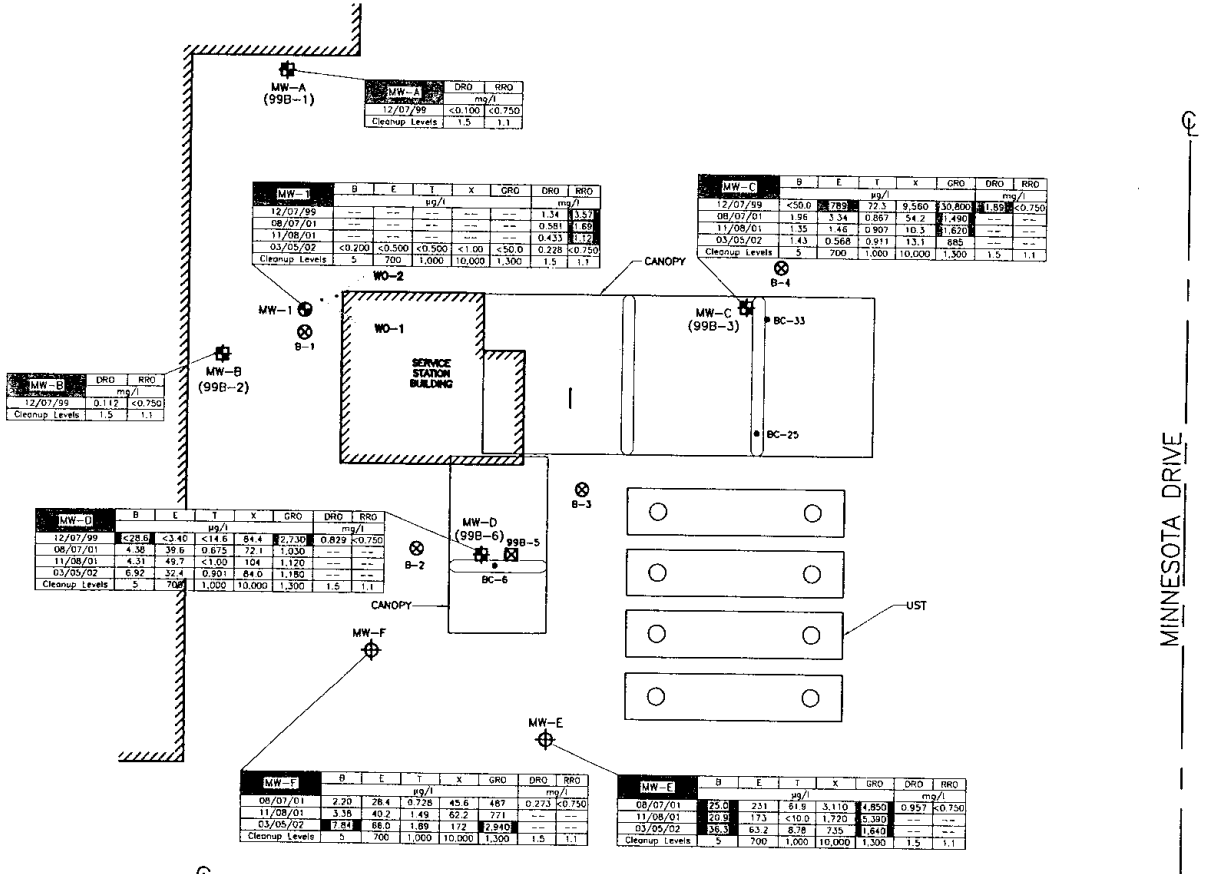
TEXACO SERVICE STATION
1501 NORTHERN LIGHTS BLVD
ANCHORAGE, AK

Note: The locations of all features shown are approximate.

Geo Engineers

SITE PLAN

FIGURE 2



MW-A	DRO	RRO
	mg/l	
12/07/99	<0.100	<0.750
Cleanup Levels	1.5	1.1

MW-B	DRO	RRO
	mg/l	
12/07/99	0.112	<0.750
Cleanup Levels	1.5	1.1

MW-1	B	E	T	X	GRO	DRO	RRO
	µg/l					mg/l	
12/07/99	--	--	--	--	--	1.34	3.57
08/07/01	--	--	--	--	--	0.581	1.69
11/08/01	--	--	--	--	--	0.433	1.12
03/05/02	<0.200	<0.500	<0.500	<1.00	<50.0	0.228	<0.750
Cleanup Levels	5	700	1,000	10,000	1,300	1.5	1.1

MW-C	B	E	T	X	GRO	DRO	RRO
	µg/l					mg/l	
12/07/99	<50.0	4,789	72.3	9,560	30,800	1.89	<0.750
08/07/01	1.96	3.34	0.867	54.2	1,490	--	--
11/08/01	1.35	1.46	0.907	10.5	1,620	--	--
03/05/02	1.43	0.568	0.911	13.1	885	--	--
Cleanup Levels	5	700	1,000	10,000	1,300	1.5	1.1

MW-D	B	E	T	X	GRO	DRO	RRO
	µg/l					mg/l	
12/07/99	<28.6	<3.40	<14.6	84.4	2,730	0.829	<0.750
08/07/01	4.38	39.6	0.675	72.1	1,030	--	--
11/08/01	4.31	49.7	<1.00	104	1,120	--	--
03/05/02	6.92	32.4	0.901	84.0	1,180	--	--
Cleanup Levels	5	700	1,000	10,000	1,300	1.5	1.1

MW-F	B	E	T	X	GRO	DRO	RRO
	µg/l					mg/l	
08/07/01	2.20	28.4	0.726	45.6	487	0.273	<0.750
11/08/01	3.38	40.2	1.49	62.2	771	--	--
03/05/02	7.84	66.0	1.89	172	2,940	--	--
Cleanup Levels	5	700	1,000	10,000	1,300	1.5	1.1

MW-E	B	E	T	X	GRO	DRO	RRO
	µg/l					mg/l	
08/07/01	25.0	231	61.9	3,110	4,850	0.957	<0.750
11/08/01	20.9	173	<10.0	1,720	5,390	--	--
03/05/02	38.3	63.2	8.78	735	1,640	--	--
Cleanup Levels	5	700	1,000	10,000	1,300	1.5	1.1

0 30 60
SCALE IN FEET

EXPLANATION

BC-6 •	SOIL SAMPLE BY GEOENGINEERS ON 09/24/96 AND 10/04/96
B-2 ⊗	SOIL BORING BY GEOENGINEERS ON 08/06/97
MW-1 ⊕	MONITORING WELL BY GEOENGINEERS ON 12/02/97
99B-5 ⊠	BORING BY GEOENGINEERS ON 10/27/99
MW-C (99B-3) ⊕	BORING AND MONITORING WELL BY GEOENGINEERS ON 10/26/99 - 10/28/99
MW-E ⊕	BORING AND MONITORING WELL BY GEOENGINEERS ON 08/07/01
µg/l	MICROGRAMS PER LITER (PARTS PER BILLION)
mg/l	MILLIGRAMS PER LITER (PARTS PER MILLION)
"<"	ANALYTE NOT DETECTED AT OR ABOVE LABORATORY METHOD REPORTING LIMITS
"--"	SAMPLE NOT ANALYZED FOR THIS PARAMETER

NOTES:

1. The locations of all features shown are approximate.
2. Ground water cleanup levels from Table C of Alaska Department of Environmental Conservation "Oil and Other Hazardous Substances Pollution Control," dated October 28, 2000.
3. Shading indicates concentration exceeds ADEC ground water cleanup levels.

