Release #47259
Tosco 6380
Bellingham
UST # 8394
VCP # NW1487

ConocoPhillips

DATE: September 19, 2005

GROUNDWATER MONITORING REPORT

Facility No.: 256380 Address: 200 South 36th Street, Bellingham, Washington
ConocoPhillips Site Manager: Kipp W. Eckert
Consultant / Contact Person: SECOR International Inc. / Alice Larsen
Primary Agency/Regulatory ID No.: Washington State Department of Ecology
SECOR Project No: 01CP.06380.07

WORK PERFORMED THIS QUARTER(S) [2nd - 2005]:

- On June 9, 2005, SECOR personnel monitored, purged and sampled four of the existing network of four groundwater monitoring wells (MW-1 through MW-4).

- Groundwater samples were collected using a peristaltic pump whenever possible, with dedicated polyethylene tubing in the well casing and a new section of silicon tubing in the pump head. If it was not possible to collect the groundwater samples with a peristaltic pump, then the groundwater samples were collected using a new, disposable, polyethylene bailer. Complete groundwater purging and sampling procedures are provided in Attachment B.

- Samples were submitted to Severn Trent Laboratories, Inc. (STL) for analysis of gasoline-range hydrocarbons (TPH-g) per Ecology Method NWTPH-Gx, diesel (TPH-d) and motor-oil (TPH-o) range hydrocarbons per Ecology Method NWTPH-Dx modified with an acid/silica gel cleanup, benzene, tolulene, ethylbenzene, total xylenes (BTEX) and methyl tert-butyl ether (MTBE) per United States Environmental Protection Agency (USEPA) Method 5030/8260B; plus dissolved lead per USEPA Method 6010.

WORK PROPOSED FOR NEXT QUARTER [3rd - 2005]:

- Measure depth to water, purge, and sample four groundwater monitoring wells (MW-1 through MW-4). Submit groundwater samples for analysis for NWTPH-Gx, NWTPH-Dx, BTEX and dissolved lead.

DATA SUMMARY THIS QUARTER:

Frequency of Sampling Events:	Quarterly	(03/05,06/05,09/05,12/05)
Depth to Groundwater:	5.25 ft. (MW-3)	(Measured Feet Below
	8.66 ft. (MW-2)	Top of Well Casing)
Groundwater Gradient:	Northwest	(Apparent Flow Direction)
	0.003 feet per foot	(Approximate Magnitude)
Maximum TPH-G Concentrations:	None Detected	(ppb / well ID)
Maximum TPH-D Concentrations:	None Detected	(ppb / well ID)
Maximum TPH-O Concentrations:	None Detected	(ppb / well ID)
Maximum Benzene Concentration:	None Detected	(ppb / well ID)
Maximum Dissolved Lead Concentration:	None Detected	(ppb / well ID)
Measurable Free Product Detected:	No	(Yes - ID well(s)/No)
Free Product Recovered This Quarter:	None	(Gallons)
Cumulative Free Product Recovered to Date:	None	(Gallons)
Water Wells or	i.) One Water Well	(Type)
Surface Waters w/in 2,000 ft:	ii.) Connelly Creek	
Radius and Respective	i.) 1600 ft. West	(Respective Distance
Direction From Site:	ii.) 1000 ft. Southwest	& Direction)
Current Remedial Action:	MNA	(SVE/AS/P&T/MNA etc.)

Permits for Discharge: None (NPDES, POTW, etc.)

DISCUSSION:

- No gasoline, diesel, or heavy-oil-range-hydrocarbons were detected at concentrations greater than the laboratory reporting limits (RLs) in any of the groundwater samples collected this quarter.
- No BTEX constituents were detected at concentrations greater than the RLs in any of the groundwater samples collected this quarter.
- MTBE was detected at a concentration greater than the RLs but less than the Model Toxics Control Act Method A Cleanup Levels for groundwater (MTCA A) in the groundwater sample collected from MW-1 at 1.26 µg/L. MTBE was not detected at concentrations greater than the RLs in the remaining samples collected this quarter.
- Dissolved lead was not detected at concentrations greater than the RLs in any of the groundwater samples collected this quarter.
- No drums were left on site.

ATTACHMENTS:

Figure 1: Site Location Map
Figure 2: Site Plan with Groundwater Elevations (6/9/05)
Figure 3: Site Plan with and Analytical Results (9/23/04 – 6/9/05)
Table 1: Summary of Cumulative Groundwater Elevations and Sample Analytical Results
Attachment A: Laboratory Analytical Report and Chain of Custody Record
Attachment B: SECOR Monitoring Well Gauging, Purging and Sampling Procedures; Groundwater Monitoring Field Data Records

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State of Washington
Hydrogeologist
652
Licensed Geologist

Maureen E. Sanchez

cc: LUST Coordinator, Washington State Department of Ecology, Northwest Regional Office
Mr. Frank Diehl, Keith Oil Corporation

MR/MS/bjw

FIGURES

North

WASHINGTON

1 1/2 0 1

SCALE (MILES)

1000 0 1000 2000 3000 4000 5000 6000 7000

SCALE (FEET)

REFERENCE: USGS 7.5 MINUTE QUADRANGLE; BELLINGHAM SOUTH, WASHINGTON; 1972

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PREPARED FOR:
ConocoPhillips
FACILITY NO 256380
200 SOUTH 36th STREET
BELLINGHAM, WASHINGTON

SITE LOCATION MAP

FIGURE: **1**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
01CP.06380.07	S. SIMMONS			2/5/04

