CONOCOPHILLIPS REMEDIATION SYSTEM O&M REPORT February 2, 2004

ConocoPhillips Site No.: 5353	Address: 600 Westlake Avenue North, Seattle, WA
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	Washington Department of Ecology, Toxics Cleanup Program

WORK PERFORMED THIS PERIOD [August through December 2003]:

1. Obtained permit authorization from the Puget Sound Clean Air Agency (PSCAA) to operate the remediation system on August 20, 2003 (NOC No. 8905).
2. Installed two 1,800-pound granular activated carbon (GAC) units in-series within the remediation system enclosure on August 20, 2003 (prior to system start-up)(Figure 3).
3. Started-up the remediation system (air sparge and vapor extraction) for continuous operation on August 20, 2003.
4. Conducted remediation system operations and maintenance (O&M) visits on a weekly to bi-weekly basis from September 2 to December 15, 2003. O&M visits generally included obtaining measurements and samples of remediation system vapors from influent (before the first GAC unit), midfluent (between the two GAC units), and/or effluent (after the second GAC unit) locations (Figure 2), recording system operating parameters, adjusting air sparge (AS) system injection pressures and flow rates as needed, monitoring groundwater levels and dissolved oxygen (DO) concentrations in selected monitoring wells (MW-35, MW-33, MW-53, MW-34, MW-32A and MP-3), and monitoring vapor concentrations in confined spaces (three catch basins and an electrical vault) located in the vicinity of the remediation system components with a photoionization detector (PID)(Figure 1).
5. Optimized the remediation system operating parameters.
6. Evaluated the field measurements and vapor data results relative to PSCAA permit criteria.
7. Coordinated the changeout of GAC in both units on October 2, 2003.
8. Met with a PSCAA inspector at the site on October 17, 2003 for their initial site inspection.

DISCUSSION:

- The remediation system consists of a biosparge treatment curtain trench near the northern (downgradient) site boundary, and four "deep" AS wells (AS-2 through AS-4) located on the western portion of the site. The biosparge treatment curtain trench is approximately 235 feet long, 5 feet wide, and 16 to 18 feet deep, is backfilled with pea gravel, and contains 15 biosparge wells (SAS-1 through SAS-15), 8 multipurpose wells (MP-1 through MP-8), and shallow horizontal vapor extraction (VE) piping. Remediation system equipment includes an AS blower (for the 15 biosparge trench wells), four compressors and a heat exchanger (for the four deep AS wells), and a VE blower and knockout tank (for the biosparge trench horizontal VE system). Five existing on-site VE wells and three existing off-site VE wells also are connected to the remediation system VE equipment.
- The remediation system ran for approximately 107 days between August 20 and December 15, 2003 (about 91% of the time). For the non-operational period, the system was purposely shut down so that GAC could be could be changed out and air permit conditions could be met.
- Influent and midfluent vapor samples were collected during each O&M visit (Table 1). Gasoline-range petroleum hydrocarbon (GRPH) concentrations in influent vapor samples collected during this reporting period ranged from 7.9 to 450 parts per million-volume (ppmv), and have decreased significantly relative to the May 2003 pilot test results and the initial high vapor concentration following start-up (Figure 4). GRPH concentrations in midfluent vapor samples collected during this reporting period ranged from non-detectable concentrations to 230 ppmv.
- The PSCAA permit indicates that midfluent GRPH vapor concentrations shall not exceed 50 ppmv. Breakthrough of the first GAC unit occurred within approximately two weeks following start-up. The initial O&M visits were conducted on a bi-weekly basis, and the initial vapor samples were analyzed on a 10-day turnaround time. Due to the time lag between the breakthrough event and (1) the subsequent regularly scheduled O&M visit, and (2) receipt of vapor sampling results, the midfluent GRPH vapor concentrations exceeded the PSCAA permit criteria between approximately September 12 and September 26, 2004. The first midfluent vapor sampling results (from September 12) indicating that breakthrough of the first GAC had occurred were received on September 26. Influent, midfluent and effluent vapor samples were immediately obtained, and the system was shut down on September 26 pending GAC changeout. The effluent GRPH vapor concentration was 7.4 ppmv. PSCAA subsequently was notified of the midfluent GRPH vapor permit exceedence (and the corresponding low effluent GRPH vapor concentration). The carbon in both GAC units was changed out on October 2, and the remediation system was restarted on October 6. PSCAA indicated that because immediate corrective action was taken (effluent sampling, shutdown, PSCAA notification, GAC changeout), the permit exceedence does not constitute a violation. More frequent

O&M visits were conducted, and expedited chemical analytical turnaround times were requested from the lab for subsequent vapor samples to reduce the possibility of future permit exceedences.

- AS injection pressures ranged between approximately 9 and 12.5 inches of water (iow) at the sparge compressor; 4.5 and 20 iow in the deep sparge wells (AS-2 through AS-5); 4.5 and 5 iow at the sparge blower; and 0.5 and 4.5 iow in the trench sparge wells (SAS-1 through SAS-15)(Table 2).
- AS flow rates ranged between approximately 2 and 9 cfm in the deep sparge wells (AS-2 through AS-5); and 5 to 12 cfm in the trench sparge wells (SAS-1 through SAS-15)(Table 2).
- Vacuum applied to the biosparge trench and VE wells ranged between approximately 2 and 3.5 inches of water (iow) (Table 2). VE airflow rates through the GAC units ranged between approximately 217 and 220 cubic feet per minute (cfm) (Table 2), based on blower vacuum/flow rate curves.
- Approximately 4 to 9 feet of apparent groundwater mounding relative to baseline water level measurements in MW-33, located in the vicinity of deep sparge well AS-4 (central part of the site), since start-up of the remediation system. This affect may be biased as a result of bubbling in this well. Water levels generally have fluctuated in the other wells measured (Table 3).
- Dissolved oxygen concentrations generally have increased, or bubbling has been observed, in the wells monitored since start-up of the remediation system (Table 3).
- PID vapor measurements in confined spaces in the vicinity of remediation system components at the site (three catch basins and an electrical vault) indicate that that the relatively low vapor concentrations (approximately 3.0 to 48.0 parts per million [ppm]) detected in the confined spaces prior to start-up of the remediation system have decreased (to approximately 0.1 to 1.3 ppm)(Table 3). Confined space vapor monitoring was discontinued in October, based on the low PID readings.
- The daily GRPH removal rates during this reporting period, based on influent vapor concentrations and air flow calculations, have ranged between approximately 0.6 and 24 pounds per day (Table 4).
- The remediation system removed approximately 616.9 pounds of GRPH during the reporting period (Table 4).
- Based on site groundwater sampling results for September 19, 2003 provided by Environmental Resolutions, Inc. (ERI), petroleum hydrocarbon and benzene, toluene, ethylbenzene and xylene concentrations at the site have significantly decreased relative to previous (post-system start-up) sampling events. For example, GRPH concentrations in wells located in the vicinity of the remediation components have decreased by factors ranging between approximately 1.5-times (in MW-50) and 247-times (in MW-33) relative to ERI's reported June 2003 sampling results. The GRPH concentrations in wells located in the vicinity of the remediation components (excluding MW-33) decreased by an average factor of approximately 13-times relative to the June 2003 sampling results. These are the lowest concentrations of GRPH detected in these wells in several years. Additionally, petroleum concentrations have decreased significantly in MW-45 and MW-35 since start-up of the AS/VE curtain trench. These wells are located downgradient (north) of the treatment curtain. Monitoring wells MW-3 and MW-52 (also downgradient of the treatment curtain) were not sampled during the September 2003 monitoring event. The groundwater flow direction at the site reportedly is toward the north and east. Recent groundwater sampling data are shown on ERI's "Groundwater Sample Anlysis Map - 09/19/03", attached.

FUTURE WORK RECOMMENDATIONS:

1. Continue operation of the remediation system with bi-weekly or monthly O&M visits.
2. Monitor water level measurements, casing vapors, and dissolved oxygen concentrations in all site monitoring wells, and test groundwater samples from all site monitoring wells on a quarterly basis, including MW-3 and MW-52, to evaluate the continued effectiveness of the remediation system.

ATTACHMENTS:

Table 1 – Summary of Field Measurements and Chemical Analytical Data - Remediation System Vapors
Table 2 – Summary of Field Measurements - Air Sparge and Vapor Extraction System Data
Table 3 – Summary of Field Measurements - Selected Monitoring Wells and Confined Spaces
Table 4 – Estimated Gasoline-Range Hydrocarbon Removal Rates - Air Sparge and Vapor Extraction System
Figure 1 – Site Plan
Figure 2 – Remediation System Process Flow Diagram
Figure 3 – Remediation Equipment Enclosure
Figure 4 – Influent Vapor Data - Gasoline-Range Hydrocarbons
ERI's "Groundwater Sample Analysis Map - 09/19/03"
Laboratory Reports and Chain-of-Custody Documentation

Signed by:

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Associate

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TABLE 1
SUMMARY OF FIELD MEASUREMENTS AND CHEMICAL ANALYTICAL DATA
REMEDIATION SYSTEM VAPORS
CONOCOPHILLIPS SERVICE STATION 5353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Date	Operating Days Since Startup	Influent Vapors[1]		Midfluent Vapors[2]		Effluent Vapors[3]	
		PID[4] (ppm)	GRPH[5] (ppmv)	PID[4] (ppm)	GRPH[5] (ppmv)	PID[4] (ppm)	GRPH[5] (ppmv)
4/28/2003	(pilot test)	223	500	N/A	N/A	223	500
8/20/2003	0	126	NM	0.1	NM	0.1	NM
9/2/2003	13	82.3	53	1.8	2.5	0.0	NM
9/12/2003	23	91.6	370	3.9	180 [7]	0.0	NM
9/18/2003	29	71.3	450	21.2	230 [7]	3.1	NM
9/26/2003	37	122	232	45.6	97.5	4.6	7.4
10/6/2003	37.1	41.7	91.7	0.0	<2.36	0.8	NM
10/17/2003	48	49.9	106	6.3	<2.36	0.0	NM
10/31/2003	62	56.3	14.0	5.0	<2.36	0.0	NM
11/6/2003	68	13.1	16.0	0.0	<2.36	0.0	NM
11/17/2003	79	11.3	4.82	3.1	<2.36	0.0	NM
11/25/2003	87	23.2	24.2	6.8	<2.36	0.0	NM
12/15/2003	107	4.8	7.90	0.0	<2.36	0.0	NM
PSCAA Permit Criteria		NE	NE	NE	50	NE	NE

Notes:
[1]Influent = before first carbon adsorber
[2]Midfluent = between first and second carbon adsorbers
[3]Effluent = at stack, after second carbon adsorber
[4]PID = photoionization detector (field measurement)
[5]GRPH = gasoline-range petroleum hydrocarbons analyzed by NW TPH-G by North Creek Analytical of Bothell, Washington, or Modified EPA Method TO-3 by Air Toxics of Folsom, California.
[6]The system was pilot tested on 4/28/03 and started-up for continuous operation on 8/20/03.
[7]This data was received on 9/26/03. Influent, midfluent and effluent vapor samples were obtained and the system was shut down on 9/26/03. PCSAA was notified of the midfluent vapor permit exceedence (and the corresponding low effluent vapor TPH-G concentration), and a carbon changeout was performed before restarting the system on 10/6/03. Expedited chemical analytical turnaround times were requested from the lab for subsequent vapor samples to reduce the possibility of future permit exceedences.
ppm = parts per million
ppmv = parts per million-volume
PSCAA = Puget Sound Clean Air Agency
NE = not established
NM = not monitored
Shaded values exceed the PCSAA permit criteria.

TABLE 2
SUMMARY OF FIELD MEASUREMENTS
AIR SPARGE AND VAPOR EXTRACTION SYSTEM DATA
CONOCOPHILLIPS SERVICE STATION 5353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Air Sparge System - Injection Pressures Upon Arrival[1] (psi)

	Air Sparge Wells and Components																				
Date	Compressor	AS-2	AS-3	AS-4	AS-5	Blower	SAS-1	SAS-2	SAS-3	SAS-4	SAS-5	SAS-6	SAS-7	SAS-8	SAS-9	SAS-10	SAS-11	SAS-12	SAS-13	SAS-14	SAS-15
8/20/2003	NM	OFF	18	OFF	20	NM	4	3	1	1	1	0.5	2	1	3.5	4	4.25	2.5	3.5	2	1.5
9/2/2003	12.5	12	OFF	12	OFF	4.5	3	2.8	2.2	1.8	2.2	1.4	2.2	1.8	3.6	2.8	3.2	3	3	2.6	2.4
9/12/2003	9	8	8	8	6	4.5	3	2.6	2.2	3.2	3.2	2.8	2.4	2	3.4	2.4	2.8	2.4	3.4	2	3.2
9/18/2003	12.5	9	5.5	12	9.5	4.5	3.2	2.4	2.2	2.2	3.2	2.6	2	1.8	3	2.6	4	2	3.4	2.2	3
9/26/03 [2]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
10/6/03 [3]	NM	12	11.5	12	5	5	4	2.4	2	1.8	2.4	2.2	1.8	2	4.2	3.5	3.4	2.6	4.5	2.4	2.8
10/17/2003	NM	9	5	10	8	4.5	1.8	2.6	1.8	2.2	2.8	2.8	1.8	1.6	2.8	2.4	2.6	2.9	4	2.2	3
10/31/2003	11.5	10	9	10	7	4.5	3.4	3.4	2.6	3	2.6	3.4	2.2	2.5	3.5	2.8	3.2	2.8	3.6	3	3.2
11/6/2003	10	10	9	10	6	NM	2.6	2.8	2.6	2.6	2.4	2.6	2.2	1.8	3	2.8	3	2.6	3.6	2.8	3
11/17/2003	9	8.5	8.5	8.5	6	4.5	2.6	2.8	2.4	2.4	2.2	2.6	1.8	2	2.8	2.4	2.4	2.4	3.2	2	2.4
11/25/2003	9.5	9	8	9.5	5.5	4.5	1.8	3.6	2.8	3.8	2.4	3	2.3	2.5	3.5	3.2	3.8	2.5	2.6	2.2	3
12/15/2003	10	8.5	7.5	9	4.5	4.5	3.4	2.6	2.2	3.2	3.2	2.8	2.4	2	3.6	2.2	2.8	2	3.4	2	3.2

Air Sparge System - Flow Rates Upon Arrival[4] (cfm)

	Air Sparge Wells																			**Vapor Extraction System**	
Date	AS-2	AS-3	AS-4	AS-5	SAS-1	SAS-2	SAS-3	SAS-4	SAS-5	SAS-6	SAS-7	SAS-8	SAS-9	SAS-10	SAS-11	SAS-12	SAS-13	SAS-14	SAS-15	Vacuum (iow)	Flow Rate[5] (cfm)
8/20/2003	OFF	5.5	OFF	5.5	5	11.5	11.5	10.5	11	11.5	10.5	9.5	6.5	8.5	8.5	9.5	8.5	9.5	9.5	2	220
9/2/2003	7.5	OFF	6.5	OFF	9	11	10.5	8	10	9.5	11	11	8	11.5	10.5	9.5	11	9.5	8.5	2	220
9/12/2003	4	2	2	8	9	9.5	10	10	10	10	10	10	8.5	11	10	11	10	11	10	2	220
9/18/2003	3.5	3.5	5	5	11	10	10	10	10	10	10	10	12	9	10	10	10	10	10	2	220
9/26/03 [2]	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	2	220
10/6/03 [3]	4	4	5	4	7.5	10	10	10	10	10	10	10	10	10	9.5	10	9.5	10	10	3	218
10/17/2003	4	4	4	4.5	12	8	8.5	8	8.5	7	9	8.5	15	10.5	10	9.5	8.5	9	8	3	218
10/31/2003	4.5	4.5	5.5	3	10	10	10	10	10	10	10	10	10	9.5	10	10	10	10	10	3.5	217
11/6/2003	3.5	4.5	5	3.5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3.5	217
11/17/2003	4	3.5	4	3.5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	3.5	217
11/25/2003	3.5	3.5	4	3.5	9	8	9	11	10	14	9	8	8	7	9	10	7	9	10	3.5	217
12/15/2003	3	3	3	2	10	10	10	10	10	10	10	10	5.5	10	10	10	10	10	10	2	220

Notes:
[1]Post-measurement injection pressure adjustments, if any, included setting AS-well pressures between 4 and 12 psi, and setting SAS-well pressures between 1.2 and 3.8 psi.
[2]The system was shut down on this date pending a carbon changeout.
[3]Departure reading (the system was restarted after a carbon changeout on this date).
[4]Post-measurement flow rate adjustments, if any, included setting AS-well flow rates between 3.5 and 5 cfm, and setting SAS-well pressures between 6 and 10 cfm.
[5]Based on blower vacuum/flow rate curves.
psi = pounds per square inch
cfm = cubic feet per minute
iow = inches of water
NM = not monitored

TABLE 3
SUMMARY OF FIELD MEASUREMENTS
SELECTED MONITORING WELLS AND CONFINED SPACES
CONOCOPHILLIPS SERVICE STATION 5353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Depth to Groundwater (feet below casing rim)						
Date	MW-35	MW-33	MW-53	MW-34	MW-32A	MP-3
8/20/03 (before startup)	11.54	12.20	12.32	12.42	12.19	11.10
9/2/2003	11.37	NM	12.25	11.55	12.17	11.34
9/12/2003	11.98	3.39	12.75	12.89	12.52	11.93
9/18/2003	11.95	6.33	12.75	11.80	8.90	11.90
9/26/03 [1]	NM	NM	NM	NM	NM	NM
10/6/2003	12.45	6.31	12.74	13.92	12.33	12.33
10/17/2003	11.62	7.93	12.38	12.28	7.35	11.52
10/31/2003	NM	6.83	11.54	NM	NM	10.97
11/6/2003	11.33	6.23	11.81	11.32	6.82	11.13
11/17/2003	11.70	NM	NM	12.26	8.12	11.59
11/25/2003	10.30	5.34	10.87	10.73	9.10	10.18
12/15/2003	11.35	6.81	11.61	12.04	11.63	11.23

Dissolved Oxygen (mg/l)						
Date	MW-35	MW-33	MW-53	MW-34	MW-32A	MP-3
8/20/03 (before startup)	0.43	NM	0.53	0.62	0.51	0.39
9/2/2003	0.77	Bubbling	2.41	1.06	0.66	0.58
9/12/2003	0.63	Bubbling	0.55	1.47	Bubbling	0.40
9/18/2003	0.89	Bubbling	3.85	2.13	Bubbling	0.36
9/26/03 [1]	NM	NM	NM	NM	NM	NM
10/6/2003	0.93	Bubbling	Bubbling	0.49	Bubbling	0.50
10/17/2003	0.94	Bubbling	Bubbling	0.51	Bubbling	0.52
10/31/2003	NM	Bubbling	Bubbling	NM	NM	0.51
11/6/2003	0.91	Bubbling	Bubbling	0.52	Bubbling	0.51
11/17/2003	0.88	NM	NM	0.53	Bubbling	0.50
11/25/2003	0.63	Bubbling	0.58	6.15	Bubbling	0.80
12/15/2003	NM	Bubbling	NM	NM	NM	NM

Confined Space Vapor Monitoring with PID (ppm)				
Date	Electrical Vault	Catch Basin #1	Catch Basin #2	Catch Basin #3
8/20/03 (before startup)	3.0	9.5	48.0	35.0
9/2/2003	1.0	3.6	4.8	2.3
9/12/2003	0.8	3.0	2.8	1.6
9/18/2003	1.1	2.1	2.1	1.4
9/26/03 [1]	NM	NM	NM	NM
10/6/2003	0.1	1.3	0.8	0.4

Notes:
[1] The system was shutdown for carbon changeout on this date and restarted on 10/6/03.
NM = not monitored
mg/l = milligrams per liter
PID = photoionization detector
ppm = parts per million

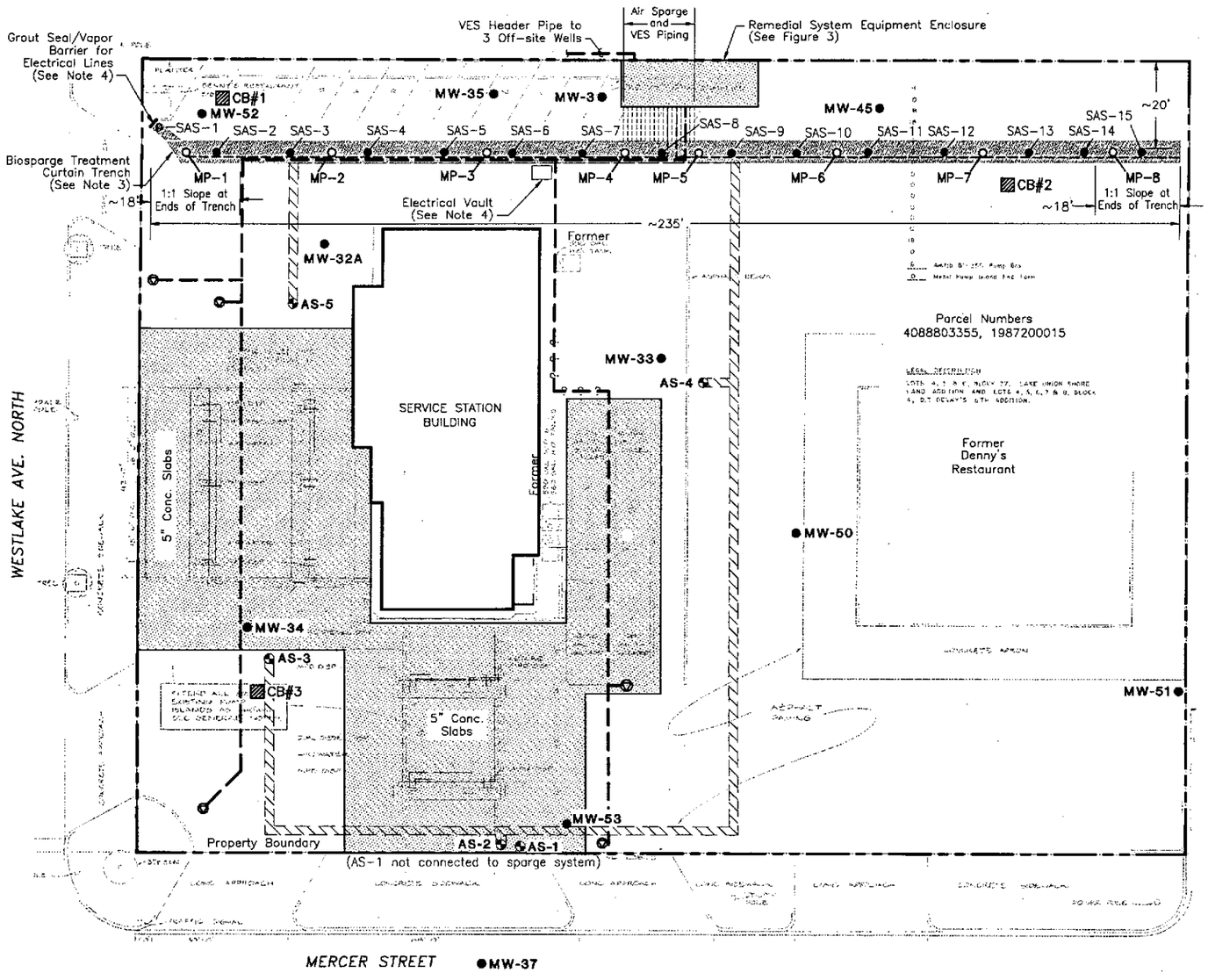
TABLE 4

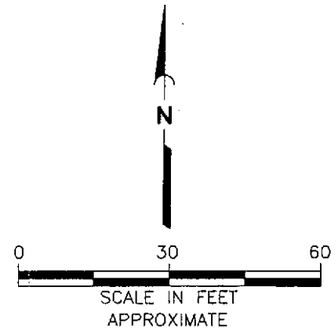
ESTIMATED GASOLINE-RANGE HYDROCARBON REMOVAL RATES[1]
AIR SPARGE AND VAPOR EXTRACTION SYSTEM

