Environmental Investigation

Tosco Service Station #6380
200 South 36th Street
Bellingham, Washington

Prepared for

Tosco Marketing Company

December 21, 1998

Prepared by

Pacific Environmental Group, Inc.
4020 148th Avenue NE, Suite B
Redmond, Washington 98052

Project 504-018.1B

CONTENTS

TABLES, FIGURES, AND APPENDICES

EXECUTIVE SUMMARY

At the request of Tosco Marketing Company (Tosco), Pacific Environmental Group, Inc. (PEG) performed a soil probe investigation at Tosco Service Station #6380 located at 200 South 36th Street in Bellingham, Washington. This investigation was conducted in an effort to establish baseline soil conditions with respect to petroleum hydrocarbons in the area of the dispenser islands and the gasoline underground storage tanks (USTs), and to perform additional assessment in the area of the former waste oil and heating oil USTs.

Environmental activities were performed on September 22 and 23, 1998. Four Geoprobe soil borings were installed in the vicinity of the dispenser islands, three soil borings were installed in the area of the former heating oil and waste oil USTs, and one soil boring was installed adjacent to the gasoline USTs. Project findings are summarized below:

- Soil encountered during the soil probe investigation consisted primarily of silty sand underlain by clay at four to nine feet below grade. The total depths of the soil probes ranged from 14.5 feet to 18.7 feet below grade.
- Groundwater was encountered between approximately 7 and 17 feet below grade. Groundwater samples were collected from all soil boring locations.
- Concentrations of total petroleum hydrocarbons as gasoline (TPH-gasoline) were detected in soil samples from borings GP2 and GP5 at levels above Washington State Model Toxics Control Act (MTCA) Method A cleanup levels. Concentrations of benzene above MTCA Method A cleanup levels were detected in one soil sample from boring GP5. Concentrations of TPH-diesel were detected in one soil sample from boring GP2 above the MTCA Method A cleanup level.
- Concentrations of TPH-gasoline were detected in the groundwater samples collected from borings GP2 and GP5 at levels above MTCA Method A cleanup levels. Concentrations of benzene above the MTCA Method A cleanup level were detected in borings GP4, GP5, and GP6. Concentrations of toluene, ethylbenzene, and xylenes were also detected above the respective MTCA Method A cleanup levels in the groundwater sample collected from boring GP5. Concentrations of TPH-diesel were

detected above the MTCA Method A cleanup level in the groundwater sample collected from boring GP1.

This summary is provided as an introduction to the site investigation report. The information presented should only be used in conjunction with the entire report document. A detailed description of the site investigation presented in this report includes background, site conditions, technical data, findings and conclusions.

1.0 INTRODUCTION

1.1 Purpose

This report documents the results of investigative activities performed by Pacific Environmental Group, Inc. (PEG) at Tosco Service Station #6380 located at 200 South 36th Street in Bellingham, Washington (Figure 1). This soil and groundwater investigation was conducted in an effort to provide additional baseline data with respect to petroleum hydrocarbons at the site.

1.2 Scope of Services

The scope of services for this project consisted of the following tasks:

- Prepare a Site Safety Plan.
- Install eight exploratory geoprobe soil borings (GP-1 through GP-8).
- Collect soil and groundwater samples from the exploratory soil probes.
- Field screen soil samples using a photo-ionization detector (PID).
- Submit soil and groundwater samples and appropriate documentation to a Tosco approved laboratory for analysis.
- Prepare this report.

1.3 Site Location/Description

Tosco Service Station #6380 is located at 200 South 36th Street in Bellingham, Washington. Two gasoline underground storage tanks (USTs) are located in a common excavation on the northwest corner of the site. Two pump islands are located on the east central portion of the site. The building is situated in the central portion of the site, and the former waste oil and heating oil USTs were located behind the station building to the west.

1.4 Previous Investigations

PEG performed a soil gas survey at the site on September 17, 1997. Findings of this investigation were presented to Tosco in a letter report titled "Soil Gas Survey Results", on October 29, 1997. During the soil gas survey, soil vapor samples were collected from areas adjacent to the dispenser islands, product lines, and UST complex. Vapor concentrations above background levels were detected through field screening methods in these areas. Concentrations of TPH-gasoline and one or more BTEX compounds were confirmed through laboratory analysis of soil vapor samples in these areas.

PEG performed a soil investigation during the removal of the waste oil and heating oil USTs on August 18, 1998. Findings of this investigation were presented to Tosco in a letter report titled "Environmental Investigation", on October 9, 1998. During this previous environmental investigation, detected concentrations of TPH-diesel and TPH-oil in the soil samples collected from the south and east sidewalls of the excavation exceeded Washington State Model Toxics Control Act (MTCA) Method A cleanup levels. Detected concentrations of TPH-diesel in the soil sample collected from beneath the waste oil UST also exceeded the MTCA Method A cleanup level. PEG has not reviewed any other investigative reports that may have been generated for this site.

2.0 SITE CONDITIONS

2.1 Local Setting

The area surrounding the site is predominantly retail. The Interstate 5 Freeway is located approximately 300 feet to the east of the site. Bellingham Bay is located approximately 1.2 miles northwest of the site. The topography across the site is relatively flat, but immediately drops off to the west into the parking area of the Bellingham Mall Shopping Center. According the owner of the service station, the shopping area to the west of the site typically floods every year, and was built on an area referred to as a bog.

2.2 Subsurface Conditions

Soils encountered during the geoprobe investigation consisted of silty sand underlain by clay at depths ranging from four to nine feet below grade. Groundwater was encountered in the borings at depths ranging from approximately 7 to 17 feet below grade.

3.0 TECHNICAL DATA

3.1 Exploratory Soil Borings and Sampling

Eight exploratory soil borings (GP-1 through GP-8) were installed by Geo-Tech Explorations, Inc. (Geotech) of Tualatin, Oregon to depths ranging from 14.5 to 18.7 feet below grade on September 22 and 23, 1998. A Geoprobe™ direct-push hydraulic drive point system was used and the soil probe borings were logged by a PEG geologist using the Unified Soil Classification System. Geoprobe boring GP1 was installed in the backfilled excavation of the former waste oil UST. Soil sampling therefore started at a depth of eight feet below grade, and samples were collected continuously to the total explored depth of 18.7 feet below grade. Soil samples were collected continuously from the surface to the total depths explored in the other borings. Refusal was encountered in boring GP7 at a depth of 14.5 feet below grade. Soil sampling procedures are presented in Appendix A. PID results for the soil samples collected from the soil borings ranged from non-detectable levels to 40 parts per million (ppm). The results of this field screening are also recorded on the soil probe boring logs included in Appendix B.

Soil samples retained for chemical analyses were placed in laboratory supplied sample jars with Teflon® lined lids. The soil samples were placed on ice for transport and submitted to North Creek Analytical, Inc. (NCA) in Bothell, Washington for chemical analyses. Sample preservation techniques are described in Appendix A.

3.2 Groundwater Sampling

Groundwater samples were collected from soil borings GP1 through GP-8 on September 22 and 23, 1998. Groundwater samples were collected during the installation of the borings utilizing a shielded screen drive point sampler. The sampler was driven below the groundwater interface. The sheathed outer drive casing was then partially withdrawn, exposing a stainless steel screen. Groundwater was then allowed to flow passively into the screen and was subsequently sampled using a vacuum pump and disposable polyethylene hose. The samples were then placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to the laboratory. Chain-of-Custody documentation is presented in Appendix C.

Following the collection of soil and groundwater samples, all borings were abandoned by backfilling with a bentonite sealant to approximately 0.5 feet below grade. The top of each boring was capped with concrete. The soil probe boring locations are presented on Figure 1.

3.3 Analytical Parameters

Soil and groundwater samples were analyzed for the following parameters:

PARAMETER	METHOD
TPH as gasoline	Washington Method WTPH-G
Benzene, Toluene, Ethylbenzene, and Xylenes compounds (BTEX)	EPA Method 8021B
TPH as diesel and oil	Washington Method WTPH-D plus Extended

The samples were analyzed by North Creek Analytical, Inc., of Bothell, Washington.

3.4 Exploratory Analytical Results

3.4.1 Soil Analytical Results

Concentrations of TPH-gasoline in the soil samples submitted for analysis ranged from non-detectable levels to 187 ppm. Concentrations of TPH-diesel and TPH-oil ranged from non-detectable levels to 426 ppm. Concentrations of BTEX compounds ranged from non-detectable levels to 8.74 ppm. Soil analytical results are presented in Table 1. Laboratory methods, analytical reports, and chain-of-custody documentation are contained in Appendix C.

3.4.2 Groundwater Analytical Results

Concentrations of TPH-gasoline in the groundwater samples submitted for analysis ranged from non-detectable levels to 8,450 parts per billion (ppb). Concentrations of TPH-diesel and TPH-oil ranged from non-detectable levels to 4,770 ppb. Concentrations of BTEX compounds ranged from non-detectable levels to 1,420 ppb. Groundwater analytical results are presented in Table 2. Concentrations of benzene, TPH-gasoline, TPH-diesel, and TPH-oil in groundwater are also shown on Figure 1. Laboratory methods, analytical reports, and chain-of-custody documentation are contained in Appendix C.

4.0 CONCLUSIONS

Soil encountered during investigative activities at the site consisted primarily of silty sand underlain by clay at depths ranging from approximately four feet to nine feet below grade. Groundwater was encountered in the borings between 7 and 17 feet below grade.

Analytical results indicate that concentrations of TPH-gasoline above MTCA Method A cleanup levels were detected in soil samples from soil probe borings GP2 and GP5. A benzene concentration above the MTCA Method A cleanup level was detected in one soil sample from soil probe boring GP5. A TPH-diesel concentration above the MTCA Method A cleanup level was detected in one soil sample from soil probe boring GP2. The soil samples with detected concentrations above MTCA in soil borings GP2 and GP5 were collected from depths of eight feet below grade in both soil borings. Concentrations of TPH and BTEX compounds were not detected above the laboratory reporting limits in the soil samples collected from soil borings GP2 and GP5 at depths of 12 feet and 16 feet below grade, respectively.

Analytical results indicate that concentrations of TPH-gasoline above MTCA Method A cleanup levels were detected in groundwater samples from borings GP2 and GP5. Concentrations of one or more BTEX compounds above MTCA Method A cleanup levels were detected in groundwater samples from borings GP4, GP5, and GP6. A TPH-diesel concentration above the MTCA Method A cleanup level was detected in the groundwater sample from boring GP1.

Laboratory analytical results indicate that soil is impacted with hydrocarbons in the area of the former waste oil and heating oil USTs, and on the north side of the eastern dispenser island. Laboratory analytical results also indicate that groundwater is impacted with hydrocarbons in the vicinity of the waste oil and heating oil USTs, and possibly extends across the northern portion of the site from the gasoline UST complex to the eastern dispenser island.

5.0 PROFESSIONAL CERTIFICATION

Based on site conditions at the time work was initiated, all tasks were performed in accordance with generally accepted professional practices. Pacific Environmental Group, Inc. staff has prepared this environmental site assessment report under the professional supervision of the person(s) whose signature appears hereon.

If you have any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.

Matthew Miller
Project Geologist

Eric Larsen
Senior Geologist

REFERENCES

Pacific Environmental Group. 1997. "Soil Gas Survey Results". October.

Pacific Environmental Group. 1998. "Environmental Investigation". October.

TABLE 1
SOIL ANALYTICAL RESULTS
Sample Dates - September 22-23, 1998
Tosco 6380 - 200 South 36th Street
Bellingham, Washington

Sample I.D.	Depth (feet)	TPH-Gasoline (ppm)	Benzene (ppm)	Toluene (ppm)	Ethylbenzene (ppm)	Xylenes (ppm)	TPH-Diesel (ppm)	TPH-Oil (ppm)
GP1-12	12	NA	NA	NA	NA	NA	27.1	ND
GP1-16	16	NA	NA	NA	NA	NA	ND	ND
GP2-8	8	187	ND	ND	ND	ND	426	56.5
GP2-12	12	ND	ND	ND	ND	ND	ND	ND
GP3-6	6	NA	NA	NA	NA	NA	ND	28.5
GP3-12	12	NA	NA	NA	NA	NA	ND	ND
GP4-12	12	ND	ND	ND	ND	ND	NA	NA
GP5-8	8	111	1.19	0.635	1.32	8.74	NA	NA
GP5-16	16	ND	ND	ND	ND	ND	NA	NA
GP6-4	4	23.0	0.113	ND	0.147	0.352	NA	NA
GP6-12	12	ND	ND	ND	ND	ND	NA	NA
GP7-4	4	ND	ND	ND	ND	ND	NA	NA
GP7-12	12	ND	ND	ND	ND	ND	NA	NA
GP8-8	8	5.73	0.234	0.0840	ND	ND	NA	NA
GP8-12	12	ND	ND	ND	ND	ND	NA	NA
MTCA Method A Cleanup Levels:		**100**	**0.5**	**40**	**20**	**20**	**200**	**200**
Laboratory Reporting Limits:		**5.00**	**0.0500**	**0.0500**	**0.0500**	**0.100**	**10**	**25**

Concentrations in ppm (mg/kg)
ND = Not detected at the laboratory reporting limits
NA = Not Analyzed
Sample locations are shown on Figure 1
Certified Analytical Results are attached
TPH as Gasoline - Analysis by Washington Method WTPH-G
BTEX Compounds - Analysis by EPA Method 8021B
TPH as Diesel and Heavy Oil - Analysis by Washington Method WTPH-D + Extended

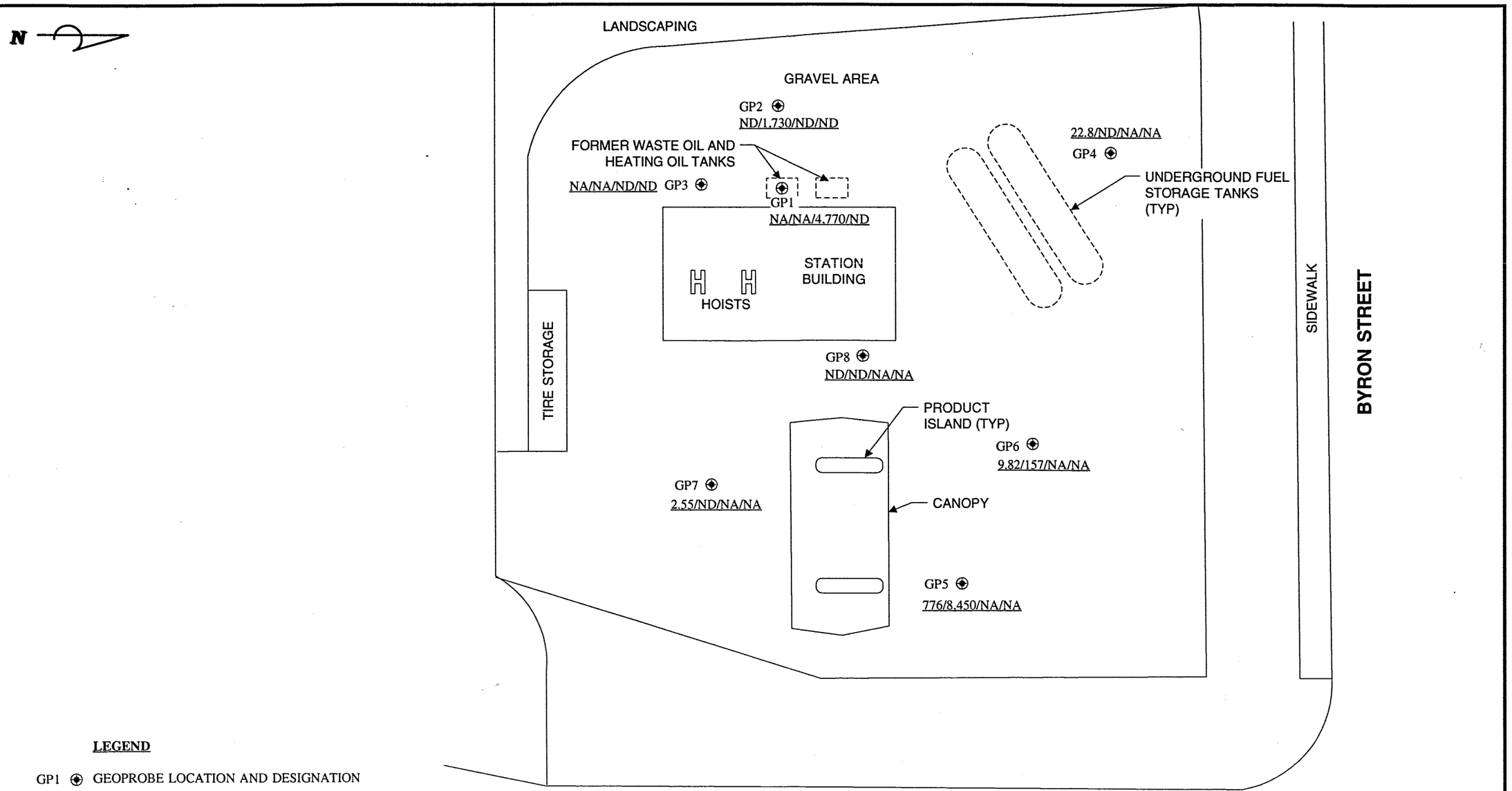
QA/QC MM 12/21/98

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
Tosco 6380 - 200 South 36th Street
Bellingham, Washington

Sample I.D.	Sample Date	TPH-Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	TPH-Diesel (ppb)	TPH-Oil (ppb)
GP1	9/22/98	NA	NA	NA	NA	NA	4,770	ND
GP2[1]	9/22/98	1,730	ND	ND	ND	ND	ND	ND
GP3	9/22/98	NA	NA	NA	NA	NA	ND	ND
GP4	9/23/98	ND	22.8	1.75	0.506	2.55	NA	NA
GP5	9/23/98	8,450	776	729	283	1,420	NA	NA
GP6	9/23/98	157	9.82	0.832	3.98	7.75	NA	NA
GP7	9/23/98	ND	2.55	ND	ND	1.31	NA	NA
GP8[1]	9/23/98	ND	ND	ND	ND	ND	NA	NA
MTCA Method A Cleanup Level		**1,000**	**5**	**40**	**30**	**20**	**1,000**	**1,000**
Laboratory Reporting Limits:		**50**	**0.500**	**0.500**	**0.500**	**0.100**	**250**	**750**

Concentrations in ppb (ug/l)
ND = Not detected at the laboratory reporting limits
NA = Not Analyzed
Sample locations are shown on Figure 1
Certified Analytical Results are attached
1 - Sample was diluted in the laboratory resulting in higher detection limits
TPH as Gasoline - Analysis by Washington Method WTPH-G
BTEX Compounds - Analysis by EPA Method 8021B
TPH as Diesel and Heavy Oil - Analysis by Washington Method WTPH-D + Extended

QA/QC AM 12/21/98



LEGEND

GP1 ⊕ GEOPROBE LOCATION AND DESIGNATION

22.8/ND/NA/NA BENZENE/TPH-GASOLINE/TPH-DIESEL/TPH-OIL CONCENTRATIONS IN GROUNDWATER IN PARTS PER BILLION, 9/22-23/98

ND NOT DETECTED

NA NOT ANALYZED

SCALE

0 20 40 FEET

PACIFIC ENVIRONMENTAL GROUP, INC.

TITLE:

SITE MAP

PREPARED FOR:

TOSCO SERVICE STATION 6380
200 South 36th Street
Bellingham, Washington

DATE: 12/21/98	PROJECT: 504-018.1B	FIGURE: 1

APPENDIX A

SOIL PROBE INSTALLATION

SOIL AND GROUNDWATER SAMPLING AND FIELD SCREENING PROCEDURES

APPENDIX A

Soil Probe Installation/Soil Sampling Procedures

Eight soil probe borings were installed on September 22 and 23, 1998 by Geo-Tech Explorations Inc., of Tualatin, Oregon. The probes were installed using a direct-push hydraulic and percussion drive-point sampling system. The soil probe borings were logged by a PEG geologist using the Unified Soil Classification System and standard geologic techniques. Boring logs are presented in Appendix B. Soil samples for logging and chemical analysis were collected utilizing a four-foot long macro core sampler with a 1.5-inch inside diameter. The macro core sampler was lined with clear PVC tubing and utilized a piston assembly that allowed for discrete interval sampling. To collect a sample, the sampler is hydraulically pushed to the desired depth and the piston is unlocked. The sampler is then advanced using a hydraulic percussion hammer causing the piston to retract and allowing the sampler to collect the sample in clear PVC tubing. The PVC tubing is removed from the sampler and the soil samples retained for chemical analyses are placed in laboratory-supplied glass jars with Teflon® lined lids. Each sample was affixed with a waterproof label showing project identification, boring designation, approximate depth, date, and the sampler's initials. The samples were placed on ice for transport to the laboratory accompanied by chain-of-custody documentation shown in Appendix C. All drilling equipment including the macro core sampler was cleaned between samples by washing in a detergent solution followed by a clean water rinse and distilled water rinse.

Groundwater Sampling Procedures

Groundwater samples were collected from soil probes GP1 through GP8 on September 22 and 23, 1998. Groundwater samples were collected during the installation of the borings utilizing a shielded screen drive point sampler. The sampler was driven approximately two feet below the groundwater interface where possible. The sheathed outer drive casing was then partially withdrawn, exposing a stainless steel screen. Groundwater was then allowed to flow passively into the screen and subsequently sampled using a vacuum pump and disposable polyethylene hose. The samples were then placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to the laboratory. Chain-of-Custody documentation and field data sheets are presented in Appendix C.

Organic Vapor Screening

Soil samples were screened in the field for ionizable organic compounds using a Thermo Environmental Instruments Model 580B photoionization detector with a 10 electron volt (eV) light source. The test procedure involved placing the soil in a resealable bag. The bag was allowed to warm to ambient temperature for approximately twenty minutes, then the bag was pierced and the head-space within the bag was tested for total organic vapor, measured in parts per million, (ppm; volume/volume). The detection limit of the instrument ranges from 0.1 to 2,000 ppm. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 eV.

APPENDIX B

BORING LOGS

WELL LOG
KEY TO ABBREVIATIONS

Drilling Method

HSA - Hollow stem auger
CFA - Continous flight auger
Air - Reverse air circulation

Gravel Pack

CA - Coarse aquarium sand

Sampling Method

SS - Split-spoon sampler (1.5" inner diameter) driven 18" by a 140-pound hammer having a 30" drop. Where penetration resistance is designated "P", sampler was instead pushed by drill rig.
Disturbed - Sample taken from drill-return materials as they surfaced.
Shelby - Shelby Tube thin-walled sampler (3" diameter), where sampler is pushed by drill-rig.

Moisture Content

Dry - Dry
Dp - Damp
Mst - Moist
Wt - Wet

Sorting

PS - Poorly sorted
MS - Moderately sorted
WS - Well sorted

Plasticity

L - Low
M - Moderate
H - High

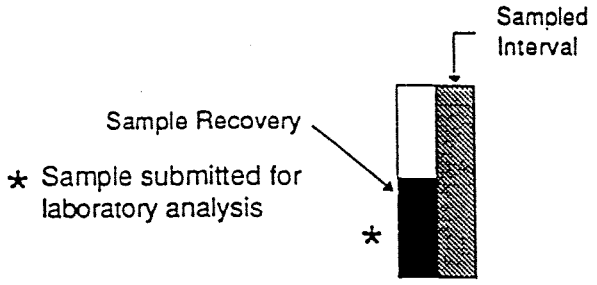
PID (ppm)

ND - No detection

Symbols

▽ - First encountered ground water

▼ - Static ground water level



Density (Blows/Foot - Split Spoon Sampler)

Sands and gravels

0 - 4	- Very Loose
4 - 10	- Loose
10 - 30	- Medium dense
30 - 50	- Dense
over 50	- Very dense

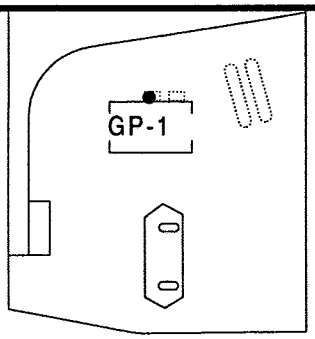
Silts and Clays

0 - 2	- Very Soft
2 - 4	- Soft
4 - 8	- Firm
8 -16	- Stiff
16 - 32	- Very Stiff
32 - 50	- Hard
over 50	- Very Hard

GRAIN - SIZE SCALE

GRADE LIMITS U.S. Standard inch	sieve size		GRADE NAME
12.0			Boulders
3.0	3.0 in.		Cobbles
0.19	No. 4		Gravels
0.08	No. 10	coarse	
	No. 40	medium	Sand
	No. 200	fine	
			Silt
			Clay Size

PACIFIC ENVIRONMENTAL GROUP, INC.



