5810

SECOR
International Incorporated

January 10, 2001

Mr. Chuck Hutchens
Atlantic Richfield Company
12520 NE 160th Place
Woodinville, WA 98072-7960

RE: Results of Soil Sampling Report
ARCO Service Station No. 5810
2101 West 6th Street, Bremerton, Washington
SECOR PN: 015.08912.620

Dear Mr. Hutchens:

This letter report, prepared by SECOR International Incorporated (SECOR) for Atlantic Richfield Company (ARCO), presents the results of soil sampling during dispenser and product line upgrade activities at the above referenced site. The site location is shown on Figure 1. The soil sampling work was completed to investigate the soil quality beneath the fuel dispensers and product lines during the upgrade activities.

SOIL SAMPLING

The soil samples were collected on December 20, 2000 during fuel dispenser and product line upgrade activities. Upon SECOR's arrival on-site, removal of the four fuel dispensers had been completed and the product lines had been exposed by the ARCO contractor. The excavation extended to a depth of approximately 3 feet below ground surface (bgs) in the former locations of the fuel dispensers and along the length of the product lines. The exposed material consisted of pea gravel fill overlying the native soils. In order to expose and sample the native soils beneath the fuel dispensers and product lines, the depth of the excavation was extended by hand digging an additional 0.5 to 1.0 feet bgs in selected sample locations. The site layout, extent of the excavation and soil sample locations are shown on Figure 2.

Soil samples were collected from exposed soils in the following locations:

- Beneath the former locations of each fuel dispenser at depths ranging from 3.5 feet to 4.0 feet below ground surface (bgs);
- Beneath the product lines at depths ranging from 3.0 feet to 4.0 bgs feet at approximately 15 foot horizontal intervals along the lengths of the lines, and;
- From a soil stockpile containing approximately 60 yards of soil excavated during the dispenser and product line replacement activities.

The sampling frequency was in accordance or more stringent than the frequency recommended in the Washington State Department of Ecology (Ecology) document '*Guidance for Site Checks and Site Assessments for Underground Storage Tanks*' Revised October, 1992.

Each soil sample was field-screened and lithologically described by SECOR personnel experienced with soil investigative work. In addition, each soil sample was prepared for possible laboratory analysis. The soil sampling and field screening procedures are described in Attachment 3. Field screening of soil samples included visual observation and vapor headspace analysis using a photoionization detector (PID). Field screening results and lithological descriptions are included in Table 1.

SOIL SAMPLING RESULTS

The soil lithology consisted generally of pea gravel fill from ground surface to a depth of approximately 3.0 feet bgs. Beneath the fill, the lithology consisted of sand with some silt and trace gravel to a depth of 4.0 feet bgs (the maximum depth of the excavation).

Field screening results indicated all but one of the soil samples collected contained headspace vapors of 0 ppm. The exception, sample P2-4, contained headspace vapors of 150 ppm. Sample P2-4 was collected from beneath a fuel dispenser (Figure 2, shows the sample location).

Soil lithology descriptions and field screening results are presented in Table 1.

ANALYTICAL RESULTS

Nine soil samples were submitted for laboratory analysis. Selection of the samples for analysis was based on field screening results and in compliance with Ecology's recommended sampling frequency. Four of the samples submitted originated from beneath the dispensers (one from beneath each dispenser), four samples originated from beneath the product lines and one sample originated from the soil stockpile.

Each sample was analyzed for Total Petroleum Hydrocarbons in the gasoline range (TPH-G) by Ecology Method NWTPH-G and for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and Methyltert-butyl ether by EPA Method 8021B.

Analytical results are summarized on Table 2, Attachment 2. Results were compared to the regulatory standards contained in the Washington Department of Ecology Regulation 'Model Toxics Control Act' (MTCA) Method A Cleanup Levels.

All but one of the soil samples submitted for analysis contained hydrocarbon concentrations below the laboratory detection limit and below the MTCA Method A Cleanup Levels. The exception, sample P2-4, contained detectable concentrations of TPH-G and benzene. Concentrations were below the MTCA Method A Cleanup Levels.