CONOCOPHILLIPS SERVICE STATION 5353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Date Sampled	Operating Days Since Startup (Days)	GRPH Concentrations (ppmv)	Air Flow[2] (cfm)	Conversion Constant (lb-mol min/ft^3 ppm-v day)	Molar Weight (lb/lb-mole)	Daily GRPH Removal Rates (lbs/day)	Cumulative Weight of GRPH Removed (pounds)
9/2/2003	13	53	220	3.80E-06	70	3.10	40.3
9/12/2003	23	370	220	3.80E-06	70	12.38	164.1
9/18/2003	29	450	220	3.80E-06	70	23.99	308.0
9/26/03 [3]	37	232	220	3.80E-06	70	19.96	467.7
10/6/2003	37.1	91.7	218	3.80E-06	70	9.43	468.6
10/17/2003	48	106	218	3.80E-06	70	5.73	531.1
10/31/2003	62	14.0	217	3.80E-06	70	3.47	579.7
11/6/2003	68	16.0	217	3.80E-06	70	0.87	584.9
11/17/2003	79	4.82	217	3.80E-06	70	0.60	591.5
11/25/2003	87	24.2	217	3.80E-06	70	0.84	598.2
12/15/2003	107	7.90	220	3.80E-06	70	0.93	616.9

Notes:
[1]The governing equation used to estimate emissions for the SVE is as follows:
Uncontrolled emissions (lb/day) = Airflow (ft^3/min) * Concentration (ppm-v) * MW (lb/lb-mol)* 3.8E-06 (lb-mol min)/(ft^3 ppm-v day)
Where MW = compound molecular weight; gasoline is estimated at 70 lb/lb-mol at equilibrium in air.
Reference: Estimating Air Emissions from Petroleum UST Cleanups, U.S. EPA, Office of Underground Storage Tanks, July 1989
[2]Based on blower vacuum/air flow curves.
[3]The system was shutdown for carbon changeout on this date and restarted on 10/6/03.
GRPH = gasoline-range petroleum hydrocarbons
ppmv = parts per million-volume
cfm - cubic feet per minute





EXPLANATION:

- AS-3 ◔ AIR SPARGING WELL
- SAS-1 ● BIOSPARGE TREATMENT CURTAIN TRENCH AIR SPARGING WELL
- MP-1 ○ MULTIPURPOSE WELL (MONITORING OR REMEDIATION)
- MW-37 ● MONITORING WELL
- ———⊘ EXISTING VES WELL & APPROXIMATE LOCATION OF CONVEYANCE PIPING (PIPE HEADER)
- SHALLOW AIR SPARGE PIPING TRENCH (APPROXIMATELY 2.5' DEEP)
- BIOSPARGE TREATMENT CURTAIN TRENCH (APPROXIMATELY 18' DEEP)
- ------- BIOSPARGE TREATMENT CURTAIN TRENCH SHALLOW HORIZONTAL VAPOR EXTRACTION PIPING
- EXISTING CONCRETE PAVED AREA
- CB#1 ▨ CATCH BASIN

Notes:
1. The locations of all features shown are approximate.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.
3. The width of the biosparge treatment curtain trench is about 5 feet wide, but the upper few feet of the trench extend to widths of up to 16 feet wide in some locations due to sloughing during excavation.
4. Electrical conduits enter the western end of biosparge trench and connect to the electrical vault located along the southern edge of the biosparge trench. Conduits from the vault run to the service station building and the remedial system enclosure. Grout seal/vapor barriers are present at the western end to the biosparge trench, and where the conduits enter/exit the electrical vault. The locations of the electrical conduits are not shown.

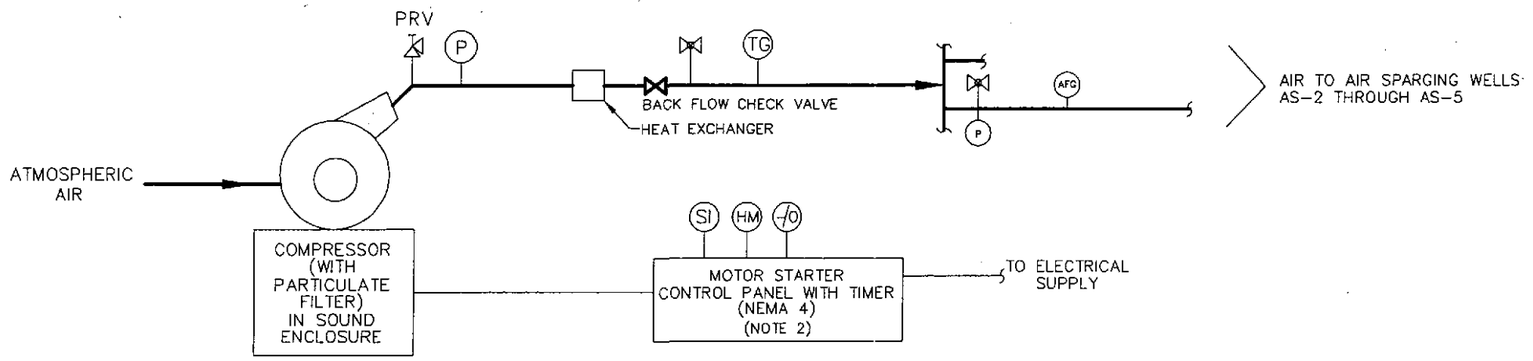
Reference: Drawing entitled "General Arrangement Service Station 5353 Westlake Ave. & Mercer St. Seattle, Washington" dated 10/28/87.

Utility Note: Public water and sewer mains are located beneath Westlake Avenue and/or Mercer Street. Public water or sewer mains are not known to exist beneath the site or adjacent sidewalks.

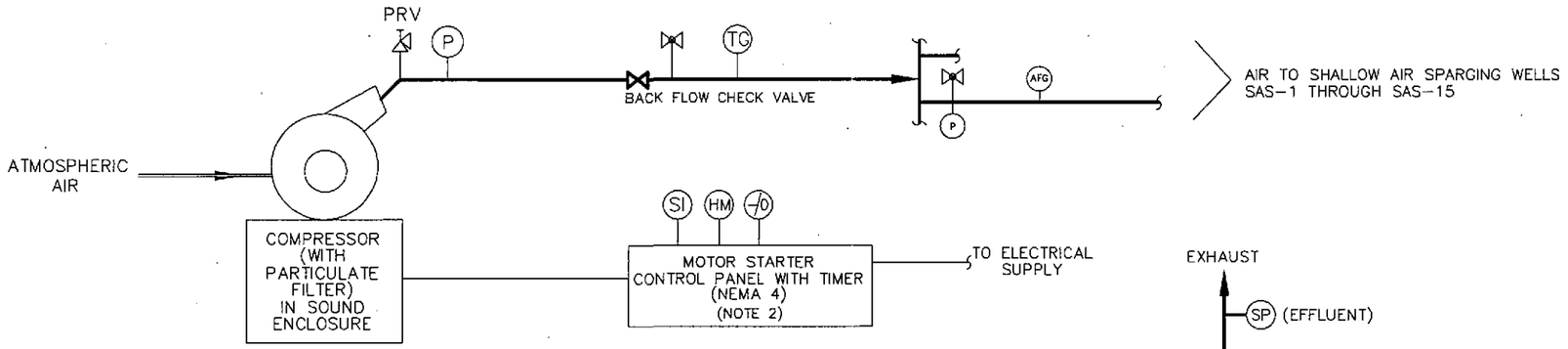
ConocoPhillips	PROJECT: Remediation System	TITLE: SITE PLAN
	FACILITY: Tosco Service Station 5353	
GeoEngineers Earth Science + Technology	Seattle, Washington	
	DATE: 01/20/04 REV.	FIGURE 1

SEAT\P:\CP\4823517\09\CAD\4823517709A.DWG BPP:HLA:AUB 01/20/04

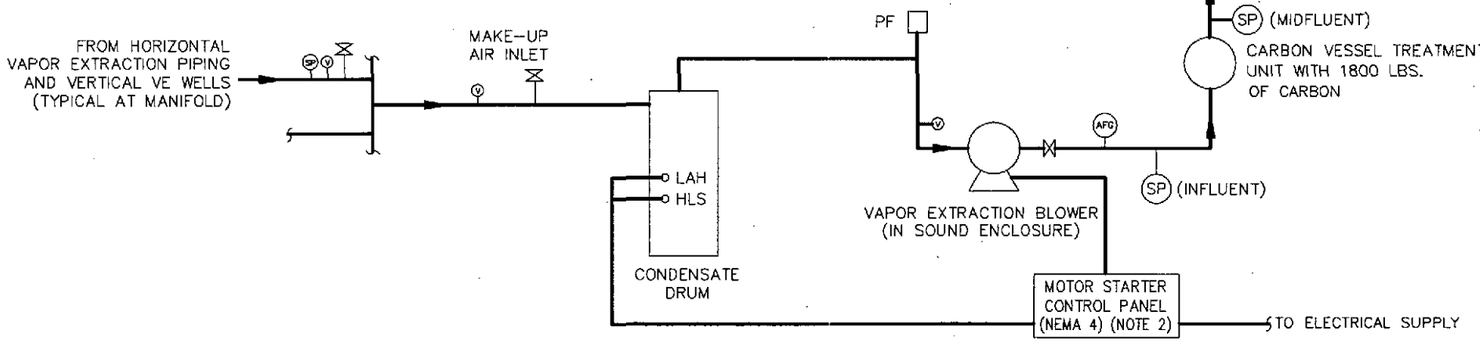
AS-2 THROUGH AS-5 AIR SPARGING SYSTEM



BIOSPARGE TREATMENT CURTAIN AIR SPARGING SYSTEM



VAPOR EXTRACTION SYSTEM



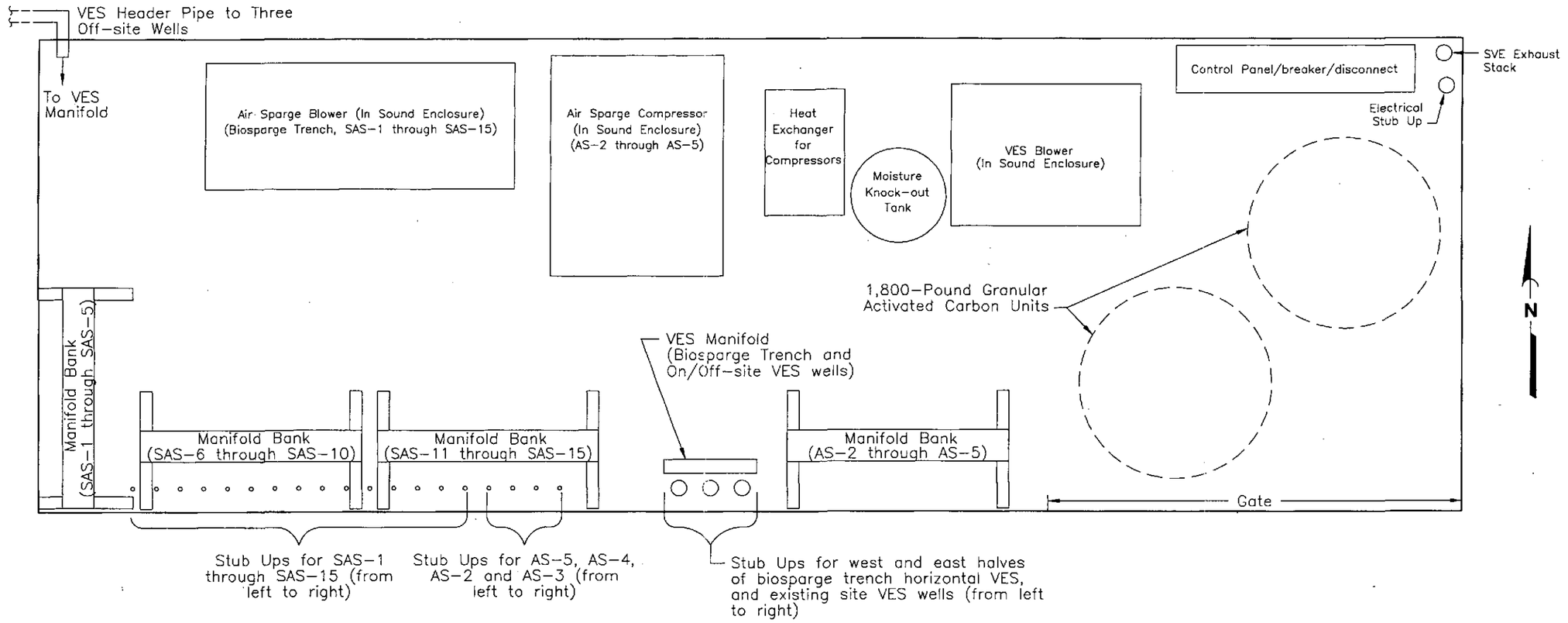
LEGEND

PF	=	PARTICULATE FILTER (100 MICRON)
SI	=	SERVICE INDICATOR GAUGE
HM	=	HOUR METER
-/0	=	ON/OFF LIGHT/ HAND/OFF/AUTO
TG	=	TEMPERATURE GAUGE
P	=	PRESSURE GAUGE
PRV	=	PRESSURE RELIEF VALVE
AFG	=	AIR FLOW GAUGE
	=	GATE VALVE
	=	BRASS GLOBE VALVE
SP	=	1/4" TAPPED SAMPLE PORT
V	=	VACUUM GAUGE
LAH	=	LEVEL ALARM FILTER
LLS	=	LOW LEVEL SWITCH
HLS	=	HIGH LEVEL SWITCH

Notes:
1. All electrical equipment and wiring UL approved and in compliance with NEC and local code requirements.
2. With fail-safe controls and shut downs.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

ConocoPhillips	PROJECT: Remediation System	TITLE: REMEDIATION SYSTEM PROCESS FLOW DIAGRAM
GeoEngineers Earth Science + Technology	FACILITY: Tosco Service Station 5353	
	Seattle, Washington	
	DATE: 01/15/04 REV.	FIGURE 2

SEAT\P:\CP\4823517\09\CAD\4823517098.DWG BPP:HLA 01/15/04



PLAN VIEW-SCHEMATIC LAYOUT, NEW REMEDIATION EQUIPMENT ENCLOSURE INTERIOR

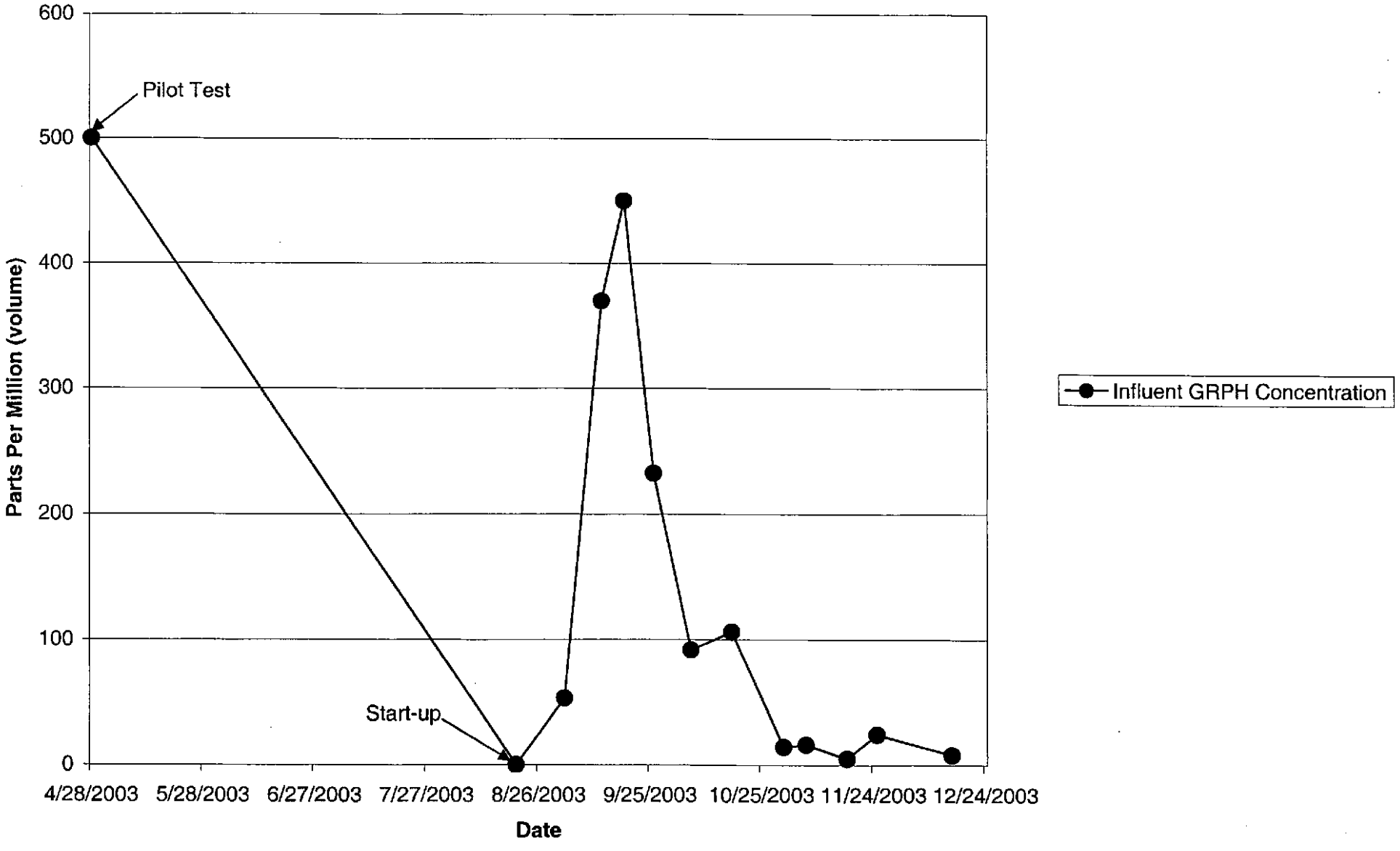
NOT TO SCALE

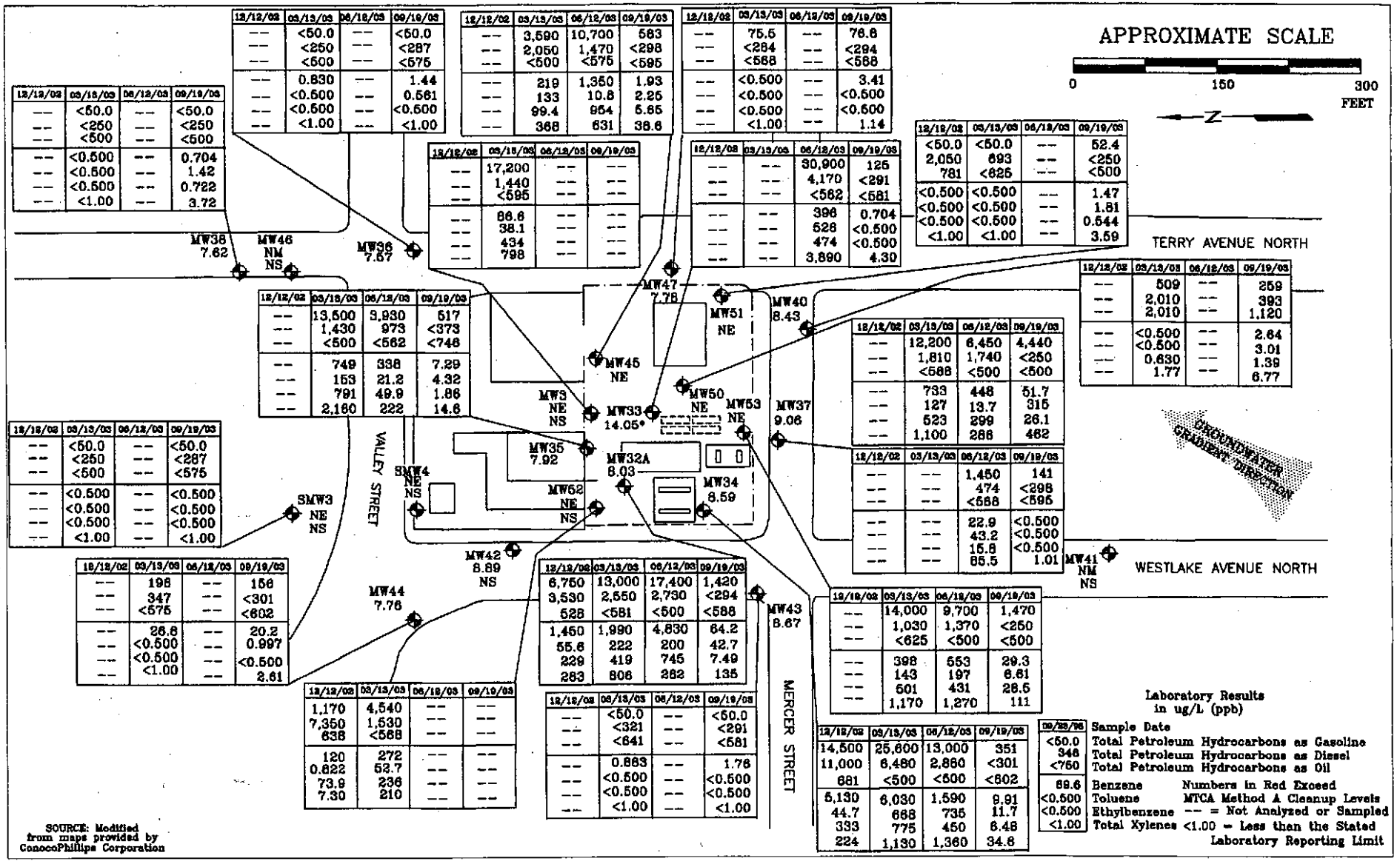
Notes 1. Conveyance piping between the piping stub ups and remediation equipment not shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

ConocoPhillips	PROJECT: Remediation System	TITLE: REMEDIATION EQUIPMENT ENCLOSURE
GeoEngineers Earth Science + Technology	FACILITY: Tosco Service Station 5353 Seattle, Washington	
	DATE: 01/15/04 REV.	FIGURE 3

SEAT\P:\CP\4823517\09\CAD\4823517O9C.DWG 01/15/04 BPP:HLA

FIGURE 4
INFLUENT VAPOR DATA
GASOLINE-RANGE PETROLEUM HYDROCARBONS (GRPH)





FN 31020.13

ERI ENVIRONMENTAL RESOLUTIONS, INC.