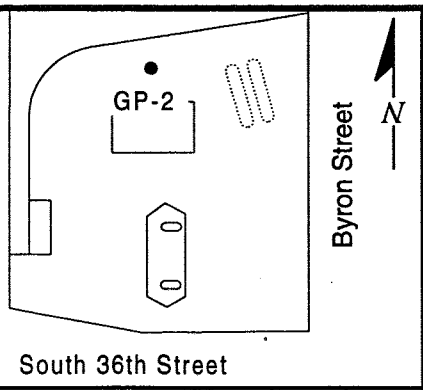
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-1
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-22-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 18.7'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
concrete; Backfilled with Bentonite				1–8				SAND: fill; peagravel.
				9			CL	CLAY: mottled gray brown; moderate plasticity; 10 to 20% very fine sand; trace medium to coarse sand; product odor.
	Dp	1		12*				
	Mst	0		16*			SP ML	SAND: thin interbedded sand lense; trace gravel; no product odor. SILT: dark gray; moderate plasticity; 60% silt; 40% very fine to fine sand; no product odor.
▽	Wt	0		18				
				19–22				BOTTOM OF BORING 18.7'



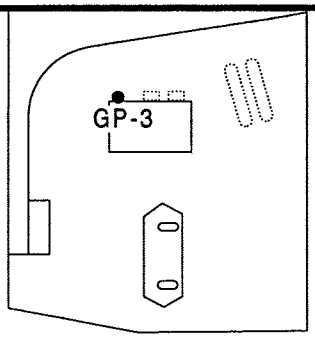
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-2
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-22-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 16'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL / GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
concrete; Backfilled with Bentonite				1–3		SM	ASPHALT SILTY SAND: dark greenish gray; 40% fines; 55% very fine sand; 5% fine to coarse sand; trace gravel; no product odor.
	Dp	1		4–6			
	Dp	6		7–8 *			@8': as above; product odor.
▼		18		9		CL	CLAY: mottled gray and brown; moderate plasticity; 90% clay; 10% fine to coarse sand; trace gravel; no product odor.
	Dp	0		10–12 *			
▽	Wt	0		13–15		SP	SAND: gray; trace fines; 90% medium to coarse sand; 10% gravel; no product odor.
				16			BOTTOM OF BORING 16'
				17–22			



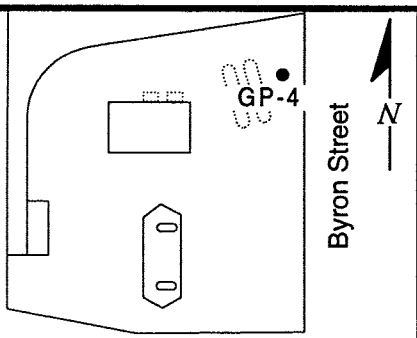
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-3
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-22-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 16'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY / SAMPLE INTERVAL / GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
concrete; Backfilled with Bentonite				1		SM	ASPHALT SILTY SAND: very dark gray; 20% fines; 75% very fine to fine sand; 5% medium to coarse sand; trace gravel; no product odor.
	Dp	2		2			
				3			
				4			
				5			
		1		* 6			@6': as above; staining; product odor.
				7		CL	CLAY: dark gray mottled; moderate plasticity; 90% clay; 10% fine to coarse sand; trace gravel; organics; no product odor.
	Mst	1		8			
				9			
				10			
				11			
	Mst	0		* 12			@12': as above.
				13			
				14			
				15			
▽	Mst	0		16			@16': as above.
				17			BOTTOM OF BORING 16'
				18			
				19			
				20			
				21			
				22			



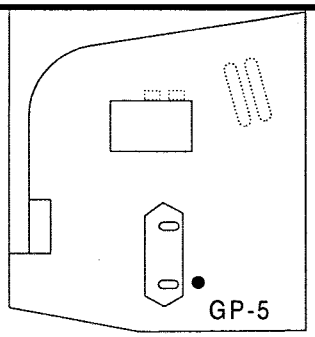
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-4
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-23-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 16'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	SOIL TYPE	LITHOLOGY/REMARKS
concrete					SM	ASPHALT SILTY SAND: dark gray to black; 20% fines; 60% fine sand; 20% medium to coarse sand; trace gravel; no product odor.
Backfilled with Bentonite	Dry	3		1–4		
				5	CL	CLAY: dark greenish gray to black; low plasticity; 70% clay; 30% very fine to fine sand; no product odor.
	Dp	0		6–11		
	Dp	0		* 12		@12': as above; abundant iron oxide staining; 10% very fine to fine sand.
▽	Wt	0		13–16		@16': as above.
				17–22		BOTTOM OF BORING 16'



PACIFIC ENVIRONMENTAL GROUP, INC.

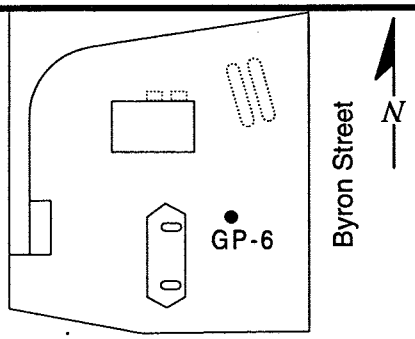
BORING NO. GP-5
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-23-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 16'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	SOIL TYPE	LITHOLOGY/REMARKS
concrete; Backfilled with Bentonite					SM	ASPHALT SILTY SAND: dark greenish gray; 30% fines; 60% fine sand; 10% medium to coarse sand; gravel; no product odor. @3.5': burnt debris.
	Dry	15		4	CL	CLAY: dark greenish gray; low plasticity; 80% clay; 20% very fine to medium sand; iron oxide staining; trace gravel; slight product odor.
	Dp	40		8 *		
	Dp	15		12		@12': as above; dark greenish gray; olive brown mottling; 5% fine to coarse sand; organics.
▽	Mst	0		16 *		@16': as above; olive gray; moderate plasticity; trace very fine to coarse sand; trace organics; no product odor.
						BOTTOM OF BORING 16'

RECOVERY
SAMPLE INTERVAL
GRAPHIC



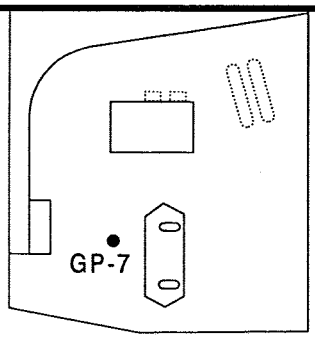
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-6
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-23-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 14.5'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	SOIL TYPE	LITHOLOGY/REMARKS
concrete					SM	ASPHALT SILTY SAND: dark greenish gray; 40% fines; 40% very fine to fine sand; 10% medium to coarse sand; 10% gravel; no product odor.
Backfilled with Bentonite	Dry	18	*	4		
				5	CL	CLAY: dark greenish gray to dark grayish brown mottling; low plasticity; 90% clay; 10% very fine to coarse sand; trace gravel; organics; no product odor.
	Dp	1		8		
	Mst	0	*	12		@12': as above.
	Wt	0		13	SP	SAND: dark gray; trace fines; 80% fine to coarse sand; 20% gravel; no product odor.
				14		BOTTOM OF BORING 14.5'



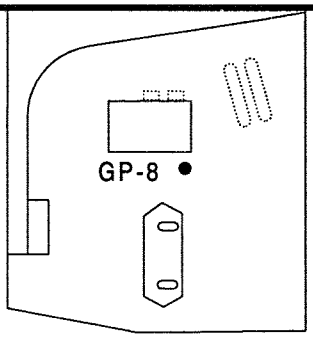
PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-7
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-23-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 14.5'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
concrete								SM	ASPHALT SILTY SAND: dark greenish gray; 30% fines; 60% very fine sand; 10% fine to coarse sand; trace gravel; no product odor.
Backfilled with Bentonite	Dp	2		4 *				CL	CLAY: very dark greenish gray; low plasticity; 80% clay; 20% very fine to coarse sand; trace gravel; no product odor.
▼	Dp	2		8					
	Mst	0		12 *					@12': as above; moderate plasticity; mottled; trace organics.
	Mst	0		14					@14.5': as above; refusal. BOTTOM OF BORING 14.5'
				1 2 3 5 6 7 9 10 11 13 15 16 17 18 19 20 21 22					



PACIFIC ENVIRONMENTAL GROUP, INC.

BORING NO. GP-8
PAGE 1 OF 1

PROJECT NO: 504-018.1B
LOGGED BY: M.M.
DRILLER: GEO TECH
DRILLING METHOD: GEOPROBE
SAMPLING METHOD: CONT CORE
CASING TYPE: NA
SLOT SIZE: NA
GRAVEL PACK: NA

CLIENT: TOSCO
DATE DRILLED: 9-23-98
LOCATION: 200 South 36th St., Bellingham
HOLE DIAMETER: 2"
HOLE DEPTH: 16'
WELL DIAMETER: NA
WELL DEPTH: NA
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID (ppm)	PENETRATION (BLOWS/ 6")	DEPTH (FEET)	RECOVERY	SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY/REMARKS
concrete / Backfilled with Bentonite								SM	CONCRETE SILTY SAND: dark gray; 30% fines; 60% very fine to fine sand; 10% medium to coarse sand; trace gravel; no product odor.
	Wt	1		4				CL	CLAY: very dark brown; low plasticity; 60% clay; 40% very fine sand; trace fine to coarse sand; trace gravel; organics; slight product odor.
	Mst	21		8 *					
▼				10					
	Mst	0		12 *					@12': as above; olive brown; low to moderate plasticity; trace very fine sand; organics; no product odor.
▽				14					
	Wt	0		15				SP	SAND: very dark gray; trace to 5% fines; 95% fine to medium sand; trace coarse sand; no product odor.
				16					BOTTOM OF BORING 16'
				17					
				18					
				19					
				20					
				21					
				22					

APPENDIX C

LABORATORY ANALYTICAL METHODS AND REPORTS

QUALITY CONTROL SUMMARY

CHAIN-OF-CUSTODY DOCUMENTATION

APPENDIX C

Laboratory Analytical Methods

Analysis for TPH-gasoline was performed according to Washington Method WTPH-G. Analysis for TPH-diesel and TPH-oil was performed according to Washington Method WTPH-D Extended. Benzene, toluene, ethylbenzene, and xylenes analysis was performed in accordance with EPA Method 8021B. A methanol solvent extraction was used for the WTPH-G analysis with final detection by gas chromatography using a flame-ionization detector. A headspace or purge and trap technique was utilized for BTEX analysis. Final detection was by gas chromatography using a photoionization detector.

Quality Control Summary

Soil and groundwater samples collected on September 22 and 23, 1998 were submitted to NCA for chemical analysis. The samples were kept in cold storage until removed for preparation and/or analysis.

Included with the laboratory sample results were QA/QC data for laboratory method blanks, matrix spikes, and matrix spike duplicates. A detailed description of the laboratory QA/QC data is presented below.

- Method Blank: An organic or aqueous solution that is as free of analyte as possible and contains all the reagents in the same volume as used in the processing of the environmental samples. The method blank is carried through the complete preparation procedure and is used to correct for possible errors in extraction procedure or contamination.
- Matrix Spike and Matrix Spike Duplicates: A technique used to provide a measure of accuracy for the method in a given matrix by adding predetermined quantities of analytes prior to sample extraction/digestion and analysis. The spike concentration should be at the regulatory level or near the Practical Quantitation Limit for the method. When performed in duplicate, the percent recovery and relative percent deviation between the MS and MSD is calculated and used to interpret the precision of the analyses.

Upper and lower control limits, relative difference, and maximum relative percent difference (RPD) are also included on the North Creek Analytical Quality Control Data Report with the laboratory results.

The samples submitted were all extracted and analyzed within the recommended holding times. Correct procedures for chain of custody documentation were followed throughout the project.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/23/98 to 9/22/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 10:38

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	GP1-12 Soil 9/22/98 B809676-01	GP1-16 Soil 9/22/98 B809676-02	GP2-8 Soil 9/22/98 B809676-03	GP2-12 Soil 9/22/98 B809676-04	GP3-6 Soil 9/22/98 B809676-05
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	-	-	**187**	<5.00	-
"	"	ug/l	-	-	-	-	-
"	Benzene	mg/kg dry	-	-	<0.500	<0.0500	-
"	"	ug/l	-	-	-	-	-
"	Toluene	mg/kg dry	-	-	<0.500	<0.0500	-
"	"	ug/l	-	-	-	-	-
"	Ethylbenzene	mg/kg dry	-	-	<0.500	<0.0500	-
"	"	ug/l	-	-	-	-	-
"	Xylenes (total)	mg/kg dry	-	-	<1.00	<0.100	-
"	"	ug/l	-	-	-	-	-
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	**27.1**	<10.0	**426**	<10.0	<10.0
"	"	mg/l	-	-	-	-	-
"	Heavy Oil Range Hydrocarbons	mg/kg dry	<25.0	<25.0	**56.5**	<25.0	**28.5**
"	"	mg/l	-	-	-	-	-

Method	Analyte	Units	GP3-12 Soil 9/22/98 B809676-06	GP4-12 Soil 9/23/98 B809676-07	GP5-8 Soil 9/23/98 B809676-08	GP5-16 Soil 9/23/98 B809676-09	GP6-4 Soil 9/23/98 B809676-10
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	-	<5.00	**111**	<5.00	**23.0**
"	"	ug/l	-	-	-	-	-
"	Benzene	mg/kg dry	-	<0.0500	**1.19**	<0.0500	**0.113**
"	"	ug/l	-	-	-	-	-
"	Toluene	mg/kg dry	-	<0.0500	**0.635**	<0.0500	<0.0500
"	"	ug/l	-	-	-	-	-
"	Ethylbenzene	mg/kg dry	-	<0.0500	**1.32**	<0.0500	**0.147**
"	"	ug/l	-	-	-	-	-
"	Xylenes (total)	mg/kg dry	-	<0.100	**8.74**	<0.100	**0.352**
"	"	ug/l	-	-	-	-	-
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	<10.0	-	-	-	-
"	"	mg/l	-	-	-	-	-
"	Heavy Oil Range Hydrocarbons	mg/kg dry	<25.0	-	-	-	-
"	"	mg/l	-	-	-	-	-

North Creek Analytical - Bothell

Kirk Gendron, Project Manager

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/23/98 to 9/22/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 10:38

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	GP6-12 Soil 9/23/98 B809676-11	GP7-4 Soil 9/23/98 B809676-12	GP7-12 Soil 9/23/98 B809676-13	GP8-8 Soil 9/23/98 B809676-14	GP8-12 Soil 9/23/98 B809676-15
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	<5.00	<5.00	<5.00	**5.73**	<5.00
"	"	ug/l	-	-	-	-	-
"	Benzene	mg/kg dry	<0.0500	<0.0500	<0.0500	**0.234**	<0.0500
"	"	ug/l	-	-	-	-	-
"	Toluene	mg/kg dry	<0.0500	<0.0500	<0.0500	**0.0840**	<0.0500
"	"	ug/l	-	-	-	-	-
"	Ethylbenzene	mg/kg dry	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
"	"	ug/l	-	-	-	-	-
"	Xylenes (total)	mg/kg dry	<0.100	<0.100	<0.100	<0.100	<0.100
"	"	ug/l	-	-	-	-	-
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	-	-	-	-	-
"	"	mg/l	-	-	-	-	-
"	Heavy Oil Range Hydrocarbons	mg/kg dry	-	-	-	-	-
"	"	mg/l	-	-	-	-	-

Method	Analyte	Units	GP1 Water 9/22/98 B809676-16	GP2 Water 9/22/98 B809676-17	GP3 Water 9/22/98 B809676-18	GP4 Water 9/23/98 B809676-19	GP5 Water 9/23/98 B809676-20
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	-	-	-	-	-
"	"	ug/l	-	**1730**	-	<50.0	**8450**
"	Benzene	mg/kg dry	-	-	-	-	-
"	"	ug/l	-	<0.500	-	**22.8**	776
"	Toluene	mg/kg dry	-	-	-	-	-
"	"	ug/l	-	<0.500	-	**1.75**	729
"	Ethylbenzene	mg/kg dry	-	-	-	-	-
"	"	ug/l	-	<1.00	-	**0.506**	283
"	Xylenes (total)	mg/kg dry	-	-	-	-	-
"	"	ug/l	-	<5.00	-	**2.55**	1420
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	-	-	-	-	-
"	"	mg/l	**4.77**	<0.250	<0.250	-	-
"	Heavy Oil Range Hydrocarbons	mg/kg dry	-	-	-	-	-
"	"	mg/l	<0.750	<0.750	<0.750	-	-

North Creek Analytical - Bothell

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/23/98 to 9/22/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 10:38

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	GP6 Water 9/23/98 B809676-21	GP7 Water 9/23/98 B809676-22	GP8 Water 9/23/98 B809676-23		
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	-	-	-		
"	"	ug/l	**157**	<50.0	<250		
"	Benzene	mg/kg dry	-	-	-		
"	"	ug/l	**9.82**	**2.55**	<2.50		
"	Toluene	mg/kg dry	-	-	-		
"	"	ug/l	**0.832**	<0.500	<15.0		
"	Ethylbenzene	mg/kg dry	-	-	-		
"	"	ug/l	**3.98**	<0.500	<2.50		
"	Xylenes (total)	mg/kg dry	-	-	-		
"	"	ug/l	**7.75**	**1.31**	<5.00		
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	-	-	-		
"	"	mg/l	-	-	-		
"	Heavy Oil Range Hydrocarbons	mg/kg dry	-	-	-		
"	"	mg/l	-	-	-		

North Creek Analytical - Bothell

Kirk Gendron, Project Manager

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group		Project:	TOSCO-Bellingham	Sampled:	9/22/98 to 9/23/98
4020 148th Ave NE, Ste B		Project Number:	504-018.1B	Received:	9/25/98
Redmond, WA 98052		Project Manager:	Matt Miller	Reported:	10/12/98 11:14

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
GP1-12	B809676-01	Soil	9/22/98
GP1-16	B809676-02	Soil	9/22/98
GP2-8	B809676-03	Soil	9/22/98
GP2-12	B809676-04	Soil	9/22/98
GP3-6	B809676-05	Soil	9/22/98
GP3-12	B809676-06	Soil	9/22/98
GP4-12	B809676-07	Soil	9/23/98
GP5-8	B809676-08	Soil	9/23/98
GP5-16	B809676-09	Soil	9/23/98
GP6-4	B809676-10	Soil	9/23/98
GP6-12	B809676-11	Soil	9/23/98
GP7-4	B809676-12	Soil	9/23/98
GP7-12	B809676-13	Soil	9/23/98
GP8-8	B809676-14	Soil	9/23/98
GP8-12	B809676-15	Soil	9/23/98
GP1	B809676-16	Water	9/22/98
GP2	B809676-17	Water	9/22/98
GP3	B809676-18	Water	9/22/98
GP4	B809676-19	Water	9/23/98
GP5	B809676-20	Water	9/23/98

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.

Kirk Gendron, Project Manager

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

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (425) 420-9200 ■ FAX 420-9210
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled:	9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received:	9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported:	10/12/98 11:14

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
GP6	B809676-21	Water	9/23/98
GP7	B809676-22	Water	9/23/98
GP8	B809676-23	Water	9/23/98

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP2-8			**B809676-03**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		50.0	**187**	mg/kg dry	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*141*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*111*	"	
GP2-12			**B809676-04**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*111*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*116*	"	
GP4-12			**B809676-07**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*109*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*112*	"	
GP5-8			**B809676-08**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		20.0	**111**	mg/kg dry	
Benzene	"	"	"		0.200	**1.19**	"	
Toluene	"	"	"		0.200	**0.635**	"	
Ethylbenzene	"	"	"		0.200	**1.32**	"	
Xylenes (total)	"	"	"		0.400	**8.74**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*138*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*124*	"	
GP5-16			**B809676-09**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP5-16 (continued)			**B809676-09**				**Soil**	
Toluene	1080097	10/4/98	10/5/98		0.0500	ND	mg/kg dry	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*115*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*116*	"	
GP6-4			**B809676-10**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		5.00	**23.0**	mg/kg dry	
Benzene	"	"	"		0.0500	**0.113**	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	**0.147**	"	
Xylenes (total)	"	"	"		0.100	**0.352**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*122*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*121*	"	
GP6-12			**B809676-11**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/6/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*107*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*104*	"	
GP7-4			**B809676-12**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/5/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*112*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*110*	"	
GP7-12			**B809676-13**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/6/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (425) 420-9200 ■ FAX 420-9210
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 906-9200 ■ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP7-12 (continued)			**B809676-13**				**Soil**	
Xylenes (total)	1080097	10/4/98	10/6/98		0.100	ND	mg/kg dry	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*111*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*111*	"	
GP8-8			**B809676-14**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/6/98		5.00	**5.73**	mg/kg dry	
Benzene	"	"	"		0.0500	**0.234**	"	
Toluene	"	"	"		0.0500	**0.0840**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*113*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*106*	"	
GP8-12			**B809676-15**				**Soil**	
Gasoline Range Hydrocarbons	1080097	10/4/98	10/6/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*111*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*112*	"	
GP2			**B809676-17**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/5/98		50.0	**1730**	ug/l	1
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		1.00	ND	"	2
Xylenes (total)	"	"	"		5.00	ND	"	2
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*186*	*%*	*3*
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*146*	"	
GP4			**B809676-19**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/4/98		50.0	ND	ug/l	
Benzene	"	"	"		0.500	**22.8**	"	
Toluene	"	"	"		0.500	**1.75**	"	
Ethylbenzene	"	"	"		0.500	**0.506**	"	
Xylenes (total)	"	"	"		1.00	**2.55**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*121*	*%*	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP4 (continued)			**B809676-19**				**Water**	
Surrogate: 4-BFB (PID)	*1080098*	*10/4/98*	*10/4/98*	*50.0-150*		*116*	%	
GP5			**B809676-20**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/5/98		1000	**8450**	ug/l	
Benzene	"	"	"		10.0	**776**	"	
Toluene	"	"	"		10.0	**729**	"	
Ethylbenzene	"	"	"		10.0	**283**	"	
Xylenes (total)	"	"	"		20.0	**1420**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*136*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*126*	"	
GP6			**B809676-21**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/5/98		50.0	**157**	ug/l	
Benzene	"	"	"		0.500	**9.82**	"	
Toluene	"	"	"		0.500	**0.832**	"	
Ethylbenzene	"	"	"		0.500	**3.98**	"	
Xylenes (total)	"	"	"		1.00	**7.75**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*130*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*121*	"	
GP7			**B809676-22**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/5/98		50.0	ND	ug/l	
Benzene	"	"	"		0.500	**2.55**	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	**1.31**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*121*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*117*	"	
GP8			**B809676-23**				**Water**	
Gasoline Range Hydrocarbons	1080098	10/4/98	10/4/98		250	ND	ug/l	2
Benzene	"	"	"		2.50	ND	"	2
Toluene	"	"	"		15.0	ND	"	2
Ethylbenzene	"	"	"		2.50	ND	"	2
Xylenes (total)	"	"	"		5.00	ND	"	2
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*114*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*122*	"	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP1-12			**B809676-01**				**Soil**	
Diesel Range Hydrocarbons	0980961	9/29/98	9/30/98		10.0	**27.1**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*56.4*	*%*	
GP1-16			**B809676-02**				**Soil**	
Diesel Range Hydrocarbons	0980961	9/29/98	9/30/98		10.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*64.9*	*%*	
GP2-8			**B809676-03**				**Soil**	
Diesel Range Hydrocarbons	1080179	10/6/98	10/7/98		10.0	**426**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**56.5**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*74.7*	*%*	
GP2-12			**B809676-04**				**Soil**	
Diesel Range Hydrocarbons	1080179	10/6/98	10/7/98		10.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*59.8*	*%*	
GP3-6			**B809676-05**				**Soil**	
Diesel Range Hydrocarbons	0980961	9/29/98	9/30/98		10.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**28.5**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*52.9*	*%*	
GP3-12			**B809676-06**				**Soil**	
Diesel Range Hydrocarbons	0980961	9/29/98	9/30/98		10.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*54.7*	*%*	
GP1			**B809676-16**				**Water**	
Diesel Range Hydrocarbons	0980944	9/29/98	9/30/98		0.250	**4.77**	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*90.4*	*%*	
GP2			**B809676-17**				**Water**	
Diesel Range Hydrocarbons	0980944	9/29/98	9/30/98		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*76.8*	*%*	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
GP3			**B809676-18**				**Water**	
Diesel Range Hydrocarbons	0980944	9/29/98	9/30/98		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*76.8*	*%*	

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled:	9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received:	9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported:	10/12/98 11:14

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
GP1-12	B809676-01	Soil	82.6	%
GP1-16	B809676-02	Soil	82.2	%
GP2-8	B809676-03	Soil	83.6	%
GP2-12	B809676-04	Soil	82.9	%
GP3-6	B809676-05	Soil	75.8	%
GP3-12	B809676-06	Soil	80.2	%
GP4-12	B809676-07	Soil	83.9	%
GP5-8	B809676-08	Soil	85.2	%
GP5-16	B809676-09	Soil	83.7	%
GP6-4	B809676-10	Soil	65.9	%
GP6-12	B809676-11	Soil	83.6	%
GP7-4	B809676-12	Soil	90.3	%
GP7-12	B809676-13	Soil	84.3	%
GP8-8	B809676-14	Soil	80.8	%
GP8-12	B809676-15	Soil	80.9	%

North Creek Analytical - Bothell

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1080097	**Date Prepared: 10/4/98**					**Extraction Method: EPA 5030B (P/T)**				
Blank	**1080097-BLK1**									
Gasoline Range Hydrocarbons	10/5/98			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*4.96*	"	*50.0-150*	*124*			
Surrogate: 4-BFB (PID)	"	*4.00*		*5.03*	"	*50.0-150*	*126*			
LCS	**1080097-BS1**									
Gasoline Range Hydrocarbons	10/5/98	25.0		24.3	mg/kg dry	70.0-130	97.2			
Surrogate: 4-BFB (FID)	"	*4.00*		*5.69*	"	*50.0-150*	*142*			
Duplicate	**1080097-DUP1**		**B809676-12**							
Gasoline Range Hydrocarbons	10/6/98		ND	ND	mg/kg dry			50.0		
Surrogate: 4-BFB (FID)	"	*4.43*		*5.23*	"	*50.0-150*	*118*			
Duplicate	**1080097-DUP2**		**B810082-06**							
Gasoline Range Hydrocarbons	10/6/98		2440	2310	mg/kg dry			50.0	**5.47**	
Surrogate: 4-BFB (FID)	"	*4.69*		*ND*	"	*50.0-150*	*NR*			*3*
Matrix Spike	**1080097-MS1**		**B809664-04**							
Benzene	10/6/98	0.708	ND	0.607	mg/kg dry	60.0-140	**85.7**			
Toluene	"	0.708	ND	0.610	"	60.0-140	**86.2**			
Ethylbenzene	"	0.708	ND	0.593	"	60.0-140	**83.8**			
Xylenes (total)	"	2.12	ND	1.89	"	60.0-140	**89.2**			
Surrogate: 4-BFB (PID)	"	*5.67*		*6.18*	"	*50.0-150*	*109*			
Matrix Spike Dup	**1080097-MSD1**		**B809664-04**							
Benzene	10/6/98	0.708	ND	0.600	mg/kg dry	60.0-140	**84.7**	20.0	**1.17**	
Toluene	"	0.708	ND	0.593	"	60.0-140	**83.8**	20.0	**2.82**	
Ethylbenzene	"	0.708	ND	0.573	"	60.0-140	**80.9**	20.0	**3.52**	
Xylenes (total)	"	2.12	ND	1.79	"	60.0-140	**84.4**	20.0	**5.53**	
Surrogate: 4-BFB (PID)	"	*5.67*		*6.13*	"	*50.0-150*	*108*			
Batch: 1080098	**Date Prepared: 10/4/98**					**Extraction Method: EPA 5030B (MeOH)**				
Blank	**1080098-BLK1**									
Gasoline Range Hydrocarbons	10/4/98			**ND**	ug/l	**50.0**				