A copy of the laboratory analytical report and chain-of-custody document is included in Attachment 4.

SUMMARY

SECOR completed soil sampling during dispenser and product line upgrade activities at ARCO service station # 5810 in Bremerton, Washington. Results of the soil sampling indicate that soils in the vicinity of the areas sampled (immediately beneath the former locations of the dispensers and product lines) contain hydrocarbon concentrations beneath the MTCA Method A Standards for the constituents analyzed. In addition, results indicate that the approximately 60 yards of stockpiled soils originating from the areas excavated contained hydrocarbon concentrations beneath the MTCA Method A Standards for the constituents analyzed.

SECOR appreciates the opportunity to be of service to ARCO on this project. If you have any questions regarding this report, please call us at (503) 691-2030.

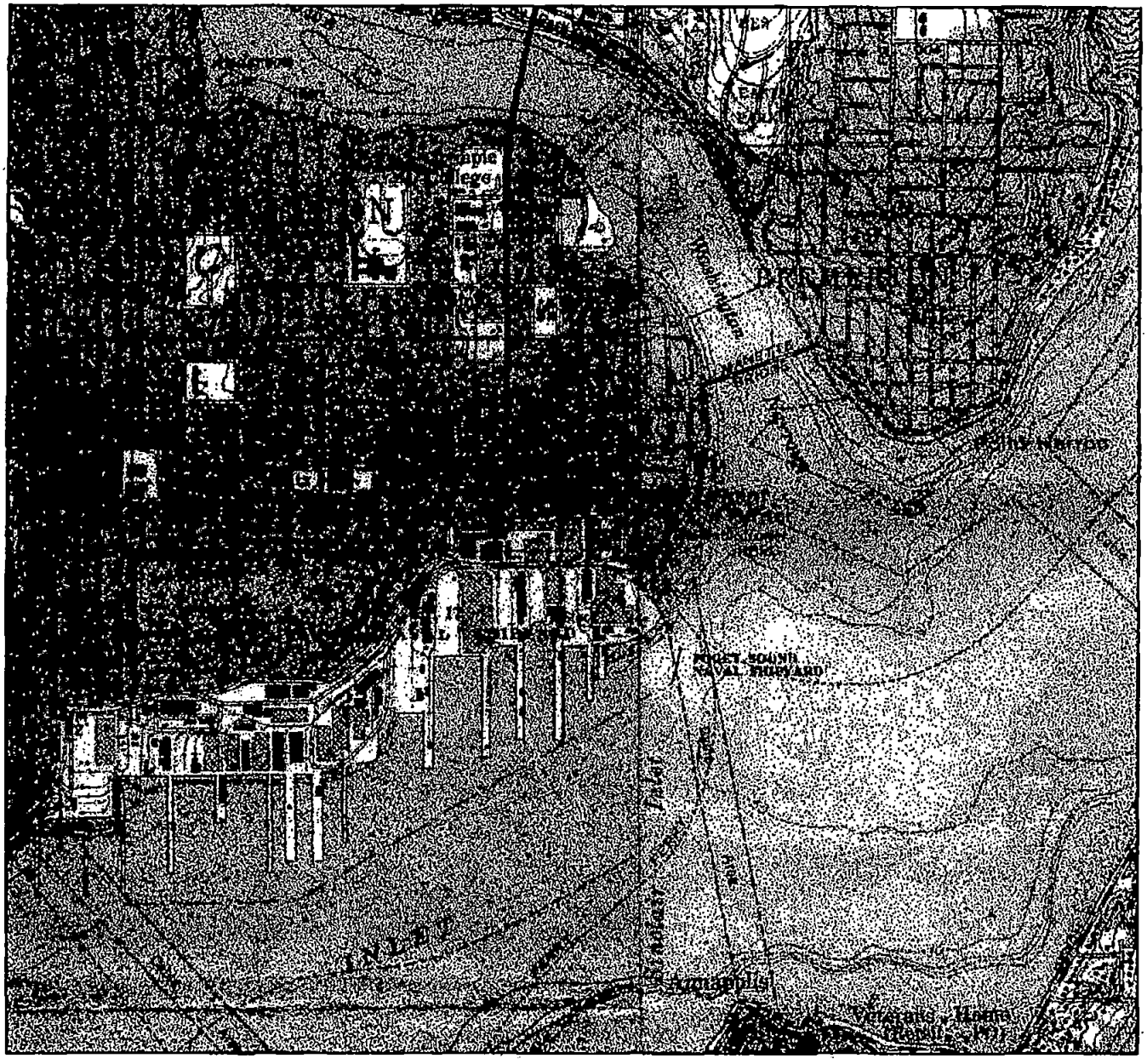
Sincerely,
SECOR International Incorporated