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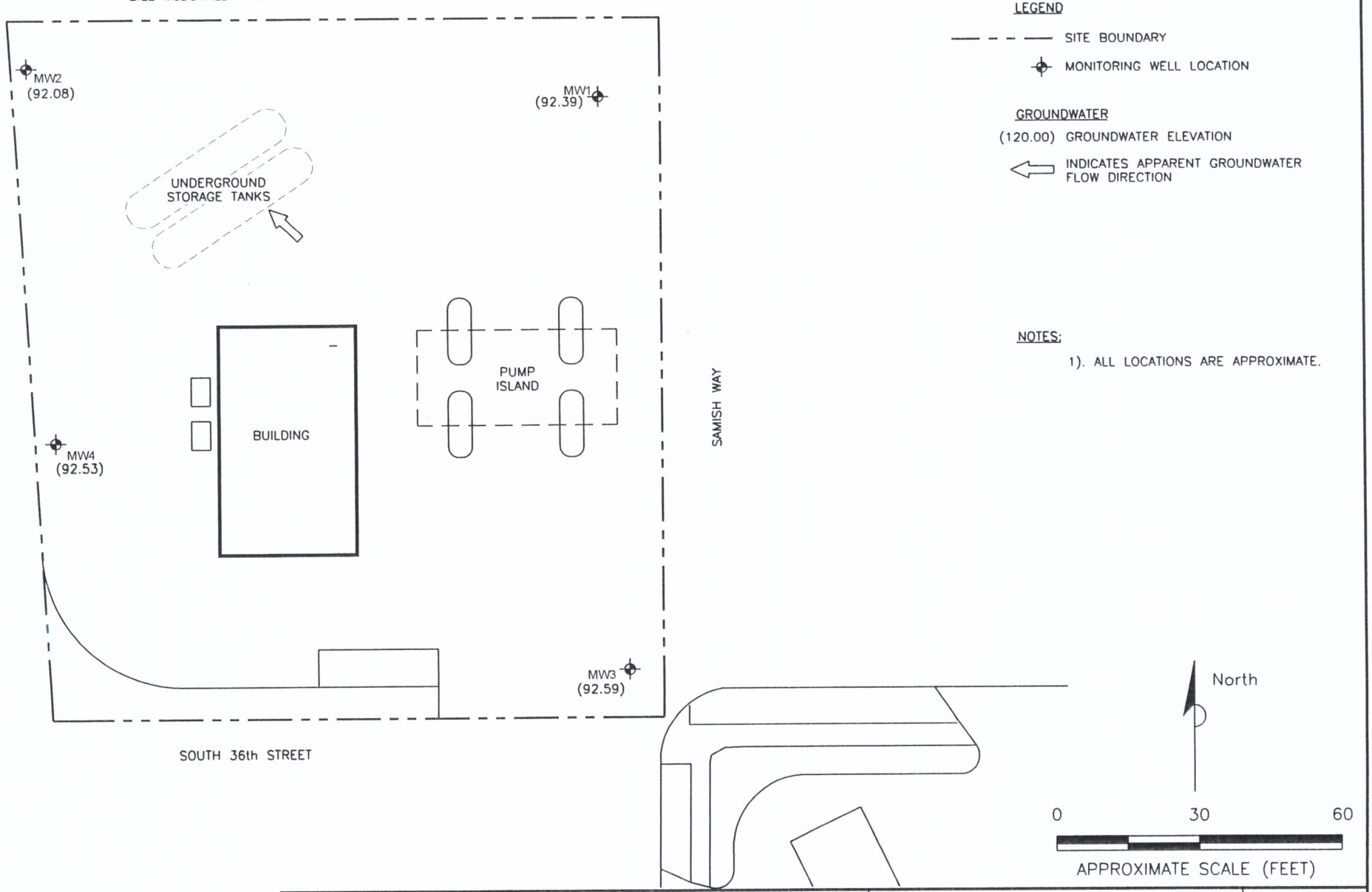

SOURCE:
BASE MAP FROM; ENVIRONMENTAL RESOLUTIONS, INC. (ERI) TITLED GROUNDWATER SAMPLE ANALYSIS MAP– 06/10/03, PLATE 1, DATED 07/08/03, PROJECT NO. 31065. CADD FILE 31065.13.DWG

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SITE PLAN WITH GROUNDWATER ELEVATIONS 6/9/05

FIGURE: **2**

JOB NUMBER:	DRAWN BY:	CHECKED BY:	APPROVED BY:	DATE:
01CP.06380.07	SS/ARA			4/12/05

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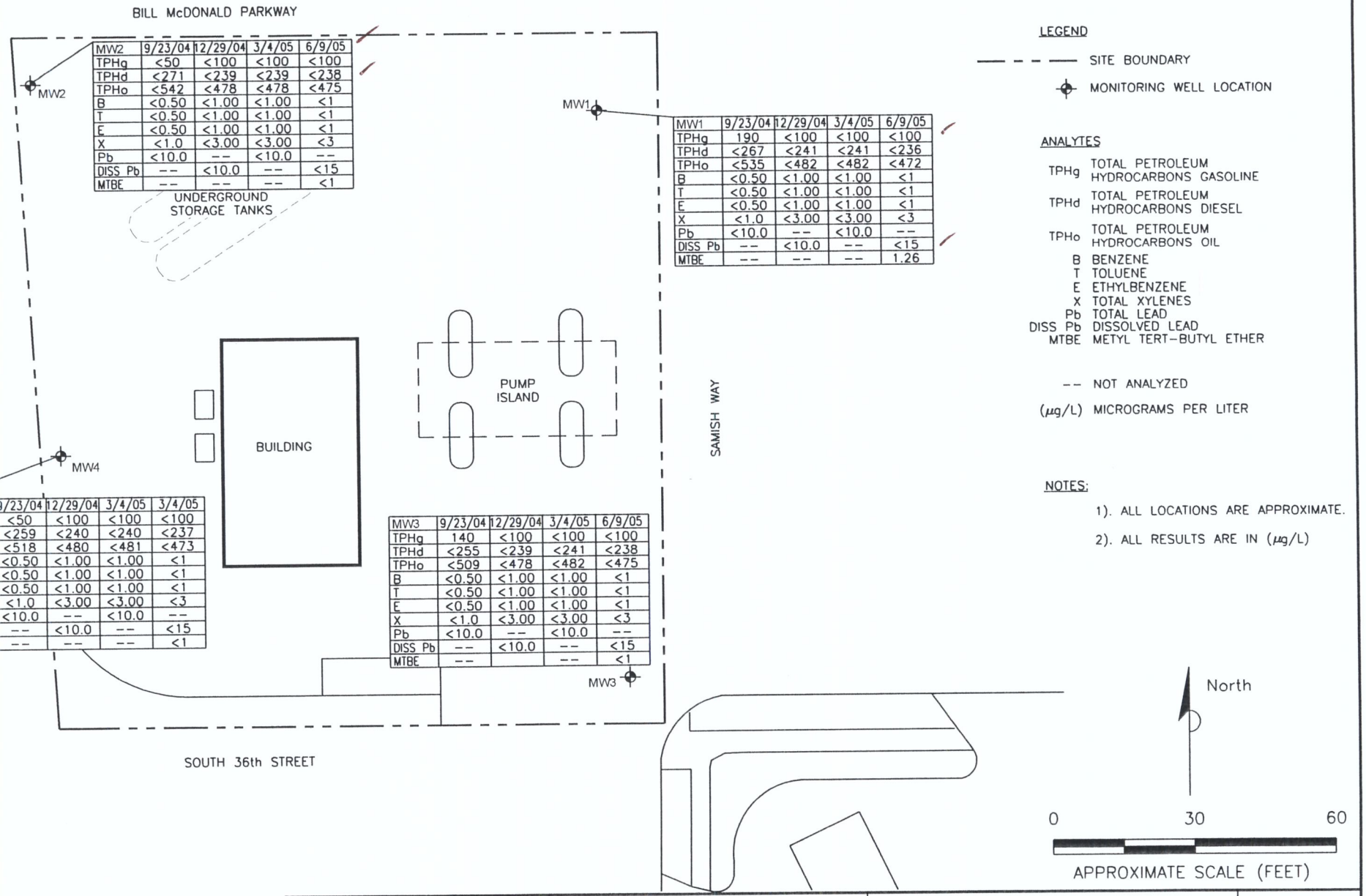