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1080098-BLK1**									
Benzene	10/4/98			**ND**	ug/l	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (FID)	"	*48.0*		*51.6*	"	*50.0-150*	*107*			
Surrogate: 4-BFB (PID)	"	*48.0*		*54.7*	"	*50.0-150*	*114*			
LCS	**1080098-BS1**									
Gasoline Range Hydrocarbons	10/4/98	500		500	ug/l	70.0-130	100			
Surrogate: 4-BFB (FID)	"	*48.0*		*67.4*	"	*50.0-150*	*140*			
Duplicate	**1080098-DUP1**		**B809616-01**							
Gasoline Range Hydrocarbons	10/6/98		2780	2820	ug/l			25.0	**1.43**	
Surrogate: 4-BFB (FID)	"	*48.0*		*62.1*	"	*50.0-150*	*129*			
Duplicate	**1080098-DUP2**		**B809615-03**							
Gasoline Range Hydrocarbons	10/4/98		14100	16700	ug/l			25.0	**16.9**	
Surrogate: 4-BFB (FID)	"	*48.0*		*66.1*	"	*50.0-150*	*138*			
Matrix Spike	**1080098-MS1**		**B809615-04**							
Benzene	10/4/98	10.0	1.02	11.0	ug/l	70.0-130	**99.8**			
Toluene	"	10.0	ND	9.68	"	70.0-130	**96.8**			
Ethylbenzene	"	10.0	ND	9.52	"	70.0-130	**95.2**			
Xylenes (total)	"	30.0	ND	29.9	"	70.0-130	**99.7**			
Surrogate: 4-BFB (PID)	"	*48.0*		*59.3*	"	*50.0-150*	*124*			
Matrix Spike Dup	**1080098-MSD1**		**B809615-04**							
Benzene	10/4/98	10.0	1.02	11.2	ug/l	70.0-130	**102**	15.0	**2.18**	
Toluene	"	10.0	ND	9.87	"	70.0-130	**98.7**	15.0	**1.94**	
Ethylbenzene	"	10.0	ND	9.55	"	70.0-130	**95.5**	15.0	**0.315**	
Xylenes (total)	"	30.0	ND	30.0	"	70.0-130	**100**	15.0	**0.300**	
Surrogate: 4-BFB (PID)	"	*48.0*		*58.6*	"	*50.0-150*	*122*			

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0980944	**Date Prepared: 9/29/98**					**Extraction Method: EPA 3520C/600 Series**				
Blank	**0980944-BLK1**									
Diesel Range Hydrocarbons	9/30/98			**ND**	mg/l	**0.250**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**0.750**				
Surrogate: 2-FBP	"	*0.320*		*0.223*	"	*50.0-150*	*69.7*			
LCS	**0980944-BS1**									
Diesel Range Hydrocarbons	9/30/98	2.00		1.50	mg/l	50.0-150	75.0			
Surrogate: 2-FBP	"	*0.320*		*0.229*	"	*50.0-150*	*71.6*			
Duplicate	**0980944-DUP1**	**B809696-05**								
Diesel Range Hydrocarbons	9/30/98		ND	ND	mg/l			44.0		
Heavy Oil Range Hydrocarbons	"		ND	ND	"			44.0		4
Surrogate: 2-FBP	"	*0.605*		*0.412*	"	*50.0-150*	*68.1*			
Batch: 0980961	**Date Prepared: 9/29/98**					**Extraction Method: EPA 3550B**				
Blank	**0980961-BLK1**									
Diesel Range Hydrocarbons	9/30/98			**ND**	mg/kg dry	**10.0**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**25.0**				
Surrogate: 2-FBP	"	*10.7*		*7.81*	"	*50.0-150*	*73.0*			
LCS	**0980961-BS1**									
Diesel Range Hydrocarbons	9/30/98	66.7		51.7	mg/kg dry	50.0-150	77.5			
Surrogate: 2-FBP	"	*10.7*		*6.88*	"	*50.0-150*	*64.3*			
Duplicate	**0980961-DUP1**	**B809683-01**								
Diesel Range Hydrocarbons	9/30/98		ND	ND	mg/kg dry			56.0		
Heavy Oil Range Hydrocarbons	"		ND	ND	"			56.0		
Surrogate: 2-FBP	"	*11.9*		*6.17*	"	*50.0-150*	*51.8*			
Duplicate	**0980961-DUP2**	**B809683-02**								
Diesel Range Hydrocarbons	9/30/98		ND	ND	mg/kg dry			56.0		
Heavy Oil Range Hydrocarbons	"		ND	ND	"			56.0		
Surrogate: 2-FBP	"	*11.7*		*6.27*	"	*50.0-150*	*53.6*			
Batch: 1080179	**Date Prepared: 10/6/98**					**Extraction Method: EPA 3550B**				
Blank	**1080179-BLK1**									
Diesel Range Hydrocarbons	10/7/98			**ND**	mg/kg dry	**10.0**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**25.0**				

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**1080179-BLK1**									
Surrogate: 2-FBP	*10/7/98*	*10.7*		*6.50*	*mg/kg dry*	*50.0-150*	*60.7*			
LCS	**1080179-BS1**									
Diesel Range Hydrocarbons	10/7/98	66.7		48.2	mg/kg dry	50.0-150	72.3			
Surrogate: 2-FBP	"	*10.7*		*6.91*	"	*50.0-150*	*64.6*			
Duplicate	**1080179-DUP1**		**B809604-03**							
Diesel Range Hydrocarbons	10/7/98		1920	1950	mg/kg dry			56.0	**1.55**	
Heavy Oil Range Hydrocarbons	"		9290	10600	"			56.0	**13.2**	
Surrogate: 2-FBP	"	*11.2*		*7.46*	"	*50.0-150*	*66.6*			

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

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

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 420-9200 ▪ FAX 420-9210
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 906-9200 ▪ FAX 906-9210

Pacific Environmental Group	Project:	TOSCO-Bellingham	Sampled: 9/22/98 to 9/23/98
4020 148th Ave NE, Ste B	Project Number:	504-018.1B	Received: 9/25/98
Redmond, WA 98052	Project Manager:	Matt Miller	Reported: 10/12/98 11:14

Notes and Definitions

#	Note
1	The chromatogram for this sample does not resemble a typical gasoline pattern. Please refer to the sample chromatogram.
2	The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
3	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
4	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical - Bothell

Kirk Gendron, Project Manager

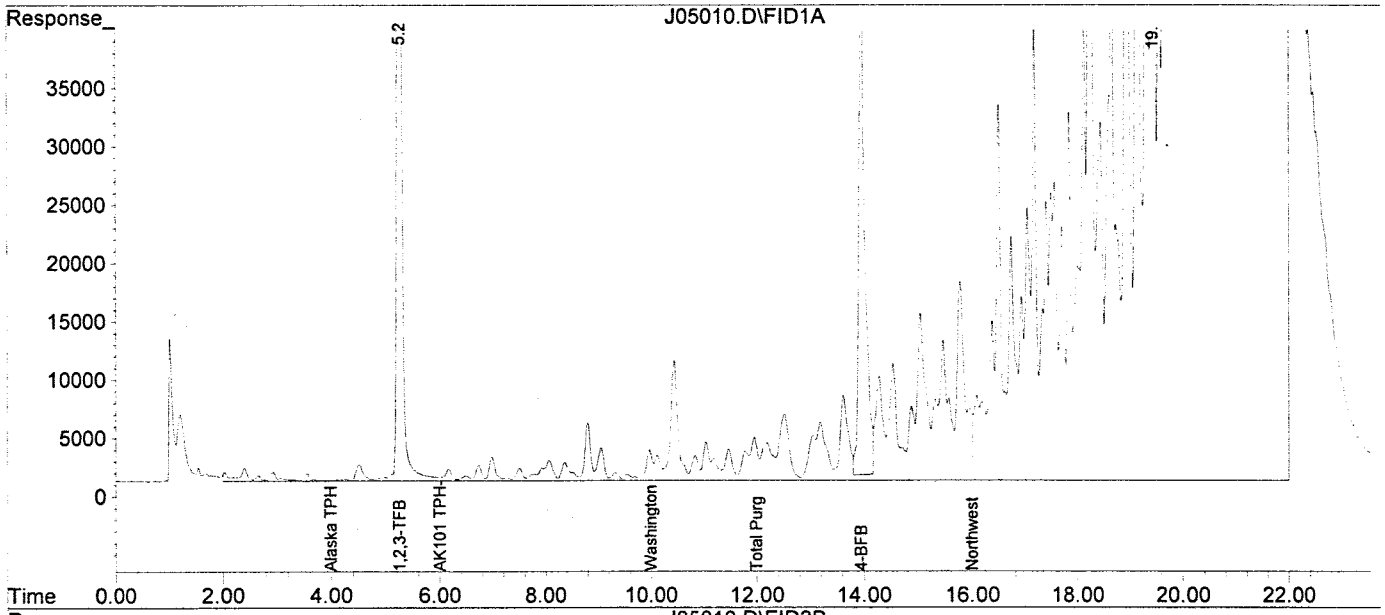
Quantitation Report

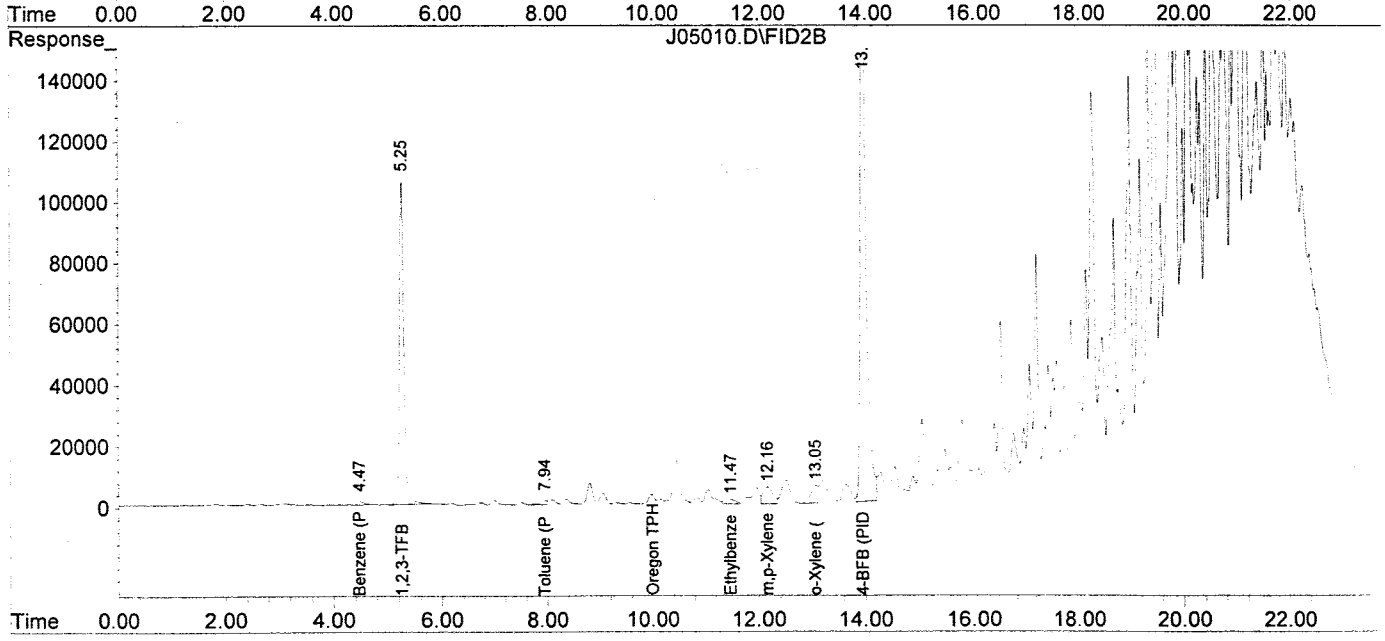
Data File : C:\HPCHEM\1\DATA\J05010.D\FID1A.CH Vial: 10
Acq On : 5 Oct 1998 11:38 am Operator: jaz
Sample : b809676-17 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05010.D\FID2B.CH Vial: 10
Acq On : 5 Oct 98 11:38 am Operator: jaz
Sample : b809676-17 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 12:03 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





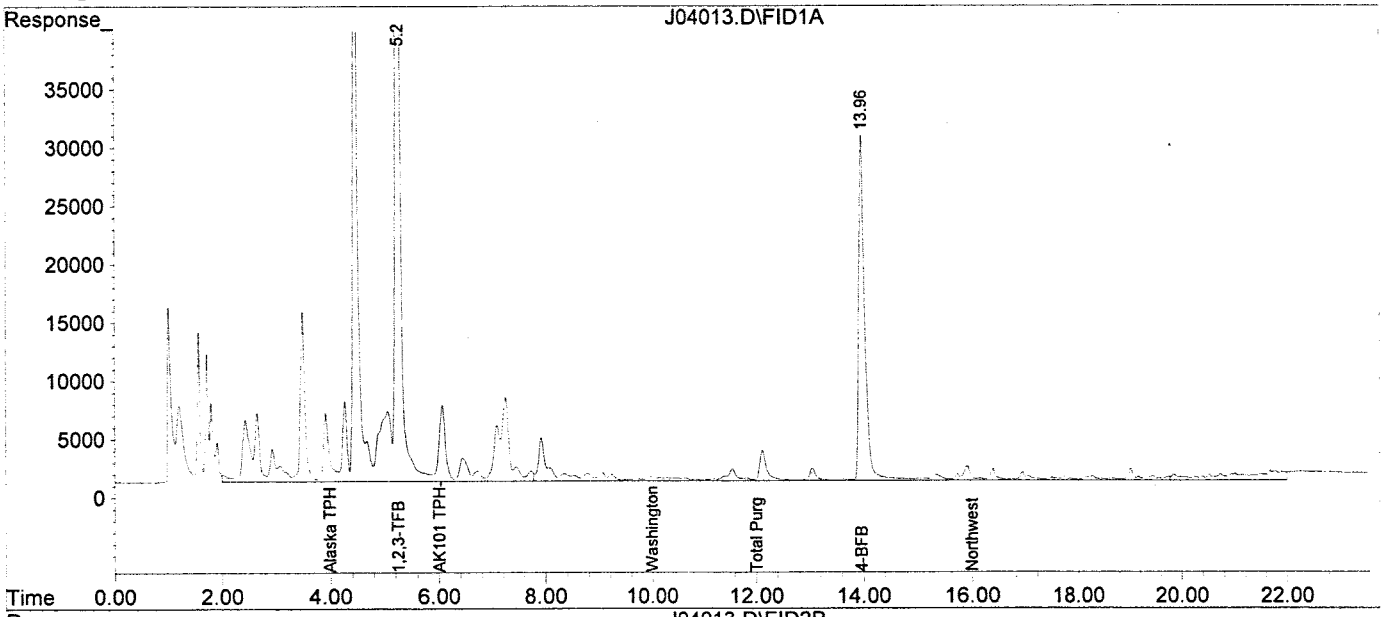
Quantitation Report

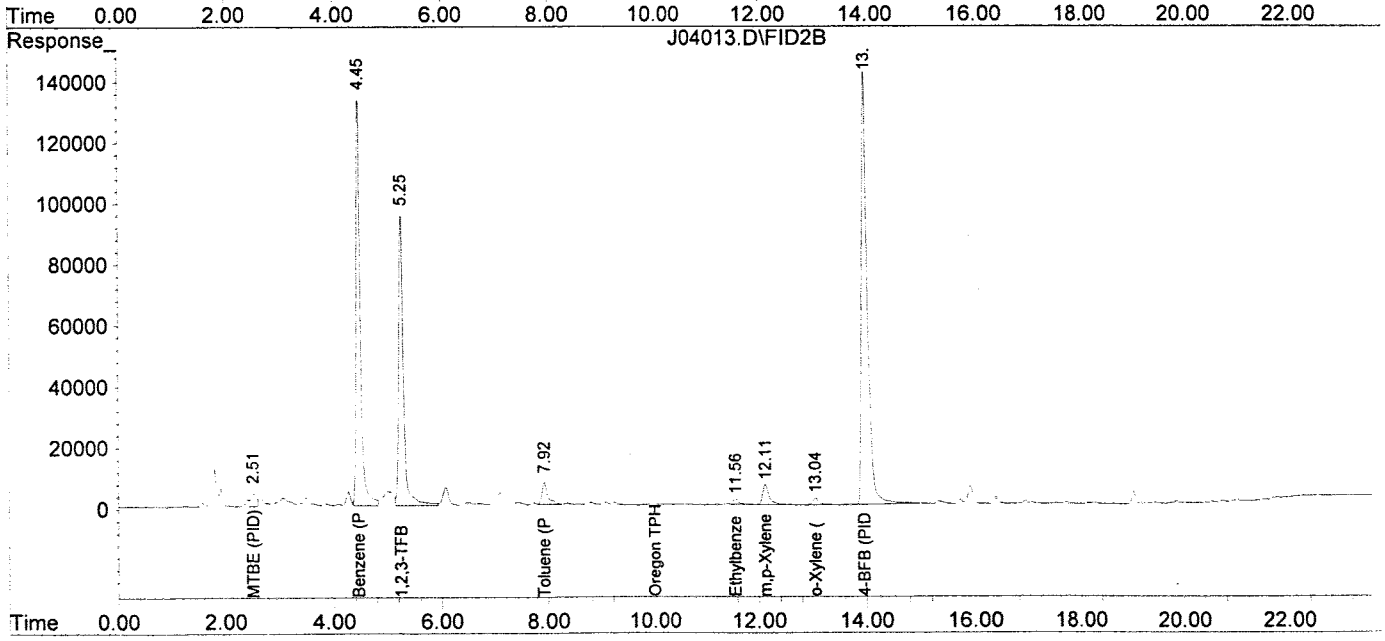
Data File : C:\HPCHEM\1\DATA\J04013.D\FID1A.CH Vial: 13
Acq On : 4 Oct 1998 12:34 pm Operator: jaz
Sample : B809676-19 Inst : GC #2
Misc : 5 mL, W Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J04013.D\FID2B.CH Vial: 13
Acq On : 4 Oct 98 12:34 pm Operator: jaz
Sample : B809676-19 Inst : GC #2
Misc : 5 mL, W Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 4 12:58 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Tue Sep 29 06:58:46 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





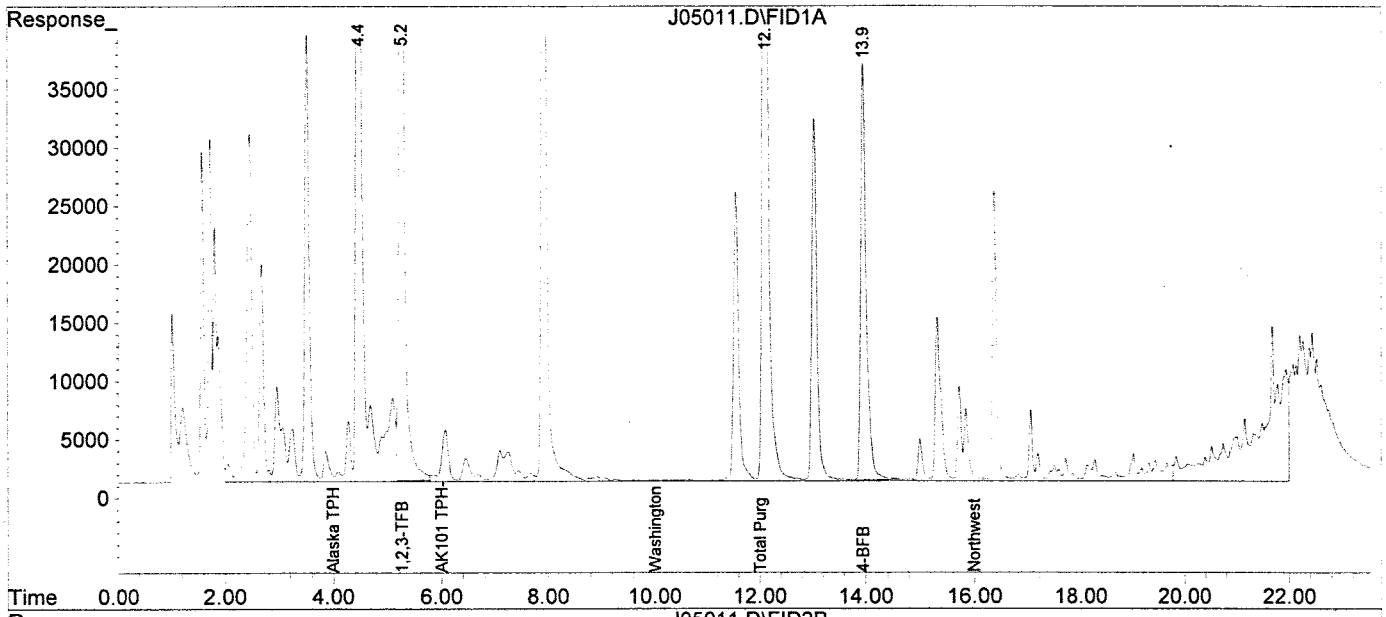
Quantitation Report

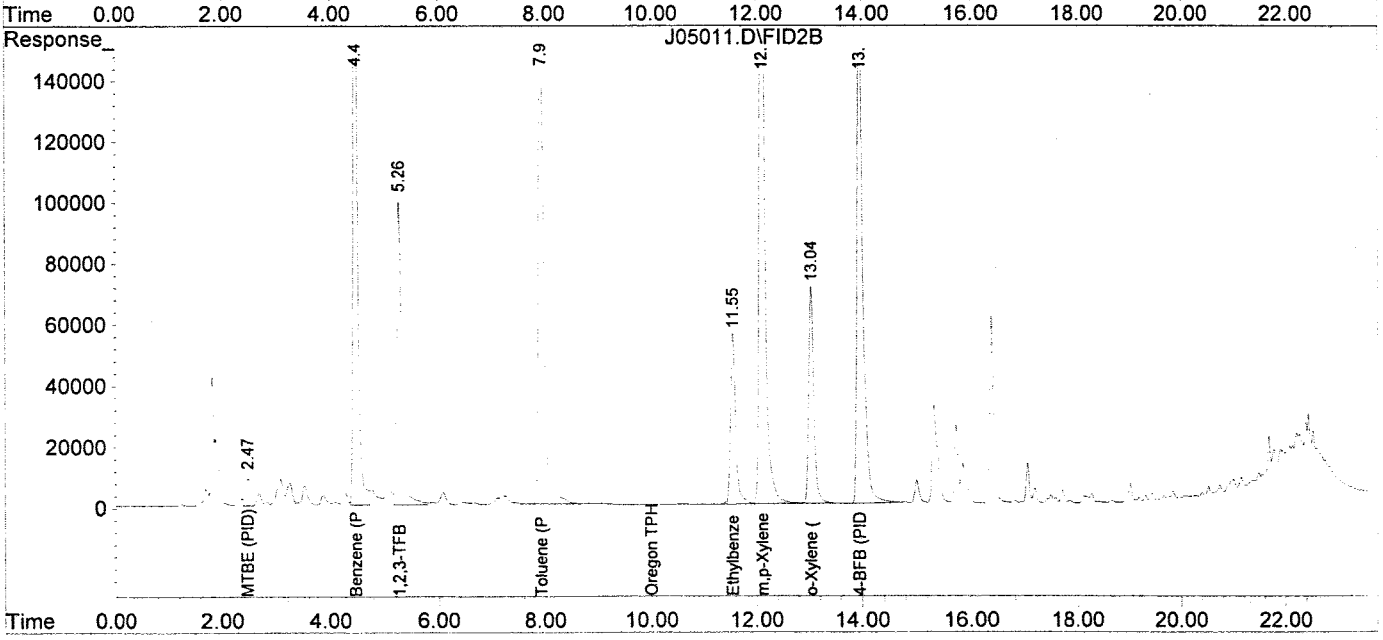
Data File : C:\HPCHEM\1\DATA\J05011.D\FID1A.CH Vial: 11
Acq On : 5 Oct 1998 12:08 pm Operator: jaz
Sample : b809676-20 Inst : GC #2
Misc : r1, 250 ul, W Multiplr: 20.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05011.D\FID2B.CH Vial: 11
Acq On : 5 Oct 98 12:08 pm Operator: jaz
Sample : b809676-20 Inst : GC #2
Misc : r1, 250 ul, W Multiplr: 20.00
IntFile : SURR2.E
Quant Time: Oct 5 12:33 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