Marc Sauze
Senior Engineer

R. Scott Miller, P.E.
Senior Engineer

MS/RSM:pef
Attachments

ATTACHMENT 1
FIGURES



WASHINGTON

North

0 1/2 1

SCALE (MILES)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; BREMERTON EAST & WEST, WA., 1963, PHOTOREVISED 1981

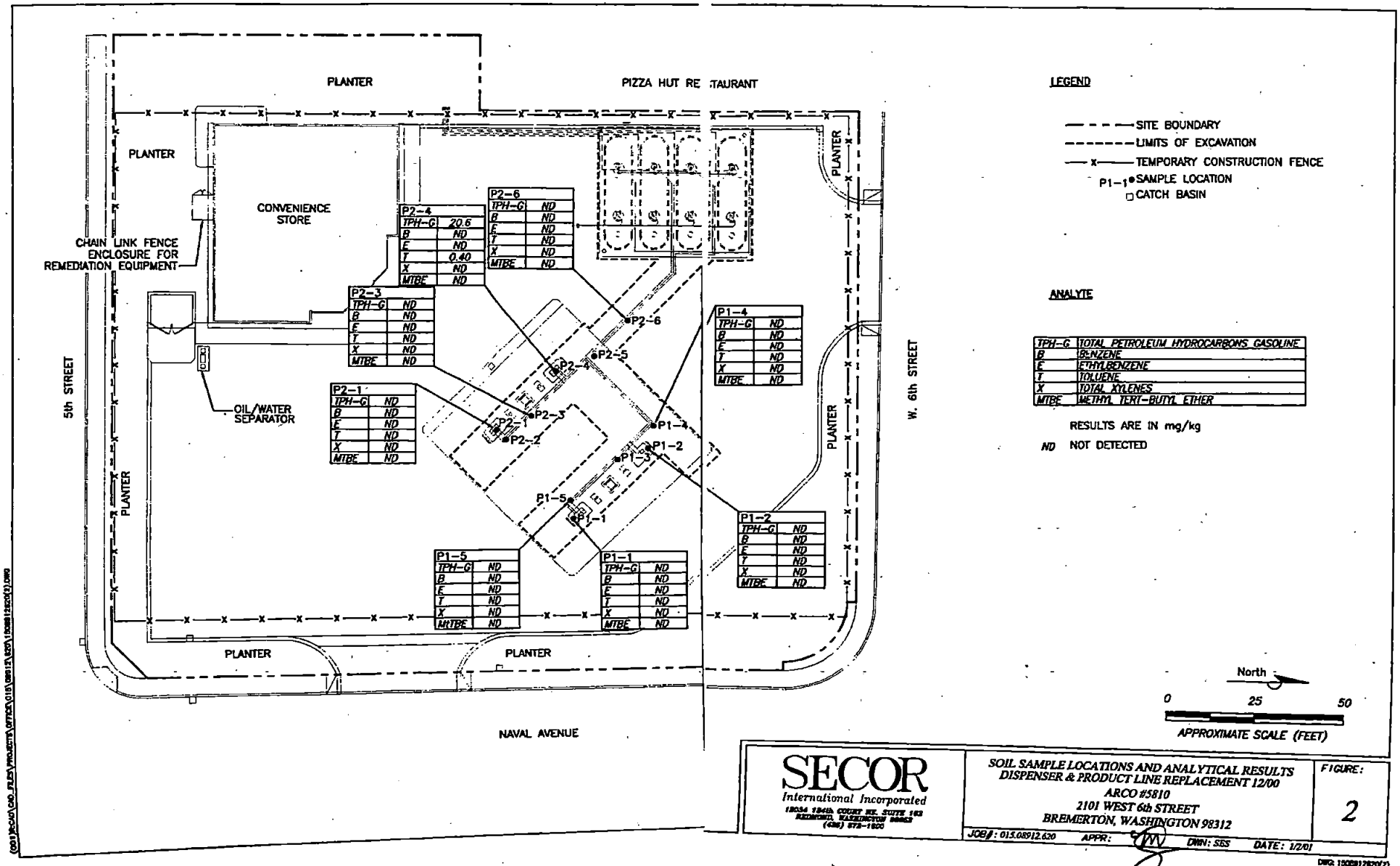
SECOR
International Incorporated
12034 134th COURT NE, SUITE 102
REDMOND, WASHINGTON 98052
(425) 372-1600