GROUNDWATER SAMPLE ANALYSIS MAP - 09/19/03

TOSCO SITE NO. 5353
600 Westlake Avenue North
Seattle, Washington

EXPLANATION

MW37	Groundwater Monitoring Well
9.70	Groundwater Elevation
NM	Not Measured
NE	Not Established
NS	Not Sampled
*	Data Not Used In Contouring

PROJECT NO. 31020

PLATE 1

YN: 10/09/03

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- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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E-mail to:samplereceiving@airtoxics.com

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0309027A

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-09 WL & M
DATE RECEIVED:	9/3/03	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/16/03		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	INFLUENT	Modified TO-3	0.4 psi
02A	Lab Blank	Modified TO-3	NA
03A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda A. Freeman DATE: 09/16/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309027A

One 1 Liter Summa Canister sample was received on September 03, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L.

See the data sheets for the reporting limits for TPH (Gasoline Range),

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.

Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: INFLUENT

ID#: 0309027A-01A

MODIFIED EPA METHOD TO-3

File Name:	6090310	Date of Collection:	9/2/03
Dil. Factor:	9.85	Date of Analysis:	9/3/03 02:25 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.25	1.0	53	220

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	107	75-150

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309027A-02A

MODIFIED EPA METHOD TO-3

File Name:	6090306	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 9/3/03 11:53 AM	

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	101	75-150

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309027A-03A

MODIFIED EPA METHOD TO-3

File Name:	6090303	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 9/3/03 10:07 AM	

Compound	%Recovery
TPH (Gasoline Range)	84

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	112	75-150

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FOLSOM, CA 95630-4719
(916) 985-1000 FAX: (916) 985-1020

Contact Person: BRIAN PETERKA
Company: GEO ENGINEERS
Address: 600 STEWERT ST. City: SEATTLE State: WA Zip: [illegible]
Phone: 206) 728-2674 FAX: 206) 728-2732
Collected By: Signature: [signature]

Project Info:
P.O. #
Project # 9423-517-09
Project Name: WLTM

Turn Around Time:
☒ Normal
☐ Rush ______ Specify

MVO 9/3/03

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum Initial	Final	Receipt
01A	INFLUENT	5-2-03 1245	TPH-G BY TO-3	14	0	0.4psi
—	MIDFLUENT	5-2-03 1230	" " "	28	1.5	1.5"Hg

Relinquished By: (Signature) Date/Time: [signature] 5-2-03 1400 — Received By: (Signature) Date/Time:

Relinquished By: (Signature) Date/Time: — Received By: (Signature) Date/Time:

Relinquished By: (Signature) Date/Time: — Received By: (Signature) Date/Time: [signature] AR 9/3/03 1000

Notes:
24 HR TAT ON
MIDFLUENT !!

Lab Use Only	Shipper Name	Air Bill #	Opened By:	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	UPS	1Z3AF9523 1000075	CA	—	Good	Yes No (None)	0309027A

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- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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E-mail to:samplereceiving@airtoxics.com

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0309027B

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-09 WL & M
DATE RECEIVED:	9/3/2003	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/4/2003		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
02A	MIDFLUENT	Modified TO-3	1.5 "Hg
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda A. Truman DATE: 09/04/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309027B

One 1 Liter Summa Canister sample was received on September 03, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for TPH (Gasoline Range).

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: MIDFLUENT

ID#: 0309027B-02A

MODIFIED EPA METHOD TO-3

File Name:	6090313	Date of Collection:	9/2/03
Dil. Factor:	2.13	Date of Analysis:	9/3/03 04:09 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.053	0.22	2.5	10

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309027B-03A

MODIFIED EPA METHOD TO-3

File Name:	6090306	**Date of Collection:**	NA
Dil. Factor:	1.00	**Date of Analysis:**	9/3/03 11:53 AM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	101	75-150

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309027B-04A

MODIFIED EPA METHOD TO-3

File Name:	6090303	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis:	9/3/03 10:07 AM

Compound	%Recovery
TPH (Gasoline Range)	84

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	112	75-150

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Contact Person: BRIAN DEFREA
Company: GEO ENGINEERS
Address: 600 STEWART ST. City: SEATTLE State: WA Zip: 98101
Phone: 206) 728-2674 FAX: 206) 728-2732
Collected By: (Signature) [signature]

Project Info:
P.O. #:
Project #: 4123-517-04
Project Name: WLTM

Turn Around Time:
☒ Normal
☐ Rush ____ Specify

MV 9/3/03

Lab I.D.	Field Sample I.D.	Date & Time	Analyses Requested	Canister Pressure / Vacuum: Initial	Final	Receipt
01	INFLUENT	9-2-03 1245	TPH-G BY TO-3	14	0	0.4
02A	MID FLUENT	9-2-03 1730	" " "	24	1.5	1.5

Relinquished By: (Signature) Date/Time: [signature] 9-2-03 1400
Received By: (Signature) Date/Time:
Relinquished By: (Signature) Date/Time:
Received By: (Signature) Date/Time:
Relinquished By: (Signature) Date/Time:
Received By: (Signature) Date/Time: [signature] 9/3/03 1000

Notes:
24 HR TAT ON
MID FLUENT

Lab Use Only	Shipper Name	Air Bill #	Opened By	Temp. (°C)	Condition	Custody Seals Intact?	Work Order #
	UPS	1234F9523 1000759	OA	—	Good	Yes No (None)	03090276

Form 1388 rev. 03

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E-mail to:samplereceiving@airtoxics.com

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WORK ORDER #: 0309279A

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-00 PHILLIPS WL+M
DATE RECEIVED:	9/16/03	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/27/03		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	INFLUENT 091203	Modified TO-3	0.4 psi
02A	Lab Blank	Modified TO-3	NA
03A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda J. Truman DATE: 09/27/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309279A

One 1 Liter Summa Canister sample was received on September 16, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
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Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

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Analytical Notes

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E - Exceeds instrument calibration range.
S - Saturated peak.

Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: INFLUENT 091203

ID#: 0309279A-01A

MODIFIED EPA METHOD TO-3

File Name:	6092217	Date of Collection:	9/12/03
Dil. Factor:	49.2	Date of Analysis:	9/22/03 06:53 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.049	0.16	3.5	11
Toluene	0.049	0.19	2.3	8.9
Ethyl Benzene	0.049	0.22	0.32	1.4
Total Xylenes	0.049	0.22	5.1	22
TPH (Gasoline Range)	1.2	5.1	370	1500
Methyl tert-butyl ether	0.049	0.18	2.1	7.9

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	116	75-150
Fluorobenzene (PID)	97	75-125

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309279A-02A

MODIFIED EPA METHOD TO-3

File Name:	6092203	Date of Collection:	NA
Dil Factor:	1.00	Date of Analysis:	9/22/03 09:49 AM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected
Methyl tert-butyl ether	0.0010	0.0037	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	99	75-150
Fluorobenzene (PID)	88	75-125

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309279A-03A

MODIFIED EPA METHOD TO-3

File Name:	6092220b	Date of Collection: NA	
Dil Factor:	1.00	Date of Analysis: 9/22/03 08:41 PM	

Compound	%Recovery
Benzene	87
Toluene	88
Ethyl Benzene	87
Total Xylenes	84
TPH (Gasoline Range)	103
Methyl tert-butyl ether	85

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	113	75-150
Fluorobenzene (PID)	89	75-125

0309279

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 9-12-03
PAGE 1 OF 1
LAB AIR TOXICS
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLTM
PROJECT NUMBER 4823-517-00
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOTT OVERSTREET

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TO-3	(Preserved, filtered, etc.)
01A	IN FLIGHT 0815	9-12-03	1335	A	1	X	NORMAL TAT mcg/m3
02A	MID FLIGHT 0815	9-12-03	1330	A	1	X	TPH 0.406
							TPH 0.2 PSI

CUSTODY SEAL INTACT? Y N NONE

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEC	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOTT OVERSTREET	PRINTED NAME		PRINTED NAME	
DATE 9-12-03	TIME 1730	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM ATL	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME	Salvador	PRINTED NAME		PRINTED NAME	
DATE 9/10/03	TIME 1025	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

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- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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E-mail to:samplereceiving@airtoxics.com

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0309279B

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-00 PHILLIPS WL+M
DATE RECEIVED:	9/16/03	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/26/03		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
02A	MIDFLUENT 091203	Modified TO-3	0.2 psi
02AA	MIDFLUENT 091203 Duplicate	Modified TO-3	0.2 psi
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda A. Truman DATE: 09/26/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309279B

One 1 Liter Summa Canister sample was received on September 16, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The detection of Benzene may have been masked in samples MIDFLUENT 091203 and MIDFLUENT 091203 Duplicate due to complex hydrocarbon interference.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.

S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: MIDFLUENT 091203

ID#: 0309279B-02A

MODIFIED EPA METHOD TO-3

File Name:	6092218	Date of Collection:	9/12/03
Dil. Factor:	19.9	Date of Analysis:	9/22/03 07:27 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.020	0.065	Not Detected	Not Detected
Toluene	0.020	0.076	Not Detected	Not Detected
Ethyl Benzene	0.020	0.088	Not Detected	Not Detected
Total Xylenes	0.020	0.088	Not Detected	Not Detected
TPH (Gasoline Range)	0.50	2.1	180	770
Methyl tert-butyl ether	0.020	0.073	1.1	4.1

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-150
Fluorobenzene (PID)	91	75-125

AIR TOXICS LTD.

SAMPLE NAME: MIDFLUENT 091203 Duplicate

ID#: 0309279B-02AA

MODIFIED EPA METHOD TO-3

File Name:	6092219	Date of Collection:	9/12/03
Dil. Factor:	19.9	Date of Analysis:	9/22/03 06:07 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.020	0.065	Not Detected	Not Detected
Toluene	0.020	0.076	Not Detected	Not Detected
Ethyl Benzene	0.020	0.088	Not Detected	Not Detected
Total Xylenes	0.020	0.088	Not Detected	Not Detected
TPH (Gasoline Range)	0.50	2.1	180	760
Methyl tert-butyl ether	0.020	0.073	1.1	4.2

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-150
Fluorobenzene (PID)	91	75-125

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309279B-03A

MODIFIED EPA METHOD TO-3

File Name:	6092203	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis:	9/22/03 09:49 AM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected
Methyl tert-butyl ether	0.0010	0.0037	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	99	75-150
Fluorobenzene (PID)	88	75-125

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309279B-04A

MODIFIED EPA METHOD TO-3

File Name:	6092220b	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis: 9/22/03 08:41 PM	

Compound	%Recovery
Benzene	87
Toluene	88
Ethyl Benzene	87
Total Xylenes	84
TPH (Gasoline Range)	103
Methyl tert-butyl ether	85

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	113	75-150
Fluorobenzene (PID)	89	75-125

0309279B

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
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EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 9-12-03
PAGE 1 OF 1
LAB AIR TOXIC
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLTM
PROJECT NUMBER 4823-517-00
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOT OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TO-3	NORMAL TAT
01A	INFLUENT 091203	9-12-03	1335	A	1	X	TPH 0.4psi
02A	MID EFFLUENT 091203	9-12-03	1330	A	1	X	TPH 0.2psi

CUSTODY SEAL INTACT? Y N NONE TEMP NA

RELINQUISHED BY	RELINQUISHED BY	RELINQUISHED BY
FIRM GEI	FIRM	FIRM
SIGNATURE [signature]	SIGNATURE	SIGNATURE
PRINTED NAME Scot Overdick	PRINTED NAME	PRINTED NAME
DATE 9-12-03 TIME 1730	DATE TIME	DATE TIME

RECEIVED BY	RECEIVED BY	RECEIVED BY
FIRM ATL	FIRM	FIRM
SIGNATURE [signature] ATL	SIGNATURE	SIGNATURE
PRINTED NAME Solorzano	PRINTED NAME	PRINTED NAME
DATE 9/15/03 TIME 1015	DATE TIME	DATE TIME

ADDITIONAL COMMENTS:

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- Work order Summary;
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WORK ORDER #: 0309414B

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-09 Phillips WL&M
DATE RECEIVED:	9/22/03	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/26/03		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
02A	Midfluent	Modified TO-3	0.2 psi
03A	Lab Blank	Modified TO-3	NA
04A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda A. Truman DATE: 09/26/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309414B

One 1 Liter Summa Canister sample was received on September 22, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.

Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: Midfluent

ID#: 0309414B-02A

MODIFIED EPA METHOD TO-3

File Name:	6092308	Date of Collection:	9/18/03
Dil. Factor:	39.8	Date of Analysis:	9/23/03 05:27 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.040	0.13	0.20 M	0.65 M
Toluene	0.040	0.15	Not Detected	Not Detected
Ethyl Benzene	0.040	0.18	Not Detected	Not Detected
Total Xylenes	0.040	0.18	Not Detected	Not Detected
TPH (Gasoline Range)	1.0	4.1	230	970
Methyl tert-butyl ether	0.040	0.14	4.1	15

M = Reported value may be biased due to apparent matrix interferences.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-150
Fluorobenzene (PID)	89	75-125

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309414B-03A

MODIFIED EPA METHOD TO-3

File Name:	6092303	Date of Collection: NA	
Dil. Factor:	1.00	Date of Analysis:	9/23/03 01:58 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected
Methyl tert-butyl ether	0.0010	0.0037	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	98	75-150
Fluorobenzene (PID)	87	75-125

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309414B-04A

MODIFIED EPA METHOD TO-3

File Name:	6092317b	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/24/03 02:40 AM

Compound	%Recovery
Benzene	85
Toluene	84
Ethyl Benzene	81
Total Xylenes	77
TPH (Gasoline Range)	97
Methyl tert-butyl ether	82

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	111	75-150
Fluorobenzene (PID)	89	75-125

0309414B

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 5-19-03
PAGE 1 OF 1
LAB [redacted]
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLYM
PROJECT NUMBER 4823-317-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SUE OLEKDIK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TO-15-TPH	(Preserved, filtered, etc.)
							NORMAL TAT per 9/23/03
01A	INFLUENT	5-15-03	1310	A	1	XX	0.2 psi
02A	MIDFLUENT	5-15-03	1315	A	1	X	0.2 psi

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEL	SIGNATURE		SIGNATURE	
PRINTED NAME	SUE OLEKDIK	PRINTED NAME		PRINTED NAME	
DATE 5-19-03	TIME 0500	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM	RECEIVED BY	FIRM	RECEIVED BY	FIRM AL
SIGNATURE		SIGNATURE		SIGNATURE	Ronald Thomas
PRINTED NAME		PRINTED NAME		PRINTED NAME	L. THOMAS
DATE	TIME	DATE	TIME	DATE 9/22/03	TIME 1005

ADDITIONAL COMMENTS:

[redacted]

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- Work order Summary;
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- Chain of Custody (copy).

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E-mail to:samplereceiving@airtoxics.com

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0309414A

Work Order Summary

CLIENT:	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101	**BILL TO:**	Mr. Brian Peterka GeoEngineers, Inc. 600 Stewart Street, Suite 1420 Seattle, WA 98101
PHONE:	206-239-3230	**P.O. #**	
FAX:	206-728-2732	**PROJECT #**	4823-517-09 Phillips WL&M
DATE RECEIVED:	9/22/03	**CONTACT:**	Karen Perez
DATE COMPLETED:	9/27/03		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	Influent	Modified TO-3	0.2 psi
02A	Lab Blank	Modified TO-3	NA
03A	LCS	Modified TO-3	NA

CERTIFIED BY: Linda J. Furman DATE: 09/27/03

Laboratory Director

Certfication numbers: AR DEQ, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/03, Expiration date: 06/30/04
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified TO-3
GeoEngineers, Inc.
Workorder# 0309414A

One 1 Liter Summa Canister sample was received on September 22, 2003. The laboratory performed analysis for volatile organic compounds in air via modified EPA Method TO-3 using gas chromatography with photo ionization and flame ionization detection. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. The TPH (Gasoline Range) results are calculated using the response factor of Gasoline and correspond to the range of hydrocarbons from C5 to C10. A molecular weight of 100 is used to convert the TPH (Gasoline Range) ppmv result to ug/L. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

Requirement	*TO-3*	*ATL Modifications*
Daily Calibration Standard Frequency	Prior to sample analysis and every 4 - 6 hrs	Prior to sample analysis and after the analytical batch </= 20 samples
Initial Calibration Calculation	4-point calibration using a linear regression model	5-point calibration using average Response Factor
Initial Calibration Frequency	Weekly	When daily calibration standard recovery is outside 75 - 125 %, or upon significant changes to procedure or instrumentation
Moisture Control	Nafion system	Sorbent system
Minimum Detection Limit (MDL)	Calculated using the equation DL = A+3.3S, where A is intercept of calibration line and S is the standard deviation of at least 3 reps of low level standard	40 CFR Pt. 136 App. B
Preparation of Standards	Levels achieved through dilution of gas mixture	Levels achieved through loading various volumes of the gas mixture

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.

Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

SAMPLE NAME: Influent

ID#: 0309414A-01A

MODIFIED EPA METHOD TO-3

File Name:	6092309	Date of Collection:	9/18/03
Dil. Factor:	56.8	Date of Analysis:	9/23/03 06:44 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.057	0.18	3.5 M	11 M
Toluene	0.057	0.22	3.2	12
Ethyl Benzene	0.057	0.25	0.33	1.4
Total Xylenes	0.057	0.25	7.7	34
TPH (Gasoline Range)	1.4	5.9	450	1800
Methyl tert-butyl ether	0.057	0.21	2.5	9.1

M = Reported value may be biased due to apparent matrix interferences.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	119	75-150
Fluorobenzene (PID)	99	75-125

AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0309414A-02A

MODIFIED EPA METHOD TO-3

File Name:	6092303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/23/03 01:58 PM

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
Benzene	0.0010	0.0032	Not Detected	Not Detected
Toluene	0.0010	0.0038	Not Detected	Not Detected
Ethyl Benzene	0.0010	0.0044	Not Detected	Not Detected
Total Xylenes	0.0010	0.0044	Not Detected	Not Detected
TPH (Gasoline Range)	0.025	0.10	Not Detected	Not Detected
Methyl tert-butyl ether	0.0010	0.0037	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	98	75-150
Fluorobenzene (PID)	87	75-125

AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0309414A-03A

MODIFIED EPA METHOD TO-3

File Name:	6092317b	**Date of Collection:**	NA
Dil. Factor:	1.00	**Date of Analysis:**	9/24/03 02:40 AM

Compound	%Recovery
Benzene	85
Toluene	84
Ethyl Benzene	81
Total Xylenes	77
TPH (Gasoline Range)	97
Methyl tert-butyl ether	82

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	111	75-150
Fluorobenzene (PID)	89	75-125

0309414 A

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 5-15-03
PAGE 1 OF 1
LAB
LAB NO.