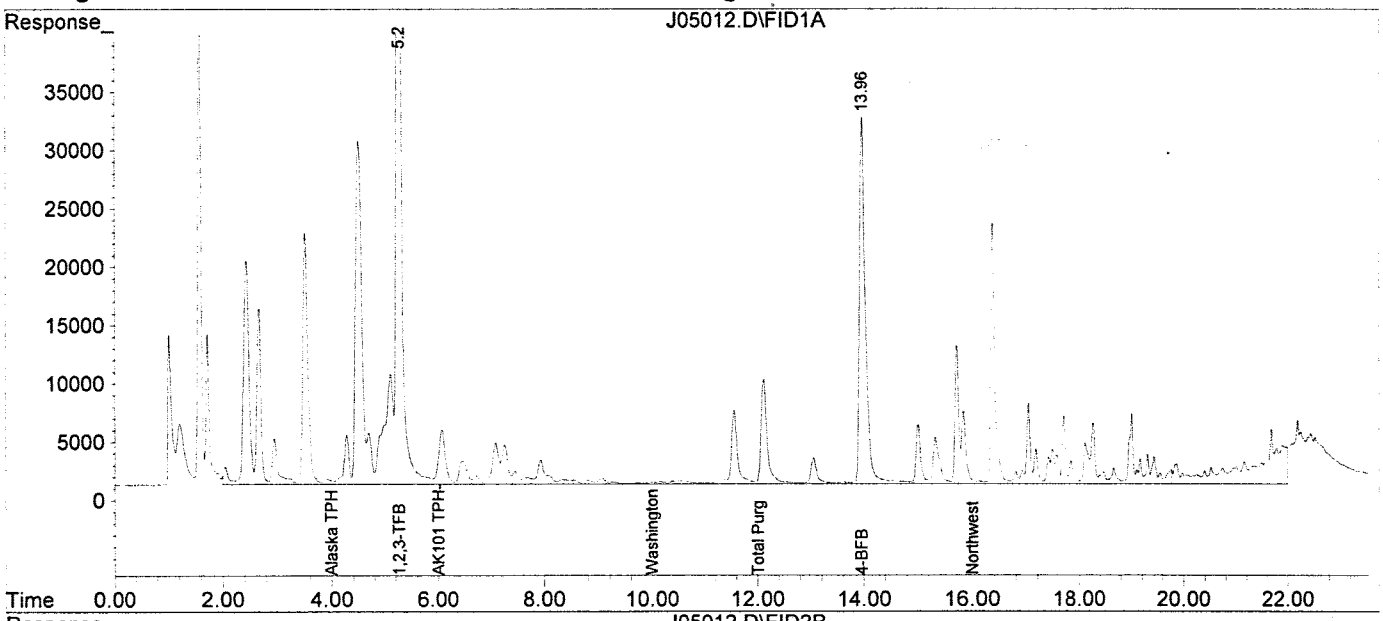
Quantitation Report

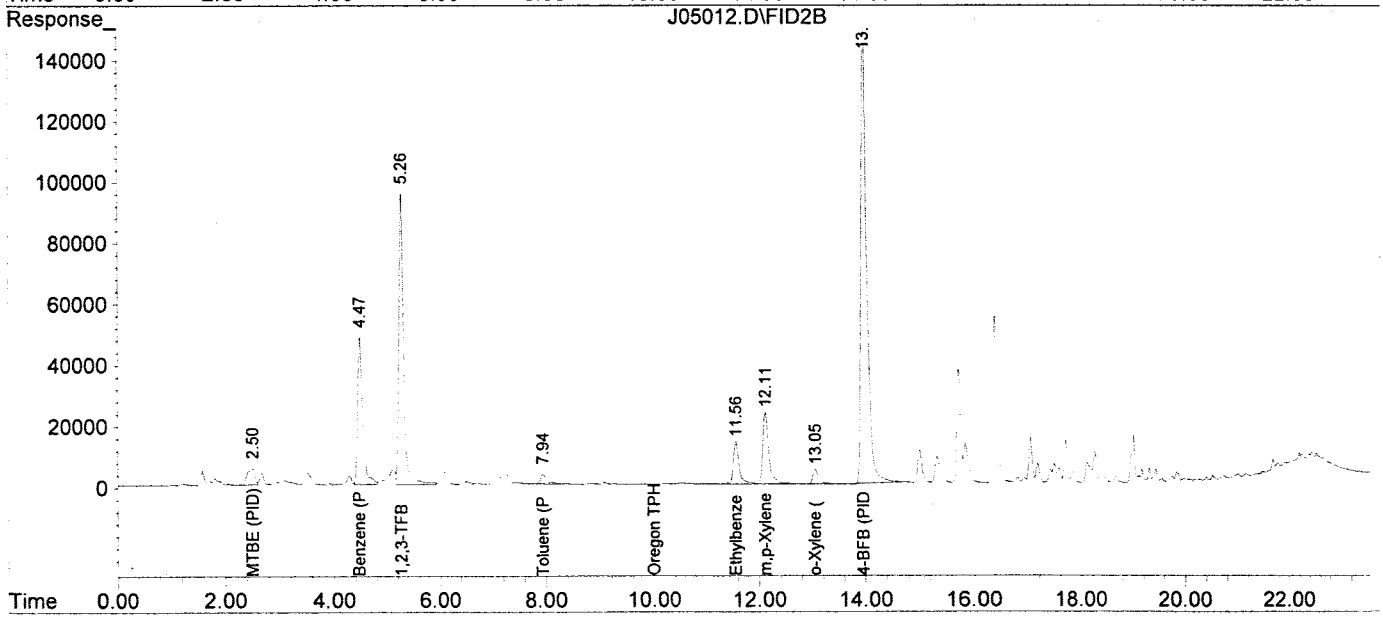
Data File : C:\HPCHEM\1\DATA\J05012.D\FID1A.CH Vial: 12
Acq On : 5 Oct 1998 12:38 pm Operator: jaz
Sample : b809676-21 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05012.D\FID2B.CH Vial: 12
Acq On : 5 Oct 98 12:38 pm Operator: jaz
Sample : b809676-21 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 13:02 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





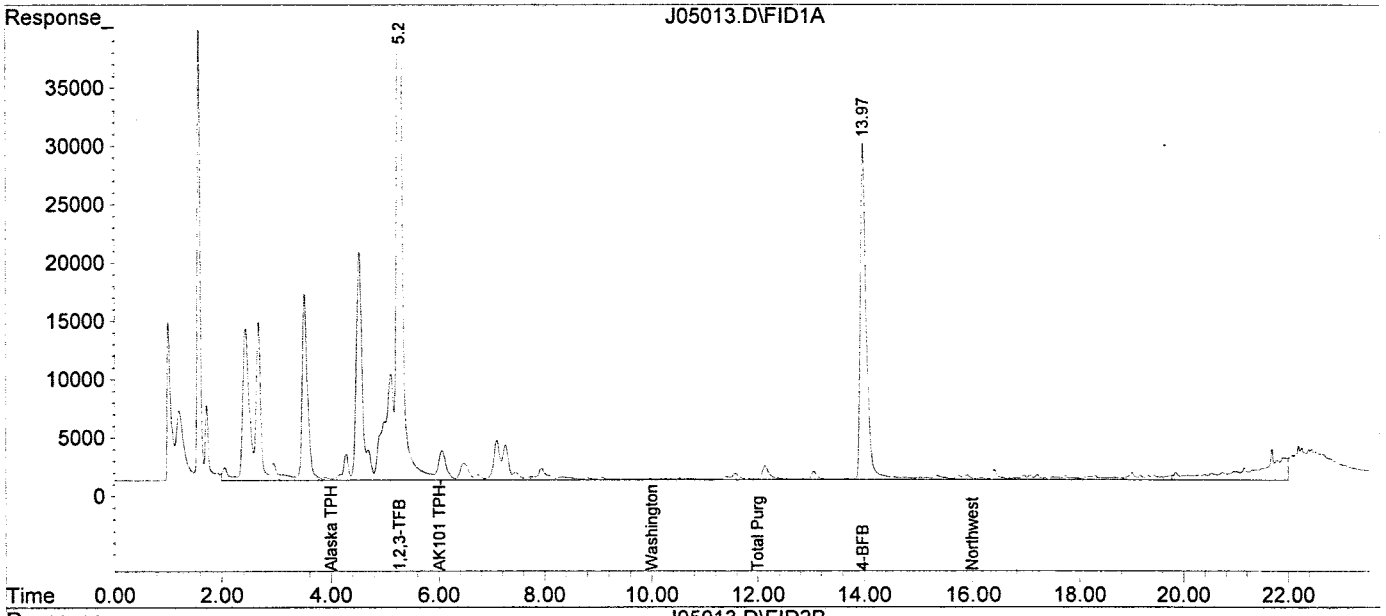
Quantitation Report

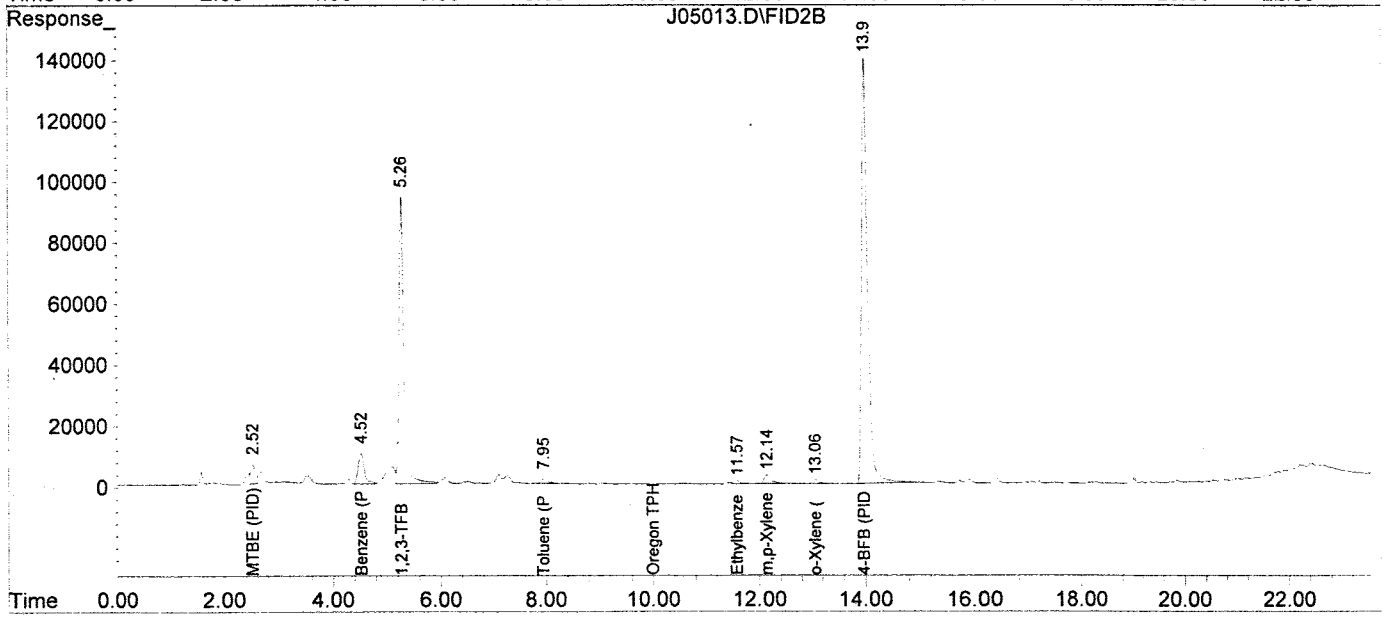
Data File : C:\HPCHEM\1\DATA\J05013.D\FID1A.CH Vial: 13
Acq On : 5 Oct 1998 1:08 pm Operator: jaz
Sample : b809676-22 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05013.D\FID2B.CH Vial: 13
Acq On : 5 Oct 98 1:08 pm Operator: jaz
Sample : b809676-22 Inst : GC #2
Misc : r1, 5 ml, W Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 13:33 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





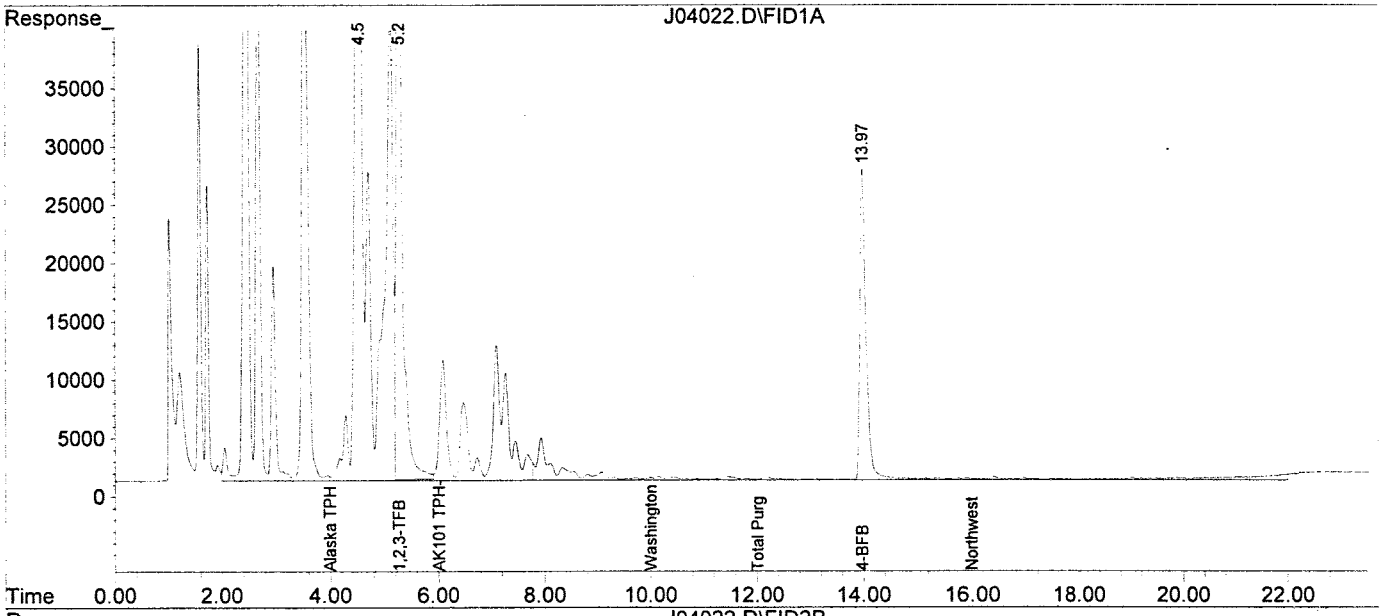
Quantitation Report

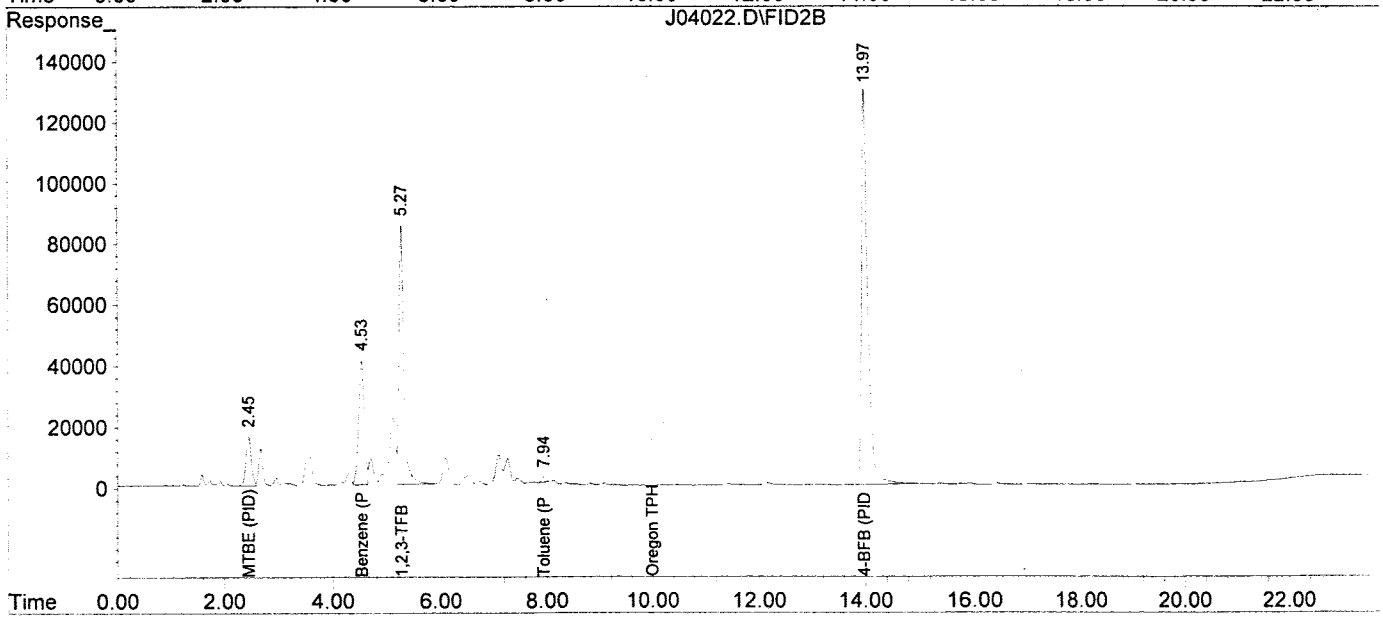
Data File : C:\HPCHEM\1\DATA\J04022.D\FID1A.CH Vial: 22
Acq On : 4 Oct 1998 5:02 pm Operator: jaz
Sample : b809676-23 Inst : GC #2
Misc : 1 ml, W Multiplr: 5.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J04022.D\FID2B.CH Vial: 22
Acq On : 4 Oct 98 5:02 pm Operator: jaz
Sample : b809676-23 Inst : GC #2
Misc : 1 ml, W Multiplr: 5.00
IntFile : SURR2.E
Quant Time: Oct 4 17:26 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Tue Sep 29 06:58:46 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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



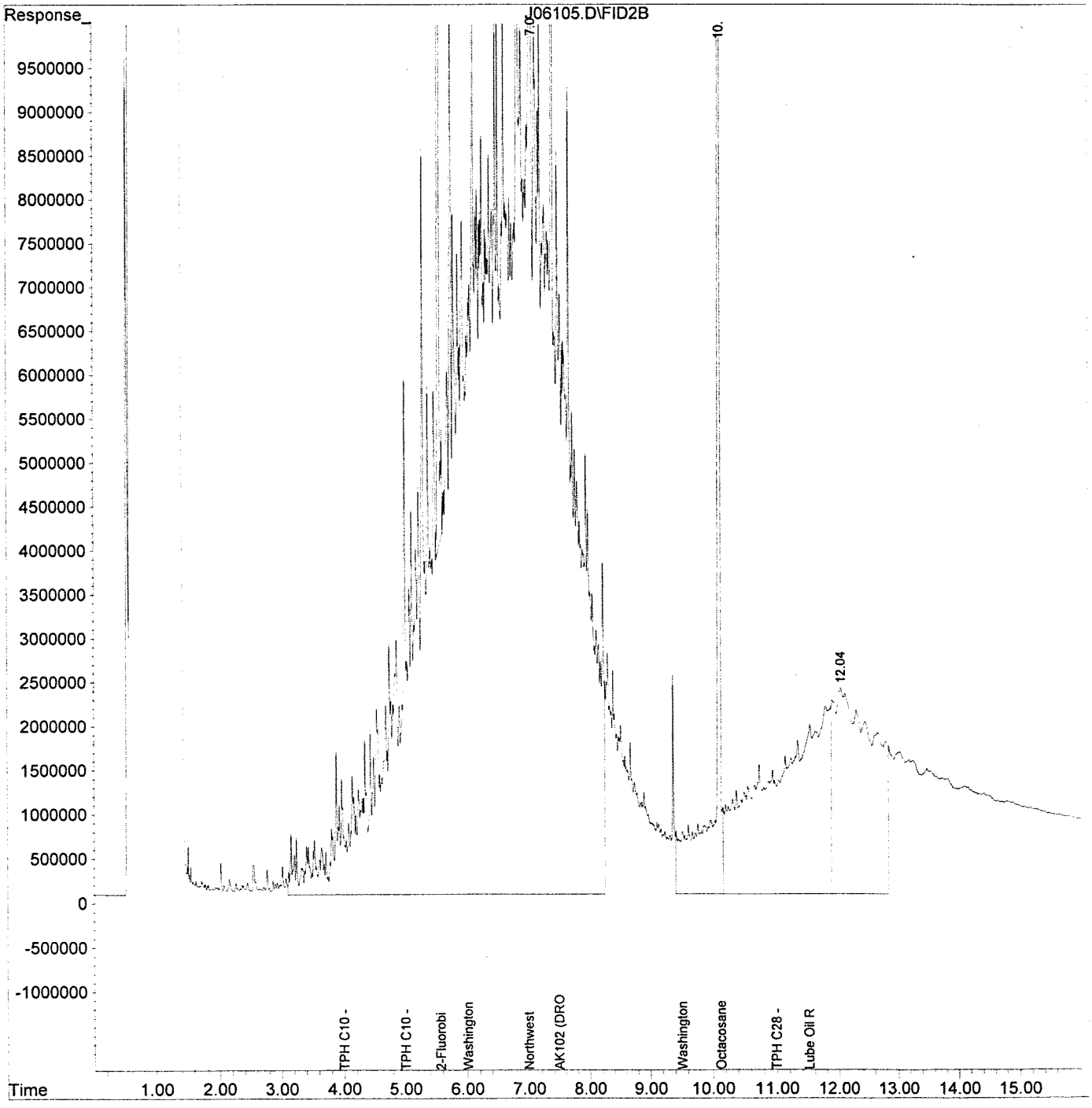


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\J06105.D Vial: 70
Acq On : 10-7-98 4:17:27 AM Operator: lac
Sample : b809676-03 Inst : GC #7
Misc : s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Oct 7 7:44 1998 Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Fri Oct 02 11:09:47 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

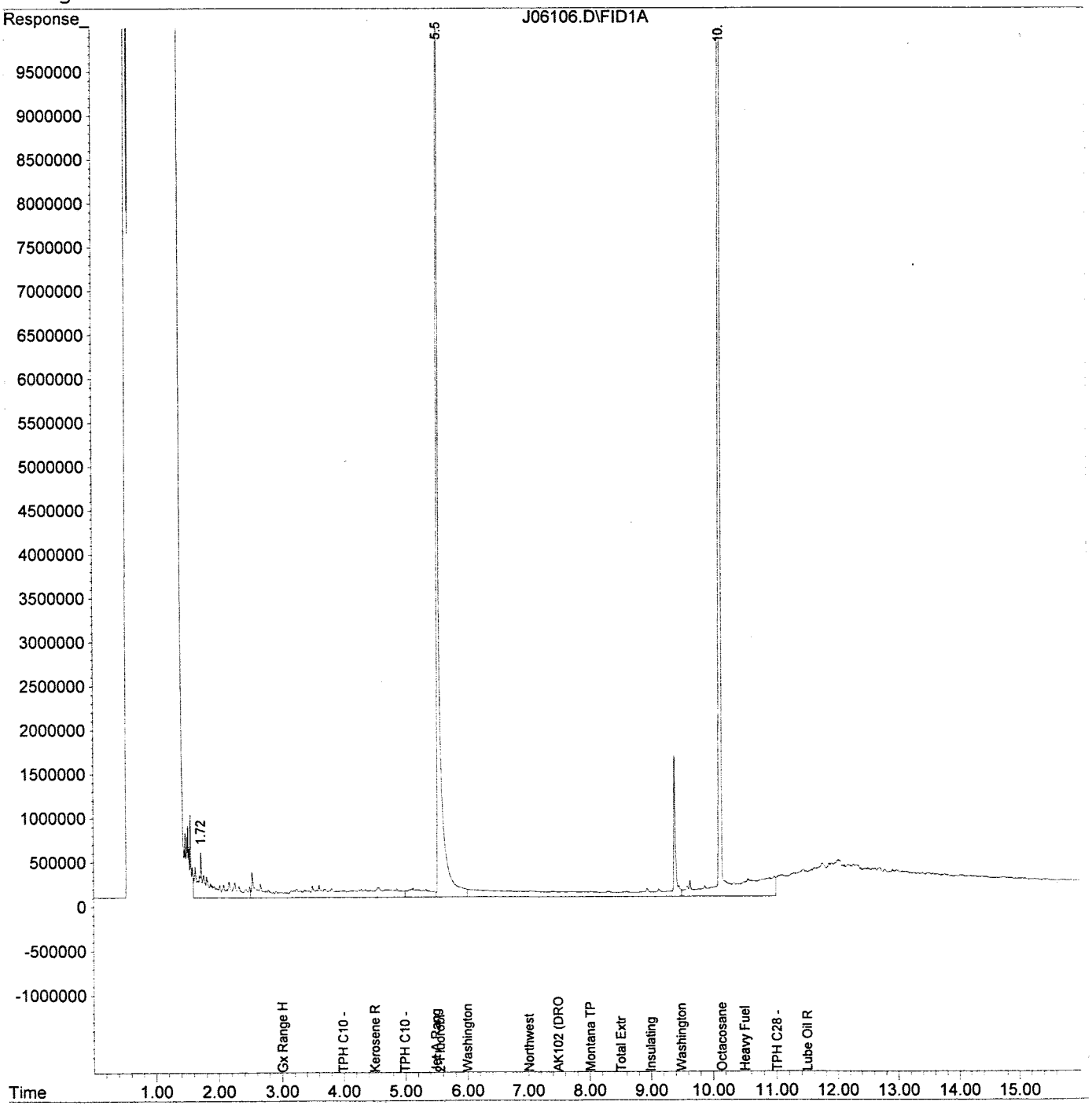


Quantitation Report

Data File : C:\HPCHEM\4\DATA\J06106.D Vial: 71
Acq On : 10-7-98 4:17:27 AM Operator: lac
Sample : b809676-04 Inst : GC #7
Misc : s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Oct 7 7:23 1998 Quant Results File: TPHD.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD.M (Chemstation Integrator)
Title : TPH-D Front Method
Last Update : Fri Oct 02 11:08:58 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