MW2	9/23/04	12/29/04	3/4/05	6/9/05
TPHg	<50	<100	<100	<100
TPHd	<271	<239	<239	<238
TPHo	<542	<478	<478	<475
B	<0.50	<1.00	<1.00	<1
T	<0.50	<1.00	<1.00	<1
E	<0.50	<1.00	<1.00	<1
X	<1.0	<3.00	<3.00	<3
Pb	<10.0	--	<10.0	--
DISS Pb	--	<10.0	--	<15
MTBE	--	--	--	<1

MW1	9/23/04	12/29/04	3/4/05	6/9/05
TPHg	190	<100	<100	<100
TPHd	<267	<241	<241	<236
TPHo	<535	<482	<482	<472
B	<0.50	<1.00	<1.00	<1
T	<0.50	<1.00	<1.00	<1
E	<0.50	<1.00	<1.00	<1
X	<1.0	<3.00	<3.00	<3
Pb	<10.0	--	<10.0	--
DISS Pb	--	<10.0	--	<15
MTBE	--	--	--	1.26

MW4	9/23/04	12/29/04	3/4/05	3/4/05
TPHg	<50	<100	<100	<100
TPHd	<259	<240	<240	<237
TPHo	<518	<480	<481	<473
B	<0.50	<1.00	<1.00	<1
T	<0.50	<1.00	<1.00	<1
E	<0.50	<1.00	<1.00	<1
X	<1.0	<3.00	<3.00	<3
Pb	<10.0	--	<10.0	--
DISS Pb	--	<10.0	--	<15
MTBE	--	--	--	<1

MW3	9/23/04	12/29/04	3/4/05	6/9/05
TPHg	140	<100	<100	<100
TPHd	<255	<239	<241	<238
TPHo	<509	<478	<482	<475
B	<0.50	<1.00	<1.00	<1
T	<0.50	<1.00	<1.00	<1
E	<0.50	<1.00	<1.00	<1
X	<1.0	<3.00	<3.00	<3
Pb	<10.0	--	<10.0	--
DISS Pb	--	<10.0	--	<15
MTBE	--		--	<1

LEGEND

SITE BOUNDARY

MONITORING WELL LOCATION

ANALYTES

TPHg TOTAL PETROLEUM HYDROCARBONS GASOLINE

TPHd TOTAL PETROLEUM HYDROCARBONS DIESEL

TPHo TOTAL PETROLEUM HYDROCARBONS OIL

B BENZENE

T TOLUENE

E ETHYLBENZENE

X TOTAL XYLENES

Pb TOTAL LEAD

DISS Pb DISSOLVED LEAD

MTBE METYL TERT-BUTYL ETHER

-- NOT ANALYZED

(µg/L) MICROGRAMS PER LITER

NOTES:

1). ALL LOCATIONS ARE APPROXIMATE.

2). ALL RESULTS ARE IN (µg/L)

SOURCE:
BASE MAP FROM; ENVIRONMENTAL RESOLUTIONS, INC. (ERI) TITLED GROUNDWATER SAMPLE ANALYSIS MAP- 06/10/03, PLATE 1, DATED 07/08/03, PROJECT NO. 31065. CADD FILE 31065.13.DWG

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SITE PLAN WITH ANALYTICAL RESULTS (9/23/04 - 6/9/05)

FIGURE: **3**

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01CP.06380.07	SS/ARA			4/12/05

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TABLES

TABLE 1
CUMMULATIVE SUMMARY OF GROUNDWATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS
ConocoPhillips Facility No. 256380
200 South 36th Street
Bellingham, Washington
Page 1 of 2