TEXACO SERVICE STATION
1501 NORTHERN LIGHTS BLVD
ANCHORAGE, AK

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CHEMICAL ANALYTICAL RESULTS – GROUND WATER

FIGURE 3

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ATTACHMENT A

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

GeoEngineers
ANCHORAGE

MAR 25 2002

Routing ... JJO ☒ ... BK ☐
☐ ☐ ☐
File ... 0401-064-03

9 March 2002

amie Oakley
Geo Engineers - Alaska
951 Eagle St
Anchorage, AK/USA 99503-7432
RE: Equilon SAP #120686

Enclosed are the results of analyses for samples received by the laboratory on 03/07/02 09:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott A. Woerman
Project Manager

North Creek Analytical, Inc.
Environmental Laboratory Network

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
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541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	B2C0176-01	Water	03/05/02 14:40	03/07/02 09:30
MW-C	B2C0176-02	Water	03/05/02 14:30	03/07/02 09:30
MW-D	B2C0176-03	Water	03/05/02 14:20	03/07/02 09:30
MW-E	B2C0176-04	Water	03/05/02 14:00	03/07/02 09:30
MW-F	B2C0176-05	Water	03/05/02 14:10	03/07/02 09:30
Duplicate	B2C0176-06	Water	03/05/02 12:00	03/07/02 09:30
Trip Blank	B2C0176-07	Water	03/05/02 12:00	03/07/02 09:30

Scott A. Woerman, Project Manager

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425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
3951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

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

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (B2C0176-01) Water Sampled: 03/05/02 14:40 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	
Benzene	ND	0.200	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*98.8 %*	*60-120*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*60-120*			"	"	"	"	
MW-C (B2C0176-02) Water Sampled: 03/05/02 14:30 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	**885**	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	G-02
Benzene	**1.43**	0.200	"	"	"	"	"	"	
Toluene	**0.911**	0.500	"	"	"	"	"	"	
Ethylbenzene	**0.568**	0.500	"	"	"	"	"	"	
Xylenes (total)	**13.1**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*148 %*	*60-120*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*124 %*	*60-120*			"	"	"	"	*S-04*
MW-D (B2C0176-03) Water Sampled: 03/05/02 14:20 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	**1180**	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	
Benzene	**6.92**	0.200	"	"	"	"	"	"	
Toluene	**0.901**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**32.4**	0.500	"	"	"	"	"	"	
Xylenes (total)	**84.0**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*149 %*	*60-120*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*111 %*	*60-120*			"	"	"	"	

North Creek Analytical - Bothell

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.

Scott A. Woerman, Project Manager

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425.420.9200 fax 425.420.9210
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Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

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

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-E (B2C0176-04) Water Sampled: 03/05/02 14:00 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	**1640**	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	G-02
Benzene	**36.3**	0.200	"	"	"	"	"	"	
Toluene	**8.78**	0.500	"	"	"	"	"	"	
Ethylbenzene	**63.2**	0.500	"	"	"	"	"	"	
Xylenes (total)	**735**	10.0	"	10	"	"	03/18/02	"	
Surrogate: 4-BFB (FID)	*152 %*	*60-120*			"	"	*03/18/02*	"	*S-04*
Surrogate: 4-BFB (PID)	*131 %*	*60-120*			"	"	"	"	*S-04*
MW-F (B2C0176-05) Water Sampled: 03/05/02 14:10 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	**2940**	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	
Benzene	**7.84**	0.200	"	"	"	"	"	"	
Toluene	**1.89**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**66.0**	0.500	"	"	"	"	"	"	
Xylenes (total)	**172**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*%*	*60-120*			"	"	"	"	*S-02*
Surrogate: 4-BFB (PID)	*161 %*	*60-120*			"	"	"	"	*S-04*
Duplicate (B2C0176-06) Water Sampled: 03/05/02 12:00 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	**998**	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	G-02
Benzene	**1.90**	0.200	"	"	"	"	"	"	
Toluene	**1.28**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**1.63**	0.500	"	"	"	"	"	"	
Xylenes (total)	**18.2**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*150 %*	*60-120*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*125 %*	*60-120*			"	"	"	"	*S-04*

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Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588

0018

Geo Engineers - Alaska
1951 Eagle St
Anchorage AK/USA, 99503-7432

Project: Equilon SAP #120686
Project Number: 0401-064-03
Project Manager: Jamie Oakley

Reported:
03/19/02 09:19

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

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (B2C0176-07) Water Sampled: 03/05/02 12:00 Received: 03/07/02 09:30									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2C18003	03/18/02	03/18/02	AK 101	
Benzene	ND	0.200	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.2 %*	*60-120*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*60-120*			"	"	"	"	

North Creek Analytical - Bothell

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Diesel Hydrocarbons (C10-C25) and Heavy Oil (C25-C36) by AK102 and AK103

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (B2C0176-01) Water	**Sampled: 03/05/02 14:40**	**Received: 03/07/02 09:30**							
Diesel Range Hydrocarbons	**0.228**	0.100	mg/l	1	2C10004	03/10/02	03/12/02	AK102/103	D-09
Residual Range Organics	ND	0.750	"	"	"	"	"	"	
Surrogate: 2-FBP	*93.8 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*102 %*	*50-150*			"	"	"	"	

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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541.383.9310 fax 541.382.7588

Geo Engineers - Alaska
1951 Eagle St
Anchorage AK/USA, 99503-7432

Project: Equilon SAP #120686
Project Number: 0401-064-03
Project Manager: Jamie Oakley

Reported:
03/19/02 09:19

Volatile Organic Compounds by EPA Method 8260B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (B2C0176-02) Water Sampled: 03/05/02 14:30 Received: 03/07/02 09:30									
Diisopropyl ether	ND	1.00	ug/l	1	2C11019	03/11/02	03/11/02	EPA 8260B	
Ethyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
tert-Amyl Methyl Ether	ND	1.00	"	"	"	"	"	"	
tert-Butyl Alcohol	ND	50.0	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*94.5 %*	*73-137*			"	"	"	"	
Surrogate: Toluene-d8	*103 %*	*75-124*			"	"	"	"	
MW-E (B2C0176-04) Water Sampled: 03/05/02 14:00 Received: 03/07/02 09:30									
Diisopropyl ether	ND	1.00	ug/l	1	2C11019	03/11/02	03/11/02	EPA 8260B	
Ethyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	5.00	"	"	"	"	"	"	
tert-Amyl Methyl Ether	ND	1.00	"	"	"	"	"	"	
tert-Butyl Alcohol	ND	50.0	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*95.0 %*	*73-137*			"	"	"	"	
Surrogate: Toluene-d8	*102 %*	*75-124*			"	"	"	"	

North Creek Analytical - Bothell

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Alcohols by EPA 8015B GC/FID

North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-C (B2C0176-02) Water Sampled: 03/05/02 14:30 Received: 03/07/02 09:30									
Ethanol	ND	10.0	mg/l	1	2030498	03/15/02	03/17/02	EPA 8015B	
MW-E (B2C0176-04) Water Sampled: 03/05/02 14:00 Received: 03/07/02 09:30									
Ethanol	ND	10.0	mg/l	1	2030498	03/15/02	03/17/02	EPA 8015B	

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588

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Geo Engineers - Alaska
4951 Eagle St
Anchorage AK/USA, 99503-7432

Project: Equilon SAP #120686
Project Number: 0401-064-03
Project Manager: Jamie Oakley

Reported:
03/19/02 09:19

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2C18003: Prepared 03/18/02 Using EPA 5030B (P/T)										
Blank (2C18003-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.200	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.9*		"	*48.0*		*91.5*	*60-120*			
Surrogate: 4-BFB (PID)	*49.8*		"	*48.0*		*104*	*60-120*			
LCS (2C18003-BS1)										
Gasoline Range Hydrocarbons	446	50.0	ug/l	500		89.2	60-120			
Benzene	6.30	0.200	"	6.01		105	60-120			
Toluene	32.6	0.500	"	35.8		91.1	60-120			
Ethylbenzene	8.85	0.500	"	8.37		106	60-120			
Xylenes (total)	41.2	1.00	"	41.4		99.5	60-120			
Surrogate: 4-BFB (FID)	*52.0*		"	*48.0*		*108*	*60-120*			
Surrogate: 4-BFB (PID)	*47.4*		"	*48.0*		*98.8*	*60-120*			
LCS Dup (2C18003-BSD1)										
Gasoline Range Hydrocarbons	450	50.0	ug/l	500		90.0	60-120	0.893	20	
Benzene	6.41	0.200	"	6.01		107	60-120	1.73	20	
Toluene	33.0	0.500	"	35.8		92.2	60-120	1.22	20	
Ethylbenzene	8.98	0.500	"	8.37		107	60-120	1.46	20	
Xylenes (total)	41.8	1.00	"	41.4		101	60-120	1.45	20	
Surrogate: 4-BFB (FID)	*52.9*		"	*48.0*		*110*	*60-120*			
Surrogate: 4-BFB (PID)	*47.8*		"	*48.0*		*99.6*	*60-120*			
Matrix Spike (2C18003-MS1)					**Source: B2C0176-01**					
Gasoline Range Hydrocarbons	444	50.0	ug/l	500	ND	88.8	60-120			
Benzene	6.54	0.200	"	6.01	ND	109	60-120			
Toluene	34.0	0.500	"	35.8	ND	94.6	60-120			
Ethylbenzene	9.12	0.500	"	8.37	ND	109	60-120			
Xylenes (total)	43.6	1.00	"	41.4	ND	105	60-120			
Surrogate: 4-BFB (FID)	*51.9*		"	*48.0*		*108*	*60-120*			
Surrogate: 4-BFB (PID)	*47.8*		"	*48.0*		*99.6*	*60-120*			