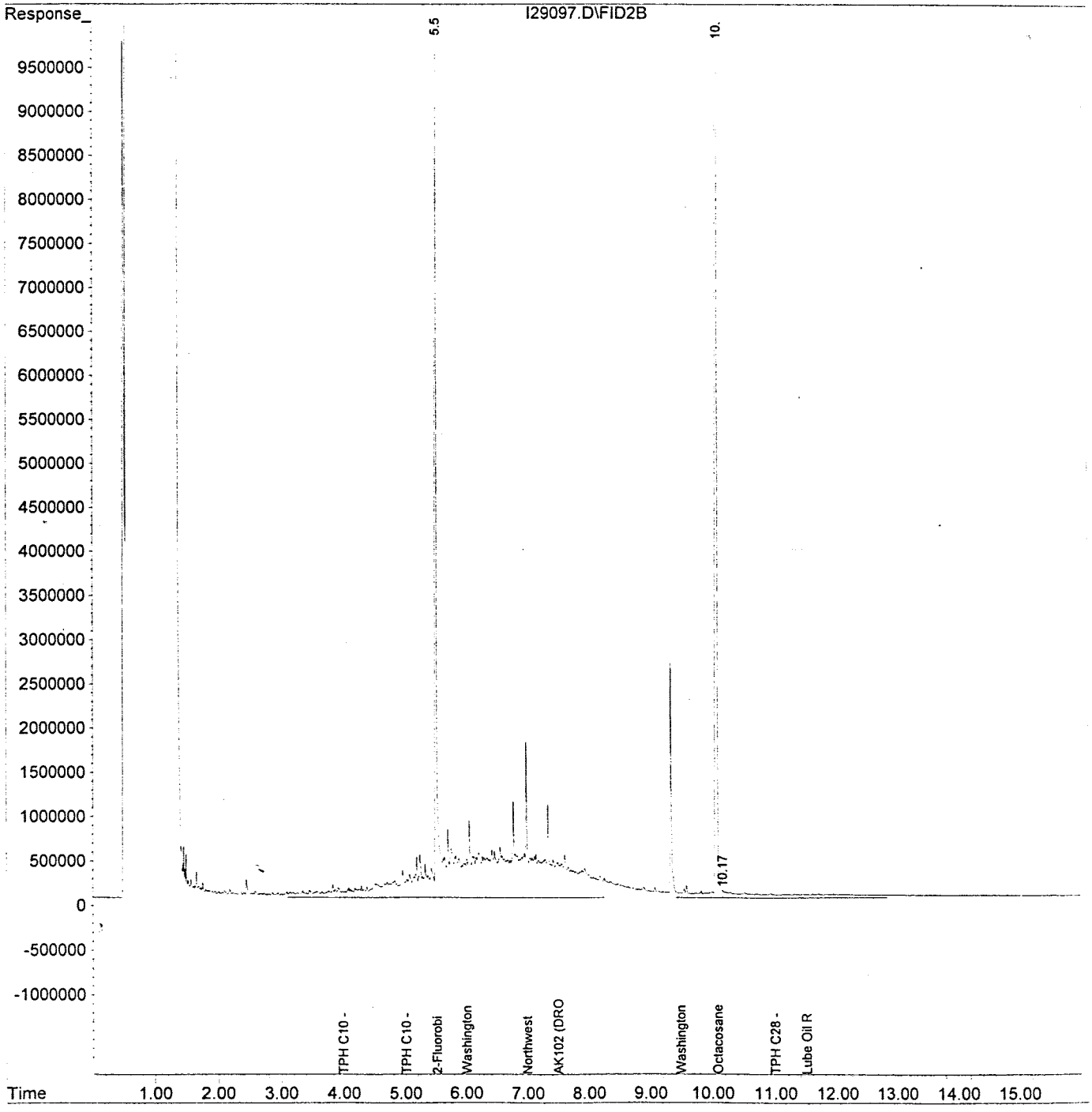


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\I29097.D Vial: 69
Acq On : 9-30-98 3:41:50 AM Operator: lac
Sample : b809676-01 Inst : GC #7
Misc : s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Sep 30 7:52 1998 Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Mon Sep 28 16:14:58 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :



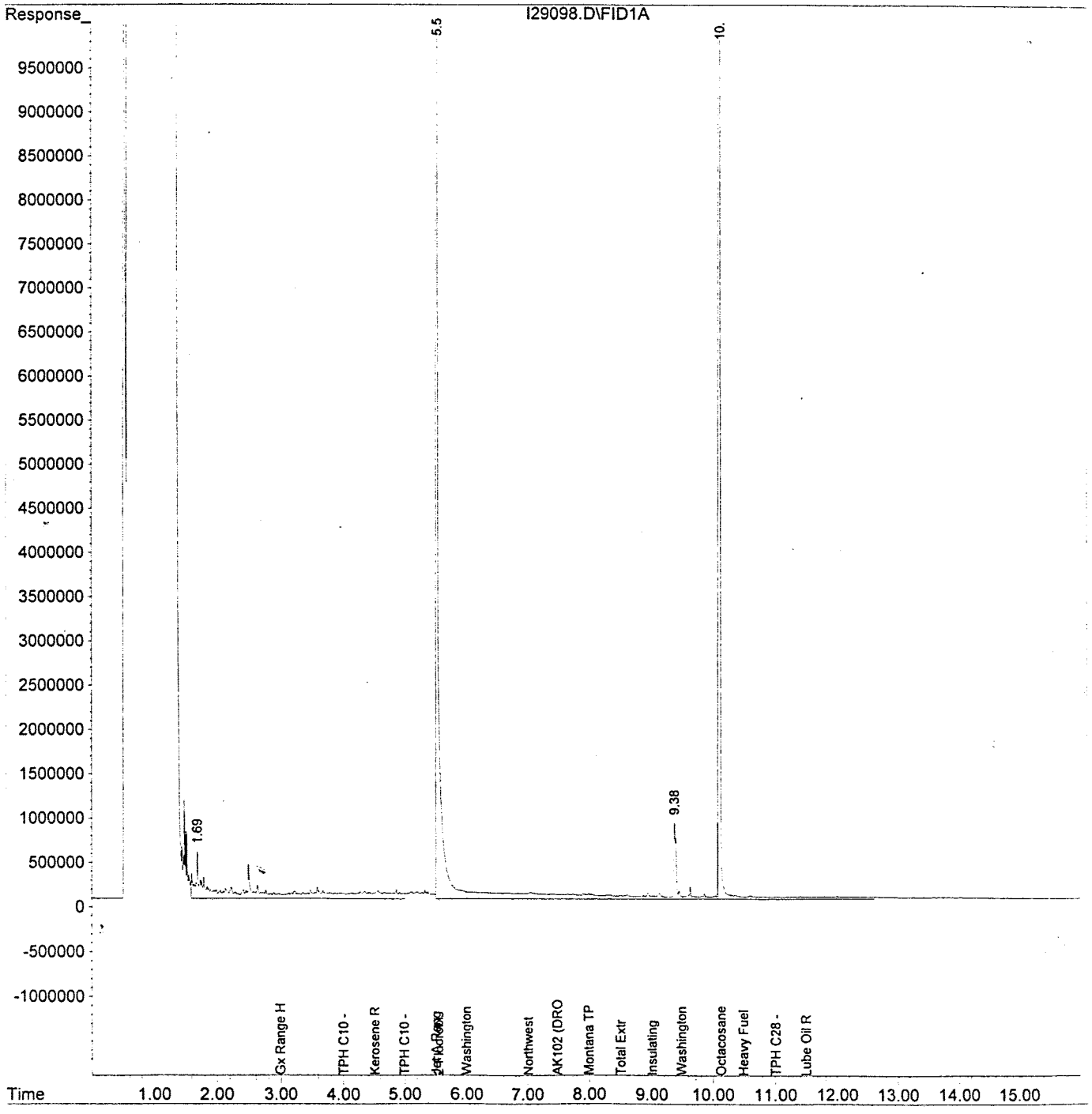
Quantitation Report

Data File : C:\HPCHEM\4\DATA\I29098.D
Acq On : 9-30-98 3:41:50 AM
Sample : b809676-02
Misc : s
IntFile : SURR.E
Quant Time: Sep 30 7:24 1998 Quant Results File: TPHD.RES

Vial: 70
Operator: lac
Inst : GC #7
Multiplr: 1.00

Quant Method : C:\HPCHEM\4\METHODS\TPHD.M (Chemstation Integrator)
Title : TPH-D Front Method
Last Update : Fri Sep 11 09:20:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

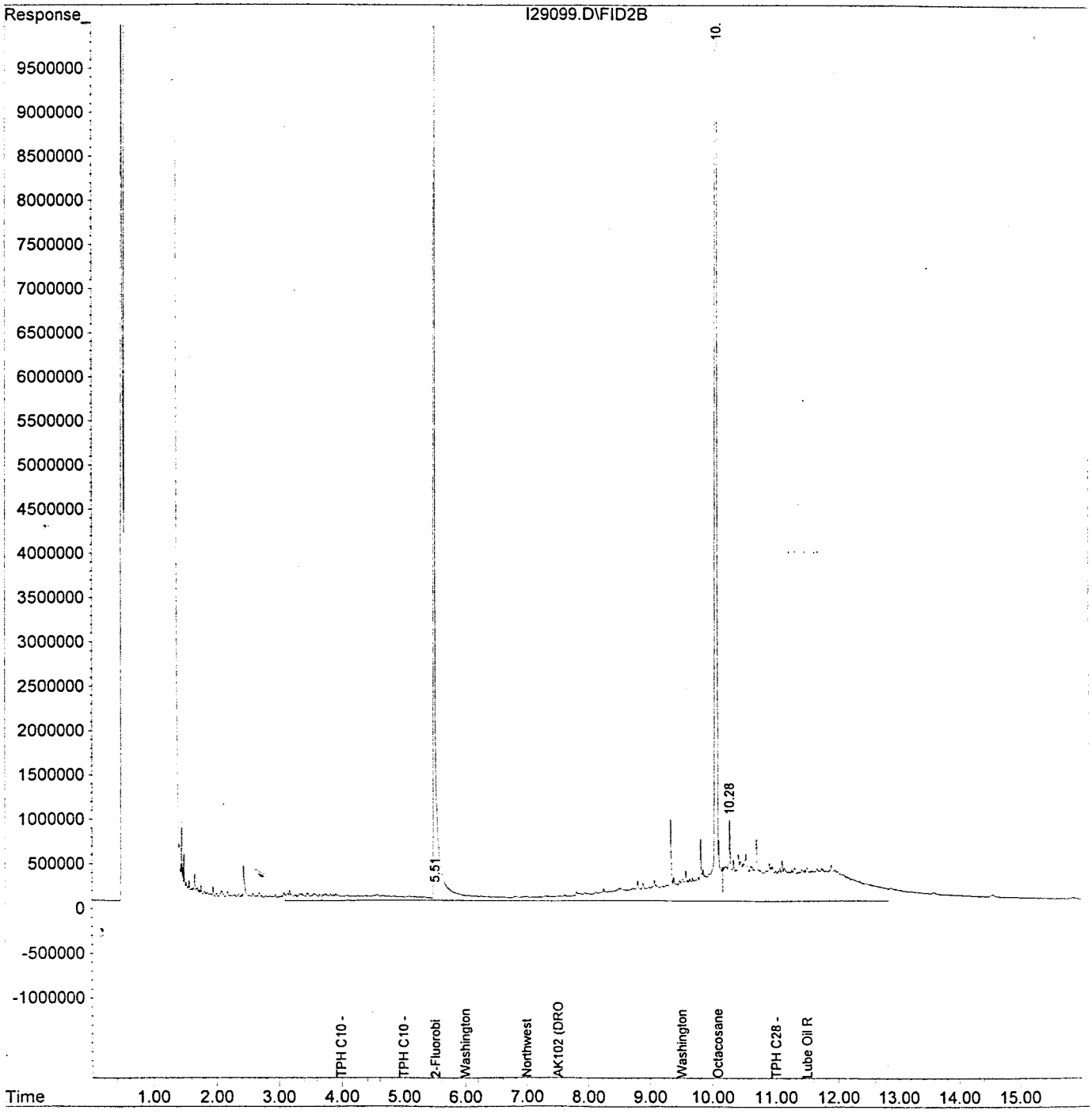


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\I29099.D Vial: 71
Acq On : 9-30-98 4:04:43 AM Operator: lac
Sample : b809676-05 Inst : GC #7
Misc : s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Sep 30 7:53 1998 Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Mon Sep 28 16:14:58 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

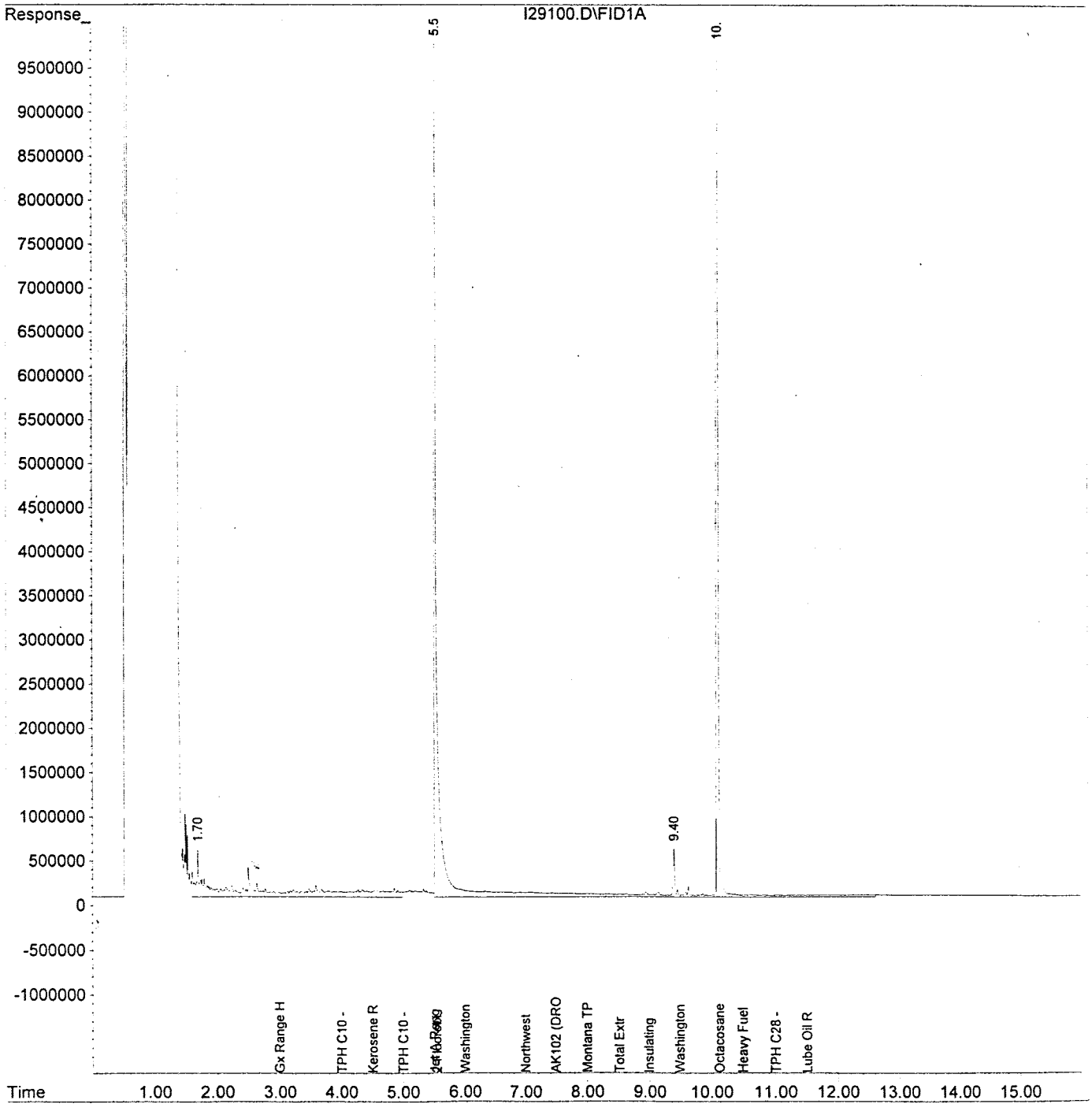


Quantitation Report

Data File : C:\HPCHEM\4\DATA\I29100.D Vial: 72
Acq On : 9-30-98 4:04:43 AM Operator: lac
Sample : b809676-06 Inst : GC #7
Misc : s Multiplr: 1.00
IntFile : SURR.E
Quant Time: Sep 30 7:24 1998 Quant Results File: TPHD.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD.M (Chemstation Integrator)
Title : TPH-D Front Method
Last Update : Fri Sep 11 09:20:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

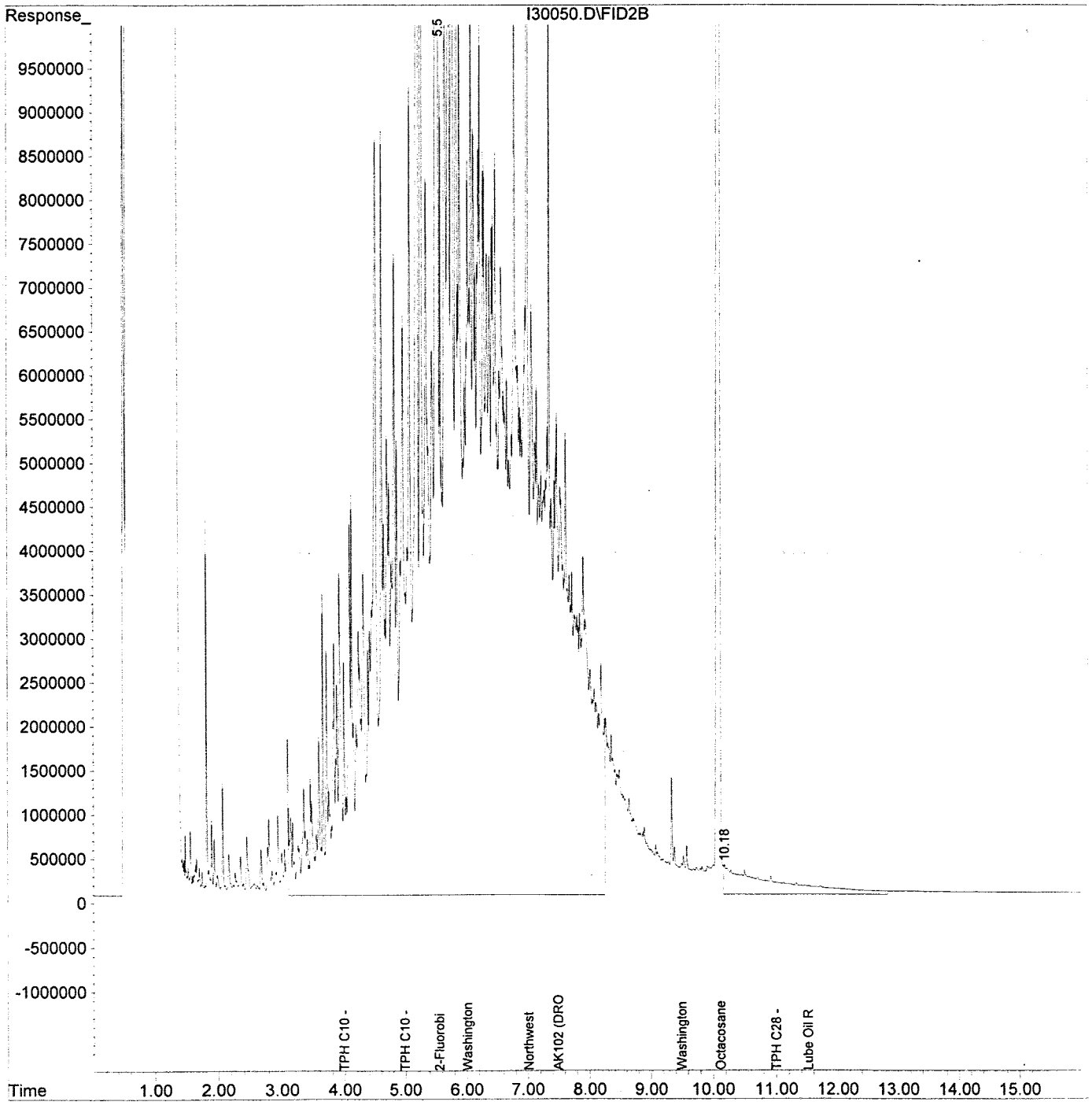


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\I30050.D Vial: 32
Acq On : 9-30-98 7:08:43 PM Operator: lac
Sample : b809676-16 Inst : GC #7
Misc : w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Oct 1 7:37 1998 Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Mon Sep 28 16:14:58 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

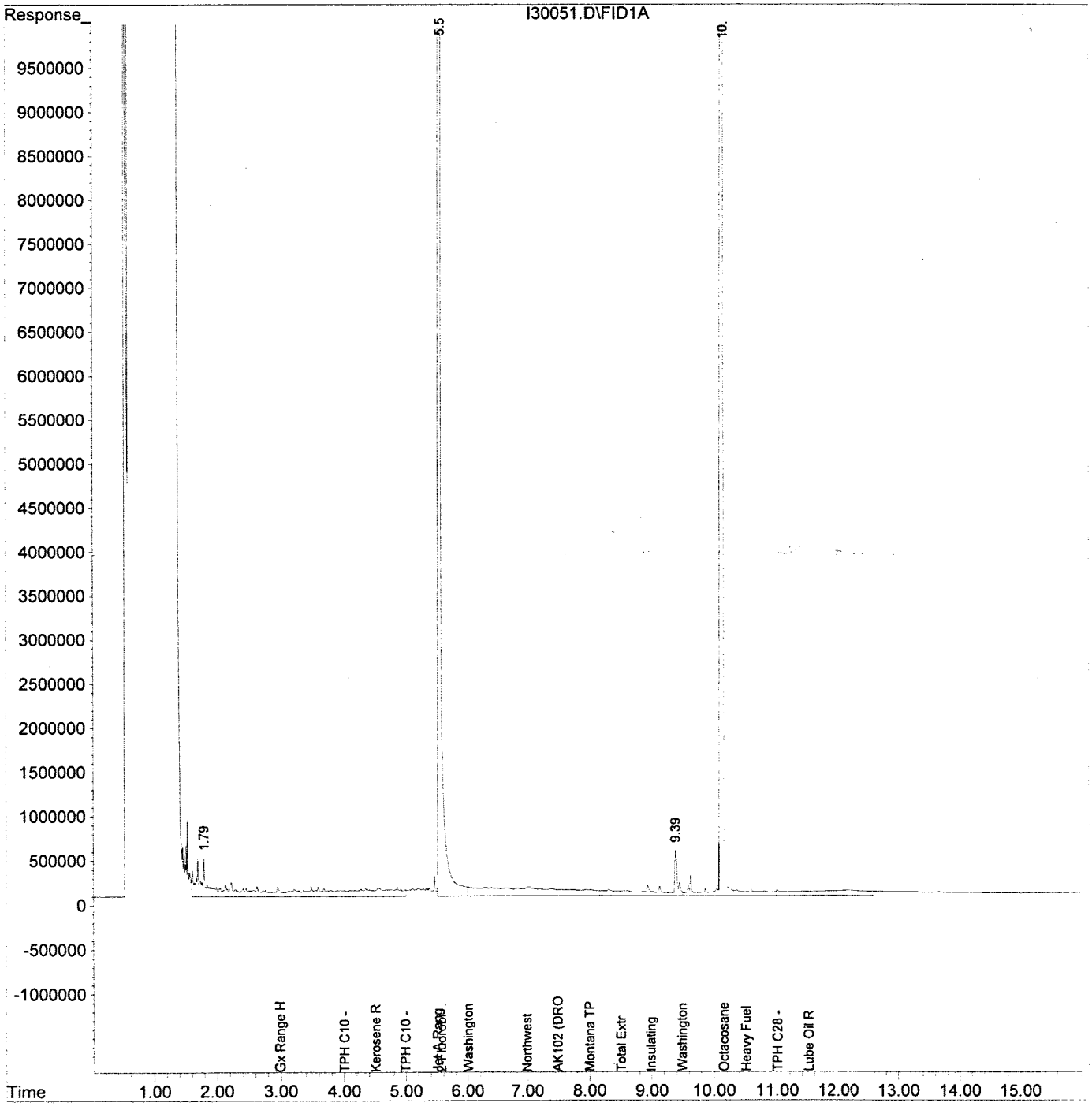


Quantitation Report

Data File : C:\HPCHEM\4\DATA\I30051.D Vial: 33
Acq On : 9-30-98 7:08:43 PM Operator: lac
Sample : b809676-17 Inst : GC #7
Misc : w Multiplr: 1.00
IntFile : SURR.E
Quant Time: Oct 1 7:46 1998 Quant Results File: TPHD.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD.M (Chemstation Integrator)
Title : TPH-D Front Method
Last Update : Fri Sep 11 09:20:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :

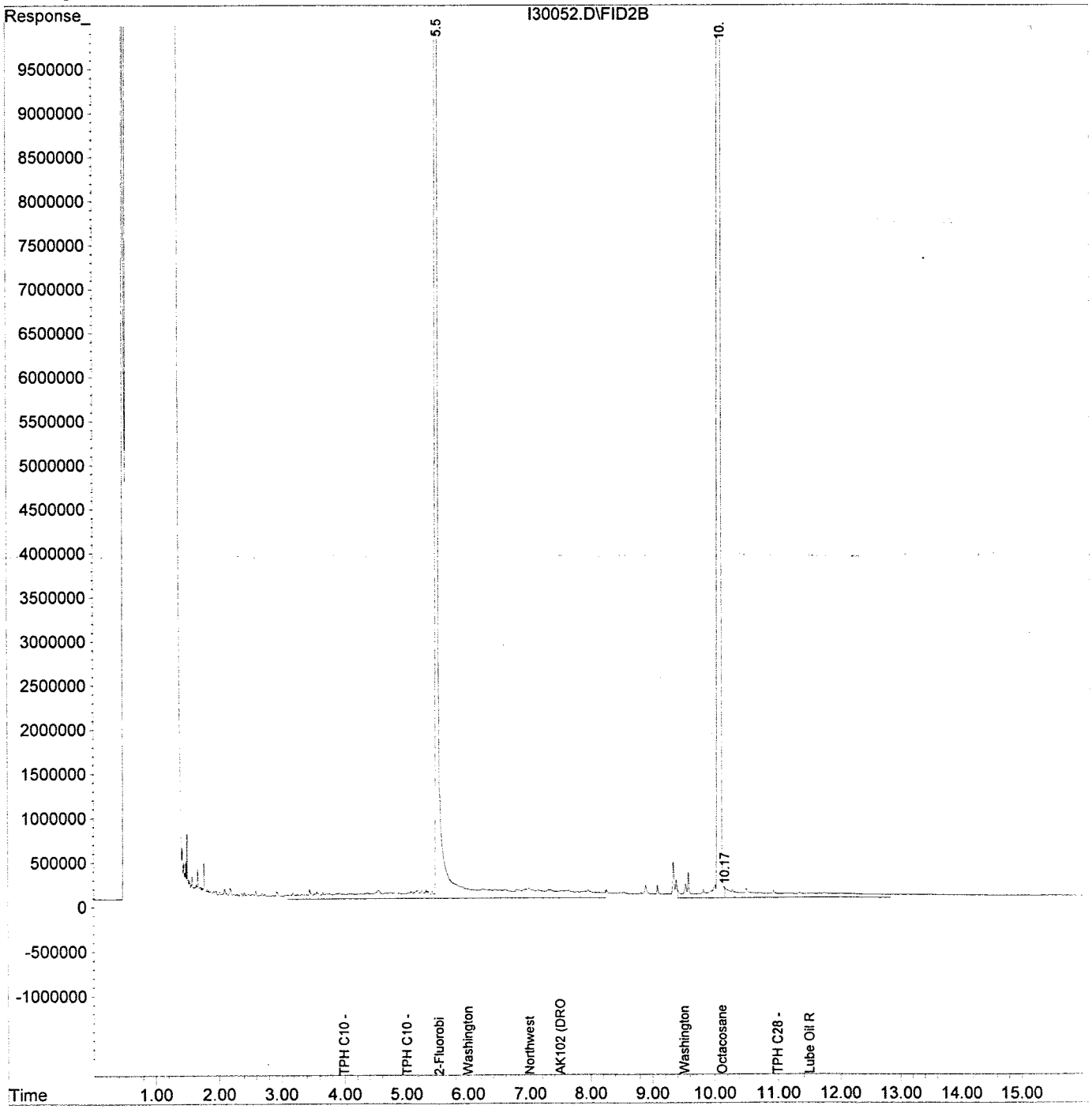


Quantitation Report

Data File : C:\HPCHEM\4\DATA.SEC\I30052.D Vial: 34
Acq On : 9-30-98 7:32:00 PM Operator: lac
Sample : b809~~6~~676-18 Inst : GC #7
Misc : w Multiplr: 1.00
IntFile : SURR.E JC 10/2/98
Quant Time: Oct 1 7:37 1998 Quant Results File: TPHD2.RES

Quant Method : C:\HPCHEM\4\METHODS\TPHD2.M (Chemstation Integrator)
Title : TPH-D Rear Method
Last Update : Mon Sep 28 16:14:58 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHD.M

Volume Inj. :
Signal Phase :
Signal Info :



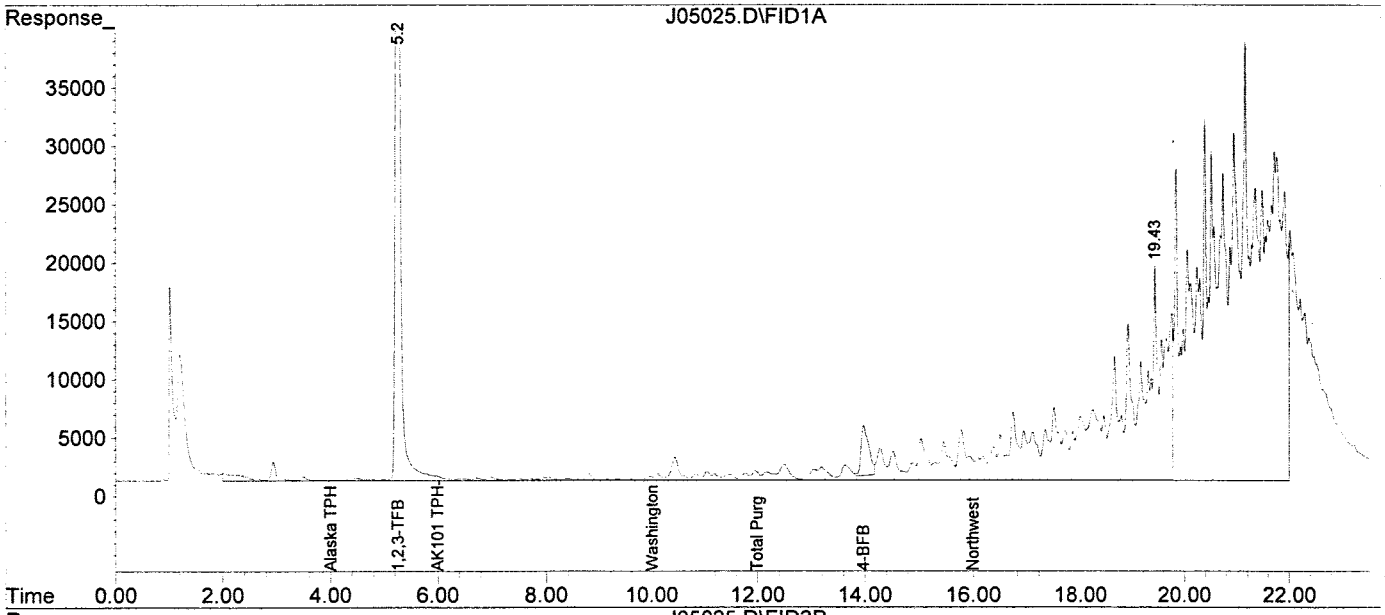
Quantitation Report

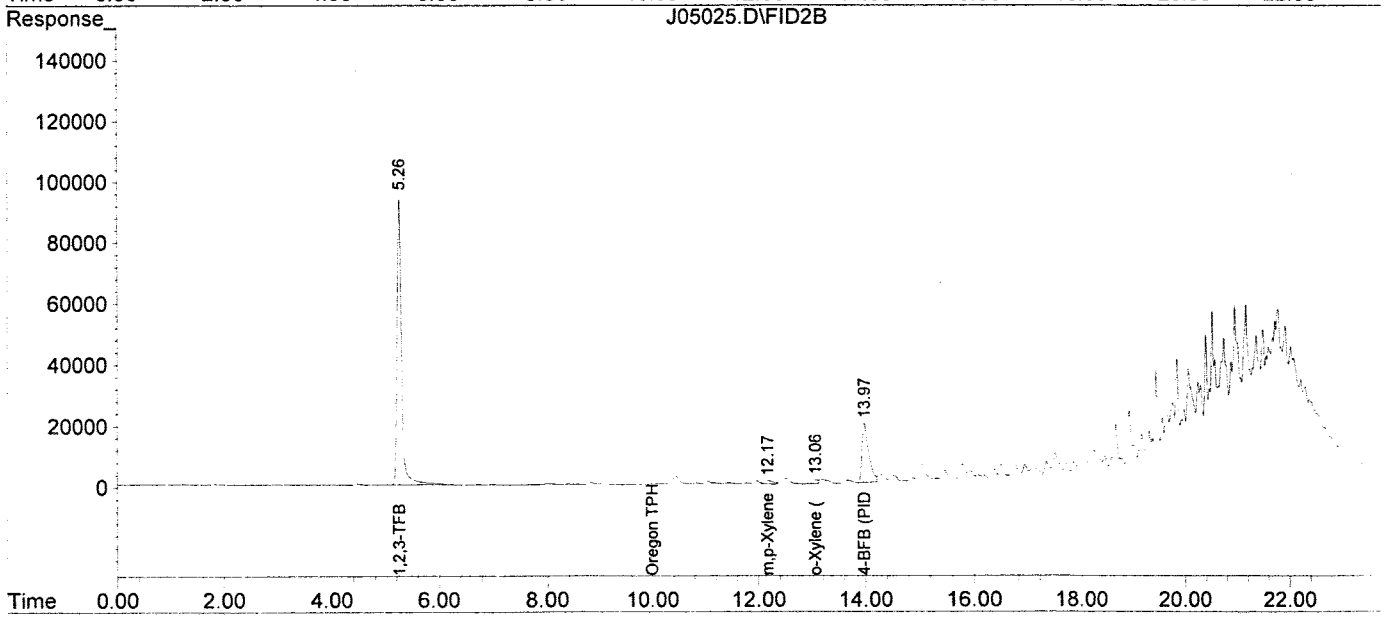
Data File : C:\HPCHEM\1\DATA\J05025.D\FID1A.CH Vial: 25
Acq On : 5 Oct 1998 7:05 pm Operator: jaz
Sample : b809676-03 Inst : GC #2
Misc : 10 ul, S Multiplr: 10.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05025.D\FID2B.CH Vial: 25
Acq On : 5 Oct 98 7:05 pm Operator: jaz
Sample : b809676-03 Inst : GC #2
Misc : 10 ul, S Multiplr: 10.00
IntFile : SURR2.E
Quant Time: Oct 5 19:29 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





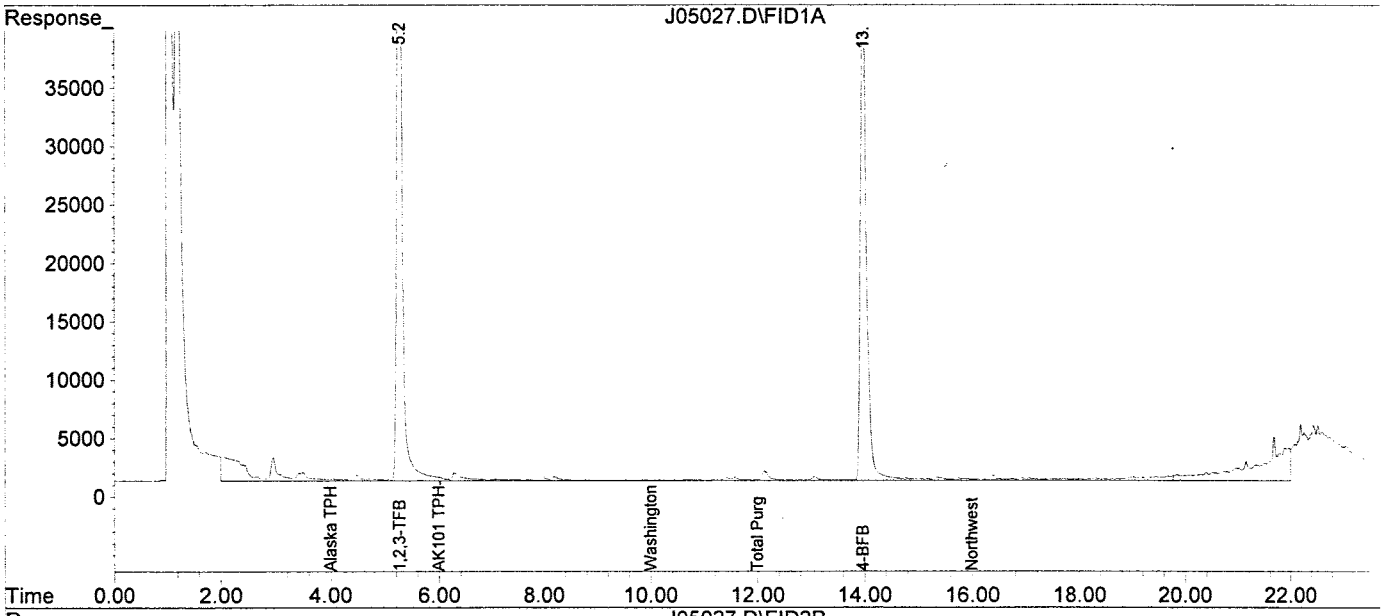
Quantitation Report

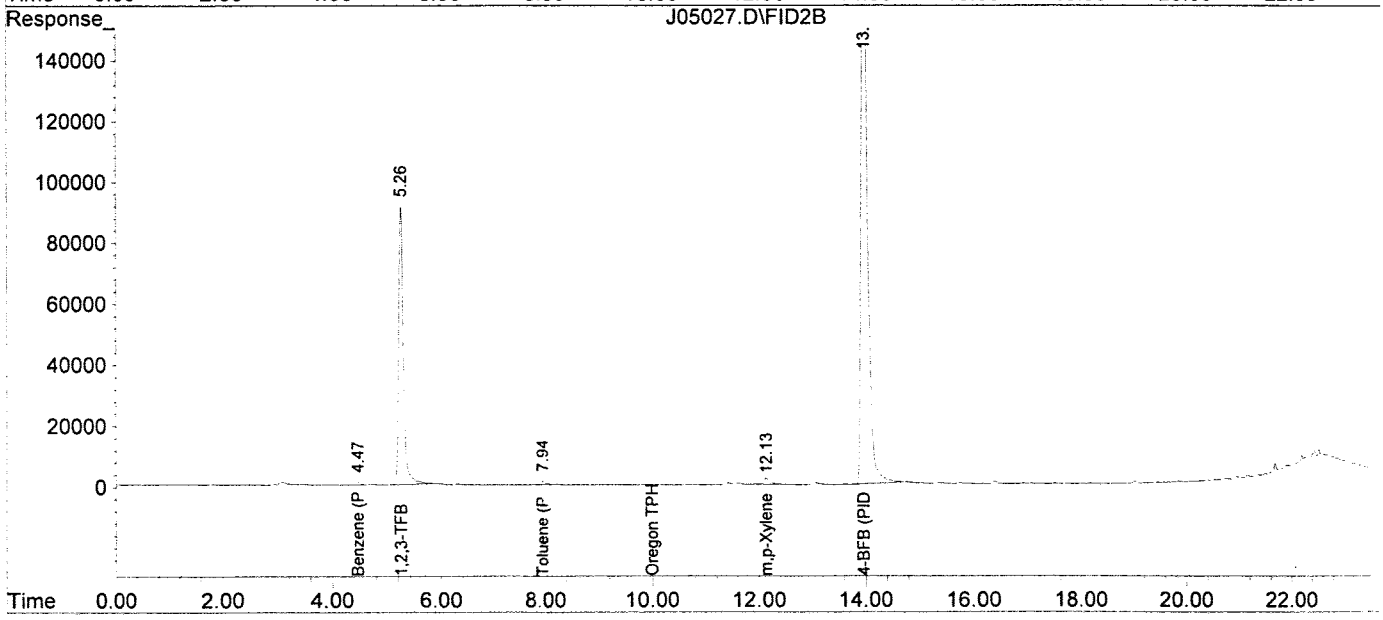
Data File : C:\HPCHEM\1\DATA\J05027.D\FID1A.CH Vial: 27
Acq On : 5 Oct 1998 8:04 pm Operator: jaz
Sample : b809676-04 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05027.D\FID2B.CH Vial: 27
Acq On : 5 Oct 98 8:04 pm Operator: jaz
Sample : b809676-04 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 20:29 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





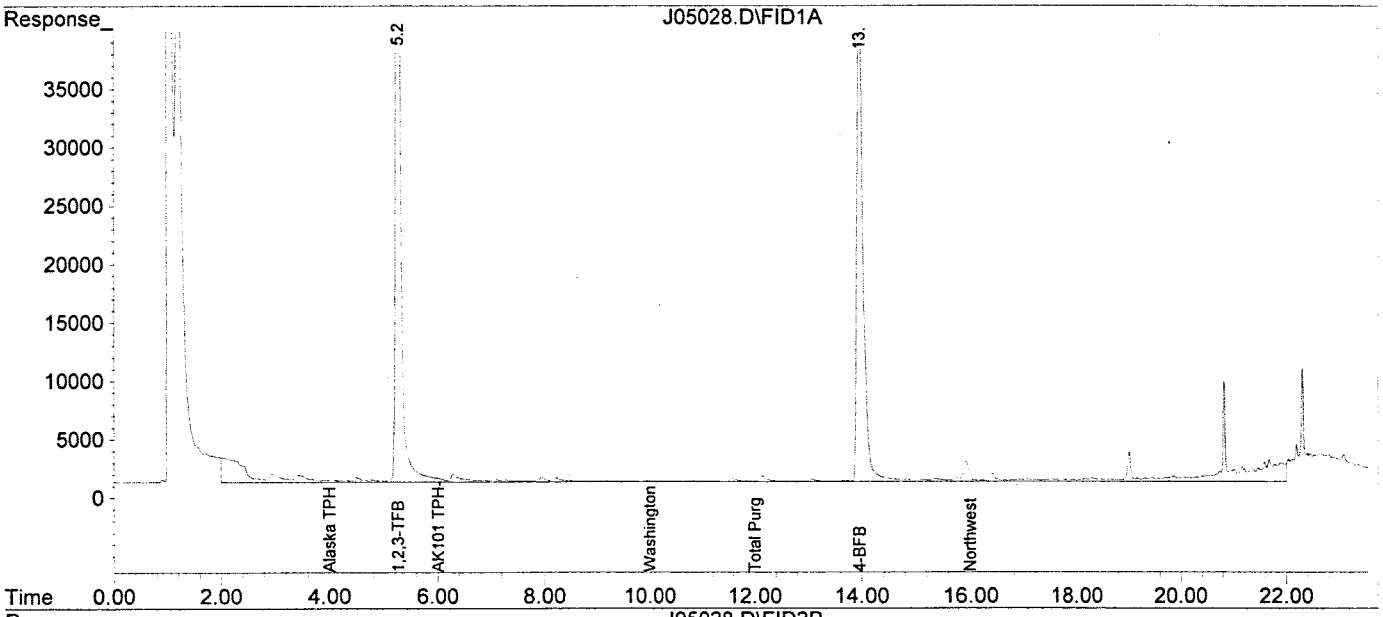
Quantitation Report

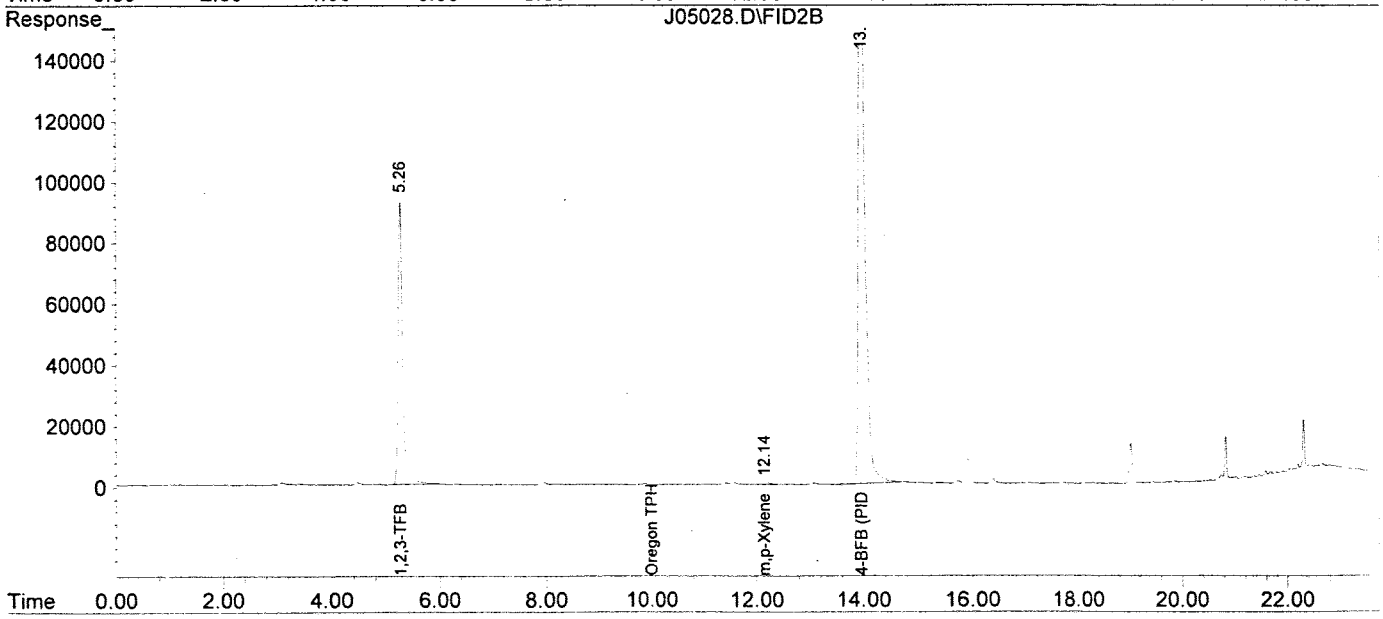
Data File : C:\HPCHEM\1\DATA\J05028.D\FID1A.CH Vial: 28
Acq On : 5 Oct 1998 8:34 pm Operator: jaz
Sample : b809676-07 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05028.D\FID2B.CH Vial: 28
Acq On : 5 Oct 98 8:34 pm Operator: jaz
Sample : b809676-07 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 20:59 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





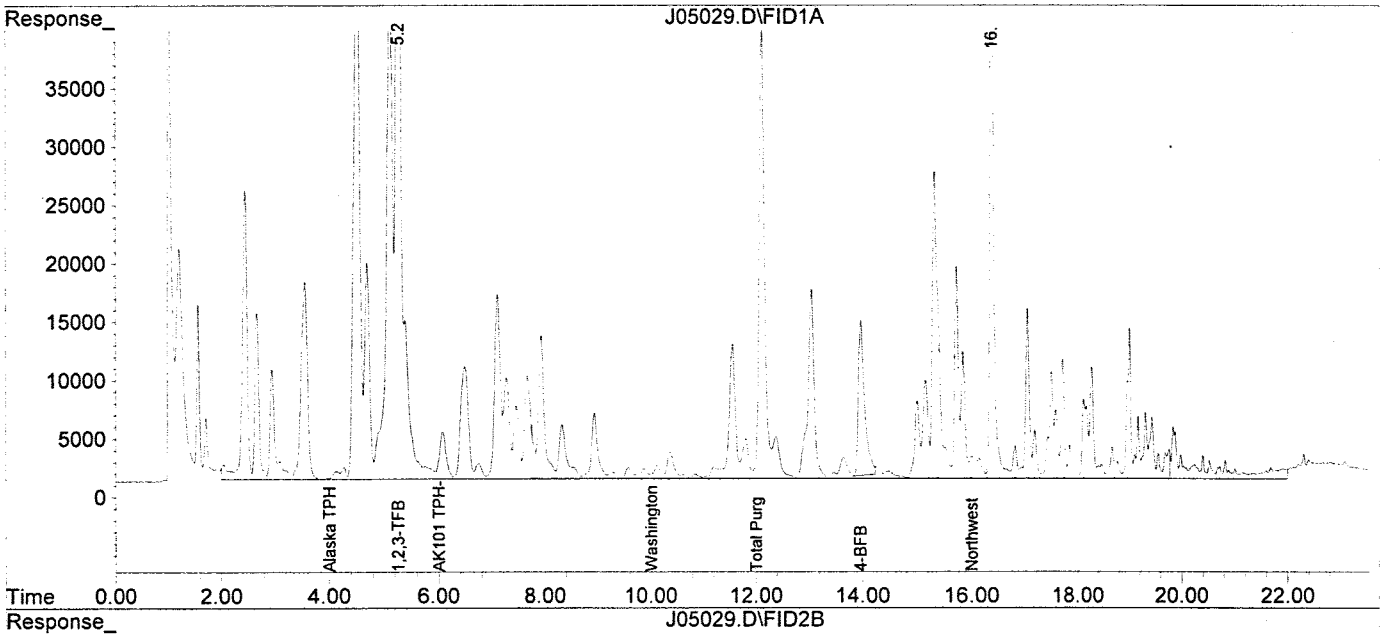
Quantitation Report

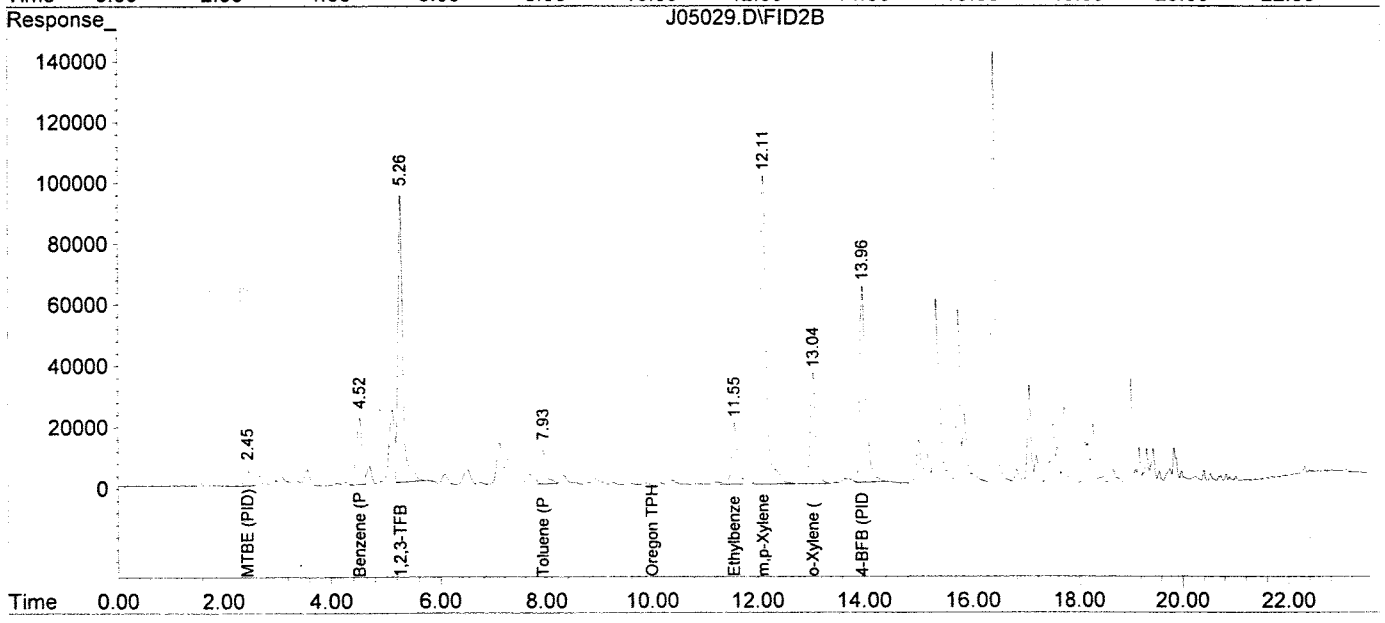
Data File : C:\HPCHEM\1\DATA\J05029.D\FID1A.CH Vial: 29
Acq On : 5 Oct 1998 9:04 pm Operator: jaz
Sample : b809676-08 Inst : GC #2
Misc : 25 ul, S Multiplr: 4.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05029.D\FID2B.CH Vial: 29
Acq On : 5 Oct 98 9:04 pm Operator: jaz
Sample : b809676-08 Inst : GC #2
Misc : 25 ul, S Multiplr: 4.00
IntFile : SURR2.E
Quant Time: Oct 5 21:28 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