SITE LOCATION MAP

ARCO #5810
2101 WEST 6th STREET
BREMERTON, WASHINGTON 98312

FIGURE: 1

JOB#: 015.08912.620 APPR: DWN: SES DATE: 1/4/01



SECOR International Incorporated
18034 184th COURT NE, SUITE 102 REDMOND, WASHINGTON 98052 (425) 672-1850

SOIL SAMPLE LOCATIONS AND ANALYTICAL RESULTS
DISPENSER & PRODUCT LINE REPLACEMENT 12/00
ARCO #5810
2101 WEST 6th STREET
BREMERTON, WASHINGTON 98312

FIGURE: 2

JOB #: 015.08912.620 APPR: DWN: SES DATE: 1/2/01

DWG: 150891282O(2)

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ATTACHMENT 2
TABLES

Table 1
Soil Sampling Summary
Dispenser and Product Line Upgrade 12/2000
Arco #5810
Bremerton, Washington
SECOR PN: 015.08912.620

Sample ID	Depth Below Grade (feet)	Headspace Vapor (ppm)	Location (see site plan Figure 2)	Soil Description	Submitted For Analysis
P1-1	4	0	Beneath Dispenser	sand, some silt, reddish brown, damp, loose, no odor	Y
P1-2	3	0	Beneath Dispenser	sand, some silt, trace gravel reddish brown, moist, no odor	Y
P1-3	3	0	Beneath Product Line	sand, some silt, trace gravel reddish brown, moist, no odor	N
P1-4	3	0	Beneath Product Line	sand, some silt, trace gravel light grey, moist, no odor	Y
P1-5	4	0	Beneath Product Line	sand/silt, some gravel, reddish brown, moist, no odor	Y
P2-1	4	0	Beneath Dispenser	sand/silt, trace gravel, grey in reddish seams, moist, no odor	Y
P2-2	3.5	0	Beneath Product Line	sand/silt, trace gravel, light red, brown, moist, no odor	N
P2-3	4	0	Beneath Product Line	sand/silt, trace gravel, grey/reddish moist, no odor	Y
P2-4	3.5	150	Beneath Dispenser	sand/silt, trace gravel light brown/red moist, slight odor	Y
P2-5	4	0	Beneath Product Line	sand/silt, trace gravel, light grey, moist	N
P2-6	4	0	Beneath Product Line	sand/silt, trace gravel light grey moist	Y
STOCKPILE SAMPLES					
S1-1	N/A	0	Stockpile 1	sand (course grain), trace silt, grey, moist, no odor	N
S1-2	N/A	0	Stockpile 1	sand (course grain), trace silt, light red, moist, no odor	Y
S1-3	N/A	0	Stockpile 1	sand (course grain), trace silt, grey, moist, no odor	N

Notes
N/A - Not Applicable
ppm - parts per million

Table 2
Soil Analytical Results
Dispenser and Product Line Upgrade 12/2000
Arco #5810
Bremerton, Washington
SECOR PN: 015.08912.620