Well Name	Sample Date	DTW	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X	MTBE	Total Pb	Diss Pb
MW1	03/11/99	4.96	93.53	<50	<250	<750	<0.500	<0.500	<0.500	<1.00	--	2.41	--
TOC Elevation	05/25/99	5.33	93.16	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	--
98.49	08/12/99	6.66	91.83	<50.0	--	--	<0.500	<0.500	<0.500	<1.00	--	--	--
	12/07/99	6.10	92.39	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	6.18	--
	02/10/00	6.10	92.39	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	1.75	--
	02/02/01	5.17	93.32	<50.0	588	<750	**12.4**	1.02	1.10	2.77	--	--	<1.00
	02/08/02	5.77	92.72	**838**	**1,600**	<500	**128**	2.15	85.4	6.55	--	7.70	<1.00
	09/20/02	6.27	92.22	197	**1,320**	<588	1.82	<0.500	33.0	<1.00	--	<1.00	--
	12/04/02	7.05	91.44	373	511	<568	**106**	1.32	1.39	5.41	--	4.65	--
	03/05/03	5.70	92.79	168	<250	<500	**28.3**	1.70	3.55	5.87	--	4.90	--
	06/10/03	5.92	92.57	400	<250	<500	**36.9**	2.43	30.5	6.97	--	**17.1**	--
	09/03/03	6.30	92.19	258	301	<588	1.91	3.22	4.30	5.25	--	8.72	--
	12/12/03	5.530	92.960	204	**700**	304	2.45	<0.500	<0.500	<1.500	--	<5.0	--
	03/24/04	6.11	92.38	163	<126	<251	**12.6**	<1.00	<1.00	<3.00	--	14.6	--
	6/17/2004	5.10	93.39	<50.0	<118	<237	4.98	<0.500	<0.500	<1.50	--	--	<10.0
	9/23/2004	5.28	93.21	190	<267	<535	<0.50	<0.50	<0.50	<1.0	--	<10.0	--
	12/29/2004	5.42	93.07	<100	<241	<482	<1.00	<1.00	<1.00	<3.00	--	--	<10.0
	3/4/2005	5.73	92.76	<100	<241	<482	<1.00	<1.00	<1.00	<3.00	--	<10.0	--
	6/9/2005	6.10	92.39	<100	<236	<472	<1	<1	<1	<3	1.26	--	<15
MW2	03/11/99	7.93	92.81	<50	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**162**	--
TOC Elevation	05/25/99	8.18	92.56	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	--
100.74	08/12/99	8.94	91.80	<50.0	281	<750	<0.500	<0.500	<0.500	<1.00	--	--	--
	12/07/99	8.04	92.70	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**17.0**	--
	02/10/00	8.32	92.42	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**49.1**	--
	02/02/01	6.40	94.34	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	<1.00
	02/08/02	7.77	92.97	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	**40.6**	<1.00
	09/20/02	9.23	91.51	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	<1.00	--
	12/04/02	9.15	91.59	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	2.89	--
	03/05/03	8.28	92.46	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	**19.8**	--
	06/10/03	8.56	92.18	<50.0	<284	<568	<0.500	1.36	<0.500	2.53	--	**40.1**	--
	09/03/03	9.13	91.61	<80.0	<298	<595	0.829	1.25	0.519	2.49	--	**33.3**	--
	12/12/03	8.120	92.620	<50.0	<119	<237	<0.250	<0.500	<0.500	<1.500	--	<5.0	--
	03/24/04	8.13	92.61	<100	<124	<248	<1.00	<1.00	<1.00	<3.00	--	**21.3**	
	6/17/2004	8.13	92.61	<50.0	<119	<238	<0.250	<0.500	<0.500	<1.50	--	--	<10.0
	9/23/2004	8.33	92.41	<50	<271	<542	<0.50	<0.50	<0.50	<1.0	--	<10.0	--
	12/29/2004	7.82	92.92	<100	<239	<478	<1.00	<1.00	<1.00	<3.00	--	--	<10.0
	3/4/2005	8.34	92.40	<100	<239	<478	<1.00	<1.00	<1.00	<3.00	--	<10.0	--
	6/9/2005	8.66	92.08	<100	<238	<475	<1	<1	<1	<3	<1	--	<15
MW3	03/11/99	4.93	92.91	<50	<250	<750	<0.500	<0.500	<0.500	<1.00	--	6.35	--
TOC Elevation	05/25/99	5.19	92.65	210	383	<750	<0.500	<0.500	3.04	3.93	--	--	--
97.84	08/12/99	5.70	92.14	56.3	<250	<750	<0.500	<0.500	0.732	1.84	--	--	--
	12/07/99	5.03	92.81	94.7	<250	<750	<0.500	0.598	<0.500	<1.00	--	4.40	--
	02/10/00	4.92	92.92	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**17.6**	--
	02/02/01	4.76	93.08	63.0	413	<750	<0.500	<0.500	0.503	<1.00	--	--	<1.00
	02/08/02	4.59	93.25	91.5	410	<500	<0.500	<0.500	<0.500	<1.00	--	**22.3**	<1.00
	09/20/02	5.88	91.96	129	372	<500	<0.500	<0.500	<0.500	<1.00	--	<1.00	--
	12/04/02	5.26	92.58	147	371	<500	<0.500	<0.500	<0.500	<1.00	--	4.60	--
	03/05/03	4.70	93.14	62.2	<250	<500	<0.500	<0.500	<0.500	<1.00	--	12.5	--
	06/10/03	5.31	92.53	<50.0	<250	<500	<0.500	0.562	<0.500	<1.00	--	6.90	--
	09/03/03	5.66	92.18	<80.0	<250	<500	2.12	0.753	<0.500	<1.00	--	<1.00	--
	12/12/03	4.785	93.055	<50.0	<119	<237	<0.250	<0.500	<0.500	<1.500	--	<5.0	--
	03/24/04	4.81	93.03	<100	<128	<256	<1.00	<1.00	<1.00	<3.00	--	**20.0**	--
	6/17/2004	4.97	92.87	<50.0	<119	<238	<0.250	<0.500	<0.500	<1.50	--	--	<10.0
	9/23/2004	5.03	92.81	140	<255	<509	<0.50	<0.50	<0.50	<1.0	--	<10.0	--
	12/29/2004	4.53	93.31	<100	<239	<478	<1.00	<1.00	<1.00	<3.00	--	--	<10.0
	3/4/2005	5.02	92.82	<100	<241	<482	<1.00	<1.00	<1.00	<3.00	--	<10.0	--
	6/9/2005	5.25	92.59	<100	<238	<475	<1	<1	<1	<3	<1	--	<15
MTCA Method A Cleanup Levels				1000/800[a]	500	500	5	1000	700	1000	20	15	15

TABLE 1

SUMMARY OF CUMMULATIVE GROUNDWATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS