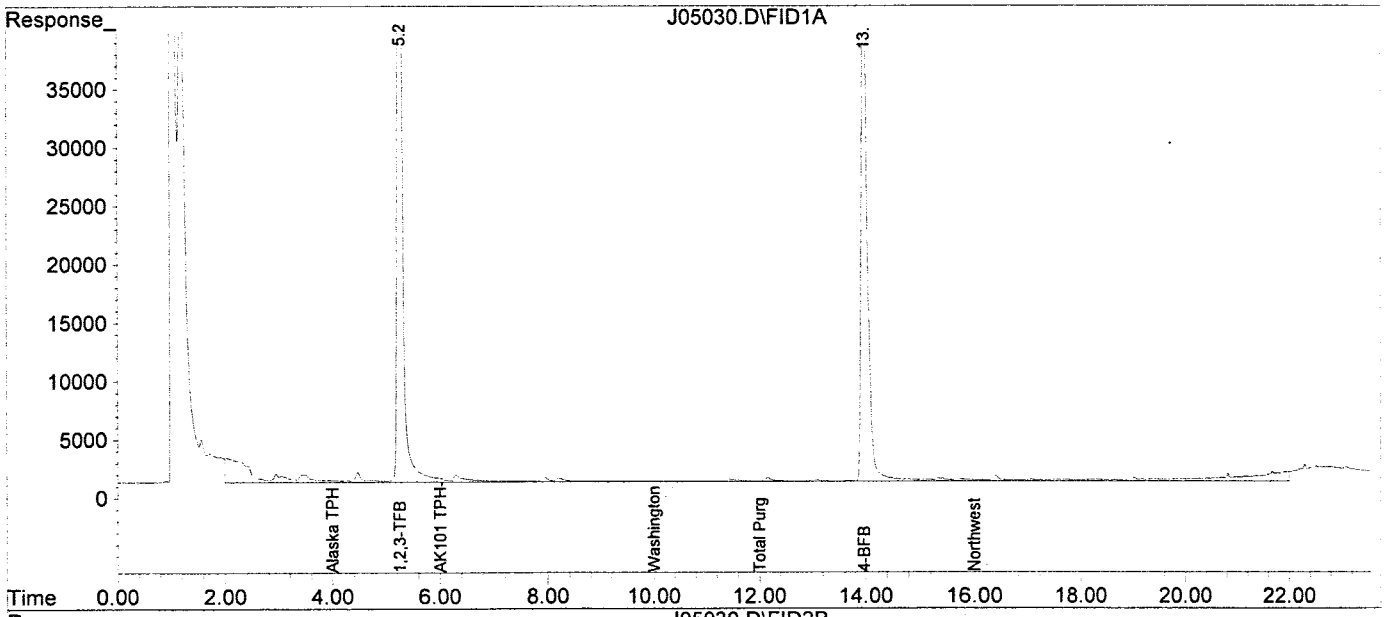
Quantitation Report

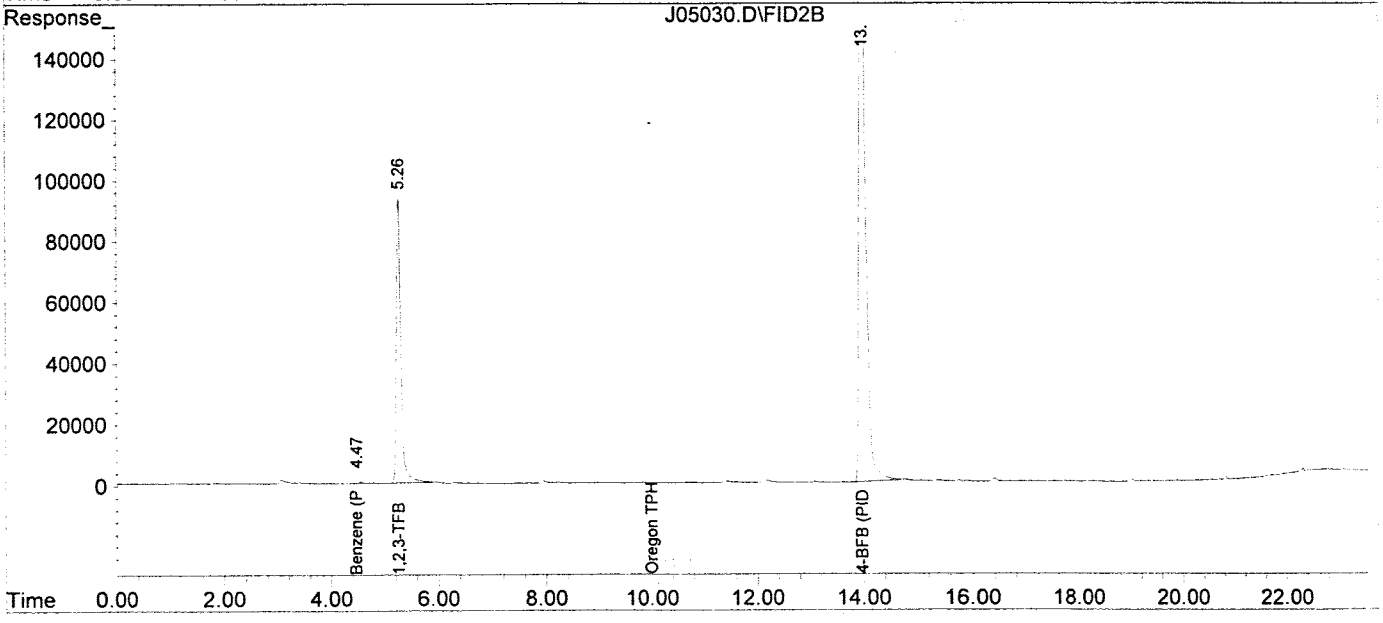
Data File : C:\HPCHEM\1\DATA\J05030.D\FID1A.CH Vial: 30
Acq On : 5 Oct 1998 9:34 pm Operator: jaz
Sample : b809676-09 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05030.D\FID2B.CH Vial: 30
Acq On : 5 Oct 98 9:34 pm Operator: jaz
Sample : b809676-09 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 21:58 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





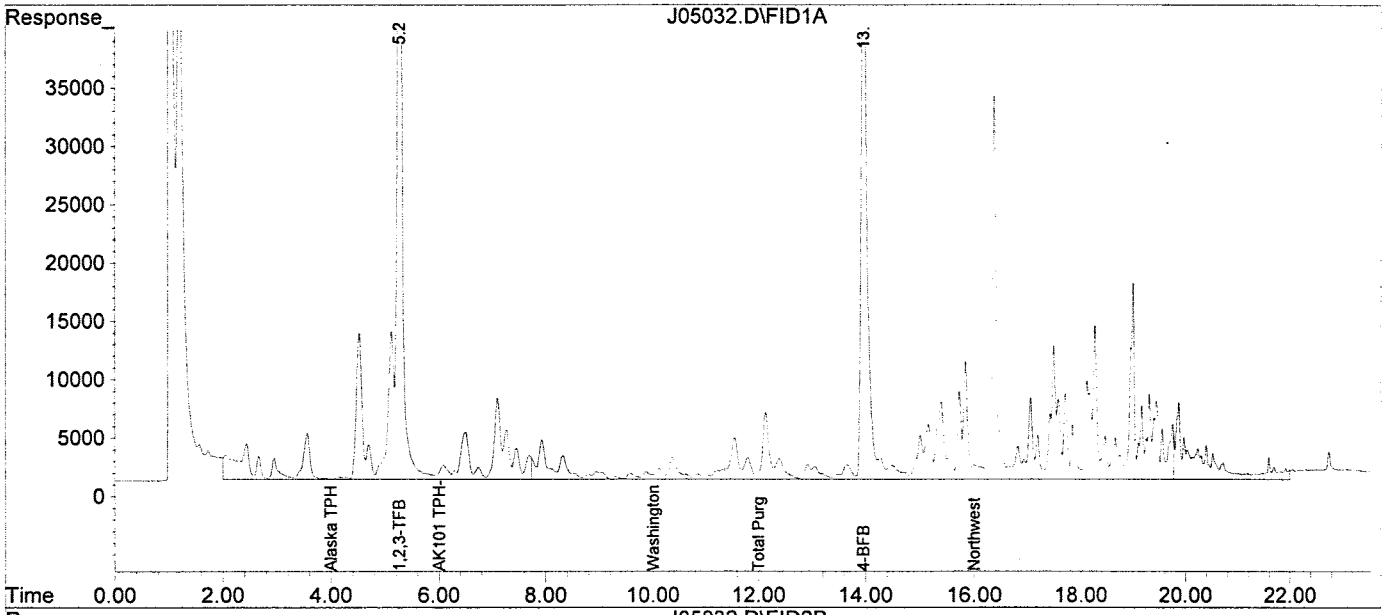
Quantitation Report

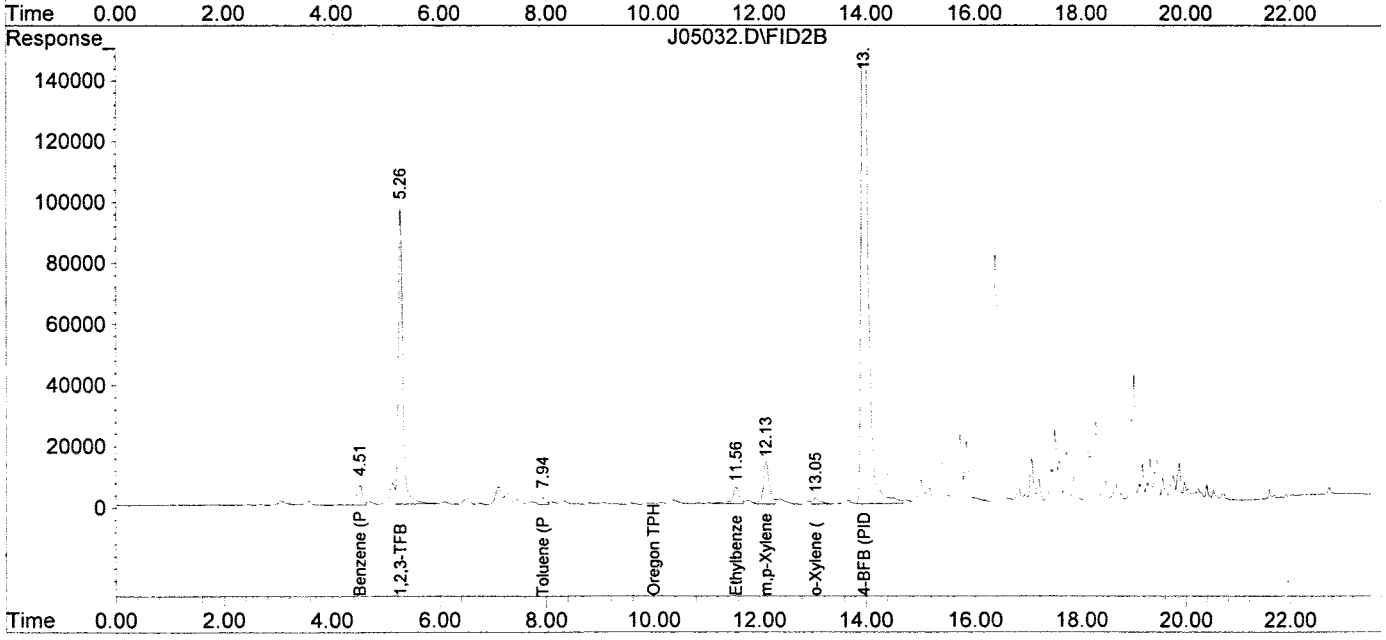
Data File : C:\HPCHEM\1\DATA\J05032.D\FID1A.CH Vial: 32
Acq On : 5 Oct 1998 10:33 pm Operator: jaz
Sample : b809676-10 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05032.D\FID2B.CH Vial: 32
Acq On : 5 Oct 98 10:33 pm Operator: jaz
Sample : b809676-10 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 6 7:28 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





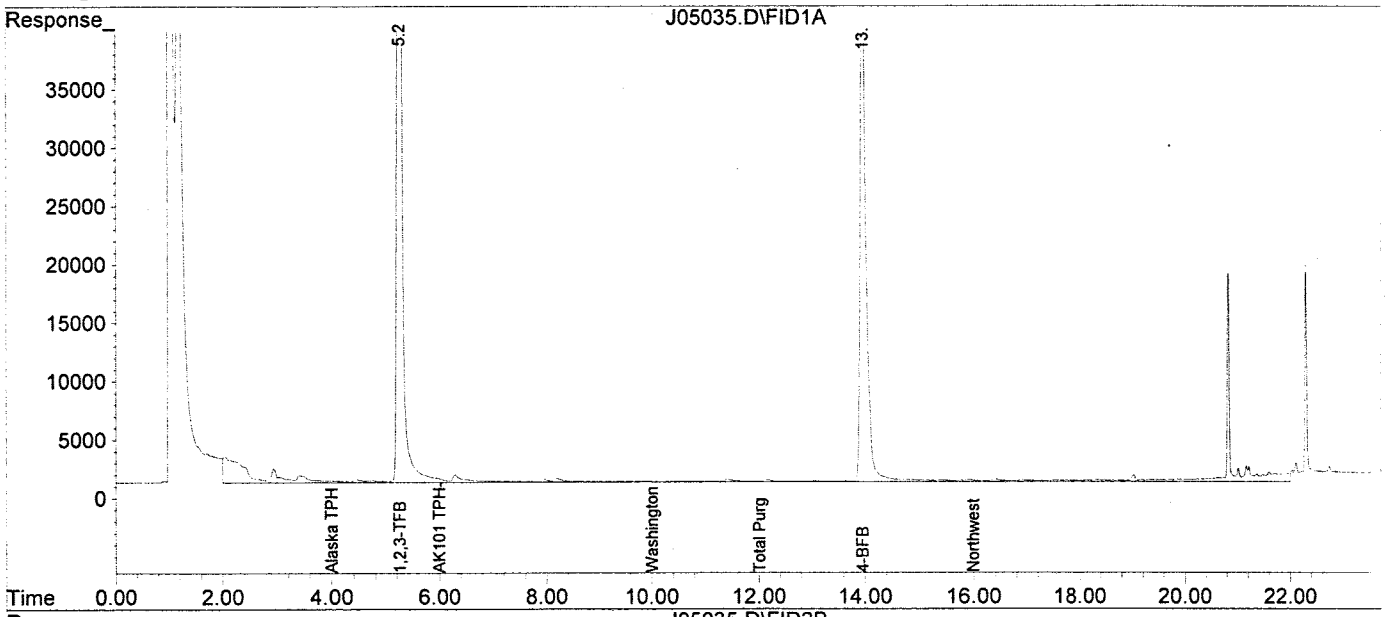
Quantitation Report

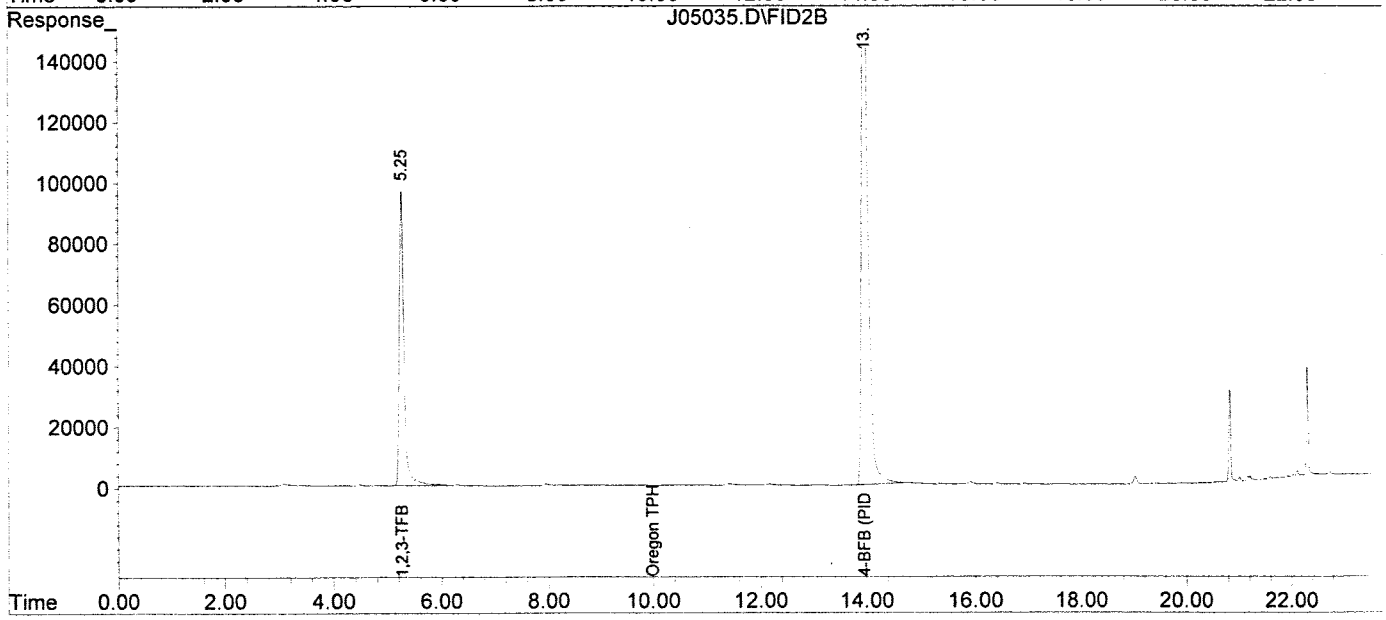
Data File : C:\HPCHEM\1\DATA\J05035.D\FID1A.CH Vial: 35
Acq On : 6 Oct 1998 12:02 am Operator: jaz
Sample : b809676-11 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05035.D\FID2B.CH Vial: 35
Acq On : 6 Oct 98 12:02 am Operator: jaz
Sample : b809676-11 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 6 7:30 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





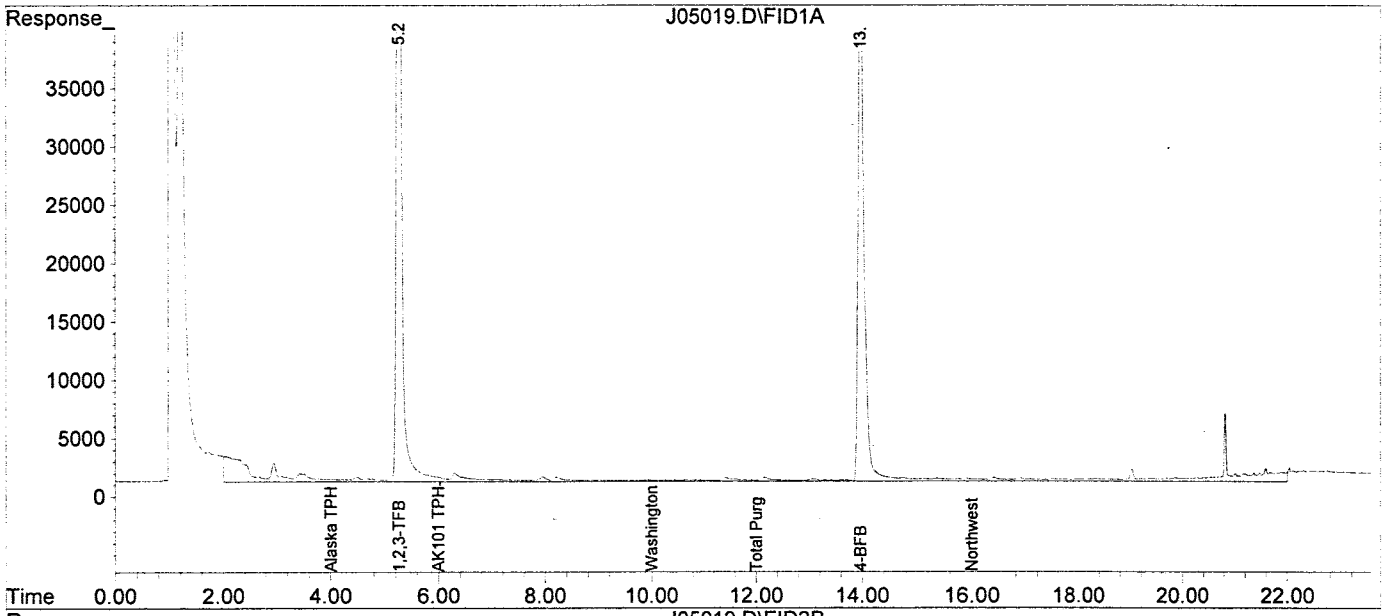
Quantitation Report

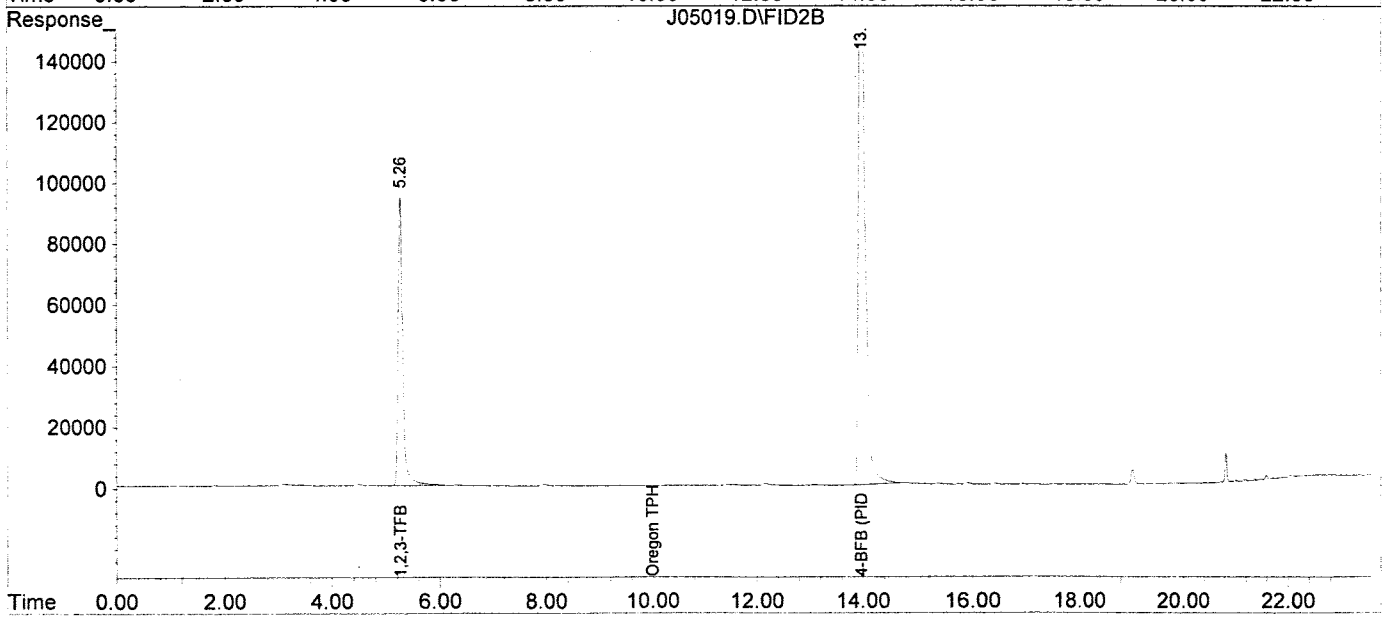
Data File : C:\HPCHEM\1\DATA\J05019.D\FID1A.CH Vial: 19
Acq On : 5 Oct 1998 4:06 pm Operator: jaz
Sample : b809676-12 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05019.D\FID2B.CH Vial: 19
Acq On : 5 Oct 98 4:06 pm Operator: jaz
Sample : b809676-12 Inst : GC #2
Misc : 100 ul, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 5 16:31 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