Analyte	Soil (mg/kg)									Soil
	P1-1	P1-2	P1-4	P1-5	P2-1	P2-3	P2-4	P2-6	S1-2	MTCA[1] Cleanup Levels (mg/kg)
TPH-G	ND	ND	ND	ND	ND	ND	20.6	ND	ND	100.0
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.0
Toluene	ND	ND	ND	ND	ND	ND	0.403	ND	ND	40.0
Total Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.0
Methyltert-butyl ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	--

Notes

ND - Analyte not detected at or above the reporting limit

[1] Washington State Department of Ecology (Ecology) regulation "Model Toxics Control Act" Method A Cleanup Levels for Residential Soil (WAC 173-340)

TPH-G = Total Petroleum Hydrocarbons in the gasoline range by Ecology Method NWTPH-G

Benzene, Ethylbenzene, Toluene, Total Xylenes and Methyltert-butyl ether analyzed using USEPA Method 8021B

mg/kg = milligrams per kilogram

--No Standard

ATTACHMENT 3
SOIL SAMPLING PROCEDURES

SOIL SAMPLING PROCEDURES

SOIL SAMPLE COLLECTION

Soil samples were collected at selected locations and in accordance with the frequency and location recommended in the Washington State Department of Ecology document '*Guidance for Site Checks and Site Assessments for Underground Storage Tanks*' Revised October, 1992.

A log was compiled during soil sampling, including descriptions of the soil types, color, texture, degree of consolidation, and moisture content. Soil types were based on the Unified Soil Classification System.

FIELD SCREENING OF SOIL SAMPLES

Soil samples were field screened for visual or olfactory indications of petroleum hydrocarbons, tested for sheen by water immersion, and tested for headspace vapor concentrations using a portable photoionization detector (PID).

Data generated from field screening instruments were considered qualitative in nature. Although semi-quantitative data are generated using a PID, the results cannot be relied upon with the confidence of a laboratory analysis. Data generated from this type of analysis may provide the following:

- Identification of soil, water, air, and waste locations that have a high likelihood of showing contamination through subsequent laboratory analysis.
- Real-time data used for health and safety consideration during site reconnaissance and subsequent intrusive activities.
- Quantitative data, if contaminant is known and the instrument is calibrated to that substance.

FIELD SCREENING USING VAPOR HEADSPACE TESTING

The instrument used for headspace vapor testing was a MiniRAE® Plus PID. Prior to use, this instrument was calibrated to a known isobutylene calibrating standard (100 parts per million [ppm]), in accordance with the manufacturer's specifications.

The following sequential steps were completed for each sample analyzed:

- A representative portion of the soil sample was collected directly from exposed soils into a new, sealable Ziploc-type plastic bag. The bag was immediately sealed.
- The sealed bag with sample was allowed to sit at field ambient temperature for several minutes.
- One end of the bag seal was slightly opened and the intake port of a PID was carefully inserted through the opening.
- The stabilized numerical value was observed and recorded onto the boring log form.

This number does not represent a concentration of volatiles in ppm; it is a relative measure of the amount of ionized compounds present. As the exact chemical species present is unknown, the units of concentration are referred to as ppm of isobutylene.

Vapor headspace screening is only applicable as a screening method for the presence of ionizable compounds with first ionization potentials of less than 10.6 electron volts. In addition, variables that may affect measurable concentrations and unaccounted for in this procedure include, but are not limited to: temperature, soil moisture content, and soil organic content. Vapor headspace screening is not designed for screening for evidence of contamination by semi-volatile or non-volatile organic compounds or for the presence of elemental metals or compounds.

EQUIPMENT CALIBRATION AND MAINTENANCE

All instruments and equipment used during this project were operated, calibrated, and maintained according to the manufacturers' guidelines and recommendations. Operation, calibration, and maintenance were performed by personnel who have been properly trained in these procedures.

Field screening instruments used were appropriate for detection of petroleum hydrocarbons such as benzene, toluene, and xylenes. Instruments were calibrated and maintained according to manufacturers' instructions.