PROJECT NAME/LOCATION Phillips Wlym
PROJECT NUMBER 4823-517-09
PROJECT MANAGER Brian Peterka
SAMPLED BY Scot Overdick

SAMPLE IDENTIFICATION LAB	GEOENGINEERS	SAMPLE COLLECTION DATE	TIME	MATRIX	# OF JARS	ANALYSIS REQUIRED: TO-3 TPH	NOTES/COMMENTS (Preserved, filtered, etc.) Normal TAT mo 9/23/3
01A	INFLUENT	9-15-03	1310	A	1	X	0.2 psi
02A	MIDFLUENT	9-15-03	1315	A	1	X	0.2 psi

RELINQUISHED BY	RELINQUISHED BY	RELINQUISHED BY
SIGNATURE [signature] FIRM GEI	SIGNATURE FIRM	SIGNATURE FIRM
PRINTED NAME Scot Overdick	PRINTED NAME	PRINTED NAME
DATE 5-15-03 TIME 0900	DATE TIME	DATE TIME
RECEIVED BY	RECEIVED BY	RECEIVED BY
SIGNATURE FIRM	SIGNATURE FIRM	SIGNATURE [signature] FIRM AT
PRINTED NAME	PRINTED NAME	PRINTED NAME L THOMAS
DATE TIME	DATE TIME	DATE 9/22/03 TIME 1005

ADDITIONAL COMMENTS:

CUSTODY SEAL INTACT: Y N NONE TEMP

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

29 September 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101
RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 09/26/03 15:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

www.ncalabs.com

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/29/03 15:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EFF092603	B3I0752-01	Air	09/26/03 13:40	09/26/03 15:15

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.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/29/03 15:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EFF092603 (B3I0752-01) Air Sampled: 09/26/03 13:40 Received: 09/26/03 15:15									
Gasoline Range Hydrocarbons	**31.4**	10.0	mg/m³ Air	1	3I28007	09/28/03	09/28/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*87.9 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**7.40**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/29/03 15:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I28007: Prepared 09/28/03 Using EPA 5030B (P/T)										
Blank (3I28007-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.69*		*mg/m³ Air*	*9.60*		*90.5*	*65-132*			
Surrogate: 4-BFB (PID)	*10.1*		*"*	*9.60*		*105*	*75-136*			
LCS (3I28007-BS1)										
Gasoline Range Hydrocarbons	78.1	10.0	mg/m³ Air	100		78.1	50-150			
Surrogate: 4-BFB (FID)	*9.97*		*"*	*9.60*		*104*	*65-132*			
LCS (3I28007-BS2)										
Benzene	1.73	0.100	mg/m³ Air	2.00		86.5	50-150			
Toluene	1.70	0.100	"	2.00		85.0	50-150			
Ethylbenzene	1.64	0.100	"	1.96		83.7	50-150			
Xylenes (total)	5.27	0.200	"	6.00		87.8	50-150			
Surrogate: 4-BFB (PID)	*10.6*		*"*	*9.60*		*110*	*75-136*			
LCS Dup (3I28007-BSD1)										
Gasoline Range Hydrocarbons	67.1	10.0	mg/m³ Air	100		67.1	50-150	15.2	50	
Surrogate: 4-BFB (FID)	*9.83*		*"*	*9.60*		*102*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/29/03 15:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I28007: Prepared 09/28/03 Using EPA 5030B (P/T)										
LCS Dup (3I28007-BSD2)										
Benzene	1.60	0.100	mg/m³ Air	2.00		80.0	50-150	7.81	50	
Toluene	1.59	0.100	"	2.00		79.5	50-150	6.69	50	
Ethylbenzene	1.52	0.100	"	1.96		77.6	50-150	7.59	50	
Xylenes (total)	4.88	0.200	"	6.00		81.3	50-150	7.68	50	
Surrogate: 4-BFB (PID)	*10.6*		"	*9.60*		*110*	*75-136*			
Duplicate (3I28007-DUP1)					**Source: B3I0759-02**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		1.69			7.41	30	
Surrogate: 4-BFB (FID)	*6.66*		"	*9.60*		*69.4*	*65-132*			
Duplicate (3I28007-DUP2)					**Source: B3I0760-01**					
Gasoline Range Hydrocarbons	273	10.0	mg/m³ Air		278			1.81	30	
Surrogate: 4-BFB (FID)	*10.8*		"	*9.60*		*112*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/29/03 15:38

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

Jeff Gerdes, Project Manager

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.

B3I0757

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

Geo Engineers

DATE 9-26-03
PAGE 1 OF
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WC4M
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY Scott Overstreet

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TPH-G	
01	EFF092603	9-26-03	1340	A	1	X	24 HR TAT

20.1°C

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEL	SIGNATURE		SIGNATURE	
PRINTED NAME	Scott Overstreet	PRINTED NAME		PRINTED NAME	
DATE 9-26-03	TIME 1515	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM NCA	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE	Colette Weaver	SIGNATURE		SIGNATURE	
PRINTED NAME	Colette Weaver	PRINTED NAME		PRINTED NAME	
DATE 9-26-03	TIME 15	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

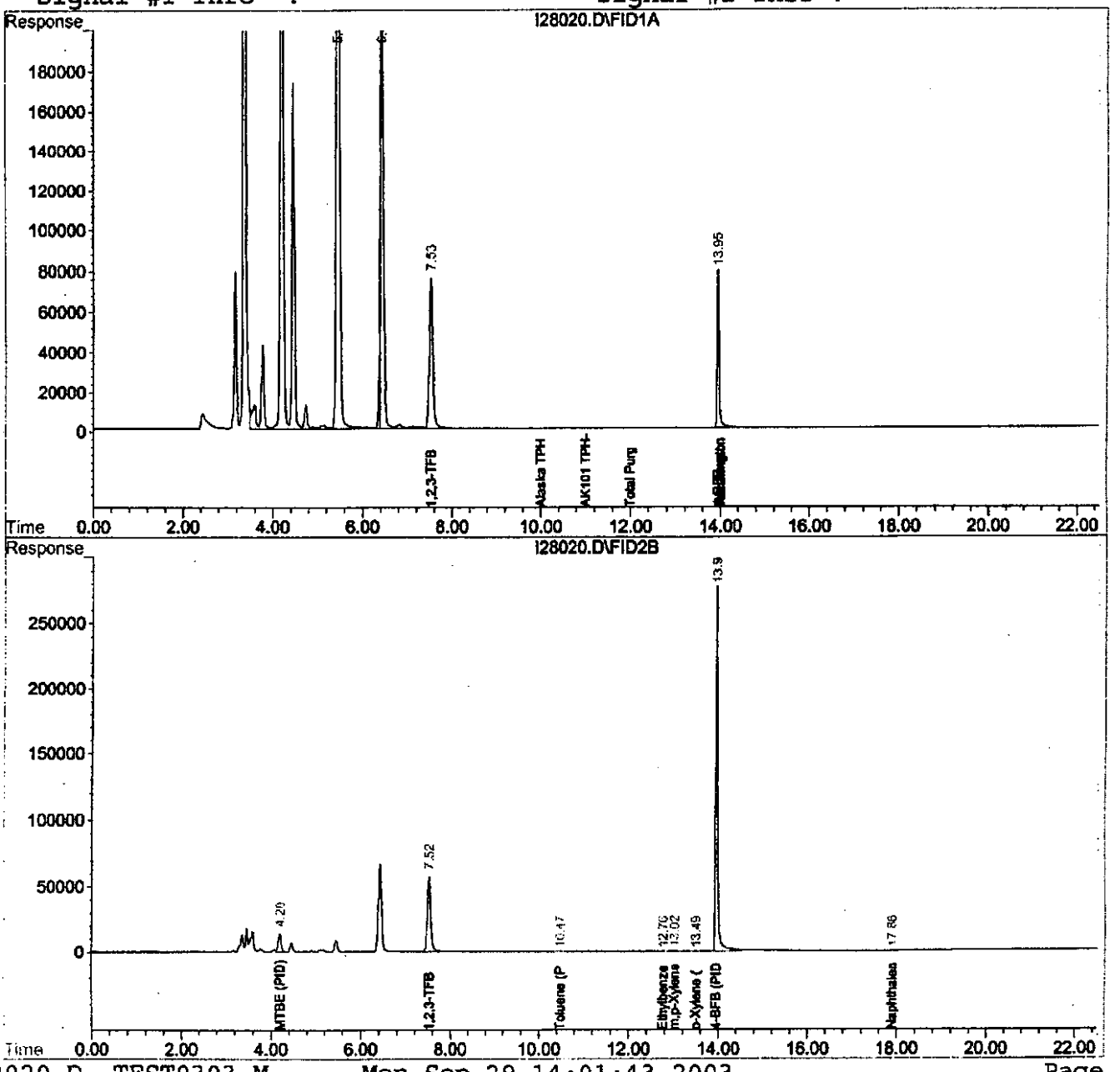
FAX RESULTS ASAP TO BRIAN PETERKA IN SEATTLE OFFICE

Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\092803\I28020.D\FID1A.CH Vial: 20
Signal #2 : D:\HPCHEM\2\DATA\092803\I28020.D\FID2B.CH
Acq On : 28 Sep 2003 17:01 Operator: bd
Sample : B3I0752-01 Inst : GC #12
Misc : 1x 25mL, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Sep 29 13:59 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Sep 29 13:49:03 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

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



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30 September 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 09/26/03 15:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

www.ncalabs.com

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907.563.9200 fax 907.563.9210

Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/30/03 15:14

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF 092603	B3I0751-01	Air	09/26/03 13:30	09/26/03 15:15
MID 092603	B3I0751-02	Air	09/26/03 13:35	09/26/03 15:15

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/30/03 15:14

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF 092603 (B3I0751-01) Air Sampled: 09/26/03 13:30 Received: 09/26/03 15:15									
Gasoline Range Hydrocarbons	**986**	50.0	mg/m³ Air	5	3I28007	09/28/03	09/28/03	NWTPH Modified	
Benzene	**3.92**	0.500	"	"	"	"	"	"	I-06
Toluene	**2.42**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**1.54**	0.500	"	"	"	"	"	"	
Xylenes (total)	**19.1**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*117 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*109 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**232**	11.8	ppmv	5	"	"	"	"	
Benzene (v/v)	**1.21**	0.154	"	"	"	"	"	"	I-06
Toluene (v/v)	**0.631**	0.130	"	"	"	"	"	"	I-06
Ethylbenzene (v/v)	**0.349**	0.114	"	"	"	"	"	"	
Xylenes, total (v/v)	**4.33**	0.227	"	"	"	"	"	"	
N[illegible]092603 (B3I0751-02) Air Sampled: 09/26/03 13:35 Received: 09/26/03 15:15									
Gasoline Range Hydrocarbons	**414**	25.0	mg/m³ Air	2.5	3I28007	09/28/03	09/28/03	NWTPH Modified	
Benzene	**2.65**	0.250	"	"	"	"	"	"	I-06
Toluene	ND	0.250	"	"	"	"	"	"	
Ethylbenzene	ND	0.250	"	"	"	"	"	"	
Xylenes (total)	ND	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.4 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**97.5**	5.90	ppmv	2.5	"	"	"	"	
Benzene (v/v)	**0.817**	0.0770	"	"	"	"	"	"	I-06
Toluene (v/v)	ND	0.0652	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0568	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.114	"	"	"	"	"	"	

N[illegible]h Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/30/03 15:14

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I28007: Prepared 09/28/03 Using EPA 5030B (P/T)										
Blank (3I28007-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.69*		*mg/m³ Air*	*9.60*		*90.5*	*65-132*			
Surrogate: 4-BFB (PID)	*10.1*		*"*	*9.60*		*105*	*75-136*			
LCS (3I28007-BS1)										
Gasoline Range Hydrocarbons	78.1	10.0	mg/m³ Air	100		78.1	50-150			
Surrogate: 4-BFB (FID)	*9.97*		*"*	*9.60*		*104*	*65-132*			
LCS (3I28007-BS2)										
Benzene	1.73	0.100	mg/m³ Air	2.00		86.5	50-150			
Toluene	1.70	0.100	"	2.00		85.0	50-150			
Ethylbenzene	1.64	0.100	"	1.96		83.7	50-150			
Xylenes (total)	5.27	0.200	"	6.00		87.8	50-150			
Surrogate: 4-BFB (PID)	*10.6*		*"*	*9.60*		*110*	*75-136*			
LCS Dup (3I28007-BSD1)										
Gasoline Range Hydrocarbons	67.1	10.0	mg/m³ Air	100		67.1	50-150	15.2	50	
Surrogate: 4-BFB (FID)	*9.83*		*"*	*9.60*		*102*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/30/03 15:14

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3I28007: Prepared 09/28/03 Using EPA 5030B (P/T)										
LCS Dup (3I28007-BSD2)										
Benzene	1.60	0.100	mg/m³ Air	2.00		80.0	50-150	7.81	50	
Toluene	1.59	0.100	"	2.00		79.5	50-150	6.69	50	
Ethylbenzene	1.52	0.100	"	1.96		77.6	50-150	7.59	50	
Xylenes (total)	4.88	0.200	"	6.00		81.3	50-150	7.68	50	
Surrogate: 4-BFB (PID)	*10.6*		"	*9.60*		*110*	*75-136*			
Duplicate (3I28007-DUP1)					**Source: B3I0759-02**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		1.69			7.41	30	
Surrogate: 4-BFB (FID)	*6.66*		"	*9.60*		*69.4*	*65-132*			
Duplicate (3I28007-DUP2)					**Source: B3I0760-01**					
Gasoline Range Hydrocarbons	273	10.0	mg/m³ Air		278			1.81	30	
Surrogate: 4-BFB (FID)	*10.8*		"	*9.60*		*112*	*65-132*			

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	09/30/03 15:14

Notes and Definitions

I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

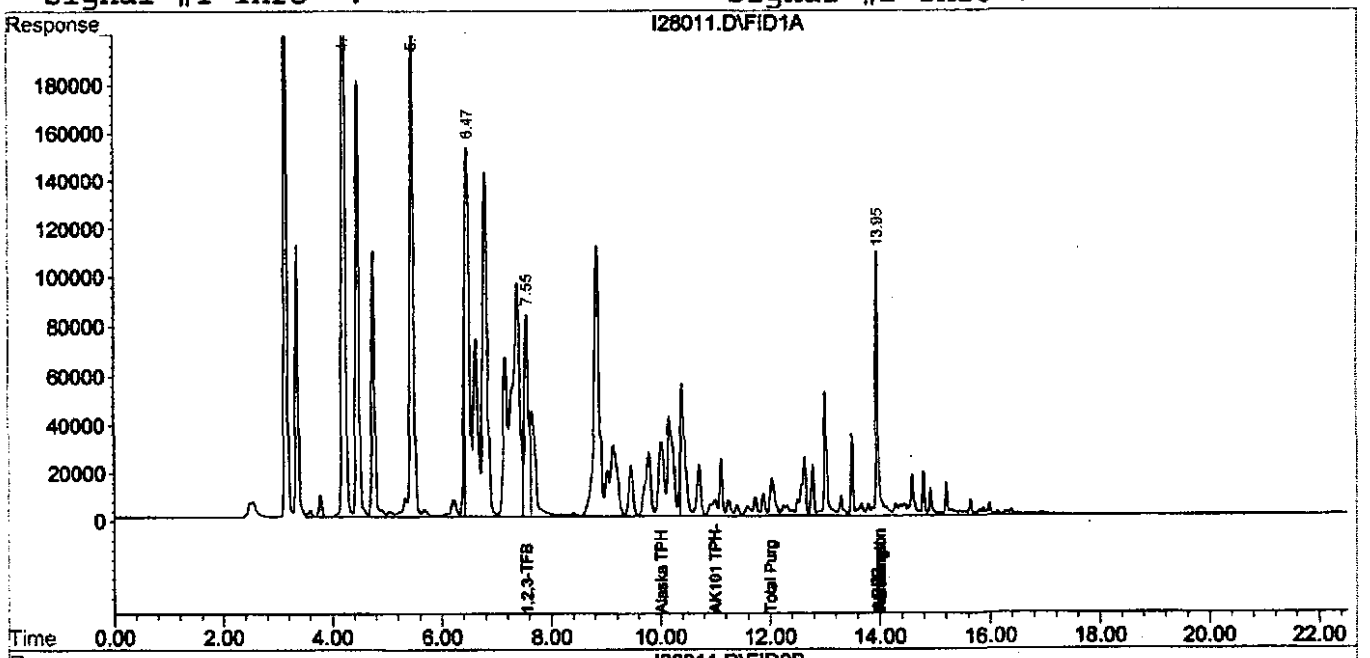
Jeff Gerdes, Project Manager

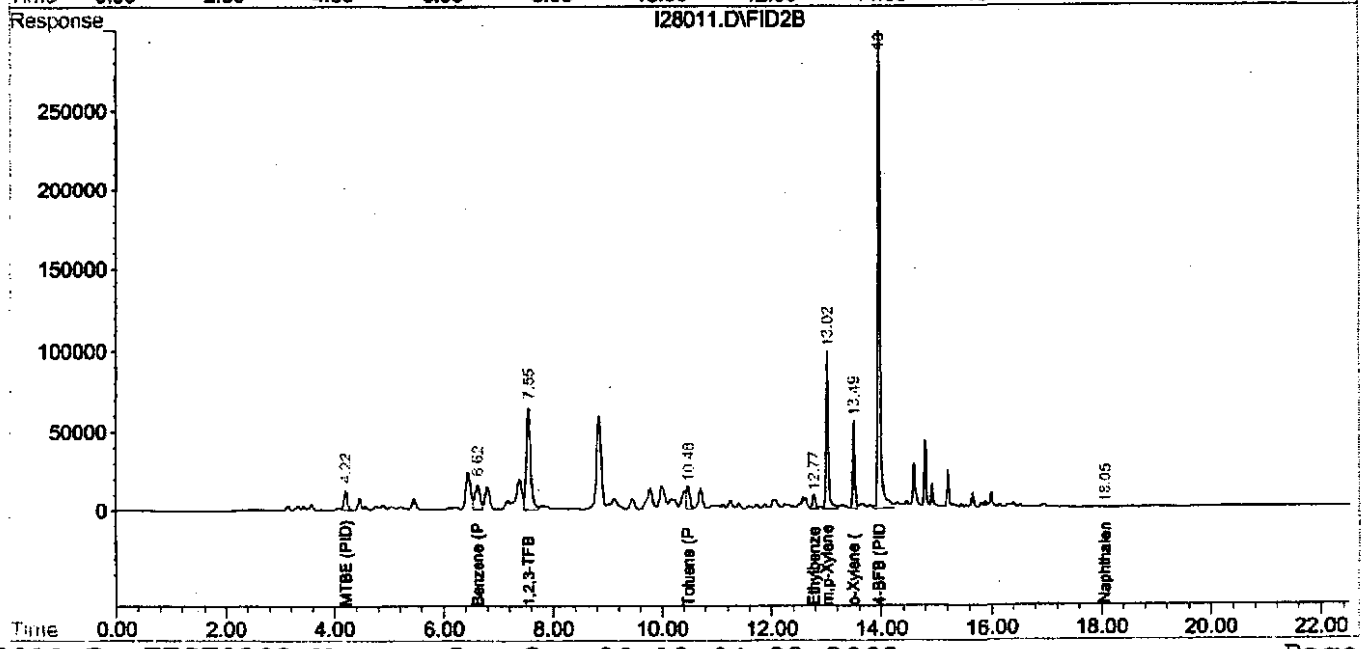
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\092803\I28011.D\FID1A.CH Vial: 11
Signal #2 : D:\HPCHEM\2\DATA\092803\I28011.D\FID2B.CH
Acq On : 28 Sep 2003 12:41 Operator: bd
Sample : B3I0751-01 Inst : GC #12
Misc : 5x 5mL, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Sep 28 13:04 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Sat Sep 27 10:26:58 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

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



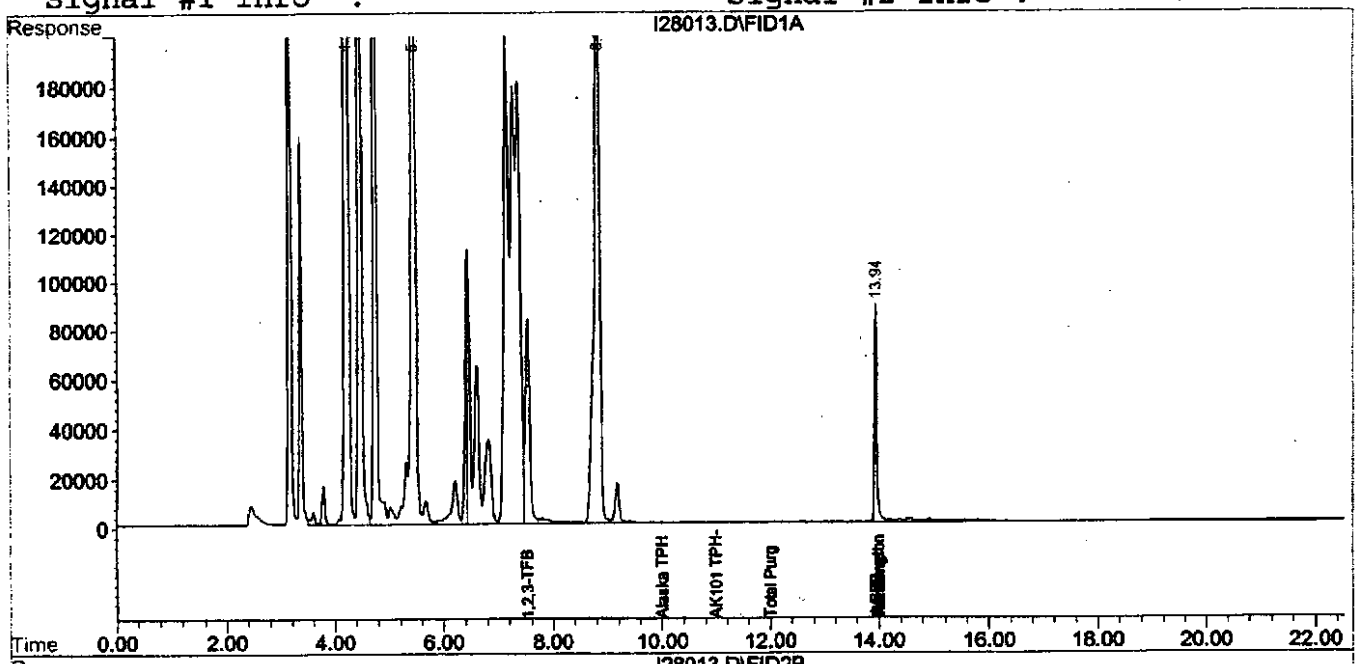


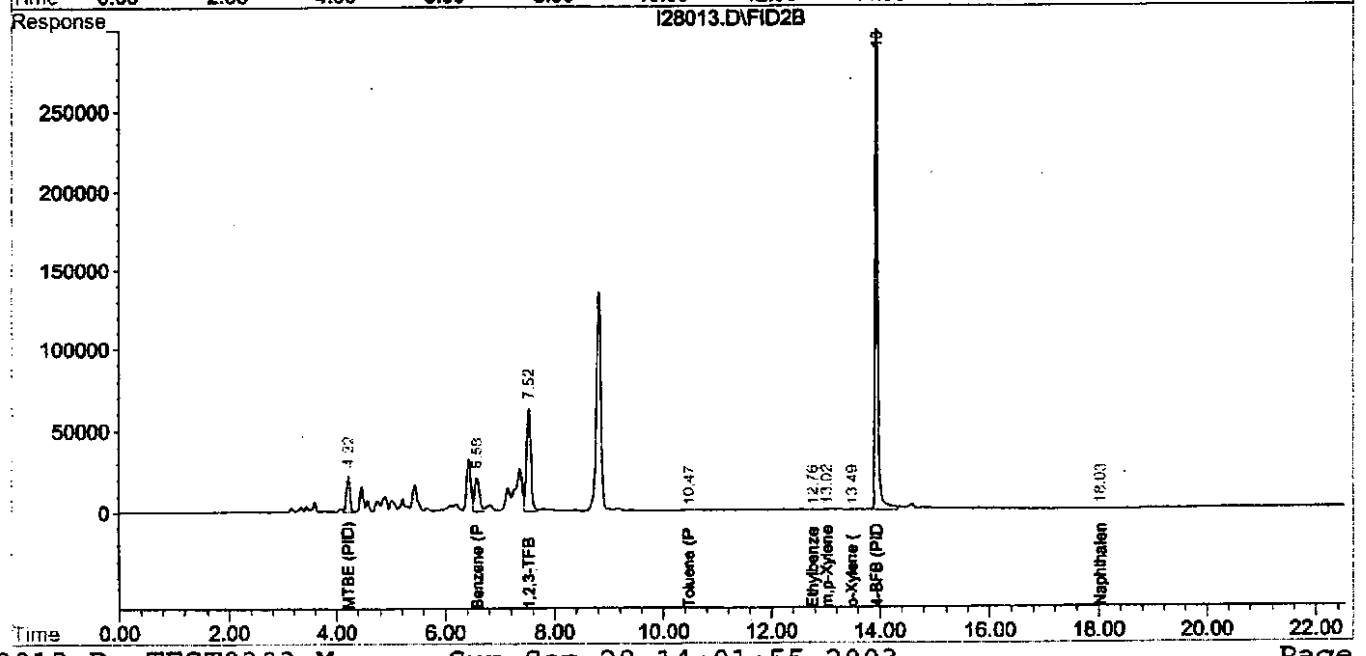
Quantitation Report

Signal #1 : D:\HPCHEM\2\DATA\092803\I28013.D\FID1A.CH Vial: 13
Signal #2 : D:\HPCHEM\2\DATA\092803\I28013.D\FID2B.CH
Acq On : 28 Sep 2003 13:39 Operator: bd
Sample : B3I0751-02 Inst : GC #12
Misc : 2.5x 10mL, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: autoint2.e
Quant Time: Sep 28 14:01 2003 Quant Results File: TEST0303.RES