North Creek Analytical - Bothell

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2C18003: Prepared 03/18/02 Using EPA 5030B (P/T)										
Matrix Spike Dup (2C18003-MSD1)					**Source: B2C0176-01**					
Gasoline Range Hydrocarbons	437	50.0	ug/l	500	ND	87.4	60-120	1.59	20	
Benzene	6.67	0.200	"	6.01	ND	111	60-120	1.97	20	
Toluene	34.6	0.500	"	35.8	ND	96.3	60-120	1.75	20	
Ethylbenzene	9.26	0.500	"	8.37	ND	111	60-120	1.52	20	
Xylenes (total)	44.2	1.00	"	41.4	ND	107	60-120	1.37	20	
Surrogate: 4-BFB (FID)	*51.0*		"	*48.0*		*106*	*60-120*			
Surrogate: 4-BFB (PID)	*47.7*		"	*48.0*		*99.4*	*60-120*			

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

0024

Geo Engineers - Alaska
4951 Eagle St
Anchorage AK/USA, 99503-7432

Project: Equilon SAP #120686
Project Number: 0401-064-03
Project Manager: Jamie Oakley

Reported:
03/19/02 09:19

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2C10004: Prepared 03/10/02 Using EPA 3520C										
Blank (2C10004-BLK1)										
Diesel Range Hydrocarbons	ND	0.100	mg/l							
Residual Range Organics	ND	0.750	"							
Surrogate: 2-FBP	*0.307*		"	*0.320*		*95.9*	*50-150*			
Surrogate: Octacosane	*0.325*		"	*0.320*		*102*	*50-150*			
LCS (2C10004-BS1)										
Diesel Range Hydrocarbons	1.73	0.100	mg/l	2.00		86.5	75-125			
Surrogate: 2-FBP	*0.293*		"	*0.320*		*91.6*	*50-150*			
LCS (2C10004-BS2)										
Residual Range Organics	1.62	0.750	mg/l	2.00		81.0	60-120			
Surrogate: Octacosane	*0.333*		"	*0.320*		*104*	*50-150*			
LCS Dup (2C10004-BSD1)										
Diesel Range Hydrocarbons	1.60	0.100	mg/l	2.00		80.0	75-125	7.81	20	
Surrogate: 2-FBP	*0.270*		"	*0.320*		*84.4*	*50-150*			
LCS Dup (2C10004-BSD2)										
Residual Range Organics	1.60	0.750	mg/l	2.00		80.0	60-120	1.24	20	
Surrogate: Octacosane	*0.306*		"	*0.320*		*95.6*	*50-150*			

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Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
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Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Volatile Organic Compounds by EPA Method 8260B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2C11019: Prepared 03/11/02 Using EPA 5030B										
Blank (2C11019-BLK1)										
1,2-Dibromoethane (EDB)	ND	0.500	ug/l							
1,2-Dichloroethane (EDC)	ND	0.500	"							
Benzene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
o-Xylene	ND	1.00	"							
Toluene	ND	1.00	"							
Ethanol	ND	500	"							
Diisopropyl ether	ND	1.00	"							
Ethyl tert-butyl ether	ND	1.00	"							
Methyl tert-butyl ether	ND	5.00	"							
tert-Amyl Methyl Ether	ND	1.00	"							
tert-Butyl Alcohol	ND	50.0	"							
Surrogate: 1,2-DCA-d4	*19.8*		"	*20.0*		*99.0*	*73-137*			
Surrogate: Toluene-d8	*20.3*		"	*20.0*		*102*	*75-124*			
LCS (2C11019-BS1)										
Diisopropyl ether	11.8	1.00	ug/l	10.0		118	75-125			
Methyl tert-butyl ether	11.4	5.00	"	10.0		114	75-125			
tert-Butyl Alcohol	60.9	50.0	"	50.0		122	75-125			
Surrogate: 1,2-DCA-d4	*19.3*		"	*20.0*		*96.5*	*73-137*			
Surrogate: Toluene-d8	*20.3*		"	*20.0*		*102*	*75-124*			
LCS Dup (2C11019-BSD1)										
Diisopropyl ether	11.3	1.00	ug/l	10.0		113	75-125	4.33	25	
Methyl tert-butyl ether	10.9	5.00	"	10.0		109	75-125	4.48	25	
tert-Butyl Alcohol	56.9	50.0	"	50.0		114	75-125	6.79	25	
Surrogate: 1,2-DCA-d4	*20.0*		"	*20.0*		*100*	*73-137*			
Surrogate: Toluene-d8	*20.3*		"	*20.0*		*102*	*75-124*			

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509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
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Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2C11019: Prepared 03/11/02 Using EPA 5030B										
Matrix Spike (2C11019-MS1)					**Source: B2C0024-01**					
Diisopropyl ether	11.2	1.00	ug/l	10.0	ND	112	60-140			
Methyl tert-butyl ether	9.57	5.00	"	10.0	ND	95.7	60-140			
t-Butyl Alcohol	ND	50.0	"	50.0	ND	82.2	60-140			
Surrogate: 1,2-DCA-d4	*18.5*		"	*20.0*		*92.5*	*73-137*			
Surrogate: Toluene-d8	*20.4*		"	*20.0*		*102*	*75-124*			
Matrix Spike Dup (2C11019-MSD1)					**Source: B2C0024-01**					
Diisopropyl ether	11.1	1.00	ug/l	10.0	ND	111	60-140	0.897	40	
Methyl tert-butyl ether	10.1	5.00	"	10.0	ND	101	60-140	5.39	40	
t-Butyl Alcohol	ND	50.0	"	50.0	ND	93.8	60-140	13.2	40	
Surrogate: 1,2-DCA-d4	*19.6*		"	*20.0*		*98.0*	*73-137*			
Surrogate: Toluene-d8	*20.1*		"	*20.0*		*100*	*75-124*			

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509.924.9200 fax 509.924.9290
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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Alcohols by EPA 8015B GC/FID - Quality Control
North Creek Analytical - Portland

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2030498: Prepared 03/15/02 Using 3810 Headspace										
Blank (2030498-BLK1)										
Ethanol	ND	10.0	mg/l							
LCS (2030498-BS1)										
Ethanol	39.9	10.0	mg/l	50.1		79.6	50-150			
LCS Dup (2030498-BSD1)										
Ethanol	35.1	10.0	mg/l	50.1		70.1	50-150	12.8	25	
Matrix Spike (2030498-MS1)					**Source: B2C0176-02**					
Ethanol	46.2	10.0	mg/l	50.1	ND	92.2	50-150			
Matrix Spike Dup (2030498-MSD1)					**Source: B2C0176-02**					
Ethanol	42.7	10.0	mg/l	50.1	ND	85.2	50-150	7.87	25	

Scott A. Woerman, Project Manager

www.ncalabs.com

0028

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers - Alaska	Project: Equilon SAP #120686	
4951 Eagle St	Project Number: 0401-064-03	**Reported:**
Anchorage AK/USA, 99503-7432	Project Manager: Jamie Oakley	03/19/02 09:19