ConocoPhillips Facility No. 256380

200 South 36th Street

Bellingham, Washington

Well Name	Sample Date	DTW	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X	MTBE	Total Pb	Diss Pb
MW4	03/11/99	6.39	93.05	<50	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**29.0**	--
TOC Elevation	05/25/99	6.62	92.82	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	--
99.44	08/12/99	7.31	92.13	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	--
	12/07/99	6.37	93.07	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	10.2	--
	02/10/00	6.48	92.96	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	**23.6**	--
	02/02/01	6.37	93.07	<50.0	<250	<750	<0.500	<0.500	<0.500	<1.00	--	--	<1.00
	02/08/02	6.03	93.41	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	3.30	<1.00
	09/20/02	7.37	92.07	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	<1.00	--
	12/04/02	7.03	92.41	<50.0	<250	<500	<0.500	<0.500	<0.500	<1.00	--	<1.00	--
	03/05/03	6.33	93.11	<50.0	<284	<568	<0.500	<0.500	<0.500	<1.00	--	6.81	--
	06/10/03	6.99	92.45	<50.0	<250	<500	<0.500	0.687	<0.500	1.26	--	10.5	--
	09/03/03	7.60	91.84	<80.0	<312	<625	0.620	<0.500	<0.500	<1.00	--	2.75	--
	12/12/03	6.485	92.955	<50.0	<118	<237	<0.250	<0.500	<0.500	<1.500	--	<5.0	--
	03/24/04	6.54	92.90	<100	<133	<265	<1.00	<1.00	<1.00	<3.00	--	<5.0	--
	6/17/2004	5.91	93.53	<50.0	<119	<237	<0.250	<0.500	<0.500	<1.50	--	--	<10.0
	9/23/2004	6.52	92.92	<50	<259	<518	<0.50	<0.50	<0.50	<1.0	--	<10.0	--
	12/29/2004	6.14	93.30	<100	<240	<480	<1.00	<1.00	<1.00	<3.00	--	--	<10.0
	3/4/2005	6.65	92.79	<100	<240	<481	<1.00	<1.00	<1.00	<3.00	--	<10.0	--
	6/9/2005	6.91	92.53	<100	<237	<473	<1	<1	<1	<3	<1	--	<15
Waste Water Effluent	12/12/03	--	--	<50.0	--	--	<0.250	<0.500	<0.500	<1.500	--	--	--
	03/24/04	--	--	<50.0	--	--	<0.500	<0.500	<0.500	<1.500	--	--	--
	6/17/2004	--	--	<50.0	--	--	<0.250	<0.500	<0.500	<1.50	--	--	--
	9/23/2004	--	--	66	--	--	<0.50	<0.50	<0.50	<1.0	--	--	--
	12/29/2004	--	--	<100	--	--	<1.00	<1.00	<1.00	<3.00	--	--	<10.0
	3/4/2005	--	--	<100	--	--	<1.00	<1.00	<1.00	<3.00	--	--	--
	6/9/2005	--	--	<100	--	--	<1	<1	<1	<3	--	--	--
MTCA Method A Cleanup Levels				1000/800[a]	500	500	5	1000	700	1000	20	15	15

EXPLANATION:

TOC = Top of Casing

All concentrations are in ug/L (ppb).

Wellhead elevations were taken from prior consultants reports.

DTW = Depth to water in feet below top of casing

GW Elev. = Groundwater elevation relative to top of casing elevation

TPH-G = Total Petroleum Hydrocarbons as Gasoline by Ecology Method NWTPH-Gx

TPH-D and TPH-O = Total Petroleum Hydrocarbons as Diesel and Oil, respectively, by Ecology Method NWTPH-Dx

B = Benzene; T = Toluene; E = Ethylbenzene; X = Total Xylenes

BTEX = Aromatic compounds by EPA Method 8020, 8021B or 8260B, refer to laboratory reports.

Prior to 12/12/03 Total Pb by EPA Method 6020; Diss Pb = Dissolved lead by EPA Method 6020

After 9/03/03 Total Pb = Total lead by ICP-USEPA Method 6010; Diss Pb = Dissolved lead by ICP-USEPA Method 6010

-- = Not Analyzed or Sampled

< = Less than the stated laboratory reporting limit

Shaded values equal or exceed MTCA Method A Cleanup Levels.

[a] Concentration levels stated by MTCA Method A for TPH-G are 1000 µg/L when no benzene is present and 800 µg/L when benzene is present.

Data collected before 12/12/03 are taken from prior consultants.

ATTACHMENT A
LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY RECORD

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: June 23, 2005

TO: Alice Larsen
SECOR International Inc.
12034 134th Ct. NE, Suite 102
Redmond, WA 98052

PROJECT: 6380 Bellingham WA

REPORT NUMBER: 128330

TOTAL NUMBER OF PAGES: _____

Enclosed are the test results for five samples received at STL Seattle on June 10, 2005.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Tom Coyner
Project Manager

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
128330-1	MW-1	06-09-05 16:45	Liquid
128330-2	MW-2	06-09-05 16:45	Liquid
128330-3	MW-3	06-09-05 16:30	Liquid
128330-4	MW-4	06-09-05 16:15	Liquid
128330-5	EFFL	06-09-05 15:00	Liquid

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-1
Lab ID:	128330-01
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Trifluorotoluene	126		50	150
1-Chloro-3-fluorobenzene	117		80	120
Bromofluorobenzene	111		80	120
Pentafluorobenzene	130	X9	81	126

Analyte	Result (mg/L)	RL	Flags
Gasoline By NWTPH-G	ND	0.1	
MTBE	0.00126	0.001	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-2
Lab ID:	128330-02
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	124		50	150
1-Chloro-3-fluorobenzene	119		80	120
Bromofluorobenzene	109		80	120
Pentafluorobenzene	125		81	126

	Result (mg/L)	**RL**	**Flags**
Analyte			
Gasoline By NWTPH-G	ND	0.1	
MTBE	ND	0.001	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-3
Lab ID:	128330-03
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	125		50	150
1-Chloro-3-fluorobenzene	118		80	120
Bromofluorobenzene	111		80	120
Pentafluorobenzene	129	X9	81	126