Quant Method : D:\HPCHEM\2\METHODS\TEST0303.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Sat Sep 27 10:26:58 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0303.M

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





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CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 9-26-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WCTM
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOTT QUERDALE

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TPH-G	(Preserved, filtered, etc.)
	JWF092603	9-26-03	1330	A	1	X	01
	MID 092603	"	1335	A	1	X	02
							72 HR TAT
							21.0°C

RELINQUISHED BY	FIRM GeoE	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME SCOTT QUERDALE		PRINTED NAME		PRINTED NAME	
DATE 9-26-03	TIME 1515	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM NCA**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE Colette Weaver		SIGNATURE		SIGNATURE	
PRINTED NAME Colette Weaver		PRINTED NAME		PRINTED NAME	
DATE 9.26.03	TIME 1515	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

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10 October 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 10/06/03 16:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/10/03 10:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF100603	B3J0169-01	Air	10/06/03 14:00	10/06/03 16:15
MIDFLU100603	B3J0169-02	Air	10/06/03 14:05	10/06/03 16:15

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/10/03 10:22

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF100603 (B3J0169-01) Air Sampled: 10/06/03 14:00 Received: 10/06/03 16:15									
Gasoline Range Hydrocarbons	**389**	10.0	mg/m³ Air	1	3J09002	10/09/03	10/09/03	NWTPH Modified	
Benzene	**2.63**	0.100	"	"	"	"	"	"	I-06
Toluene	**0.187**	0.100	"	"	"	"	"	"	I-06
Ethylbenzene	**0.674**	0.100	"	"	"	"	"	"	
Xylenes (total)	**3.14**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*129 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**91.7**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.812**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0489**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.153**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.712**	0.0454	"	"	"	"	"	"	
FLU100603 (B3J0169-02) Air Sampled: 10/06/03 14:05 Received: 10/06/03 16:15									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3J09002	10/09/03	10/09/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*87.5 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*122 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/10/03 10:22

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3J09002: Prepared 10/09/03 Using EPA 5030B (P/T)										
Blank (3J09002-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*9.89*		*mg/m³ Air*	*9.60*		*103*	*65-132*			
Surrogate: 4-BFB (PID)	*11.2*		*"*	*9.60*		*117*	*75-136*			
LCS (3J09002-BS1)										
Gasoline Range Hydrocarbons	73.2	10.0	mg/m³ Air	100		73.2	50-150			
Surrogate: 4-BFB (FID)	*9.87*		*"*	*9.60*		*103*	*65-132*			
LCS (3J09002-BS2)										
Benzene	1.63	0.100	mg/m³ Air	2.00		81.5	50-150			
Toluene	1.68	0.100	"	2.00		84.0	50-150			
Ethylbenzene	1.65	0.100	"	1.96		84.2	50-150			
Xylenes (total)	5.19	0.200	"	6.00		86.5	50-150			
Surrogate: 4-BFB (PID)	*11.4*		*"*	*9.60*		*119*	*75-136*			
LCS Dup (3J09002-BSD1)										
Gasoline Range Hydrocarbons	58.6	10.0	mg/m³ Air	100		58.6	50-150	22.2	50	
Surrogate: 4-BFB (FID)	*9.72*		*"*	*9.60*		*101*	*65-132*			

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/10/03 10:22

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3J09002: Prepared 10/09/03 Using EPA 5030B (P/T)										
LCS Dup (3J09002-BSD2)										
Benzene	2.39	0.100	mg/m³ Air	2.00		120	50-150	37.8	50	
Toluene	2.40	0.100	"	2.00		120	50-150	35.3	50	
Ethylbenzene	2.45	0.100	"	1.96		125	50-150	39.0	50	
Xylenes (total)	7.56	0.200	"	6.00		126	50-150	37.2	50	
Surrogate: 4-BFB (PID)	*12.3*		"	*9.60*		*128*	*75-136*			
Duplicate (3J09002-DUP1)					**Source: B3J0169-02**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		2.07			77.7	30	Q-05
Surrogate: 4-BFB (FID)	*9.00*		"	*9.60*		*93.8*	*65-132*			

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/10/03 10:22

Notes and Definitions

I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
Q-05	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
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

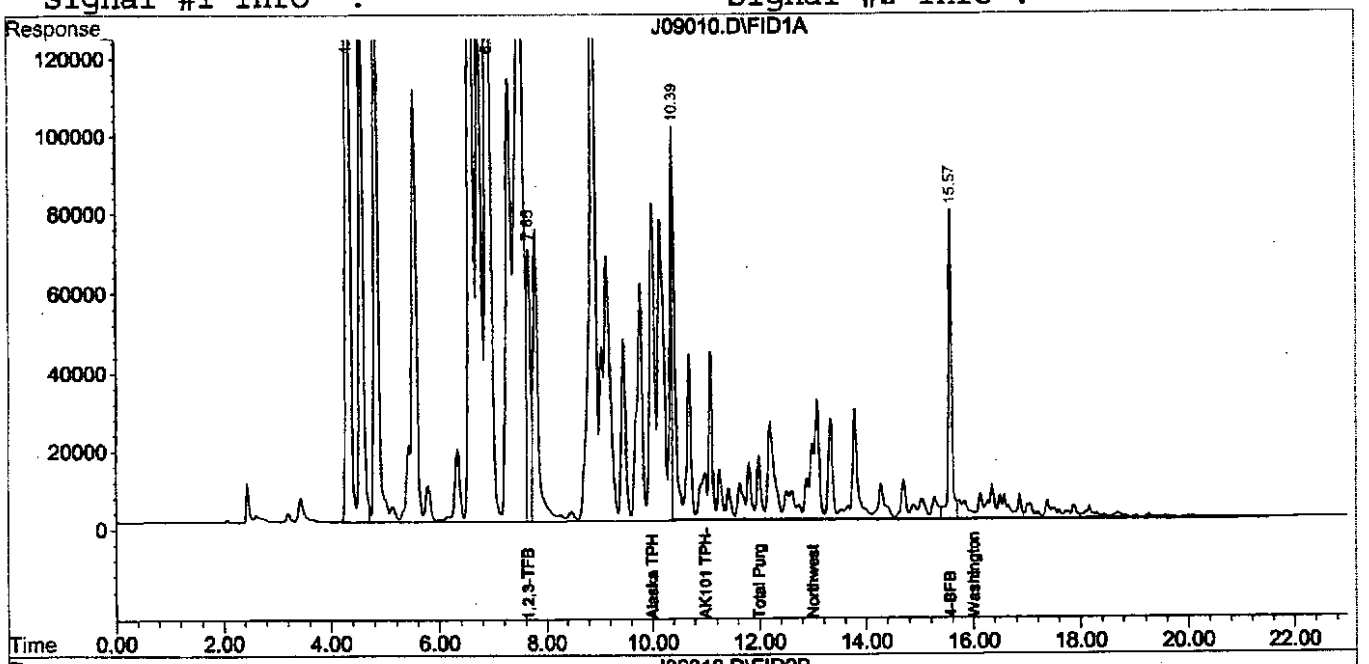
Jeff Gerdes, Project Manager

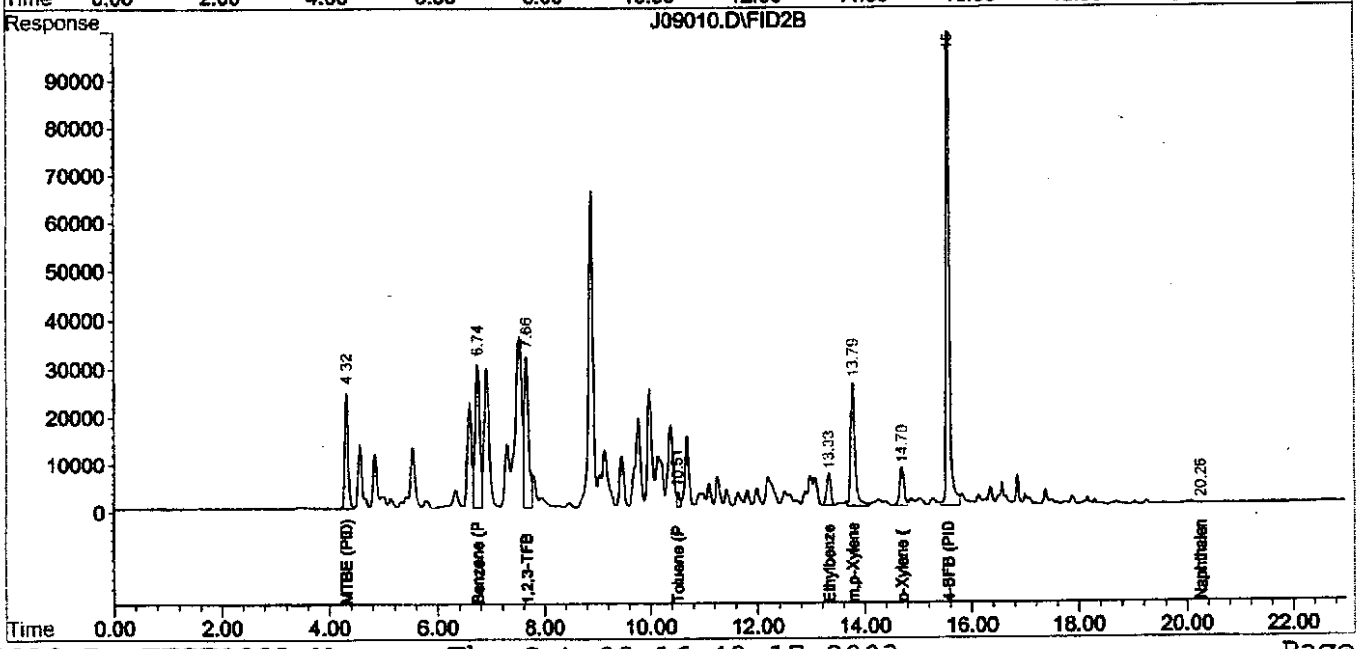
Quantitation Report

Signal #1 : C:\HPCHEM\1\DATA\100903\J09010.D\FID1A.CH Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\100903\J09010.D\FID2B.CH
Acq On : 9 Oct 2003 12:33 Operator: sk
Sample : b3j0169-01 Inst : GC #2
Misc : 1x 25 ml, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Oct 9 16:43 2003 Quant Results File: TEST0903.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0903.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Tue Oct 07 14:34:04 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0903.M

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



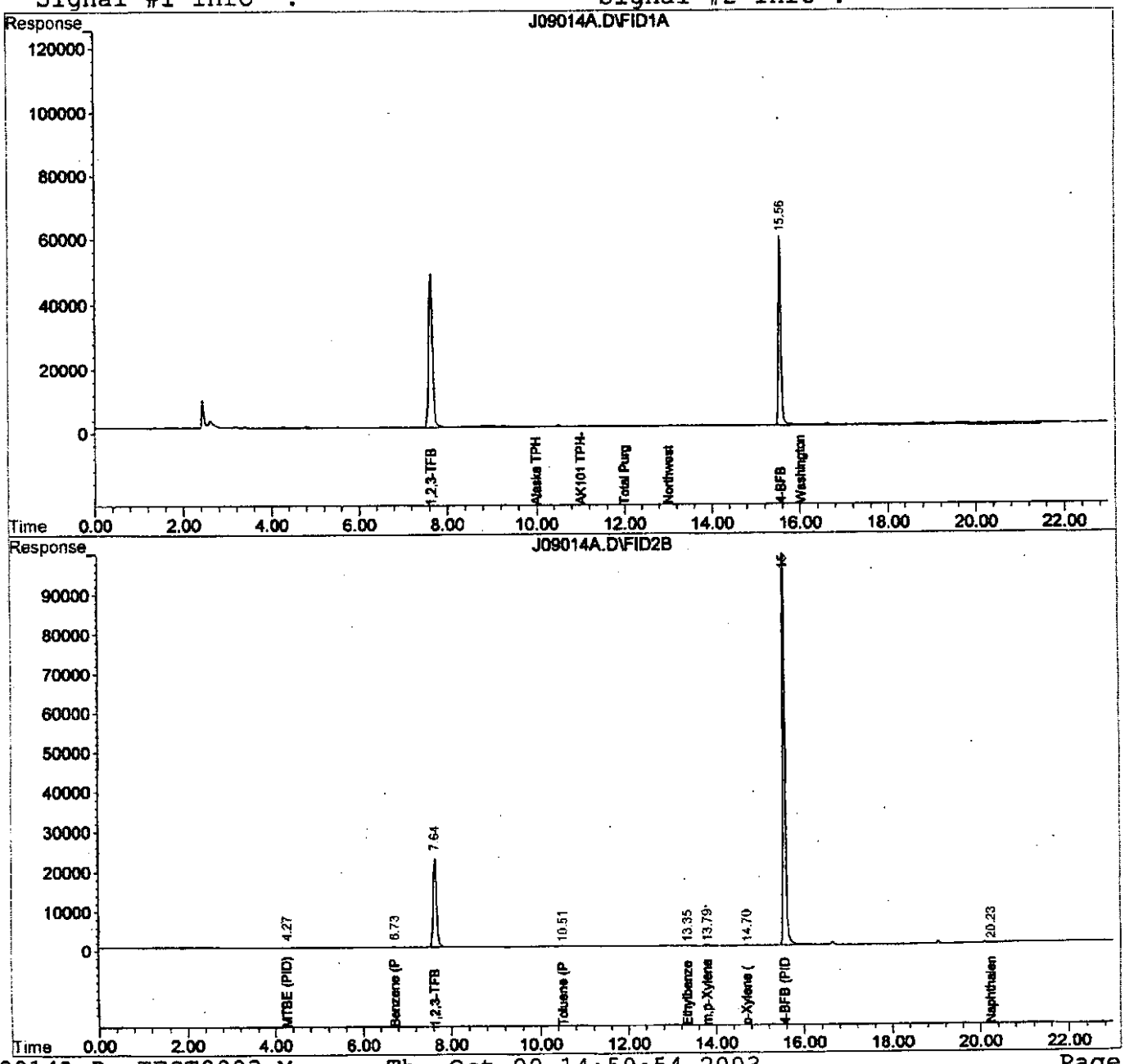


Quantitation Report

Signal #1 : C:\HPCHEM\1\DATA\100903\J09014A.D\FID1A.CH Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\100903\J09014A.D\FID2B.CH
Acq On : 9 Oct 2003 14:36 Operator: sk
Sample : b3j0169-02 rl Inst : GC #2
Misc : 1x 25 ml, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Oct 9 14:59 2003 Quant Results File: TEST0903.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0903.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Tue Oct 07 14:34:04 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0903.M

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



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GeoEngineers

DATE 10-6-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION Tosco Wash
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY Sean Overpeck

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	TPH-G	(Preserved, filtered, etc.)
01	ENF100603	10-6-03	1400	A	1	X	72 HR TAT
02	MIDFLD100603	10-6-03	1405	A	1	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME Sean Overpeck		PRINTED NAME		PRINTED NAME	
DATE 10-6-03	TIME 1615	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME Aaron Dockter		PRINTED NAME		PRINTED NAME	
DATE 10/6/03	TIME 1615	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

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24 October 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101
RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 10/18/03 08:05. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/24/03 11:10

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF101703	B3J0517-01	Air	10/17/03 12:00	10/18/03 08:05
MID101703	B3J0517-02	Air	10/17/03 12:05	10/18/03 08:05

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.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/24/03 11:10

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF101703 (B3J0517-01) Air Sampled: 10/17/03 12:00 Received: 10/18/03 08:05									
Gasoline Range Hydrocarbons	**450**	25.0	mg/m³ Air	2.5	3J20004	10/20/03	10/20/03	NWTPH Modified	
Benzene	**2.50**	0.250	"	"	"	"	"	"	
Toluene	**2.42**	0.250	"	"	"	"	"	"	
Ethylbenzene	**1.11**	0.250	"	"	"	"	"	"	
Xylenes (total)	**11.0**	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.4 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*91.9 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**106**	5.90	ppmv	2.5	"	"	"	"	
Benzene (v/v)	**0.770**	0.0770	"	"	"	"	"	"	
Toluene (v/v)	**0.633**	0.0652	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.251**	0.0568	"	"	"	"	"	"	
Xylenes, total (v/v)	**2.48**	0.114	"	"	"	"	"	"	
N[illegible]101703 (B3J0517-02) Air Sampled: 10/17/03 12:05 Received: 10/18/03 08:05									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3J20004	10/20/03	10/20/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*82.9 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.0 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

N[illegible]h Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/24/03 11:10

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3J20004: Prepared 10/20/03 Using EPA 5030B (P/T)										
Blank (3J20004-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*9.02*		*mg/m³ Air*	*9.60*		*94.0*	*65-132*			
Surrogate: 4-BFB (PID)	*8.99*		*"*	*9.60*		*93.6*	*75-136*			
LCS (3J20004-BS1)										
Gasoline Range Hydrocarbons	91.0	10.0	mg/m³ Air	100		91.0	50-150			
Surrogate: 4-BFB (FID)	*9.84*		*"*	*9.60*		*102*	*65-132*			
LCS (3J20004-BS2)										
Benzene	1.52	0.100	mg/m³ Air	2.00		76.0	50-150			
Toluene	1.54	0.100	"	2.00		77.0	50-150			
Ethylbenzene	1.50	0.100	"	1.96		76.5	50-150			
Xylenes (total)	4.56	0.200	"	6.00		76.0	50-150			
Surrogate: 4-BFB (PID)	*9.95*		*"*	*9.60*		*104*	*75-136*			
LCS Dup (3J20004-BSD1)										
Gasoline Range Hydrocarbons	57.3	10.0	mg/m³ Air	100		57.3	50-150	45.4	50	
Surrogate: 4-BFB (FID)	*8.60*		*"*	*9.60*		*89.6*	*65-132*			

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.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/24/03 11:10

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3J20004: Prepared 10/20/03 Using EPA 5030B (P/T)										
LCS Dup (3J20004-BSD2)										
Benzene	1.38	0.100	mg/m³ Air	2.00		69.0	50-150	9.66	50	
Toluene	1.40	0.100	"	2.00		70.0	50-150	9.52	50	
Ethylbenzene	1.36	0.100	"	1.96		69.4	50-150	9.79	50	
Xylenes (total)	4.24	0.200	"	6.00		70.7	50-150	7.27	50	
Surrogate: 4-BFB (PID)	*10.0*		"	*9.60*		*104*	*75-136*			
Duplicate (3J20004-DUP1)					**Source: B3J0519-05**					
Gasoline Range Hydrocarbons	21.9	10.0	mg/m³ Air		26.8			20.1	30	
Surrogate: 4-BFB (FID)	*7.33*		"	*9.60*		*76.4*	*65-132*			

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.

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	10/24/03 11:10

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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.