Notes and Definitions

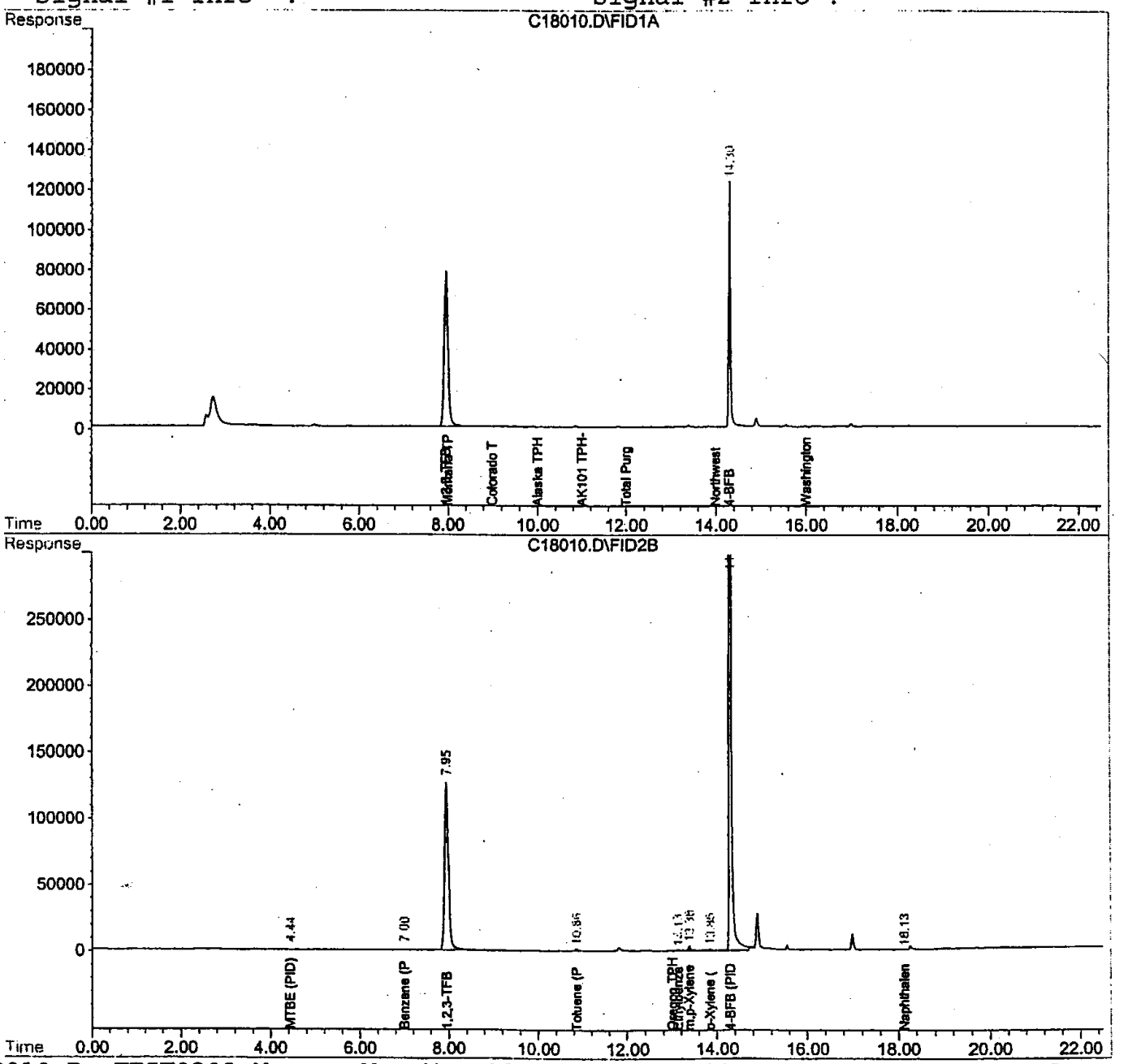
D-09	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
G-02	The chromatogram for this sample does not resemble a typical gasoline pattern. Please refer to the sample chromatogram.
I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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
RPD	Relative Percent Difference

Scott A. Woerman, Project Manager

Signal #1 : D:\HPCHEM\3\DATA\031802\C18010.D\FID1A.CH Vial: 10
Signal #2 : D:\HPCHEM\3\DATA\031802\C18010.D\FID2B.CH
Acq On : 18 Mar 2002 12:27 Operator: sk
Sample : b2c0176-01 Inst : GC #6
Misc : 1x 5 ml 0029 Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 12:50 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Sat Mar 16 08:42:32 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

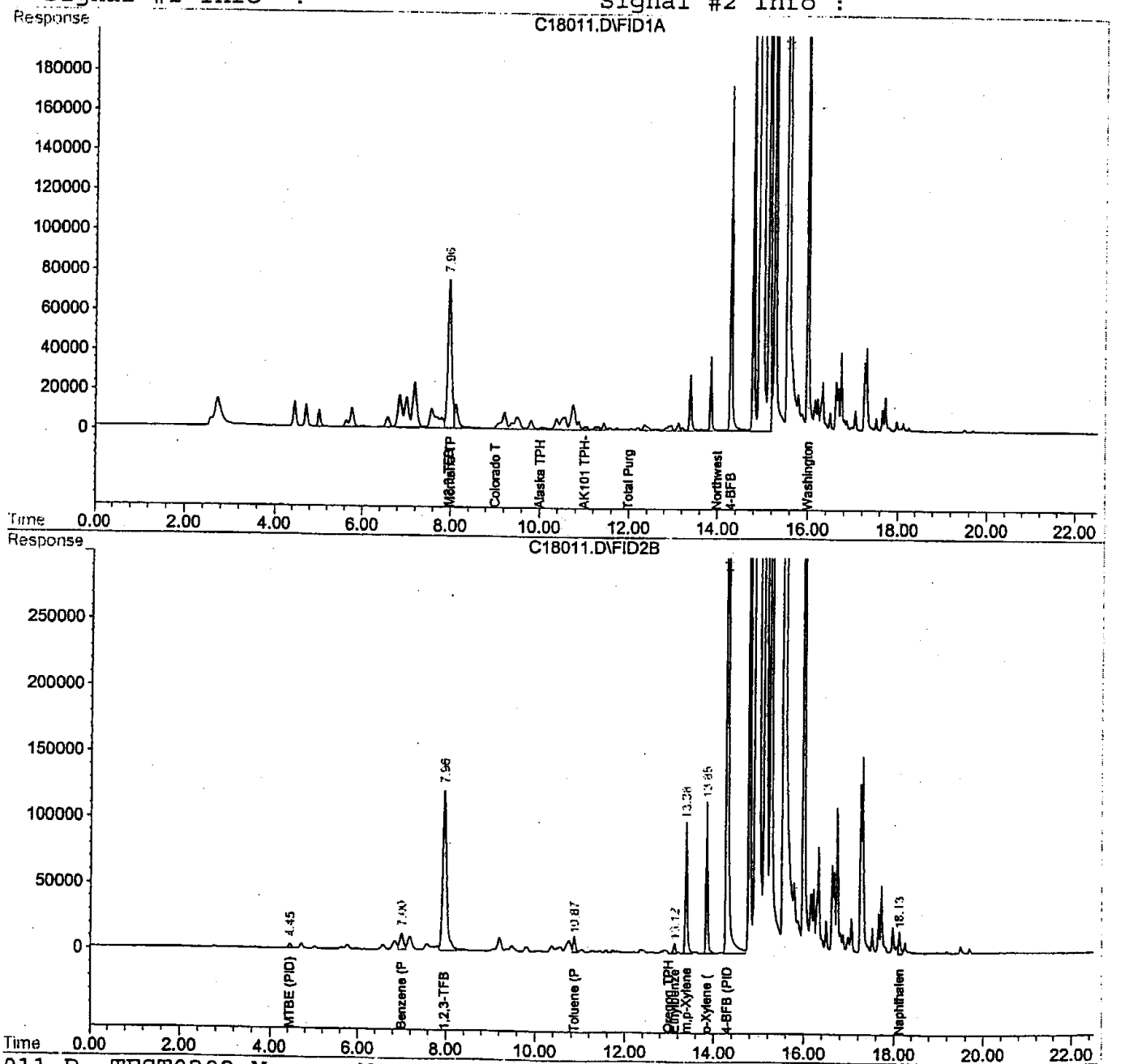
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18011.D\FID1A.CH Vial: 11
Signal #2 : D:\HPCHEM\3\DATA\031802\C18011.D\FID2B.CH
Acq On : 18 Mar 2002 12:56 Operator: sk
Sample : b2c0176-02 0030 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 13:19 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Sat Mar 16 08:42:32 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