Analyte	**Result (mg/L)**	**RL**	**Flags**
Gasoline By NWTPH-G	ND	0.1	
MTBE	ND	0.001	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-4
Lab ID:	128330-04
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	122		50	150
1-Chloro-3-fluorobenzene	116		80	120
Bromofluorobenzene	106		80	120
Pentafluorobenzene	127	X9	81	126

Analyte	**Result (mg/L)**	**RL**	**Flags**
Gasoline By NWTPH-G	ND	0.1	
MTBE	ND	0.001	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	EFFL
Lab ID:	128330-05
Date Received:	6/10/2005
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	110		50	150
1-Chloro-3-fluorobenzene	102		80	120
Bromofluorobenzene	92.1		80	120
Pentafluorobenzene	116		81	126

Analyte	**Result (mg/L)**	**RL**	**Flags**
Gasoline By NWTPH-G	ND	0.1	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-1
Lab ID:	128330-01
Date Received:	6/10/2005
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	84.2		50	150

Analyte	Result (mg/L)	RL	Flags
#2 Diesel	ND	0.236	
Motor Oil	ND	0.472	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-2
Lab ID:	128330-02
Date Received:	6/10/2005
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	77.1		50	150

Analyte	Result (mg/L)	RL	Flags
#2 Diesel	ND	0.238	
Motor Oil	ND	0.475	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-3
Lab ID:	128330-03
Date Received:	6/10/2005
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	79.6		50	150

Analyte	Result (mg/L)	RL	Flags
#2 Diesel	ND	0.238	
Motor Oil	ND	0.475	

STL Seattle

Client Name:	SECOR International Inc.
Client ID:	MW-4
Lab ID:	128330-04
Date Received:	6/10/2005
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	82		50	150

Analyte	Result (mg/L)	RL	Flags
#2 Diesel	ND	0.237	
Motor Oil	ND	0.473	

STL Seattle

Client Name	SECOR International Inc.
Client ID:	MW-1
Lab ID:	128330-01
Date Received:	6/10/05
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
Dilution Factor	1

Dissolved Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	RL	Flags
Lead	ND	0.015	

STL Seattle

Client Name	SECOR International Inc.
Client ID:	MW-2
Lab ID:	128330-02
Date Received:	6/10/05
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
Dilution Factor	1

Dissolved Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	RL	Flags
Lead	ND	0.015	

STL Seattle

Client Name	SECOR International Inc.
Client ID:	MW-3
Lab ID:	128330-03
Date Received:	6/10/05
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
Dilution Factor	1

Dissolved Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	RL	Flags
Lead	ND	0.015	

STL Seattle

Client Name	SECOR International Inc.
Client ID:	MW-4
Lab ID:	128330-04
Date Received:	6/10/05
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
Dilution Factor	1

Dissolved Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	RL	Flags
Lead	ND	0.015	

STL Seattle

Lab ID:	Method Blank - GB5189
Date Received:	-
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
% Solids	-
Dilution Factor	1

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
Trifluorotoluene	100		50	150
1-Chloro-3-fluorobenzene	98		80	120
Bromofluorobenzene	92.5		80	120
Pentafluorobenzene	102		81	126

Analyte	**Result (mg/L)**	**RL**	**Flags**
Gasoline By NWTPH-G	ND	0.1	
MTBE	ND	0.001	
Benzene	ND	0.001	
Toluene	ND	0.001	
Ethylbenzene	ND	0.001	
m&p-Xylene	ND	0.002	
o-Xylene	ND	0.001	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	GB5189
Date Prepared:	6/20/2005
Date Analyzed:	6/21/2005
QC Batch ID:	GB5189

GRO by NWTPH-Gx / Volatile Aromatics by 5030/8260B

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
Gasoline By NWTPH-G	0	1.25	1.3	104	1.15	92	-12	
Benzene	0	0.025	0.028	112	0.0265	106	-5.5	
Toluene	0	0.025	0.0253	101	0.024	96.1	-5	
Ethylbenzene	0	0.025	0.024	96.1	0.023	91.9	-4.5	
m&p-Xylene	0	0.05	0.0489	97.7	0.0473	94.5	-3.3	
o-Xylene	0	0.025	0.0238	95.4	0.0229	91.4	-4.3	

STL Seattle

Lab ID:	Method Blank - DW0783
Date Received:	-
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
o-terphenyl	80.8		50	150

Analyte	**Result (mg/L)**	**RL**	**Flags**
#2 Diesel	ND	0.25	
Motor Oil	ND	0.5	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DW0783
Date Prepared:	6/13/2005
Date Analyzed:	6/14/2005
QC Batch ID:	DW0783

Diesel and Motor Oil by NWTPH-Dx Modified with Silica Gel Cleanup

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
#2 Diesel	0	5	4.86	97.1	5.14	103	5.9	
Motor Oil	0	5	4.6	91.9	4.56	91.3	-0.66	

STL Seattle

Lab ID:	Method Blank - DP1339
Date Received:	-
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
Dilution Factor	1

Dissolved Metals by ICP - USEPA Method 6010

Analyte	Result (mg/L)	RL	Flags
Lead	ND	0.015	

STL Seattle

Matrix Spike Report

Client Sample ID:	061405-01
Lab ID:	128391-03
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
QC Batch ID:	DP1339

Dissolved Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Lead	0	1	0.917	92	

STL Seattle

Duplicate Report

Client Sample ID:	061405-01
Lab ID:	128391-03
Date Prepared:	6/20/05
Date Analyzed:	6/21/05
QC Batch ID:	DP1339

Dissolved Metals by ICP - USEPA Method 6010

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Lead	0	0	NC	

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

RL: Reporting Limit

N: See analytical narrative

ND: Not Detected

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

00023

Chain of Custody Record

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

4.7 6/10 JD

SEVERN TRENT **STL**

Client	Project Manager	Date	Chain of Custody Number
SECOR	Alice Larsen	6·10·05	15553
Address	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1
	425·372·1600	128330	