Jeff Gerdes

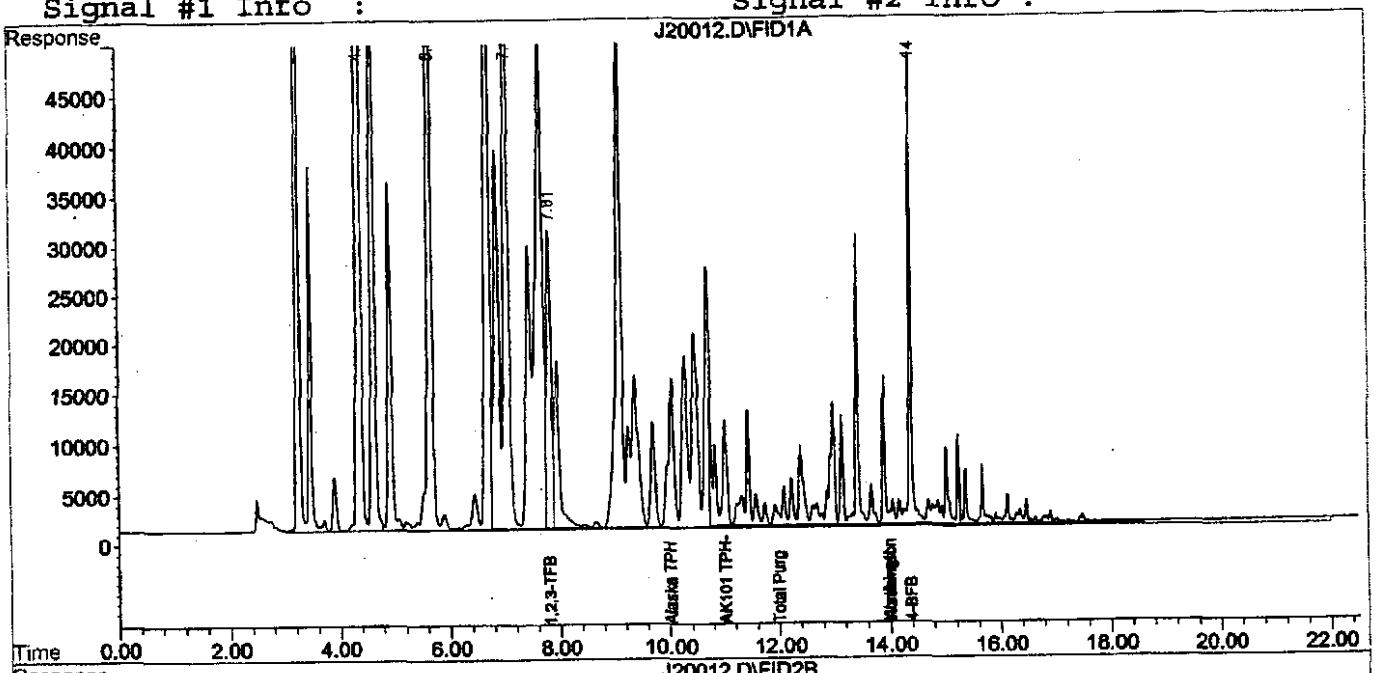
Jeff Gerdes, Project Manager

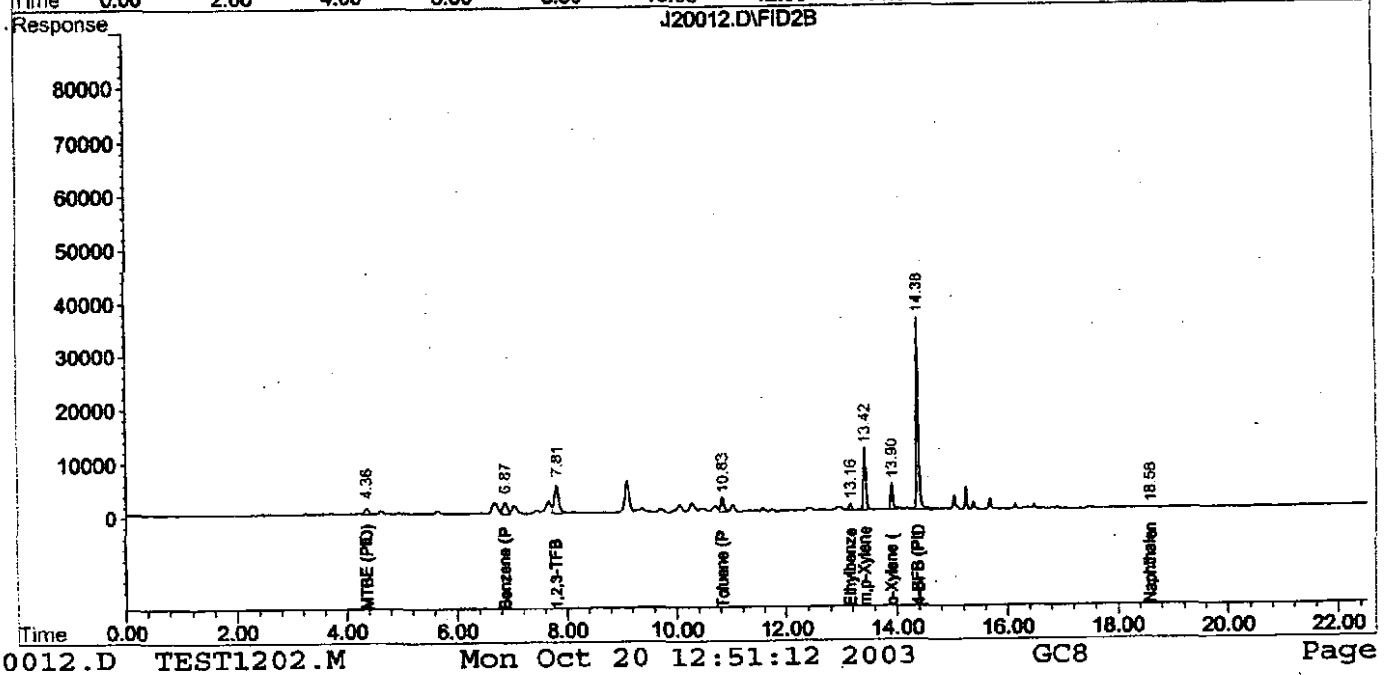
Quantitation Report

Signal #1 : D:\HPCHEM\4\DATA\102003\J20012.D\FID1A.CH Vial: 12
Signal #2 : D:\HPCHEM\4\DATA\102003\J20012.D\FID2B.CH
Acq On : 20 Oct 2003 12:28 Operator: sk
Sample : b3j0517-01 Inst : GC #8
Misc : 2.5x 10 ml, air Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e
Quant Time: Oct 20 12:51 2003 Quant Results File: TEST1202.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1202.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Oct 13 09:28:07 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1202.M

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



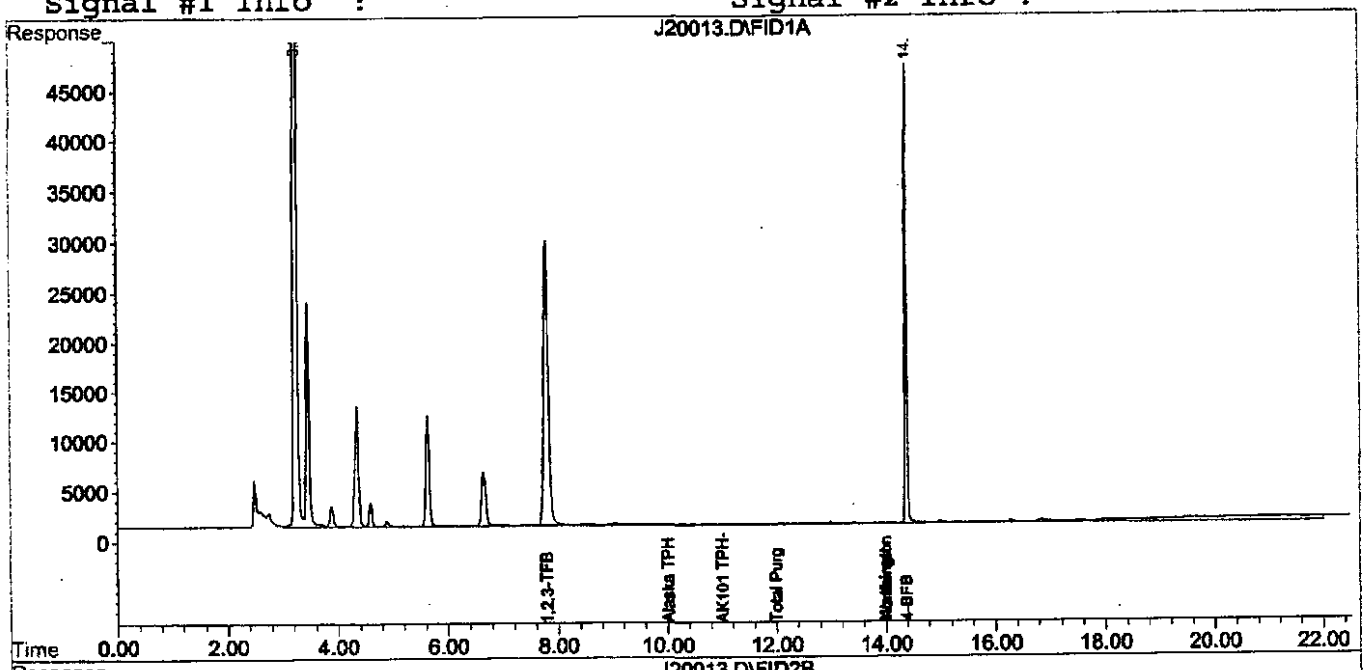


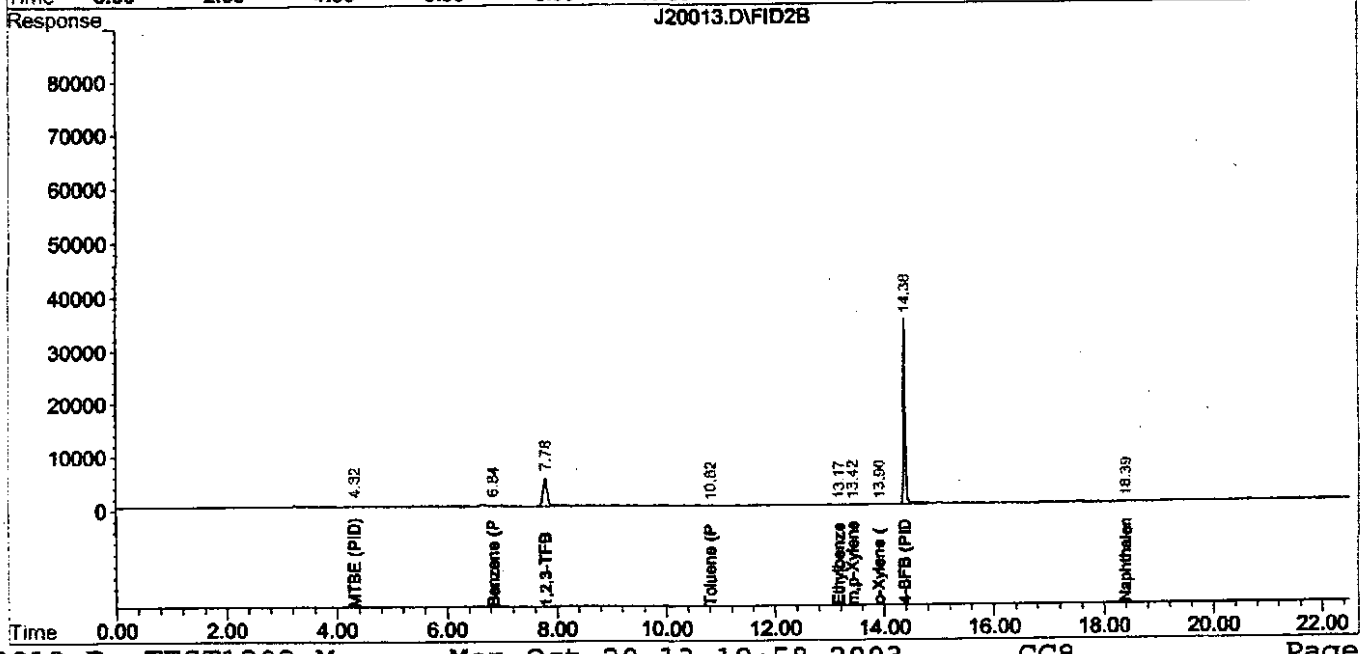
Quantitation Report

Signal #1 : D:\HPCHEM\4\DATA\102003\J20013.D\FID1A.CH Vial: 13
Signal #2 : D:\HPCHEM\4\DATA\102003\J20013.D\FID2B.CH
Acq On : 20 Oct 2003 12:57 Operator: sk
Sample : b3j0517-02 Inst : GC #8
Misc : 1x 25 ml, air Multiplr: 1.00
IntFile Signal #1: autoint1.e IntFile Signal #2: autoint2.e
Quant Time: Oct 20 13:19 2003 Quant Results File: TEST1202.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1202.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Oct 13 09:28:07 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1202.M

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





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GeoEngineers

DATE 10-17-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION Tosco/Phillips Lynnwood
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOTT QUERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED											NOTES/COMMENTS (Preserved, filtered, etc.)	
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-Dx/BTEX												
	FWF101703	10-17-03	1200	A	1	X												01
	MID101703	"	1205	A	1	X												02
	EIF101703	"	1210	A	1												HOLD	03

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	Scott Querdick	PRINTED NAME		PRINTED NAME	
DATE 10-18-03	TIME 0805	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Emily Volkmar	PRINTED NAME		PRINTED NAME	
DATE 10/18/03	TIME 08:05	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

19.7 WD

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04 November 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 10/31/03 11:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/04/03 15:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF103103	B3J0870-01	Air	10/31/03 09:30	10/31/03 11:40
MID103103	B3J0870-02	Air	10/31/03 09:35	10/31/03 11:40

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.

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/04/03 15:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF103103 (B3J0870-01) Air Sampled: 10/31/03 09:30 Received: 10/31/03 11:40									
Gasoline Range Hydrocarbons	**59.2**	10.0	mg/m³ Air	1	3K03010	11/03/03	11/03/03	NWTPH Modified	
Benzene	**0.559**	0.100	"	"	"	"	"	"	
Toluene	**0.150**	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.144**	0.100	"	"	"	"	"	"	
Xylenes (total)	**1.65**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*102 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**14.0**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.172**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0392**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.0327**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.374**	0.0454	"	"	"	"	"	"	
D103103 (B3J0870-02) Air Sampled: 10/31/03 09:35 Received: 10/31/03 11:40									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3K03010	11/03/03	11/03/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.4 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*117 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/04/03 15:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K03010: Prepared 11/03/03 Using EPA 5030B (P/T)										
Blank (3K03010-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*10.2*		*mg/m³ Air*	*9.60*		*106*	*65-132*			
Surrogate: 4-BFB (PID)	*10.3*		*"*	*9.60*		*107*	*75-136*			
LCS (3K03010-BS1)										
Gasoline Range Hydrocarbons	57.0	10.0	mg/m³ Air	100		57.0	50-150			
Surrogate: 4-BFB (FID)	*9.31*		*"*	*9.60*		*97.0*	*65-132*			
LCS (3K03010-BS2)										
Benzene	1.31	0.100	mg/m³ Air	2.00		65.5	50-150			
Toluene	1.34	0.100	"	2.00		67.0	50-150			
Ethylbenzene	1.32	0.100	"	1.96		67.3	50-150			
Xylenes (total)	4.15	0.200	"	6.00		69.2	50-150			
Surrogate: 4-BFB (PID)	*10.8*		*"*	*9.60*		*112*	*75-136*			
LCS Dup (3K03010-BSD1)										
Gasoline Range Hydrocarbons	81.2	10.0	mg/m³ Air	100		81.2	50-150	35.0	50	
Surrogate: 4-BFB (FID)	*9.77*		*"*	*9.60*		*102*	*65-132*			

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/04/03 15:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K03010: Prepared 11/03/03 Using EPA 5030B (P/T)										
LCS Dup (3K03010-BSD2)										
Benzene	2.16	0.100	mg/m³ Air	2.00		108	50-150	49.0	50	
Toluene	2.18	0.100	"	2.00		109	50-150	47.7	50	
Ethylbenzene	2.16	0.100	"	1.96		110	50-150	48.3	50	
Xylenes (total)	6.76	0.200	"	6.00		113	50-150	47.8	50	
Surrogate: 4-BFB (PID)	*11.8*		"	*9.60*		*123*	*75-136*			
Duplicate (3K03010-DUP1)					**Source: B3J0870-01**					
Gasoline Range Hydrocarbons	86.1	25.0	mg/m³ Air		59.2			37.0	30	Q-05
Surrogate: 4-BFB (FID)	*9.59*		"	*9.60*		*99.9*	*65-132*			

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/04/03 15:56

Notes and Definitions

Q-05	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
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

B3T0870

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 10-31-03
PAGE 1 OF 1
LAB N/A
LAB NO.

PROJECT NAME/LOCATION PHILLIPS/TOSCO WL tm
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SUE QUERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	BTEX	(Preserved, filtered, etc.)
01 -	INF 103103	10-31-03	0930	A	1	X	72HR TAT
02 -	MID 103103	"	0935	A	1	X	
03 -	EFF 103103	"	0940	A	1	X	X HOLD
							23.4 % M/O

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEL	SIGNATURE		SIGNATURE	
PRINTED NAME	SUE QUERDICK	PRINTED NAME		PRINTED NAME	
DATE 10-31-03	TIME 1140	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	LNO	SIGNATURE		SIGNATURE	
PRINTED NAME	Karen Dockter	PRINTED NAME		PRINTED NAME	
DATE 10/31/03	TIME 1240	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

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10 November 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 11/06/03 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4825-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/10/03 17:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF 110603	B3K0170-01	Air	11/06/03 10:25	11/06/03 17:45
MID110603	B3K0170-02	Air	11/06/03 10:20	11/06/03 17:45

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4825-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/10/03 17:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF 110603 (B3K0170-01) Air Sampled: 11/06/03 10:25 Received: 11/06/03 17:45									
Gasoline Range Hydrocarbons	**68.0**	10.0	mg/m³ Air	1	3K07004	11/07/03	11/07/03	NWTPH Modified	
Benzene	**0.545**	0.100	"	"	"	"	"	"	
Toluene	**0.125**	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.121**	0.100	"	"	"	"	"	"	
Xylenes (total)	**1.41**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*105 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**16.0**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.168**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0326**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.0274**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.320**	0.0454	"	"	"	"	"	"	
110603 (B3K0170-02) Air Sampled: 11/06/03 10:20 Received: 11/06/03 17:45									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3K07004	11/07/03	11/07/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.6 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*116 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4825-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/10/03 17:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K07004: Prepared 11/07/03 Using EPA 5030B (P/T)										
Blank (3K07004-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*9.62*		*mg/m³ Air*	*9.60*		*100*	*65-132*			
Surrogate: 4-BFB (PID)	*11.0*		*"*	*9.60*		*115*	*75-136*			
LCS (3K07004-BS1)										
Gasoline Range Hydrocarbons	62.4	10.0	mg/m³ Air	100		62.4	50-150			
Surrogate: 4-BFB (FID)	*9.19*		*"*	*9.60*		*95.7*	*65-132*			
LCS (3K07004-BS2)										
Benzene	1.27	0.100	mg/m³ Air	2.00		63.5	50-150			
Toluene	1.28	0.100	"	2.00		64.0	50-150			
Ethylbenzene	1.29	0.100	"	1.96		65.8	50-150			
Xylenes (total)	4.00	0.200	"	6.00		66.7	50-150			
Surrogate: 4-BFB (PID)	*11.4*		*"*	*9.60*		*119*	*75-136*			
LCS Dup (3K07004-BSD1)										
Gasoline Range Hydrocarbons	58.7	10.0	mg/m³ Air	100		58.7	50-150	6.11	50	
Surrogate: 4-BFB (FID)	*10.1*		*"*	*9.60*		*105*	*65-132*			

North Creek Analytical - Bothell

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600 Stewart St, Suite 1420	Project Number: 4825-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/10/03 17:38

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K07004: Prepared 11/07/03 Using EPA 5030B (P/T)										
LCS Dup (3K07004-BSD2)										
Benzene	1.55	0.100	mg/m³ Air	2.00		77.5	50-150	19.9	50	
Toluene	1.55	0.100	"	2.00		77.5	50-150	19.1	50	
Ethylbenzene	1.58	0.100	"	1.96		80.6	50-150	20.2	50	
Xylenes (total)	4.92	0.200	"	6.00		82.0	50-150	20.6	50	
Surrogate: 4-BFB (PID)	*11.3*		"	*9.60*		*118*	*75-136*			
Duplicate (3K07004-DUP1)					**Source: B3K0173-06**					
Gasoline Range Hydrocarbons	280	10.0	mg/m³ Air		223			22.7	30	
Surrogate: 4-BFB (FID)	*15.9*		"	*9.60*		*166*	*65-132*			*S-04*
D 'icate (3K07004-DUP2)					**Source: B3K0178-03**					
G .ne Range Hydrocarbons	ND	10.0	mg/m³ Air		1.83			41.6	30	Q-05
Surrogate: 4-BFB (FID)	*9.28*		"	*9.60*		*96.7*	*65-132*			

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4825-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/10/03 17:38