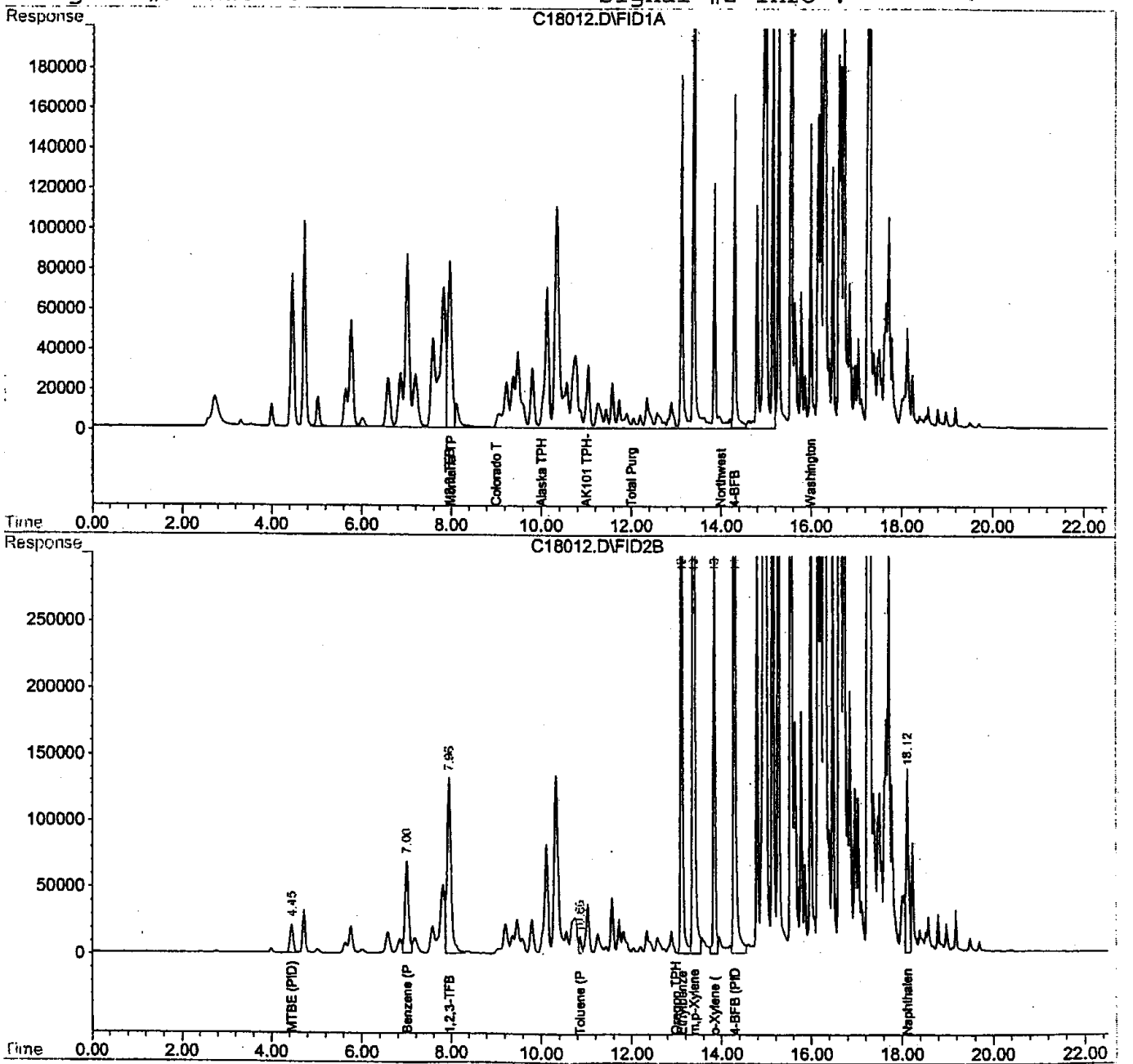
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18012.D\FID1A.CH Vial: 12
Signal #2 : D:\HPCHEM\3\DATA\031802\C18012.D\FID2B.CH
Acq On : 18 Mar 2002 13:25 Operator: sk
Sample : b2c0176-03 0031 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 13:48 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Sat Mar 16 08:42:32 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

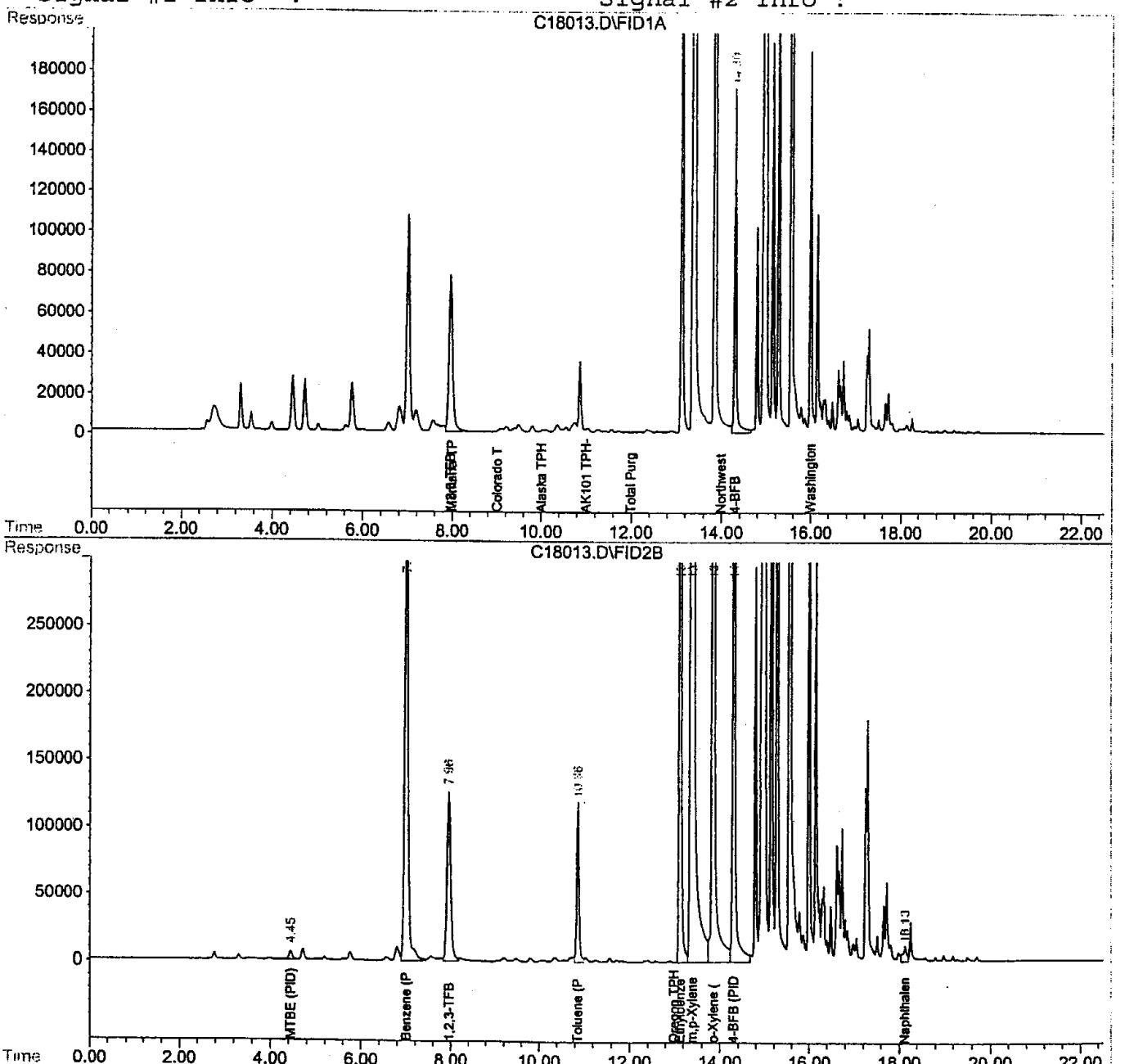
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18013.D\FID1A.CH Vial: 13
Signal #2 : D:\HPCHEM\3\DATA\031802\C18013.D\FID2B.CH
Acq On : 18 Mar 2002 13:53 Operator: sk
Sample : b2c0176-04 0032 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 14:16 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Sat Mar 16 08:42:32 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