City	State	Zip Code	Site Contact	Lab Contact
Redmond	WA	98052		

Project Name and Location (State): ~~Blaine, WA~~ 6380 Bellingham WA

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.: 1571SEC007

Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Gx/BTEX/MTBE	Dx	Diss Pb	Special Instructions/ Conditions of Receipt
MW-1	6·9·05	16:45		X									✓	✓	✓	
MW-2	↓	16:00		↓									↓	↓	↓	
MW-3	↓	16:30		↓									↓	↓	↓	
MW-4	↓	16:15		↓									↓	↓	↓	
EFFL	↓	17:00		↓									(1)	↓	↓	→ NO MTBE for effluent sample

Cooler: ☑ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ______

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	6·10·05	9:00	1. Received By: [signature] STL	6/10/05	11:30
2. Relinquished By: [signature]	6/10/05	12:55	2. Received By: [signature]	6/10/05	1255
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

STL8274-580 (12/02)

ATTACHMENT B
SECOR MONITORING WELL GAUGING, PURGING AND SAMPLING PROCEDURES
GROUNDWATER MONITORING FIELD DATA RECORDS

SECOR MONITORING WELL GAUGING, PURGING AND SAMPLING PROCEDURES

Gauging and Purging Procedures

A. Obtain static water levels by slowly lowering a decontaminated electronic water level indicator into each respective well until the instrument indicated that the groundwater surface had been encountered. The measurement is made from a location permanently marked on the top of each respective casing to within the nearest 0.01 foot. If historical liquid phase hydrocarbons were present in any of the monitoring wells, the thickness of the liquid hydrocarbon layer is measured using a Marine Moisture Control interface probe, and then recorded. Each water level measurement is repeated at least once to verify the accuracy of the initial measurement. Decontaminate the water level indicator prior to performing the next measurement by scrubbing in an Alconox detergent solution, followed by a tap water rinse and then a de-ionized water rinse.

B. Based on previously obtained data, if a monitoring well is suspected of containing LPH concentrations and an interface probe is not available, lower a transparent bailer into the well to evaluate the presence of a hydrocarbon sheen on the water table.

C. Prior to collecting groundwater samples, each monitoring well is purged[a] using a submersible pump or a disposable bailer while noting parameters of color, turbidity and odor of purge water. Decontaminate the purge pump and/or PVC bailers by scrubbing in Alconox detergent solution, followed by a tap water rinse and then a de-ionized water rinse.

D. A minimum of three well volumes are removed using a decontaminated submersible pump or a new, disposable, polyethylene bailer. If the well goes dry, cease purging the well and the procedure listed in step F (below) should be followed.

E. Note clarity, color, turbidity and odor of purge water, and measure depth to groundwater.

F. If the well has been purged dry, measure the water level and allow the well to recharge to 80 percent, or for two hours, whichever comes first. Calculate the percent recovery and begin the sampling procedure.

Sample Collection Procedures

- Use the pump and a clean, dedicated section of tubing to collect the groundwater sample from the screened interval of the water column. If the pump cannot be used, collect the water sample with a dedicated or new polyethylene disposable bailer and a clean, new piece of string.

- Slowly and carefully transfer the groundwater sample into the appropriate container(s). Where applicable, some containers are completely filled to achieve zero headspace. Label the samples according to location and date of collection and place immediately into a chilled cooler for preservation.

- Enter the samples into Chain-of-Custody and preserve on ice until delivery to the analytical laboratory. Complete the Well Development or Purging/Sampling Log to be stored in the project file.

[a] Due to special circumstances, groundwater from certian wells or sites may be sampled without purging the well with special permission from the client. Analytical data from these samples are qualified with a footnote in the groundwater monitoring report.

SECOR

DAILY FIELD LOG

Page: 1 of 1
Date: 6-9-05

Client: ConocoPhillips	Site No: 6380	Project No:

Scope of Work: x Quarter Monitoring/Sampling W/O #:

Describe Daily Activities:

Gauged 4 monitoring wells.
Purged 4 monitoring wells.
Sampled 4 monitoring wells.

Number of drums left on site: 0

Field Notes:

13:55: MK ONSITE, checked in w/ station manager, set up decon; reviewed HASP.

14:40: started purging - heavy traffic.

15:00: started sampling

ran effluent @ 17:00.

Arrived on Site: 13:55 Departed Site: 17:20

Decontamination Procedures: 3-Stage (Alconox Wash, Tap Water Rinse, & Distilled Water Rinse)

Daily Health and Safety Log Completed?: YES Utility Locations Checked?: —

Important Conversations: —

Important Changes in Scope of Work: —

Weather Conditions: Sunny 70's Subcontractors On Site: —

SECOR Personnel On Site: MK

Signed: [signature] Date: 6-9-05

SECOR
INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Well No: MW-1
Project Name:
Date: 6/10/2005
Project Number: 01CP.06380.00
Sample Time: 16:45
SECOR Rep: Meredith Redmon
Checked by:
Sample No:

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist #
Purging Equipment / Method: ___ Vac Truck ___Bailer __X_Submersible Pump ___Peristaltic
pH Temp/Conductivity Meter Type / ID:
Sampling Method: ____Teflon Bailer ____Disposable Bailer ___x__Other:___Peristaltic
Decontamination Method: ___Steam / High Pressure Wash _x__3 Stage (Alconox, Tap & DI rinse) ___Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): 8 10 12
Casing Diameter (in): (2) 4 6
Depth to Water (DTW_1) (ft): 6.1
Total Well Depth (DTB) (ft): 21.8
Water Column: 15.7
Floating Product:
Thickness (in):
Casing Volume (gal): 2.5
3 Casing Volumes (gal): 7.5

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	ORP	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
15:25	Started Purging						
		7.5	NM				N, MED, GREY

Maximum Drawdown (DTW_2) (ft) =
Pump Rate (GPM) =
____Fast Recharging Well
____Slow Recharging Well

SAMPLING INFORMATION

Time Sampled:
Depth to Water at time of sampling (DTW_3):