Notes and Definitions

Q-05	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

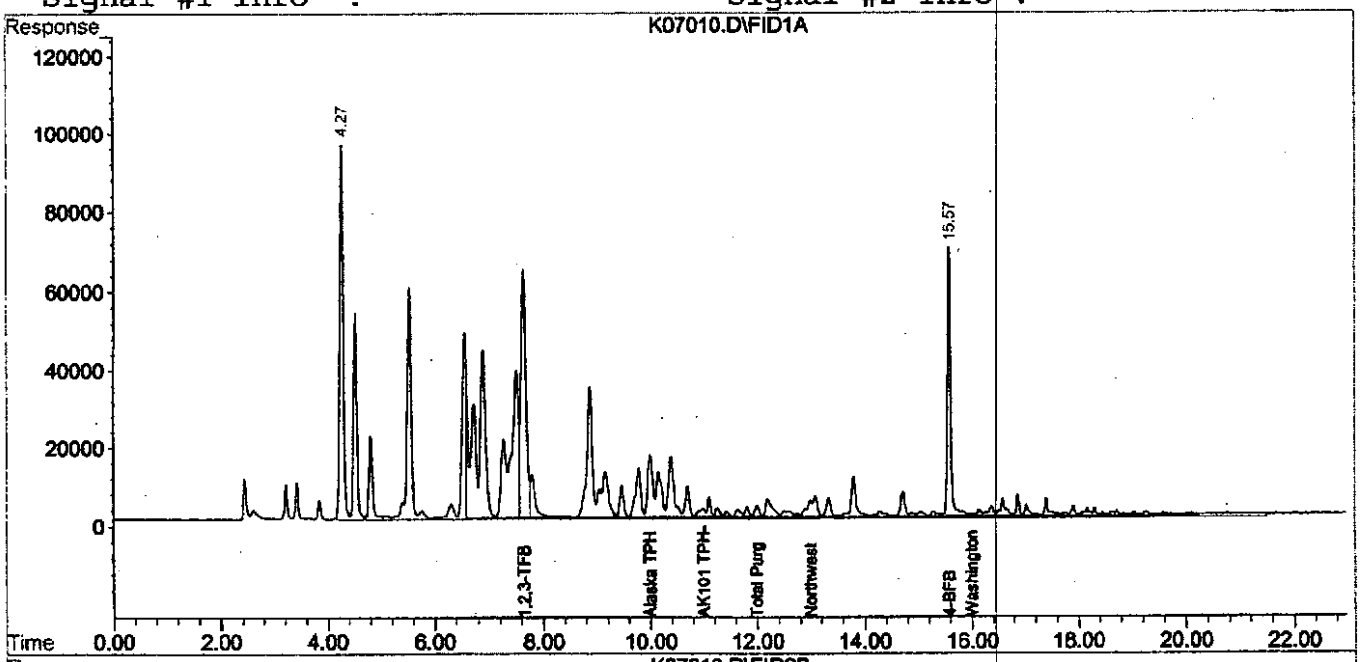
Jeff Gerdes, Project Manager

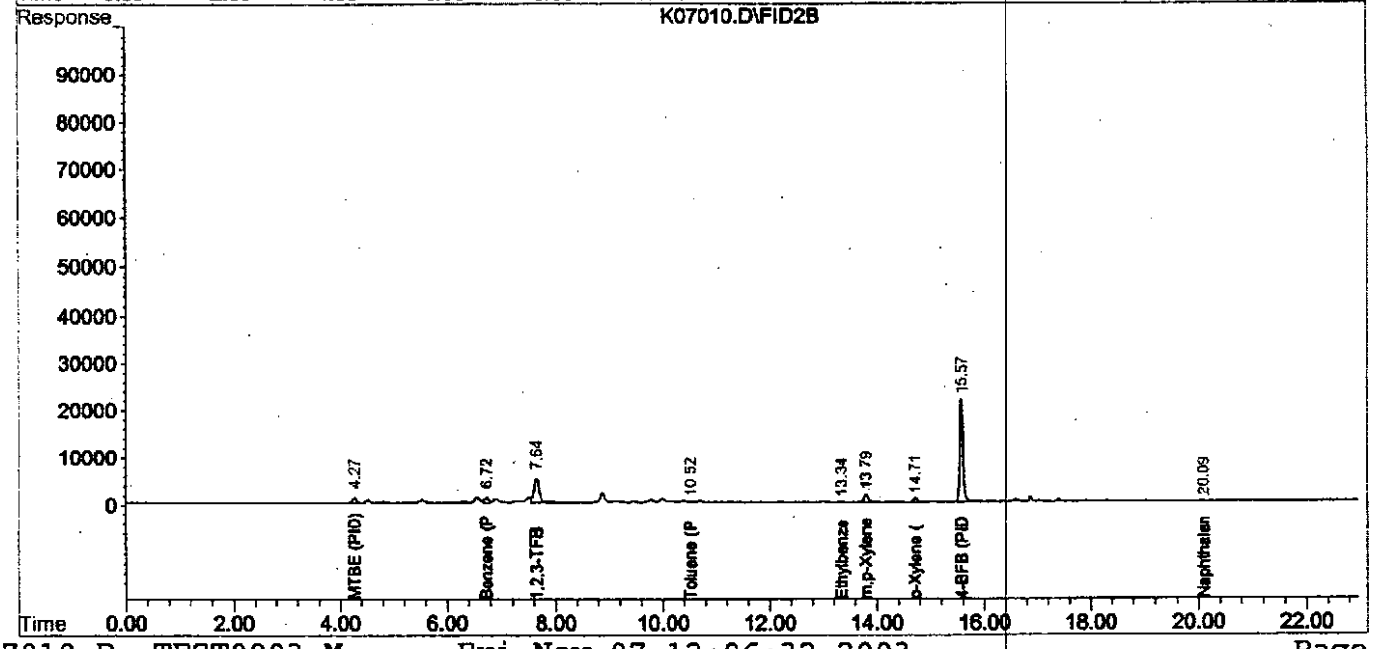
Quantitation Report

Signal #1 : C:\HPCHEM\1\DATA\110703\K07010.D\FID1A.CH Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\110703\K07010.D\FID2B.CH
Acq On : 7 Nov 2003 11:43 Operator: sk
Sample : b3k0170-01 Inst : GC #2
Misc : 1x 25 mL, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Nov 7 12:06 2003 Quant Results File: TEST0903.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0903.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Nov 03 12:55:37 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0903.M

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



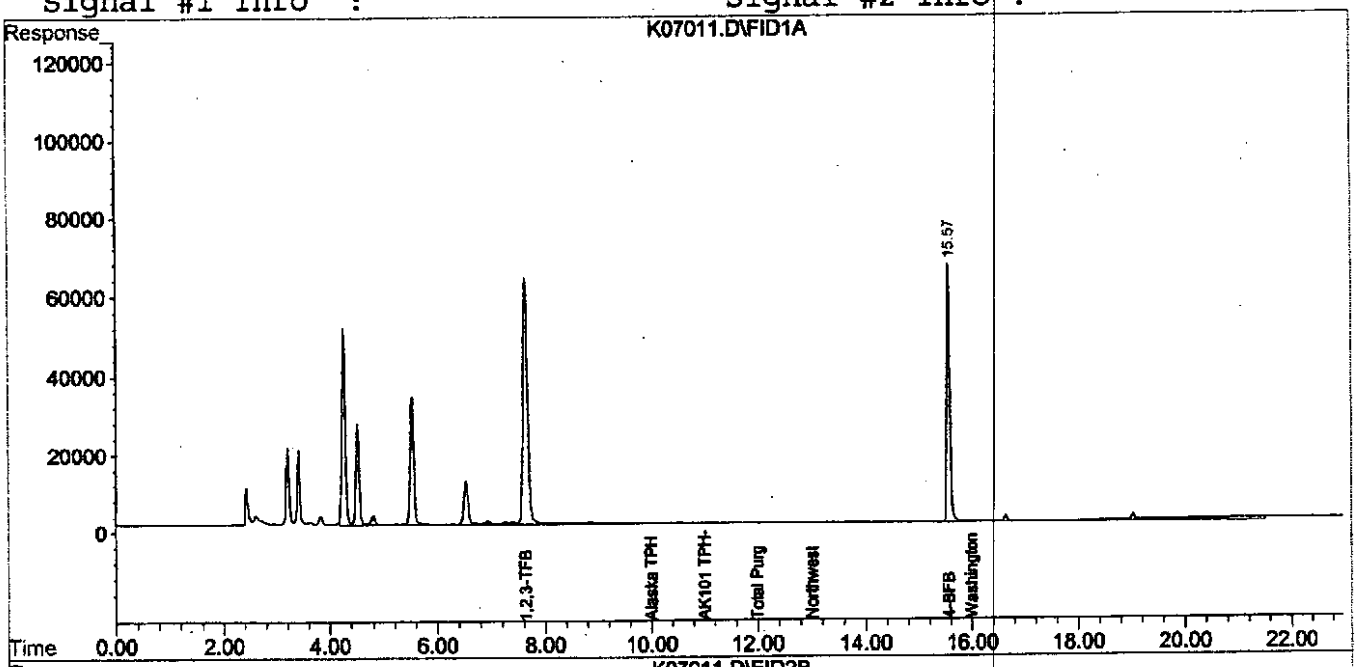


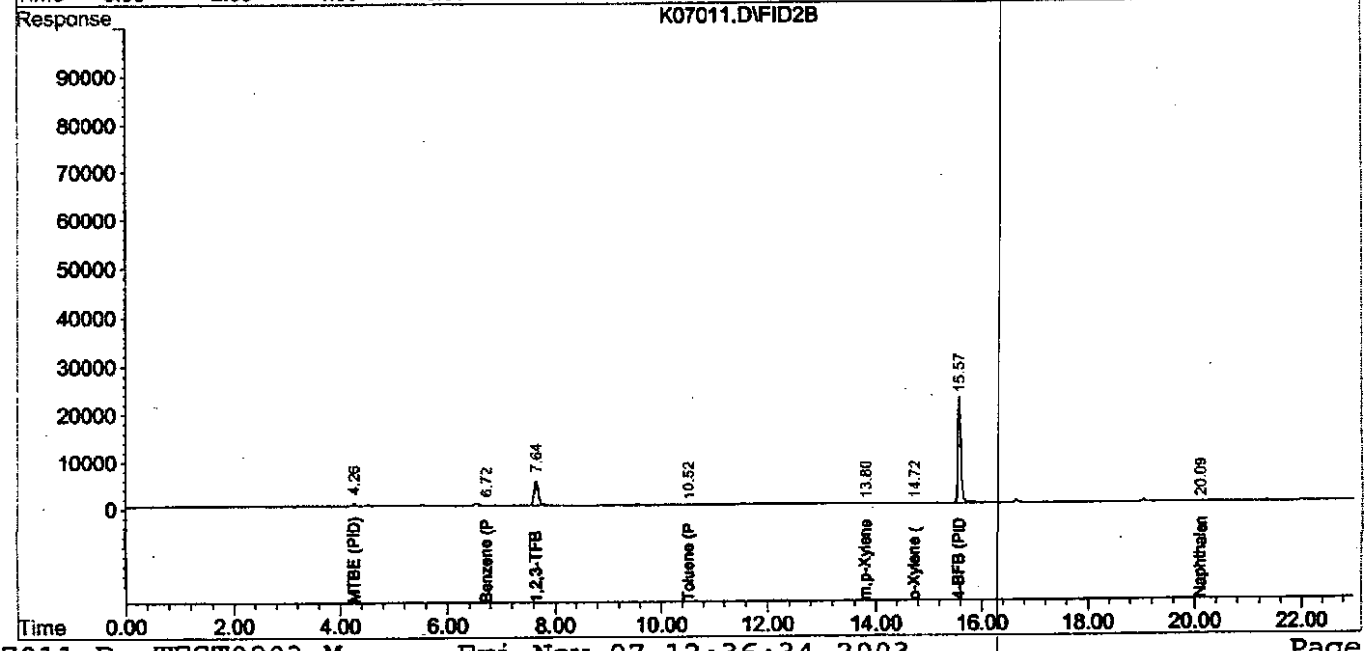
Quantitation Report

Signal #1 : C:\HPCHEM\1\DATA\110703\K07011.D\FID1A.CH Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\110703\K07011.D\FID2B.CH
Acq On : 7 Nov 2003 12:13 Operator: sk
Sample : b3k0170-02 Inst : GC #2
Misc : 1x 25 mL, air Multiplr: 1.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E
Quant Time: Nov 7 12:36 2003 Quant Results File: TEST0903.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0903.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Nov 03 12:55:37 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST0903.M

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





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GeoEngineers

DATE 11-6-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WL 9TH
PROJECT NUMBER 4825-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOT OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED										NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G										(Preserved, filtered, etc.)
-01	JWF110603	11603	1025	A	1	X									X	10 DAY TAT
-02	MID110603	"	1020	A	1	X									X	24 HR TAT
-03	EFF110603	"	1030	A	1	X									X	HOLD

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GE	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOT OVERDICK	PRINTED NAME		PRINTED NAME	
DATE 11-6-03	TIME 1745	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM** NCA	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME	TONY	PRINTED NAME		PRINTED NAME	
DATE 11-6-03	TIME 1745	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

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19 November 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 11/17/03 12:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/19/03 10:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF111703	B3K0440-01	Air	11/17/03 09:40	11/17/03 12:45
MID111703	B3K0440-02	Air	11/17/03 09:45	11/17/03 12:45

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.

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/19/03 10:59

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF111703 (B3K0440-01) Air Sampled: 11/17/03 09:40 Received: 11/17/03 12:45									
Gasoline Range Hydrocarbons	**20.4**	10.0	mg/m³ Air	1	3K18002	11/18/03	11/18/03	NWTPH Modified	
Benzene	**0.137**	0.100	"	"	"	"	"	"	
Toluene	**0.108**	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	**0.543**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*87.1 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*98.2 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**4.82**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.0422**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0283**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.123**	0.0454	"	"	"	"	"	"	
M. 11703 (B3K0440-02) Air Sampled: 11/17/03 09:45 Received: 11/17/03 12:45									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3K18002	11/18/03	11/18/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*86.1 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*94.0 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/19/03 10:59

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K18002: Prepared 11/18/03 Using EPA 5030B (P/T)										
Blank (3K18002-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.72*		*mg/m³ Air*	*9.60*		*90.8*	*65-132*			
Surrogate: 4-BFB (PID)	*9.00*		*"*	*9.60*		*93.8*	*75-136*			
LCS (3K18002-BS1)										
Gasoline Range Hydrocarbons	74.6	10.0	mg/m³ Air	100		74.6	50-150			
Surrogate: 4-BFB (FID)	*9.71*		*"*	*9.60*		*101*	*65-132*			
LCS (3K18002-BS2)										
Benzene	1.75	0.100	mg/m³ Air	2.00		87.5	50-150			
Toluene	1.61	0.100	"	2.00		80.5	50-150			
Ethylbenzene	1.62	0.100	"	1.96		82.7	50-150			
Xylenes (total)	5.19	0.200	"	6.00		86.5	50-150			
Surrogate: 4-BFB (PID)	*9.46*		*"*	*9.60*		*98.5*	*75-136*			
LCS Dup (3K18002-BSD1)										
Gasoline Range Hydrocarbons	83.4	10.0	mg/m³ Air	100		83.4	50-150	11.1	50	
Surrogate: 4-BFB (FID)	*9.15*		*"*	*9.60*		*95.3*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/19/03 10:59

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K18002: Prepared 11/18/03 Using EPA 5030B (P/T)										
LCS Dup (3K18002-BSD2)										
Benzene	1.25	0.100	mg/m³ Air	2.00		62.5	50-150	33.3	50	
Toluene	1.15	0.100	"	2.00		57.5	50-150	33.3	50	
Ethylbenzene	1.14	0.100	"	1.96		58.2	50-150	34.8	50	
Xylenes (total)	3.42	0.200	"	6.00		57.0	50-150	41.1	50	
Surrogate: 4-BFB (PID)	*9.13*		"	*9.60*		*95.1*	*75-136*			
Duplicate (3K18002-DUP1)					**Source: B3K0440-02**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		2.52			15.8	30	
Surrogate: 4-BFB (FID)	*9.16*		"	*9.60*		*95.4*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	11/19/03 10:59

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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.

Jeff Gerdes

Jeff Gerdes, Project Manager

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GeoEngineers

DATE 11-17-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLSM
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOTT OVERDUCK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-Dx/BTEX	
	FWF 111703	11-17-03	0940	W	1	X	NORMAL TAT 01
	MID 111703	"	0945	W	1	X	* 24 HR TAT 02
	EFF 111703	"	0950	W	1	X	* HOLD 03
							B3K0440

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOTT OVERDUCK	PRINTED NAME		PRINTED NAME	
DATE 11/17/03	TIME 1245	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM NCA	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE	Cathy Crumble	SIGNATURE		SIGNATURE	
PRINTED NAME	Cathy Crumble	PRINTED NAME		PRINTED NAME	
DATE 11/17/03	TIME 12:45	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:
FAX DATA TO DAVE COOK SEATTLE OFFICE

17.3° w/o

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02 December 2003

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DEC 05 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 11/25/03 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

www.ncalabs.com

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/02/03 11:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF112503	B3K0684-01	Air	11/25/03 12:30	11/25/03 15:00
MID112503	B3K0684-02	Air	11/25/03 12:35	11/25/03 15:00

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/02/03 11:37

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF112503 (B3K0684-01) Air Sampled: 11/25/03 12:30 Received: 11/25/03 15:00									
Gasoline Range Hydrocarbons	**103**	25.0	mg/m³ Air	2.5	3K26006	11/26/03	11/26/03	NWTPH Modified	
Benzene	**0.680**	0.250	"	"	"	"	"	"	
Toluene	ND	0.250	"	"	"	"	"	"	
Ethylbenzene	ND	0.250	"	"	"	"	"	"	
Xylenes (total)	**1.76**	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.8 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**24.2**	5.90	ppmv	2.5	"	"	"	"	
Benzene (v/v)	**0.209**	0.0770	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0652	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0568	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.400**	0.114	"	"	"	"	"	"	
112503 (B3K0684-02) Air Sampled: 11/25/03 12:35 Received: 11/25/03 15:00									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3K26006	11/26/03	11/26/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.7 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/02/03 11:37

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K26006: Prepared 11/26/03 Using EPA 5030B (P/T)										
Blank (3K26006-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.54*		*mg/m³ Air*	*9.60*		*89.0*	*65-132*			
Surrogate: 4-BFB (PID)	*9.89*		*"*	*9.60*		*103*	*75-136*			
LCS (3K26006-BS1)										
Gasoline Range Hydrocarbons	75.6	10.0	mg/m³ Air	100		75.6	50-150			
Surrogate: 4-BFB (FID)	*10.5*		*"*	*9.60*		*109*	*65-132*			
LCS (3K26006-BS2)										
Benzene	1.65	0.100	mg/m³ Air	2.00		82.5	50-150			
Toluene	1.79	0.100	"	2.00		89.5	50-150			
Ethylbenzene	1.73	0.100	"	1.96		88.3	50-150			
Xylenes (total)	5.38	0.200	"	6.00		89.7	50-150			
Surrogate: 4-BFB (PID)	*9.87*		*"*	*9.60*		*103*	*75-136*			
LCS Dup (3K26006-BSD1)										
Gasoline Range Hydrocarbons	80.0	10.0	mg/m³ Air	100		80.0	50-150	5.66	50	
Surrogate: 4-BFB (FID)	*10.4*		*"*	*9.60*		*108*	*65-132*			

North Creek Analytical - Bothell

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Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/02/03 11:37

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3K26006: Prepared 11/26/03 Using EPA 5030B (P/T)										
LCS Dup (3K26006-BSD2)										
Benzene	1.71	0.100	mg/m³ Air	2.00		85.5	50-150	3.57	50	
Toluene	1.80	0.100	"	2.00		90.0	50-150	0.557	50	
Ethylbenzene	1.78	0.100	"	1.96		90.8	50-150	2.85	50	
Xylenes (total)	5.53	0.200	"	6.00		92.2	50-150	2.75	50	
Surrogate: 4-BFB (PID)	*10.3*		"	*9.60*		*107*	*75-136*			
Duplicate (3K26006-DUP1)					**Source: B3K0663-12**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		4.61			48.2	30	Q-05
Surrogate: 4-BFB (FID)	*7.92*		"	*9.60*		*82.5*	*65-132*			

North Creek Analytical - Bothell

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/02/03 11:37

Notes and Definitions

Q-05	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
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Jeff Gerdes