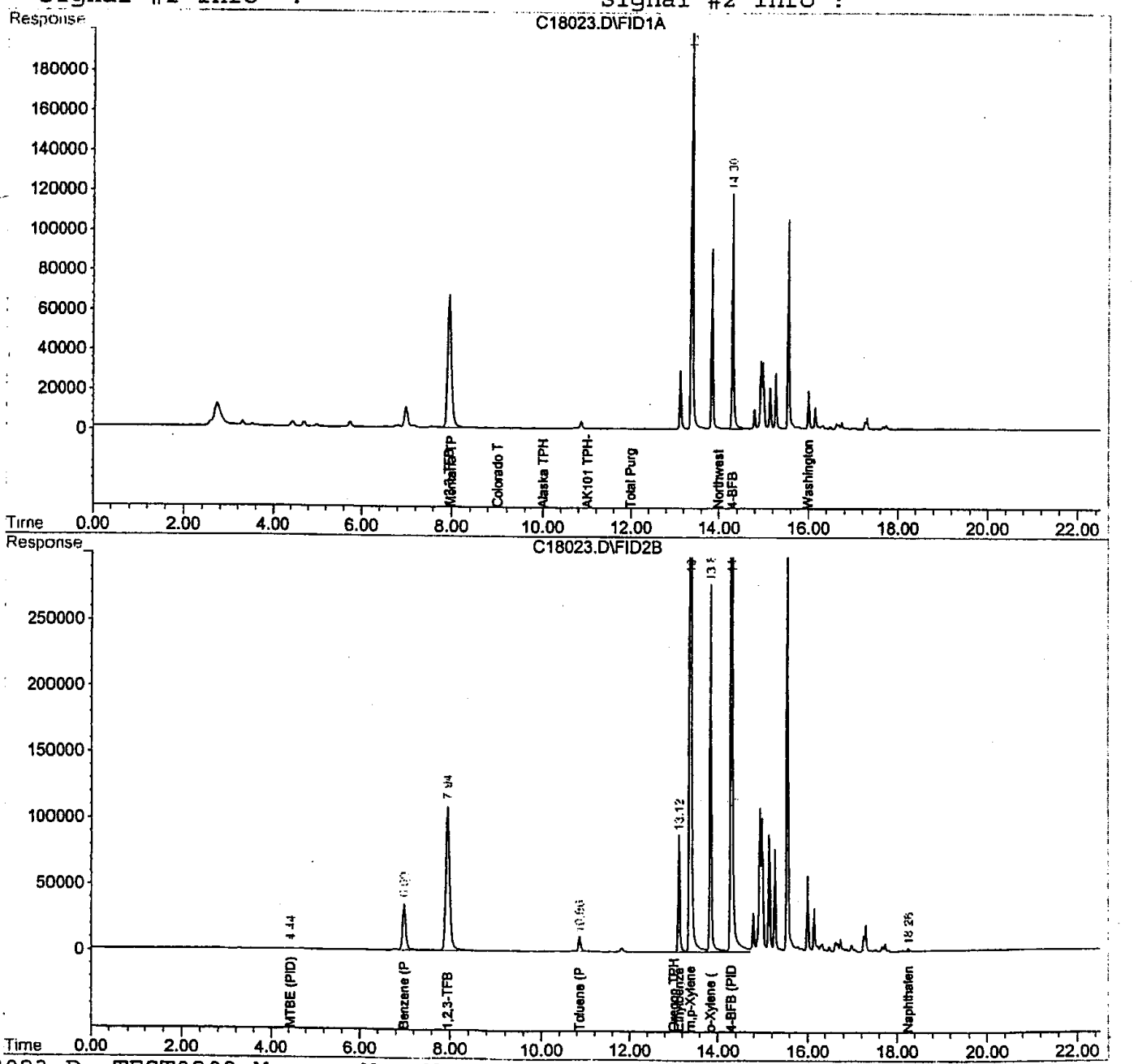
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18023.D\FID1A.CH Vial: 23
Signal #2 : D:\HPCHEM\3\DATA\031802\C18023.D\FID2B.CH
Acq On : 18 Mar 2002 18:41 0033 Operator: sk
Sample : b2c0176-04 r1 Inst : GC #6
Misc : 10x 500 uL Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 19:04 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Mar 18 15:04:29 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

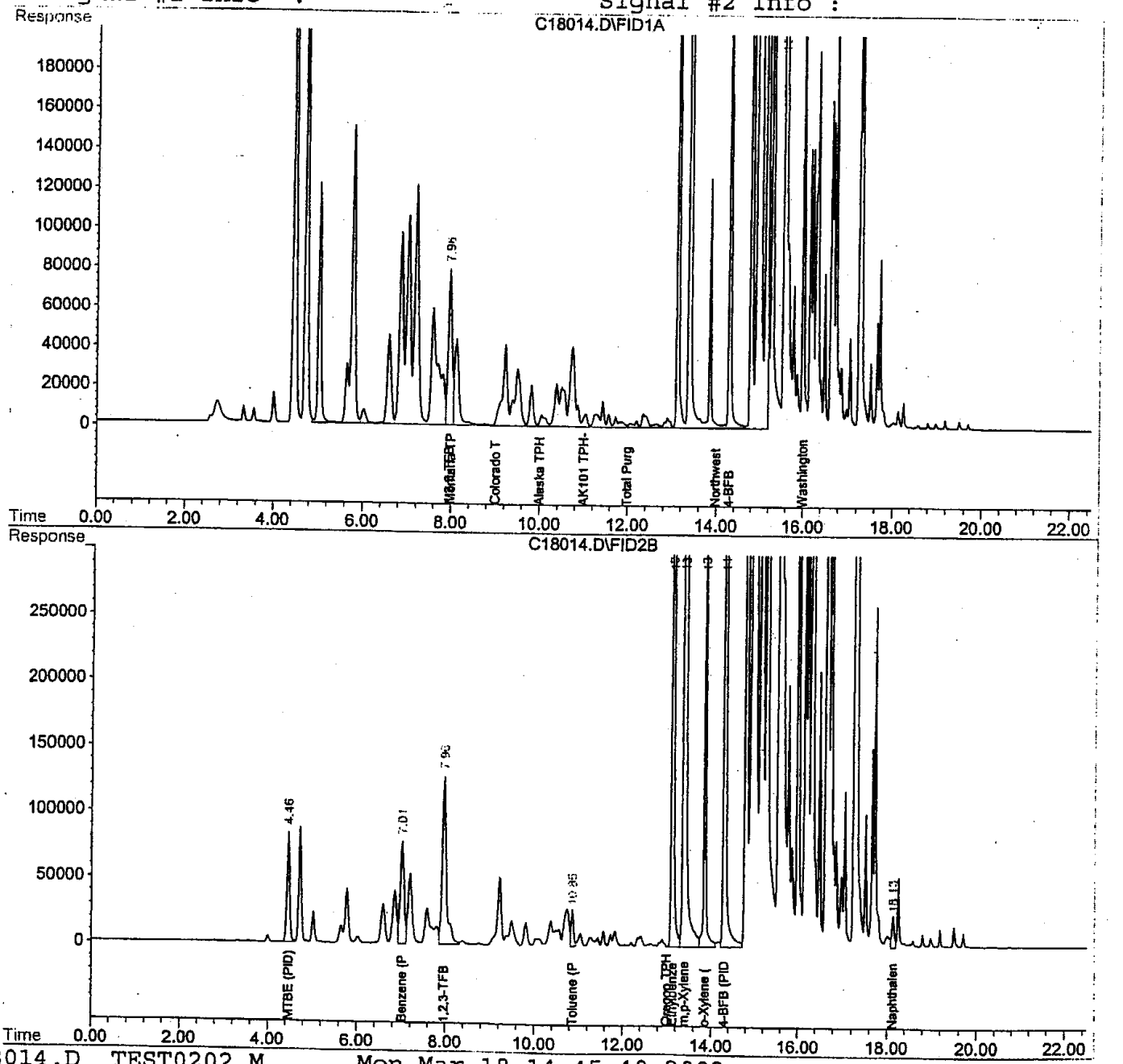
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18014.D\FID1A.CH Vial: 14
Signal #2 : D:\HPCHEM\3\DATA\031802\C18014.D\FID2B.CH
Acq On : 18 Mar 2002 14:22 Operator: sk
Sample : b2c0176-05 0034 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 14:45 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Sat Mar 16 08:42:32 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