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives		Analytical Parameters

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

% of Recovery = 1 - $\dfrac{(DTW_1)-(DTW_3)}{(DTW_1)-(DTW_2)}$ x 100

% of Recovery = 1 - $\dfrac{(\quad)-(\quad)}{(\quad)-(\quad)} = \_\_\_\_$

$= \_\_\_\_\ \%$

80% Recharge = _____

SECOR
INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Well No: MW-2
Project Name:
Date: 6/10/2005
Project Number: 01CP.06380.00
Sample Time: 16:05
SECOR Rep: Meredith Redmon
Checked by:
Sample No:

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist #

Purging Equipment / Method: ___ Vac Truck ___Bailer __X_Submersible Pump ___Peristaltic

pH Temp/Conductivity Meter Type / ID:

Sampling Method: ____Teflon Bailer ____Disposable Bailer __x__Other:___Peristaltic

Decontamination Method: ___Steam / High Pressure Wash _x__3 Stage (Alconox, Tap & DI rinse) ___Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): 8 10 12

Casing Diameter (in): (2) 4 6

Depth to Water (DTW_1) (ft): 8.66

Total Well Depth (DTB) (ft): 20.6

Water Column: 11.94

Floating Product:

Thickness (in):

Casing Volume (gal): 2.0

3 Casing Volumes (gal): 6.0

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	ORP	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
14:40	Started Purging						
		6.0	NM				N, MED, GREY

Maximum Drawdown (DTW_2) (ft) =

Pump Rate (GPM) =

____Fast Recharging Well

____Slow Recharging Well

SAMPLING INFORMATION

Time Sampled:

Depth to Water at time of sampling (DTW_3):

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives		Analytical Parameters

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\%\ of\ Recovery = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\%\ of\ Recovery = 1 - \frac{(\quad)-(\quad)}{(\quad)-(\quad)} = \_\_\_\_$$

$$= \_\_\_\_\ \%$$

80% Recharge = _____

SECOR
INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Well No: MW-3
Project Name:
Date: 6/10/2005
Project Number: 01CP.06380.00
Sample Time: 16:30
SECOR Rep: Meredith Redmon
Checked by:
Sample No:

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist #

Purging Equipment / Method: ___ Vac Truck ___Bailer _X_Submersible Pump ___Peristaltic

pH Temp/Conductivity Meter Type / ID:

Sampling Method: ____Teflon Bailer ____Disposable Bailer ___x__Other:___Peristaltic

Decontamination Method: ___Steam / High Pressure Wash _x__3 Stage (Alconox, Tap & DI rinse) ___Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): 8 10 12

Casing Diameter (in): (2) 4 6

Depth to Water (DTW_1) (ft): 5.25

Total Well Depth (DTB) (ft): 20.8

Water Column: 15.5

Floating Product:

Thickness (in):

Casing Volume (gal): 2.5

3 Casing Volumes (gal): 7.5

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	ORP	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
15:10	Started Purging						
		7.5	NM				NO, MED, GREY

Maximum Drawdown (DTW_2) (ft) =

Pump Rate (GPM) =

____Fast Recharging Well

____Slow Recharging Well

SAMPLING INFORMATION

Time Sampled:

Depth to Water at time of sampling (DTW_3):

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives		Analytical Parameters

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

% of Recovery = 1 - $\dfrac{(DTW_1)-(DTW_3)}{(DTW_1)-(DTW_2)}$ x 100

% of Recovery = 1 - $\dfrac{(\quad)-(\quad)}{(\quad)-(\quad)} = \_\_\_\_$

$= \_\_\_\_\_\ \%$

80% Recharge = _____

SECOR
INTERNATIONAL INCORPORATED

WELL PURGING / SAMPLING LOG

Well No: MW-4
Project Name:
Date: 6/10/2005
Project Number: 01CP.06380.00
Sample Time: 16:15
SECOR Rep: Meredith Redmon
Checked by:
Sample No:

PURGING & SAMPLING EQUIPMENT / METHOD

Water Level Meter Type & ID: Solinist #
Purging Equipment / Method: ___ Vac Truck ___Bailer _X_Submersible Pump ___Peristaltic
pH Temp/Conductivity Meter Type / ID:
Sampling Method: ____Teflon Bailer ____Disposable Bailer ___x__Other:___Peristaltic
Decontamination Method: ___Steam / High Pressure Wash _x__3 Stage (Alconox, Tap & DI rinse) ___Other:

WELL SPECIFICATIONS & MEASUREMENTS

Borehole Diameter (in): 8 10 12
Casing Diameter (in): (2) 4 6
Depth to Water (DTW_1) (ft): 6.91
Total Well Depth (DTB) (ft): 20.3
Water Column: 13.39
Floating Product:
Thickness (in):
Casing Volume (gal): 2.1
3 Casing Volumes (gal): 6.4

PURGING INFORMATION

Time	DTW (ft)	Water Volume Purged (gal)	pH	Temp (°C)	ORP	Elect. Cond. (μ mhos)	Water Description (odor, turbidity, color)
~~10:40~~ 15:00	Started Purging						
		6.4	NM				N, MED GREY

Maximum Drawdown (DTW_2) (ft) =
Pump Rate (GPM) =
____Fast Recharging Well
____Slow Recharging Well

SAMPLING INFORMATION

Time Sampled:
Depth to Water at time of sampling (DTW_3):

Container Types & Volumes	Filtered (Y/N)	Sample Preservatives		Analytical Parameters

BOREHOLE VOLUME CALCULATIONS

The calculation of one borehole volume is based on the formula in the SAM Manual.

Casing Diameter (in)	Borehole Diameter (in)	Calculated Borehole Volume (gal)
2	8	.77 (DTB-DTW_1)
2	10	1.14 (DTB-DTW_1)
4	10	1.50 (DTB-DTW_1)
4	12	1.95 (DTB-DTW_1)
6	10	2.11 (DTB-DTW_1)

Notes:

RECOVERY CALCULATIONS

$$\% \text{ of Recovery} = 1 - \frac{(DTW_1) - (DTW_3)}{(DTW_1) - (DTW_2)} \times 100$$

$$\% \text{ of Recovery} = 1 - \frac{(\quad)-(\quad)}{(\quad)-(\quad)} = \_\_\_\_$$

$$= \_\_\_\_ \%$$

80% Recharge = _____