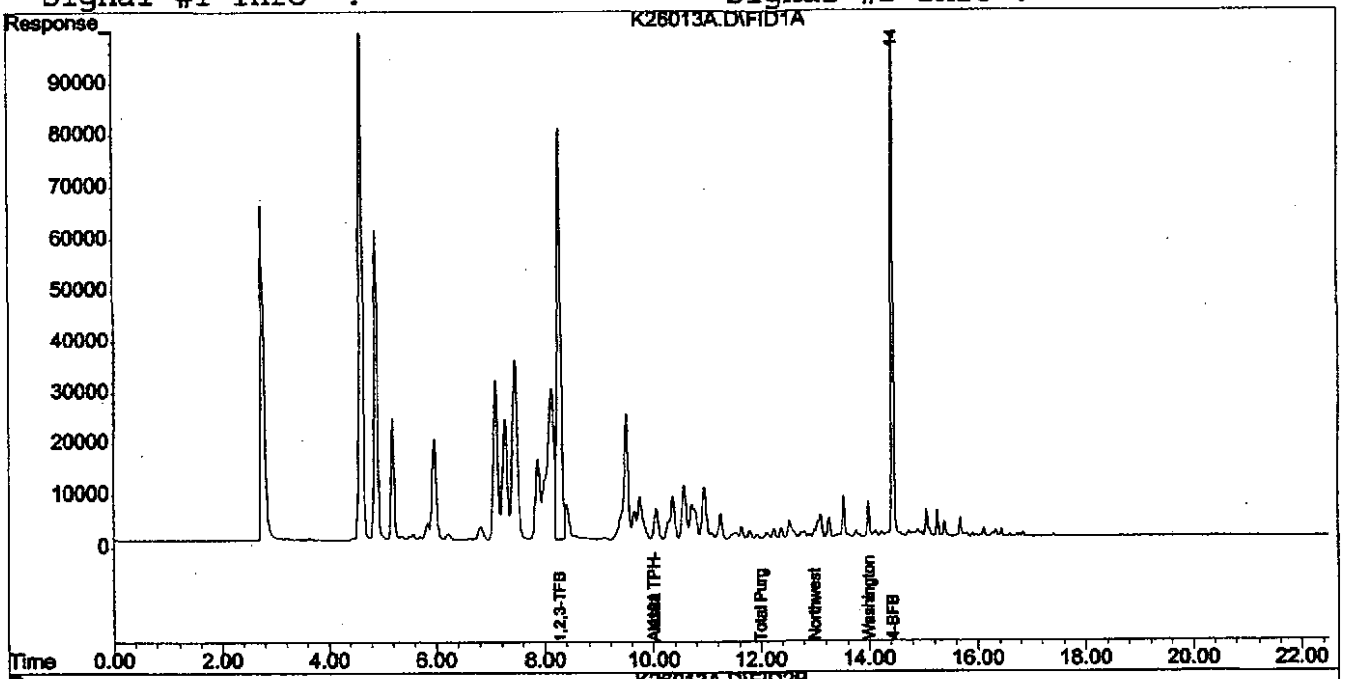
Jeff Gerdes, Project Manager

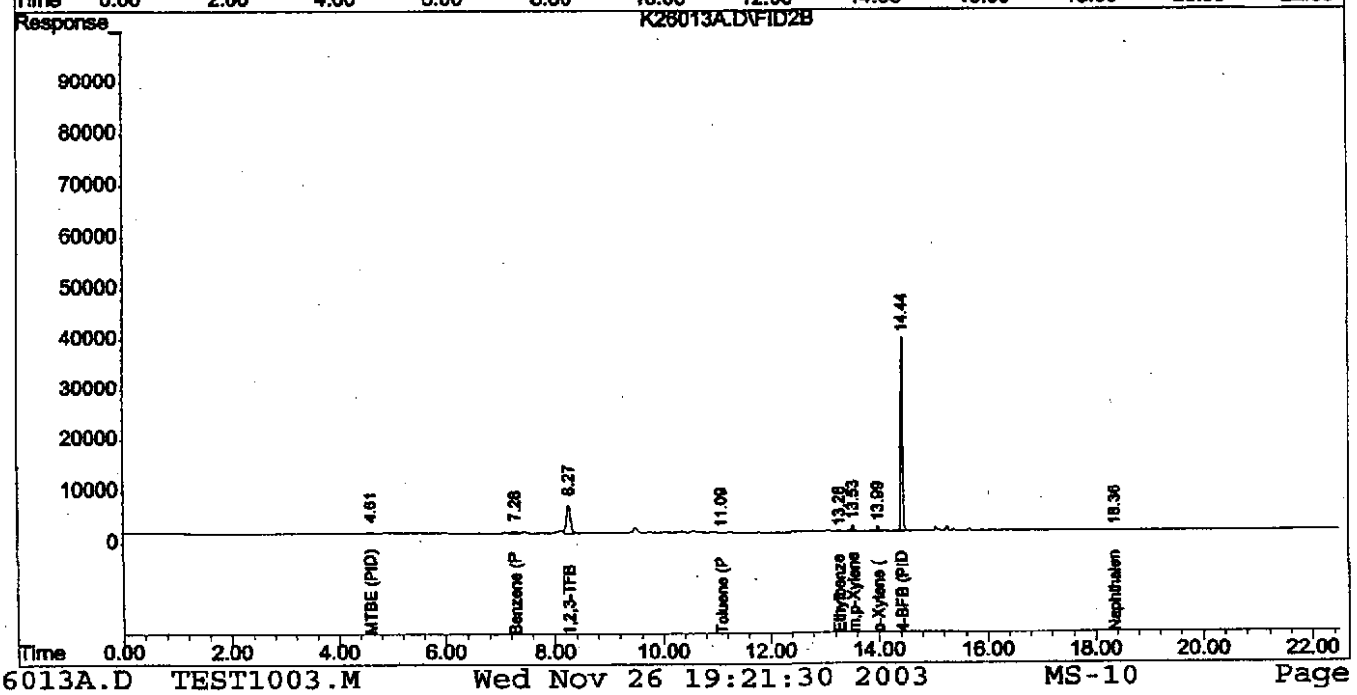
Quantitation Report

Signal #1 : E:\HPCHEM\2\DATA\112603\K26013A.D\FID1A.CH Vial: 13
Signal #2 : E:\HPCHEM\2\DATA\112603\K26013A.D\FID2B.CH
Acq On : 26 Nov 2003 18:58 Operator: mam
Sample : b3k0684-01 Inst : GC-14
Misc : 2.5x 10 ml, air Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Nov 26 19:21 2003 Quant Results File: TEST1003.RES

Quant Method : E:\HPCHEM\2\METHODS\TEST1003.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed Nov 26 14:52:49 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1003.M

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



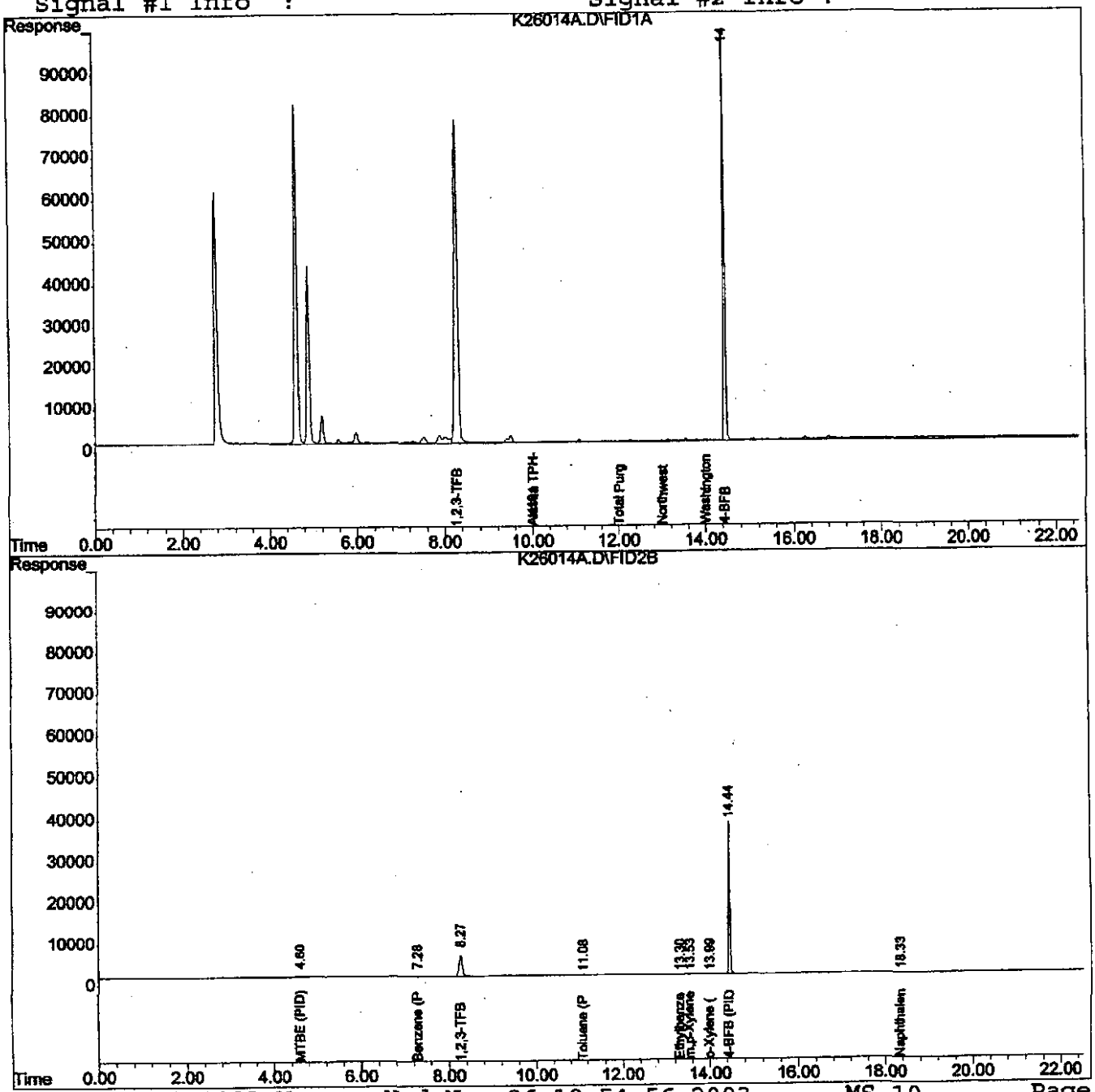


Quantitation Report

Signal #1 : E:\HPCHEM\2\DATA\112603\K26014A.D\FID1A.CH Vial: 14
Signal #2 : E:\HPCHEM\2\DATA\112603\K26014A.D\FID2B.CH
Acq On : 26 Nov 2003 19:32 Operator: mam
Sample : b3k0684-02 Inst : GC-14
Misc : 1x 25 ml, air Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Nov 26 19:54 2003 Quant Results File: TEST1003.RES

Quant Method : E:\HPCHEM\2\METHODS\TEST1003.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Wed Nov 26 14:52:49 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1003.M

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



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GeoEngineers

DATE 11-25-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLdm
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY Sean Quiddick

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G / BTEX	(Preserved, filtered, etc.)
01	INF112503	11-25-03	1230	A	1	X	NORMAL TAT
02	MID 112503	"	1235	A	1	X	24 HR TAT
03	EFF112503	"	1240	A	1	X	HOLD

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	Sean Quiddick	PRINTED NAME		PRINTED NAME	
DATE 11-25-03	TIME 1500	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Dennis Hardman	PRINTED NAME		PRINTED NAME	
DATE 11-25-03	TIME 15:00	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

20.7 W/O

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DEC 19 2003

16 December 2003

Brian Peterka
Geo Engineers - Seattle
600 Stewart St, Suite 1420
Seattle, WA/USA 98101

RE: TOSCO #5353

Enclosed are the results of analyses for samples received by the laboratory on 12/15/03 13:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeff Gerdes
Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/16/03 14:56

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
INF121503	B3L0478-01	Air	12/15/03 10:30	12/15/03 13:00
MID121503	B3L0478-02	Air	12/15/03 10:35	12/15/03 13:00

Jeff Gerdes

Jeff Gerdes, Project Manager

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Geo Engineers - Seattle	Project: TOSCO #5353	
600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/16/03 14:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF121503 (B3L0478-01) Air Sampled: 12/15/03 10:30 Received: 12/15/03 13:00									
Gasoline Range Hydrocarbons	**33.5**	10.0	mg/m³ Air	1	3L15040	12/15/03	12/15/03	NWTPH Modified	
Benzene	**0.217**	0.100	"	"	"	"	"	"	
Toluene	**0.186**	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	**0.463**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*101 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**7.90**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.0669**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0485**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.105**	0.0454	"	"	"	"	"	"	
MW121503 (B3L0478-02) Air Sampled: 12/15/03 10:35 Received: 12/15/03 13:00									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	3L15040	12/15/03	12/15/03	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.2 %*	*65-132*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*75-136*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Jeff Gerdes

Jeff Gerdes, Project Manager

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600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/16/03 14:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L15040: Prepared 12/15/03 Using EPA 5030B (P/T)										
Blank (3L15040-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
;es, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*9.29*		*mg/m³ Air*	*9.60*		*96.8*	*65-132*			
Surrogate: 4-BFB (PID)	*9.89*		*"*	*9.60*		*103*	*75-136*			
LCS (3L15040-BS1)										
Gasoline Range Hydrocarbons	69.6	10.0	mg/m³ Air	100		69.6	50-150			
Surrogate: 4-BFB (FID)	*8.83*		*"*	*9.60*		*92.0*	*65-132*			
LCS (3L15040-BS2)										
Benzene	1.95	0.100	mg/m³ Air	2.00		97.5	50-150			
Toluene	2.04	0.100	"	2.00		102	50-150			
Ethylbenzene	2.01	0.100	"	1.96		103	50-150			
Xylenes (total)	6.19	0.200	"	6.00		103	50-150			
Surrogate: 4-BFB (PID)	*10.2*		*"*	*9.60*		*106*	*75-136*			
LCS Dup (3L15040-BSD1)										
Gasoline Range Hydrocarbons	77.3	10.0	mg/m³ Air	100		77.3	50-150	10.5	50	
Surrogate: 4-BFB (FID)	*9.85*		*"*	*9.60*		*103*	*65-132*			

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600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/16/03 14:56

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3L15040: Prepared 12/15/03 Using EPA 5030B (P/T)										
LCS Dup (3L15040-BSD2)										
Benzene	1.92	0.100	mg/m³ Air	2.00		96.0	50-150	1.55	50	
Toluene	1.99	0.100	"	2.00		99.5	50-150	2.48	50	
Ethylbenzene	1.98	0.100	"	1.96		101	50-150	1.50	50	
Xylenes (total)	6.03	0.200	"	6.00		100	50-150	2.62	50	
Surrogate: 4-BFB (PID)	*10.1*		"	*9.60*		*105*	*75-136*			
Duplicate (3L15040-DUP1)					**Source: B3L0478-01**					
Gasoline Range Hydrocarbons	30.3	10.0	mg/m³ Air		33.5			10.0	30	
Surrogate: 4-BFB (FID)	*8.78*		"	*9.60*		*91.5*	*65-132*			

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600 Stewart St, Suite 1420	Project Number: 4823-517-09	**Reported:**
Seattle, WA/USA 98101	Project Manager: Brian Peterka	12/16/03 14:56

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Jeff Gerdes

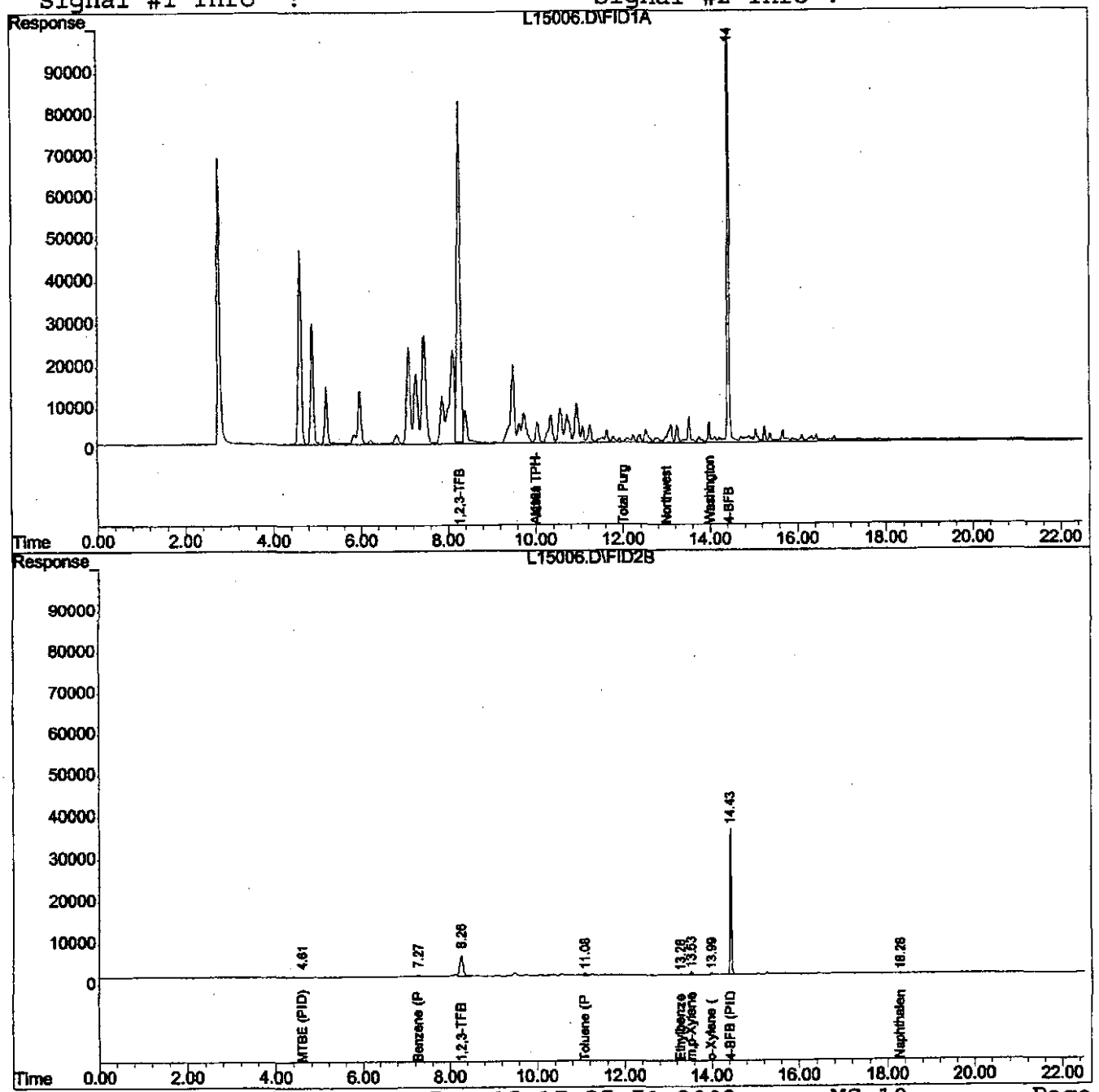
Jeff Gerdes, Project Manager

Quantitation Report

Signal #1 : E:\HPCHEM\2\DATA\121503\L15006.D\FID1A.CH Vial: 6
Signal #2 : E:\HPCHEM\2\DATA\121503\L15006.D\FID2B.CH
Acq On : 15 Dec 2003 17:03 Operator: ay
Sample : b310478-01 Inst : GC-14
Misc : 1x 25 mL, air Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Dec 15 17:25 2003 Quant Results File: TEST1003.RES

Quant Method : E:\HPCHEM\2\METHODS\TEST1003.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Dec 15 15:58:24 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1003.M

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

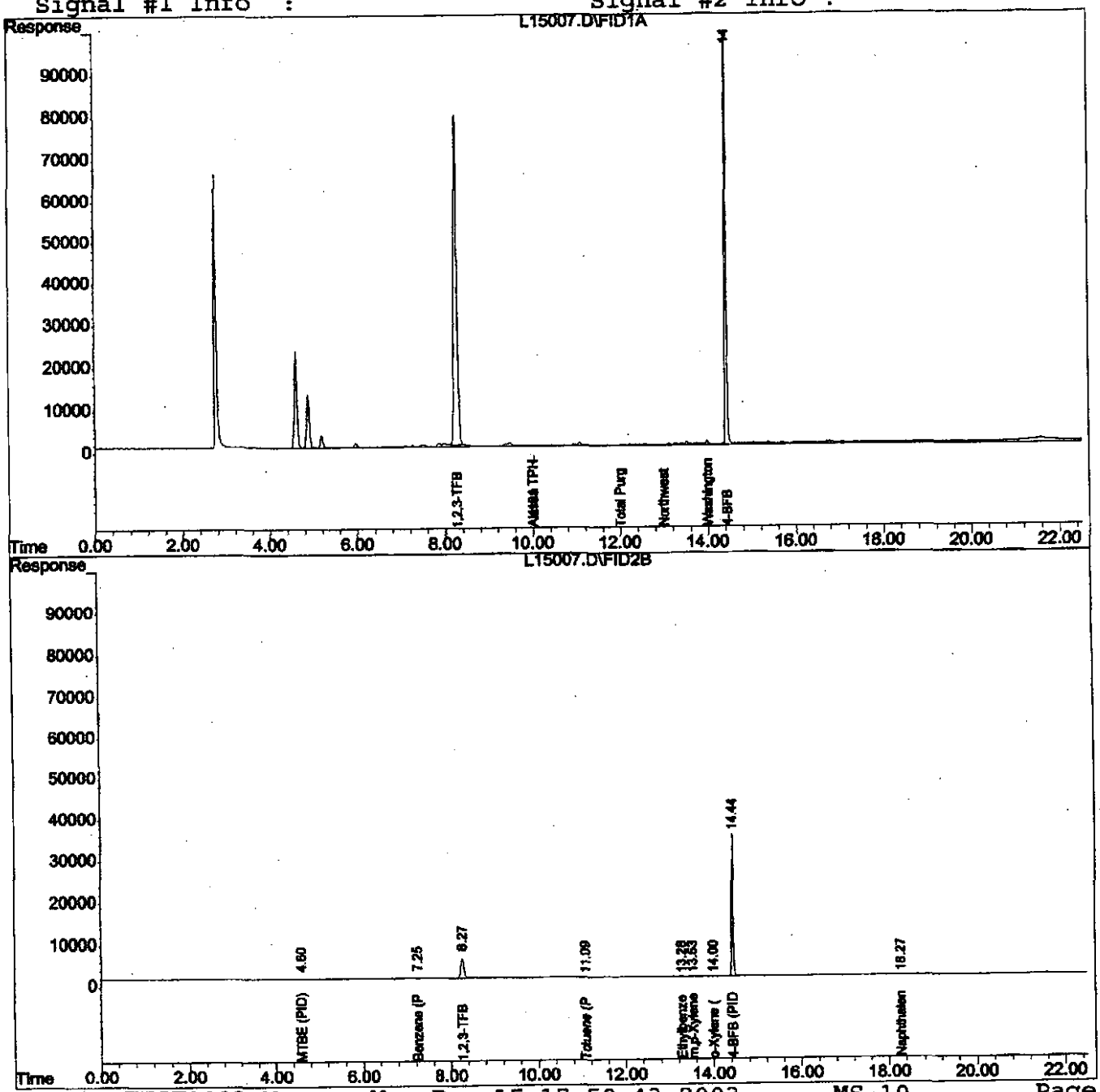


Quantitation Report

Signal #1 : E:\HPCHEM\2\DATA\121503\L15007.D\FID1A.CH Vial: 7
Signal #2 : E:\HPCHEM\2\DATA\121503\L15007.D\FID2B.CH
Acq On : 15 Dec 2003 17:36 Operator: ay
Sample : b310478-02 Inst : GC-14
Misc : 1x 25 mL, air Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Dec 15 17:59 2003 Quant Results File: TEST1003.RES

Quant Method : E:\HPCHEM\2\METHODS\TEST1003.M (Chemstation Integrator)
Title : TPH-G/BTEX 8015/8021 Method
Last Update : Mon Dec 15 15:58:24 2003
Response via : Multiple Level Calibration
DataAcq Meth : TEST1003.M

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



CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 12-15-03
PAGE 1 OF 1
LAB NCA
LAB NO.

PROJECT NAME/LOCATION PHILLIPS WLQM
PROJECT NUMBER 4823-517-09
PROJECT MANAGER BRIAN PETERKA
SAMPLED BY SCOT OUERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED											NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	MTBE+BTEX											(Preserved, filtered, etc.)
01	INF121503	12-15-03	1030	A	1	X											NORMAL TAT
02	MID121503	"	1035	A	1	X										X	24 HR TAT
03	EFF121503	"	1040	A	1	X										X	HOLD

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOT OUERDICK	PRINTED NAME		PRINTED NAME	
DATE 12-15-03	TIME 1300	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Colette Weaver	PRINTED NAME		PRINTED NAME	
DATE 12/15/03	TIME 1300	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS: W/O 19.8