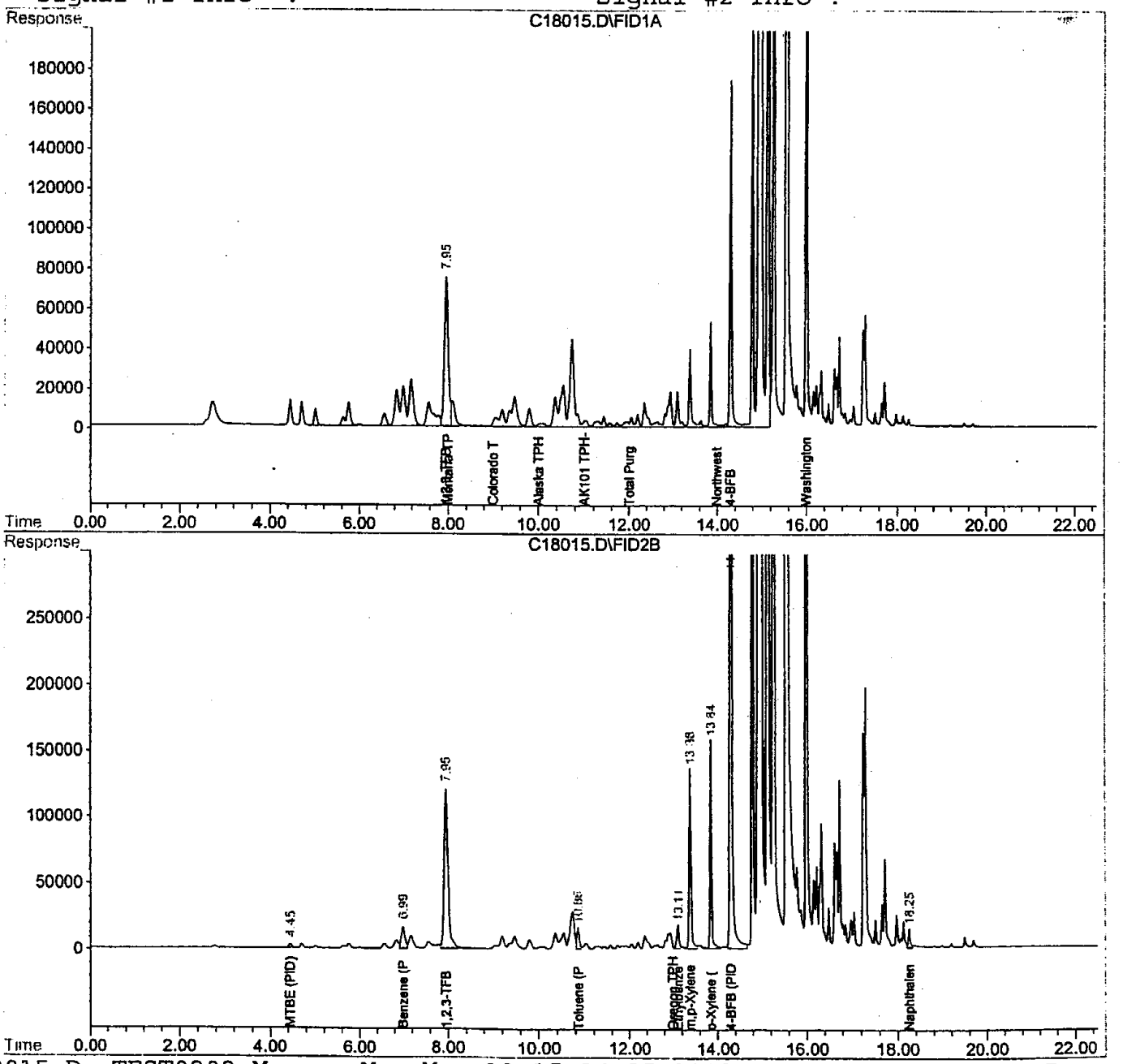
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18015.D\FID1A.CH Vial: 15
Signal #2 : D:\HPCHEM\3\DATA\031802\C18015.D\FID2B.CH
Acq On : 18 Mar 2002 14:51 Operator: sk
Sample : b2c0176-06 Inst : GC #6
Misc : 1x 5 ml 0035 Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 15:14 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Mar 18 15:04:29 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

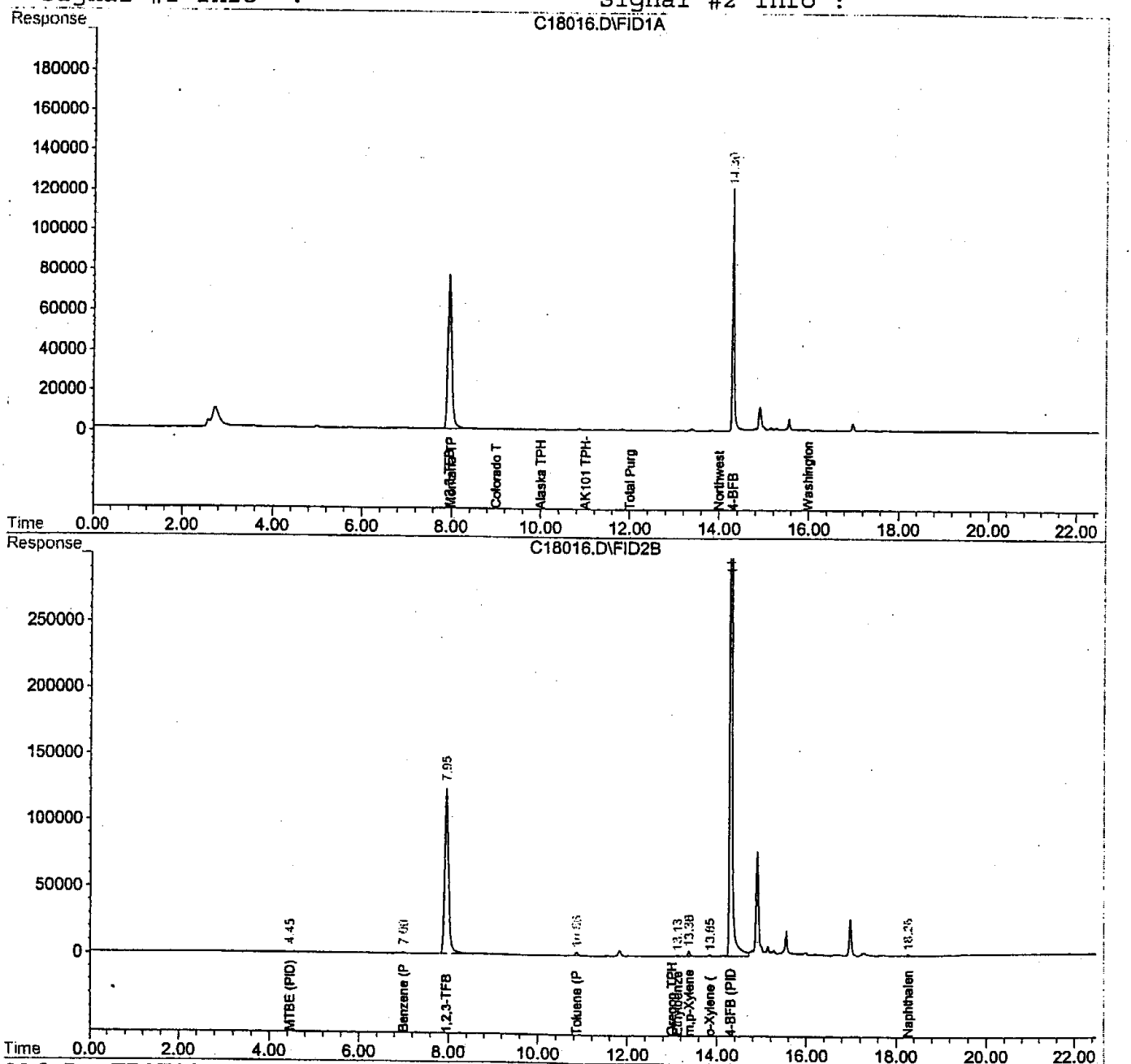
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\031802\C18016.D\FID1A.CH Vial: 16
Signal #2 : D:\HPCHEM\3\DATA\031802\C18016.D\FID2B.CH
Acq On : 18 Mar 2002 15:20 Operator: sk
Sample : b2c0176-07 tb 0036 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Mar 18 15:43 2002 Quant Results File: TEST0202.RES