ATTACHMENT 4
ANALYTICAL LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

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503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588

Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
P1-1	B0L0534-01	Soil	12/20/00 10:00	12/21/00 15:15
P1-2	B0L0534-02	Soil	12/20/00 10:00	12/21/00 15:15
P1-4	B0L0534-04	Soil	12/20/00 10:30	12/21/00 15:15
P1-5	B0L0534-05	Soil	12/20/00 11:00	12/21/00 15:15
P2-1	B0L0534-07	Soil	12/20/00 11:30	12/21/00 15:15
P2-3	B0L0534-09	Soil	12/20/00 12:00	12/21/00 15:15
P2-4	B0L0534-10	Soil	12/20/00 12:15	12/21/00 15:15
P2-6	B0L0534-12	Soil	12/20/00 12:45	12/21/00 15:15
S1-2	B0L0534-14	Soil	12/20/00 13:15	12/21/00 15:15

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Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P1-1 (B0L0534-01) Soil Sampled: 12/20/00 10:00 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.6 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*87.4 %*	*50-150*			"	"	"	"	
P1-2 (B0L0534-02) Soil Sampled: 12/20/00 10:00 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.8 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*86.1 %*	*50-150*			"	"	"	"	
P1-4 (B0L0534-04) Soil Sampled: 12/20/00 10:30 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.2 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*89.5 %*	*50-150*			"	"	"	"	

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Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P1-5 (B0L0534-05) Soil Sampled: 12/20/00 11:00 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.9 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*85.1 %*	*50-150*			"	"	"	"	
P2-1 (B0L0534-07) Soil Sampled: 12/20/00 11:30 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.4 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*88.5 %*	*50-150*			"	"	"	"	
P2-3 (B0L0534-09) Soil Sampled: 12/20/00 12:00 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*88.2 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*85.0 %*	*50-150*			"	"	"	"	

JMG

Jeanne Garthwaite, Project Manager

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7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P2-4 (B0L0534-10) Soil Sampled: 12/20/00 12:15 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	**20.6**	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	**0.403**	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	0.0600	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.7 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*88.6 %*	*50-150*			"	"	"	"	
P2-6 (B0L0534-12) Soil Sampled: 12/20/00 12:45 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.3 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*87.6 %*	*50-150*			"	"	"	"	
S1-2 (B0L0534-14) Soil Sampled: 12/20/00 13:15 Received: 12/21/00 15:15									
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry	1	0L21033	12/21/00	12/22/00	NWTPH-G/8021B	
Benzene	ND	0.0500	"	"	"	"	"	"	
Toluene	ND	0.0500	"	"	"	"	"	"	
Ethylbenzene	ND	0.0500	"	"	"	"	"	"	
Xylenes (total)	ND	0.100	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.0 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*91.4 %*	*50-150*			"	"	"	"	

JMG

Jeanne Garthwaite, Project Manager

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Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Physical Parameters by APHA/ASTM/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
P1-1 (B0L0534-01) Soil	**Sampled: 12/20/00 10:00**	**Received: 12/21/00 15:15**							
Dry Weight	**88.4**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P1-2 (B0L0534-02) Soil	**Sampled: 12/20/00 10:00**	**Received: 12/21/00 15:15**							
Dry Weight	**85.6**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P1-4 (B0L0534-04) Soil	**Sampled: 12/20/00 10:30**	**Received: 12/21/00 15:15**							
Dry Weight	**87.4**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P1-5 (B0L0534-05) Soil	**Sampled: 12/20/00 11:00**	**Received: 12/21/00 15:15**							
Dry Weight	**80.8**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P2-1 (B0L0534-07) Soil	**Sampled: 12/20/00 11:30**	**Received: 12/21/00 15:15**							
Dry Weight	**82.4**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P2-3 (B0L0534-09) Soil	**Sampled: 12/20/00 12:00**	**Received: 12/21/00 15:15**							
Dry Weight	**80.0**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P2-4 (B0L0534-10) Soil	**Sampled: 12/20/00 12:15**	**Received: 12/21/00 15:15**							
Dry Weight	**81.1**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
P2-6 (B0L0534-12) Soil	**Sampled: 12/20/00 12:45**	**Received: 12/21/00 15:15**							
Dry Weight	**85.3**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	
S1-2 (B0L0534-14) Soil	**Sampled: 12/20/00 13:15**	**Received: 12/21/00 15:15**							
Dry Weight	**93.2**	1.00	%	1	0L21037	12/21/00	12/22/00	BSOPSPL003R07	