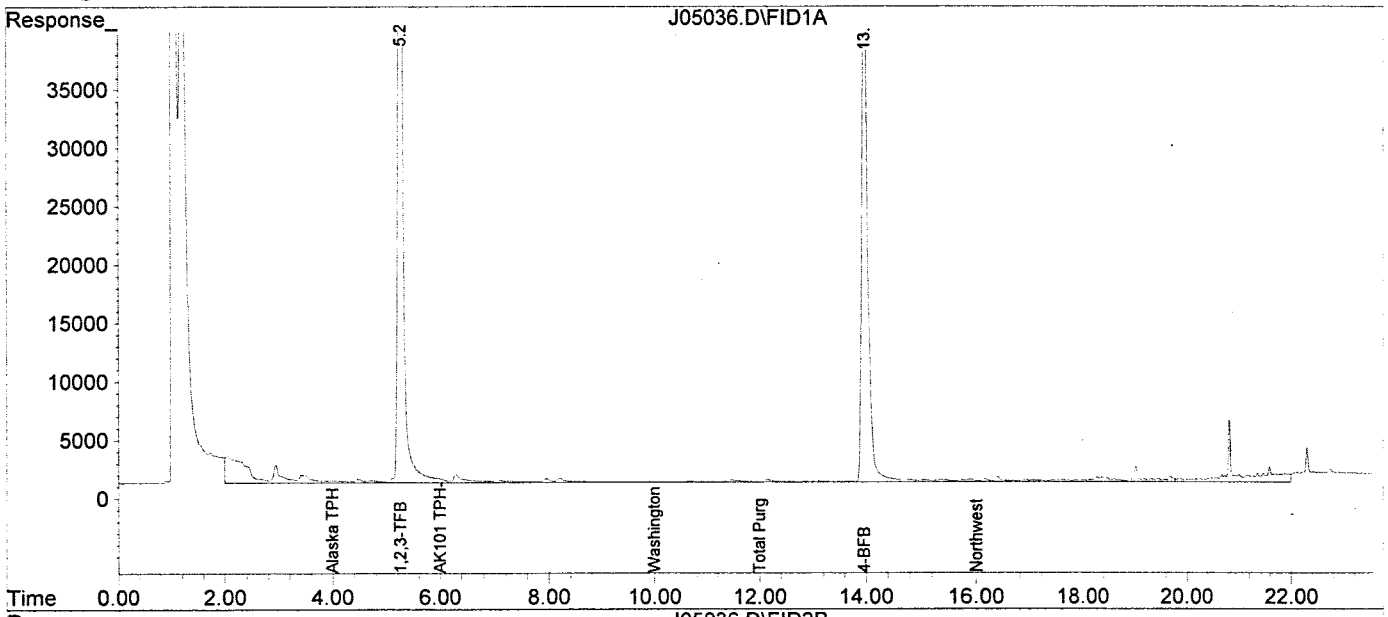
Quantitation Report

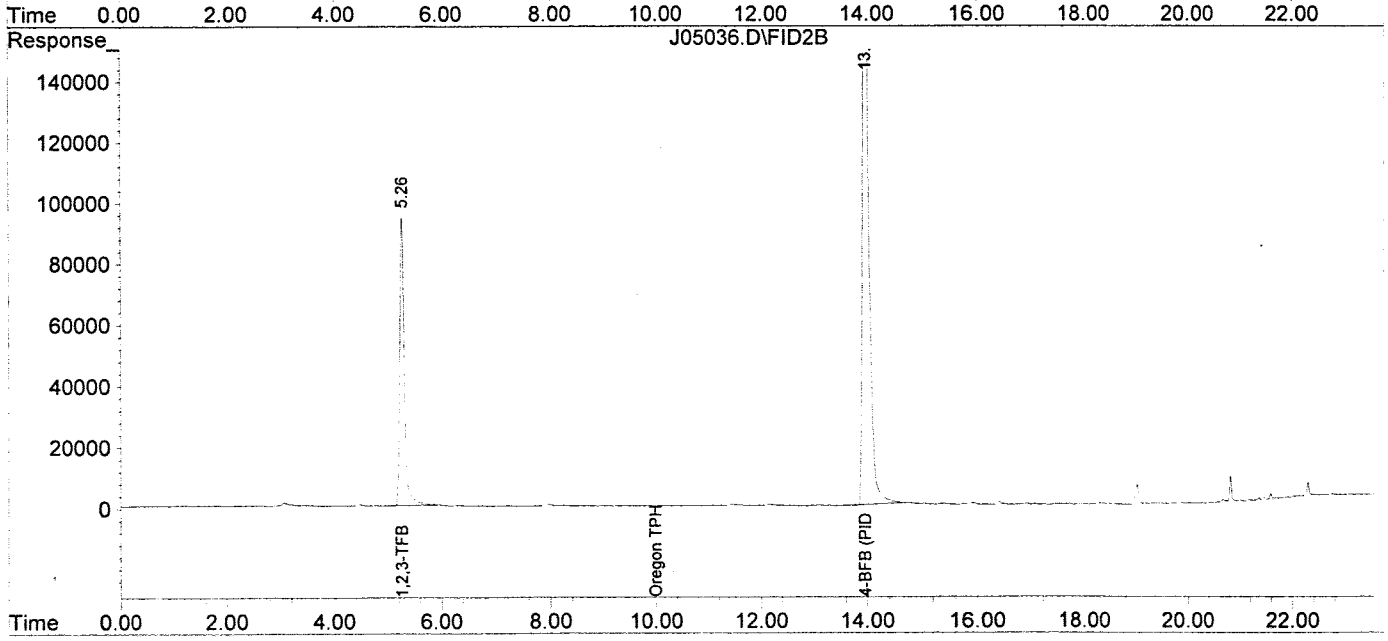
Data File : C:\HPCHEM\1\DATA\J05036.D\FID1A.CH Vial: 36
Acq On : 6 Oct 1998 12:32 am Operator: jaz
Sample : b809676-13 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05036.D\FID2B.CH Vial: 36
Acq On : 6 Oct 98 12:32 am Operator: jaz
Sample : b809676-13 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 6 7:30 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





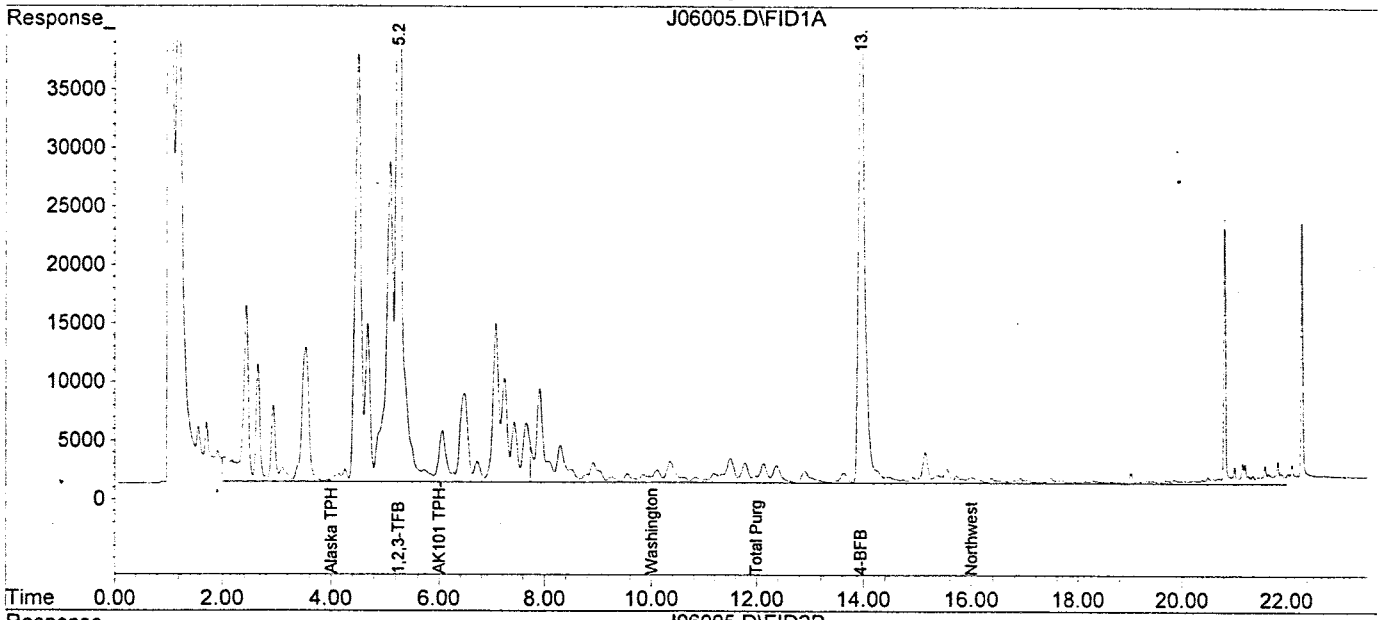
Quantitation Report

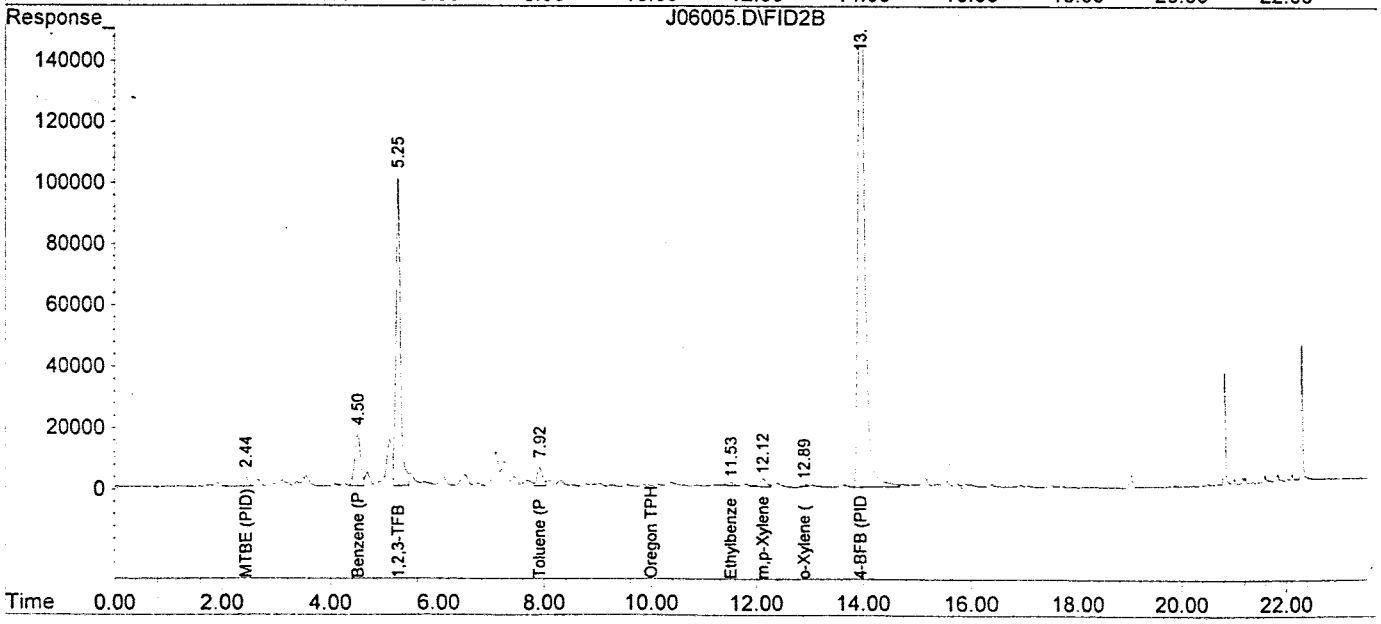
Data File : C:\HPCHEM\1\DATA\J06005.D\FID1A.CH Vial: 5
Acq On : 6 Oct 1998 9:32 am Operator: jaz
Sample : b809676-14 Inst : GC #2
Misc : r1, 100 ul, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J06005.D\FID2B.CH Vial: 5
Acq On : 6 Oct 98 9:32 am Operator: jaz
Sample : b809676-14 Inst : GC #2
Misc : r1, 100 ul, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 6 9:57 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





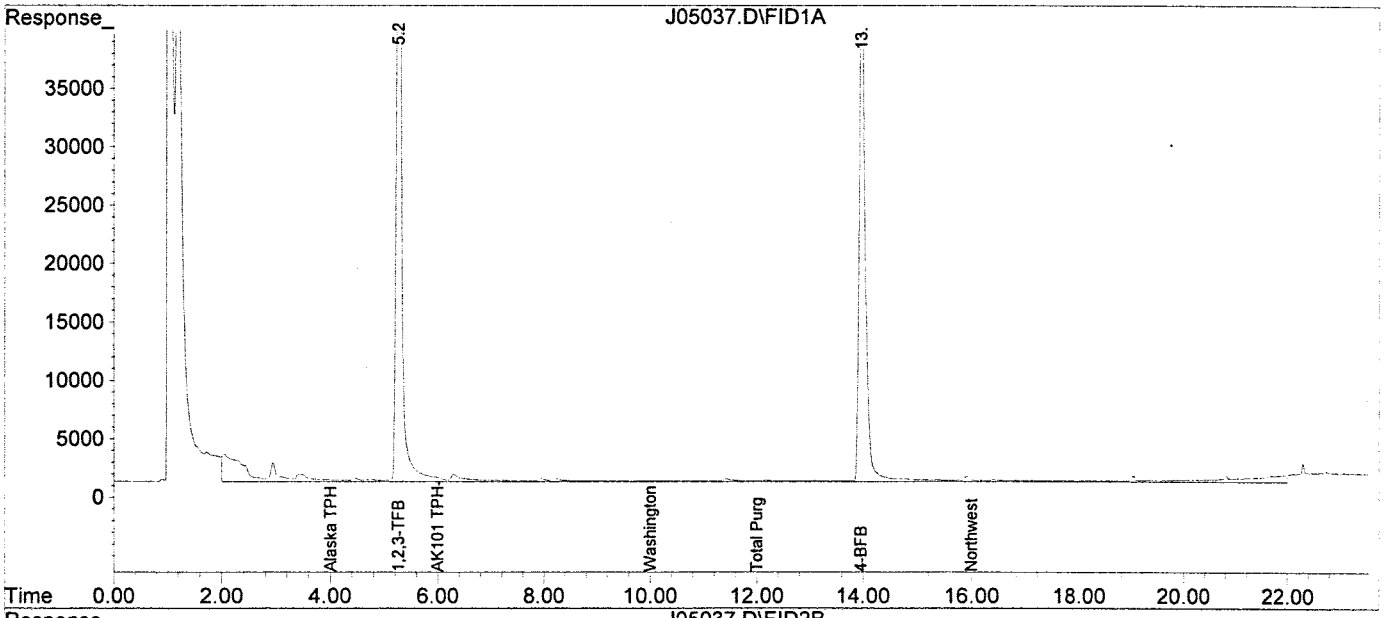
Quantitation Report

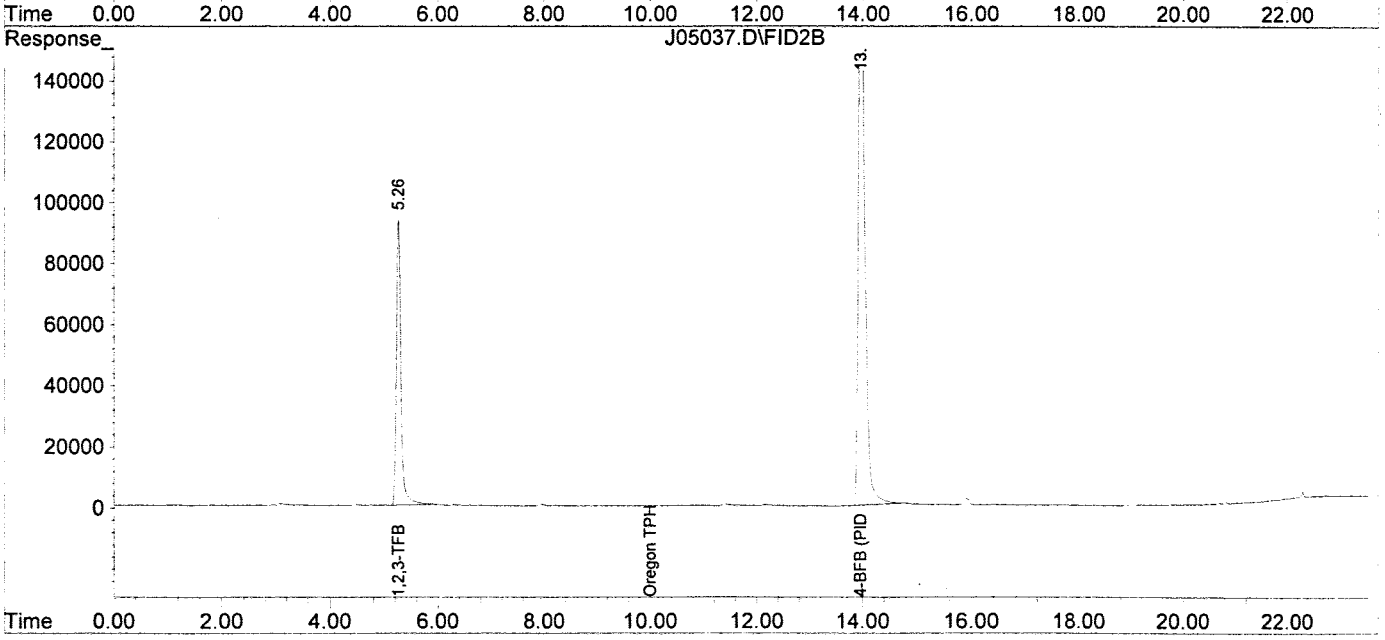
Data File : C:\HPCHEM\1\DATA\J05037.D\FID1A.CH Vial: 37
Acq On : 6 Oct 1998 1:02 am Operator: jaz
Sample : b809676-15 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR.E

Data File : C:\HPCHEM\1\DATA\J05037.D\FID2B.CH Vial: 37
Acq On : 6 Oct 98 1:02 am Operator: jaz
Sample : b809676-15 Inst : GC #2
Misc : 100 uL, S Multiplr: 1.00
IntFile : SURR2.E
Quant Time: Oct 6 7:31 1998 Quant Results File: TPHG.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Oct 05 09:22:25 1998
Response via : Multiple Level Calibration
DataAcq Meth : TPHG.M

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





NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 98206-4779 (509) 924-9200 FAX 924-9290
15055 S.W. Sequoia Parkway, Suite 110, Portland, OR 97224-7155 (503) 624-9800 FAX 684-3782

CHAIN OF CUSTODY REPORT

CLIENT: Pacific Environmental Group
ADDRESS: 4020 148th Ave NE Ste B
Redmond WA 98052
PHONE: (425) 869-5099 FAX: (425) 869-5639

REPORT TO: PEG - Matt Miller

BILLING TO: TOSCO - Tim Johnson
P.O. NUMBER: 776300251 - 260 - 4561
0300100 - 256300
NCA QUOTE #:

Turnaround		
SAME DAY RUSH	(+150%)	
NEXT BUSINESS DAY RUSH	(+100%)	
2 BUSINESS DAY RUSH	(+80%)	
3 BUSINESS DAY RUSH	(+60%)	
5 BUSINESS DAY RUSH	(+40%)	
10 BUSINESS DAY STANDARD	(LIST PRICE)	X
5 BUS. DAY HYDROCARBONS	(LIST PRICE)	

PROJECT NAME: Tosco - Bellingham
PROJECT NUMBER: 304-098.1B
SAMPLED BY: Matt Miller

Analysis Request:

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	NWTPH-G/BTEX	NWTPH-Dx (Extended)	HVOCs								COMMENTS & PRESERVATIVES USED	NORTH CREEK SAMPLE NUMBER
1. GP1-12	9/22/98	S	1		X									[illegible]	B809676-01
2. GP1-16	↓	↓			X										-02
3. GP2-8	↓	↓		X	X										-03
4. GP2-12	↓	↓		X	X										-04
5. GP3-6	↓	↓			X										-05
6. GP3-12	↓	↓			X										-06
7. GP4-12	9/23/98	↓		X											-07
8. GP5-8	↓	↓		X											-08
9. GP5-16	↓	↓		X											-09
10.															

RELINQUISHED BY: Matt Miller FIRM: PEG	DATE: TIME:	RECEIVED BY: K Barker FIRM: NCA	DATE: 9/25/98 TIME: 1230
RELINQUISHED BY: K Barker FIRM: NCA	DATE: 9/25/98 TIME: 1315	RECEIVED BY: FIRM:	DATE: TIME:

ADDITIONAL REMARKS:
[illegible] w/ Silica Gel Cleanup 13.6 w/o

PAGE 1 OF 2

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 98206-4779 (509) 924-9200 FAX 924-9290
15055 S.W. Sequoia Parkway, Suite 110, Portland, OR 97224-7155 (503) 624-9800 FAX 684-3782

CHAIN OF CUSTODY REPORT

CLIENT: Pacific Environmental Group
ADDRESS: 4030 148th Ave NE Ste B
Redmond Wa 98052
PHONE: (425) 869-5099 FAX: (425) 869-5639

REPORT TO: PEG - Matt Miller
BILLING TO: Tosco - Tim Johnson
P.O. NUMBER: 7763802311 - 360
NCA QUOTE #: 481-03661000 - 25130

PROJECT NAME: Tosco - Bellingham
PROJECT NUMBER: 3011-019-15
SAMPLED BY: Matt Miller

SAME DAY RUSH	(+150%)
NEXT BUSINESS DAY RUSH	(+100%)
2 BUSINESS DAY RUSH	(+80%)
3 BUSINESS DAY RUSH	(+60%)
5 BUSINESS DAY RUSH	(+40%)
10 BUSINESS DAY STANDARD	(LIST PRICE) X
5 BUS. DAY HYDROCARBONS	(LIST PRICE)

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	Analysis Request: BTEX-G/BTEX	NWTPH-G/BTEX	NWTPH-Dx Extended	HVOCs	COMMENTS & PRESERVATIVES USED	NORTH CREEK SAMPLE NUMBER
1. GP6-4	9/23/98	S	1	X				Use Silica Gel Cleanup for Diesel Extended	B809676-10
2. GP6-12	↓	↓	↓	X					-11
3. GP7-4				X					-12
4. GP7-12				X					-13
5. GP8-8				X					-14
6. GP8-12				X					-15
7.									
8.									
9.									
10.									

RELINQUISHED BY: Matt Miller DATE: TIME:
FIRM: PEG
RECEIVED BY: KBaker DATE: 9/25/98
FIRM: NCA TIME: 1230

RELINQUISHED BY: KBaker DATE: 9/25/98
FIRM: NCA TIME: 1315
RECEIVED BY: DATE:
FIRM: TIME:

ADDITIONAL REMARKS: Run NWTPH-D Extended w/ Silica Gel Cleanup 13.6 w/o

PAGE 1 OF 2

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 98206-4779 (509) 924-9200 FAX 924-9290
15055 S.W. Sequoia Parkway, Suite 110, Portland, OR 97224-7155 (503) 624-9800 FAX 684-3782

NORTH CREEK ANALYTICAL

CHAIN OF CUSTODY REPORT

CLIENT: Pacific Environmental Group

ADDRESS: 4020 148th Ave NE Ste B
Redmond WA 98052

PHONE: (425) 869-5099 FAX: (425) 869-5639

REPORT TO: PEG - Matt Miller

BILLING TO: Tosco - Tim Johnson

P.O. NUMBER: 77637.02511 - 260 - 4561

NCA QUOTE #: 03001006 - 256380

Turnaround		
SAME DAY RUSH	(+150%)	
NEXT BUSINESS DAY RUSH	(+100%)	
2 BUSINESS DAY RUSH	(+80%)	
3 BUSINESS DAY RUSH	(+60%)	
5 BUSINESS DAY RUSH	(+40%)	
10 BUSINESS DAY STANDARD	(LIST PRICE)	X
5 BUS. DAY HYDROCARBONS	(LIST PRICE)	

PROJECT NAME: Tosco - Bellingham

PROJECT NUMBER: 504-010.1B

SAMPLED BY: Matt Miller

Analysis Request: NWTPH-G/BTEX; NWTPH-Dx Extended; HVOCs

SAMPLE IDENTIFICATION: (NUMBER OR DESCRIPTION)	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONT.	NWTPH-G/BTEX	NWTPH-Dx Extended	HVOCs								COMMENTS & PRESERVATIVES USED	NORTH CREEK SAMPLE NUMBER
1. GP1	9/22/98	W	1		X									Use Silica Gel Cleanup for Diesel Extended	B809676-16
2. GP2	↓		3	X	X										-17
3. GP3	↓		1		X										-18
4. GP4	9/23/98			X											-19
5. GP5				X											-20
6. GP6				X											-21
7. GP7				X											-22
8. GP8	↓	↓		X											-23
9.															
10.															

RELINQUISHED BY: Matt Miller DATE: TIME:
FIRM: PEG

RECEIVED BY: K Barden DATE: 9/25/98 TIME: 1230
FIRM: NCA

RELINQUISHED BY: K Barden DATE: 9/25/98 TIME: 1315
FIRM: NCA

RECEIVED BY: DATE: TIME:
FIRM:

ADDITIONAL REMARKS: 13.6 w/o
Run NWTPH-D Extended w/ Silica Gel Cleanup

PAGE 3 OF 3

PACIFIC
ENVIRONMENTAL
GROUP, INC.

AN IT COMPANY

Date: December 23, 1998
Project: 504-018.1B

To: Mr. Steve Bremer
Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

We have enclosed:

Copies	Description
1	Environmental Investigation
	Tosco Service Station #6380
	200 South 36th Street
	Bellingham, Washington

For your:
- ☒ Use
- ☐ Approval
- ☐ Review
- ☐ Information

Comments:

Matt Miller

4020 148th Avenue, N.E., Suite B • Redmond, Washington 98052-5142 (425) 869-5099 FAX (425) 869-5639