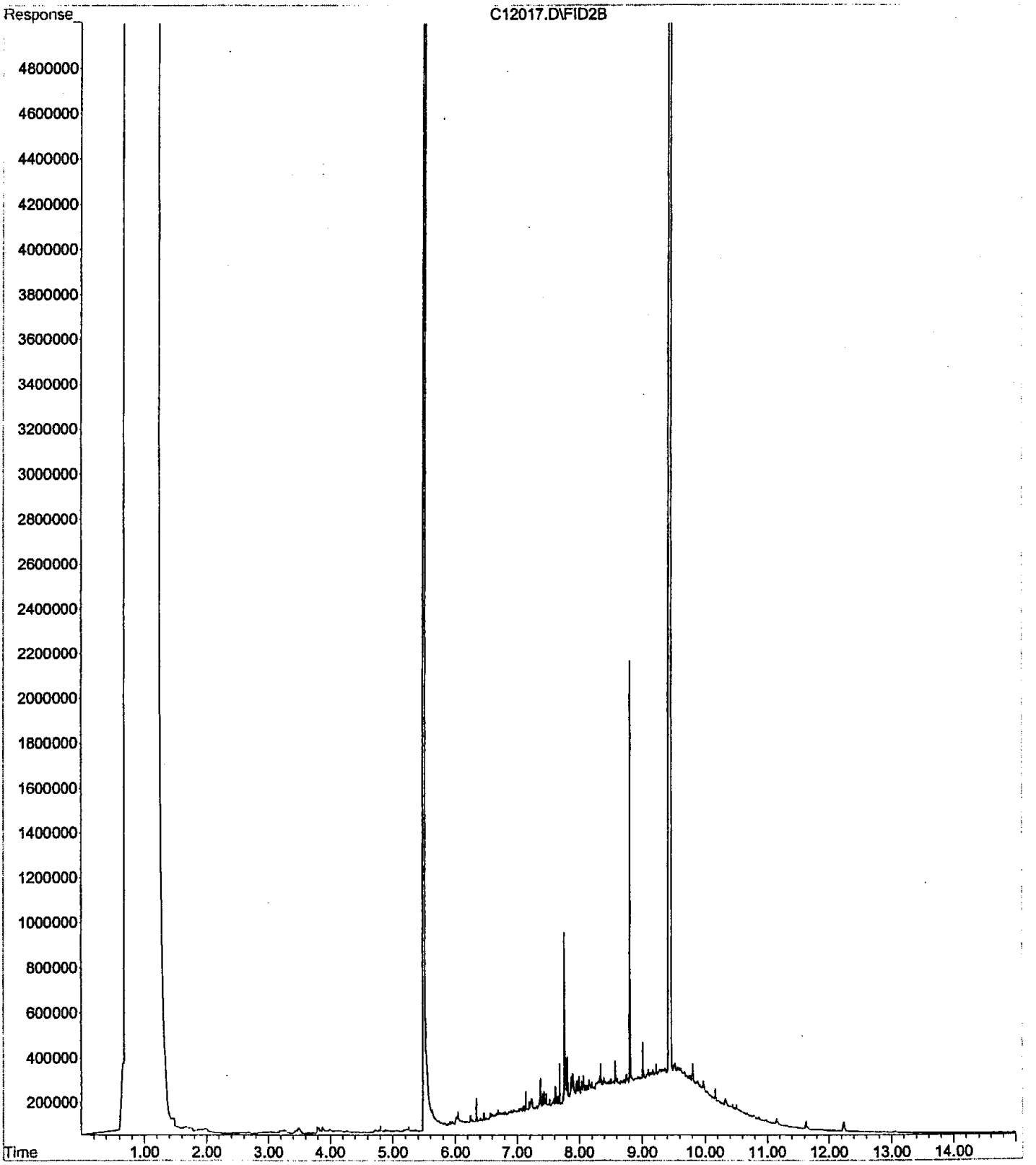
Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Mar 18 15:04:29 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



0037

File : C:\HPCHEM\4\DATA.SEC\C12017.D
Operator : EDL
Acquired : 3-12-02 11:54:06 AM using AcqMethod 07002@7A.M
Instrument : GC #7
Sample Name: b2c0176-01
Misc Info : 1x ak102-103 w
Vial Number: 9



North Creek Analytical, Inc.
Environmental Laboratory Network
www.ncalabs.com

11720 Cree N, S D, Bot A 980 4 420-9 FAX 210
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

CHAIN OF CUSTODY REPORT

Work Order #: 02C0716

CLIENT: Equiva

REPORT TO: GeoEngineers Attn: Jamie Oakley

ADDRESS: 4951 Eagle St
Anchorage, AK 99503

PHONE: (907) 561-3478 FAX: 561-5123

INVOICE TO: Equiva Services, LLC
10002 NE 38th Place
Kirkland, WA 98
Attn: Tony Palagyi

P.O. NUMBER: 80318

PROJECT NAME: Texaco - Big Corners

PROJECT NUMBER: 0401-064-03

SAMPLED BY: JSO / DKR

TURNAROUND REQUEST in Business Days*

Organic & Inorganic Analyses: [X] STD. [10] [7] [5] [4] [3] [2] [1] [<1]

Petroleum Hydrocarbon Analyses: [X] STD. [4] [3] [2] [1] [<1]

[OTHER] Please Specify

*Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	GRO/BETX AK101	DRO/RRO AK102/103	Oxygenates MTBE, TBA, DIPE, ETBE, TAME	Ethanol Direct Inject	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1. MW-1	3/5/02 - 1440	X	X			W	5		01
2. MW-C	3/5/02 - 1430	X		X	X		5		02
3. MW-D	3/5/02 - 1420	X					3		03
4. MW-E	3/5/02 - 1400	X		X	X		5		04
5. MW-F	3/5/02 - 1410	X					3		05
6. Duplicate	3/5/02	X					3		06
7. Trip Blank	3/5/02	X					2		07
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									

0338

RELINQUISHED BY: Deanne Raiha
PRINT NAME: Deanne Raiha FIRM: GEI DATE: 3/6/02 TIME: 1400

RECEIVED BY: Katka Kaczorowska
PRINT NAME: Katka Kaczorowska FIRM: NCA DATE: 3/7/02 TIME: 9:30

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

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

ADDITIONAL REMARKS: Confirm oxygenate detections w/ 8260B

W/CS

TEMP: 5.3°

COC REV 3/99

PAGE 1 OF 1