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Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX 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 0L21033: Prepared 12/21/00 Using EPA 5030B (MeOH)										
Blank (0L21033-BLK1)										
Gasoline Range Hydrocarbons	ND	5.00	mg/kg wet							
Benzene	ND	0.0500	"							
Toluene	ND	0.0500	"							
Ethylbenzene	ND	0.0500	"							
Xylenes (total)	ND	0.100	"							
Methyl tert-butyl ether	ND	1.00	"							
Surrogate: 4-BFB (FID)	*4.07*		"	*4.00*		*102*	*50-150*			
Surrogate: 4-BFB (PID)	*3.87*		"	*4.00*		*96.7*	*50-150*			
Blank (0L21033-BLK2)										
Gasoline Range Hydrocarbons	ND	5.00	mg/kg wet							
Benzene	ND	0.0500	"							
Toluene	ND	0.0500	"							
Ethylbenzene	ND	0.0500	"							
Xylenes (total)	ND	0.100	"							
Methyl tert-butyl ether	ND	1.00	"							
Surrogate: 4-BFB (FID)	*4.05*		"	*4.00*		*101*	*50-150*			
Surrogate: 4-BFB (PID)	*3.90*		"	*4.00*		*97.5*	*50-150*			
LCS (0L21033-BS2)										
Gasoline Range Hydrocarbons	24.7	5.00	mg/kg wet	25.0		98.8	70-130			
Surrogate: 4-BFB (FID)	*4.10*		"	*4.00*		*102*	*50-150*			
Surrogate: 4-BFB (PID)	*3.51*		"	*4.00*		*87.7*	*50-150*			
Duplicate (0L21033-DUP1)					**Source: B0L0534-01**					
Gasoline Range Hydrocarbons	ND	5.00	mg/kg dry		ND			15.7	50	
Surrogate: 4-BFB (FID)	*4.18*		"	*4.52*		*92.5*	*50-150*			

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Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX 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 0L21033: Prepared 12/22/00 Using EPA 5030B (MeOH)										
Matrix Spike (0L21033-MS1)					**Source: B0L0534-04**					
Benzene	0.501	0.0500	mg/kg dry	0.572	ND	86.8	60-140			
Toluene	0.507	0.0500	"	0.572	ND	84.5	60-140			
Ethylbenzene	0.527	0.0500	"	0.572	ND	91.5	60-140			
Xylenes (total)	1.68	0.100	"	1.72	ND	97.7	60-140			
Methyl tert-butyl ether	0.502	0.0600	"	0.572	ND	87.8	60-140			
Surrogate: 4-BFB (FID)	*4.14*		"	*4.58*		*90.4*	*50-150*			
Matrix Spike Dup (0L21033-MSD1)					**Source: B0L0534-04**					
Benzene	0.483	0.0500	mg/kg dry	0.572	ND	83.7	60-140	3.66	20	
Toluene	0.505	0.0500	"	0.572	ND	84.2	60-140	0.395	20	
Ethylbenzene	0.522	0.0500	"	0.572	ND	90.6	60-140	0.953	20	
Xylenes (total)	1.57	0.100	"	1.72	ND	91.3	60-140	6.77	20	
Methyl tert-butyl ether	0.488	0.0600	"	0.572	ND	85.3	60-140	2.83	20	
Surrogate: 4-BFB (PID)	*4.08*		"	*4.58*		*89.1*	*50-150*			

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Secor - Oregon	Project: Arco #26971.00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0L21037: Prepared 12/21/00 Using Dry Weight										
Blank (0L21037-BLK1)										
Dry Weight	100	1.00	%							

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Secor - Oregon	Project: Arco #26971 00	
7730 SW Mohawk	Project Number: 015.08912.620	**Reported:**
Tualatin OR, 97062	Project Manager: Scott Miller	12/27/00 10:01

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.

JMG

Jeanne Garthwaite, Project Manager