

COPY

Release # 471259
TOSCO # 6380
Bellingham
DATE: September 7, 2006
List # 8394
Vcp # NW1487



GROUNDWATER MONITORING REPORT

Facility No.: 256380 Address: 200 South 36th Street, Bellingham, Washington
ConocoPhillips Site Manager: Jim Trotter
Consultant / Contact Person: SECOR International Inc. / Alice Larsen
Primary Agency/Regulatory ID No.: Washington State Department of Ecology / Site ID No. 8394
SECOR Project No: 01CP.01571.02.

WORK PERFORMED THIS QUARTER(S) [1st - 2006]:

- On March 10, 2006 SECOR personnel monitored, purged and sampled eight of the existing network of eight groundwater monitoring wells (MW-1 through MW-8). Groundwater monitoring wells MW-5 through MW-8 were installed on January 9, 2006.
- Groundwater samples were collected using a peristaltic pump, with dedicated polyethylene tubing in the well casing and a new section of silicon tubing in the pump head. Complete groundwater monitoring, purging, and sampling procedures are provided in Attachment B.
- Samples were submitted to Lancaster Laboratories 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, toluene, ethylbenzene, total xylenes (BTEX) per United States Environmental Protection Agency (USEPA) Method 8021. The laboratory analytical report is presented in Attachment A.

WORK PROPOSED FOR NEXT QUARTER [2nd - 2006]:

- Measure depth to water, purge, and sample eight groundwater monitoring wells (MW-1 through MW-8). Submit groundwater samples for analysis for NWTPH-Gx, NWTPH-Dx, BTEX and methyl tertiary butyl ether (MTBE).

DATA SUMMARY THIS QUARTER:

Frequency of Sampling Events:	Quarterly	(03/06,06/06,09/06,12/06)
Depth to Groundwater:	3.81 ft. (MW-5)	(Measured Feet Below)
	8.28 ft. (MW-2)	Top of Well Casing)
Groundwater Gradient:	Southeast	(Apparent Flow Direction)
	0.03 feet per foot	(Approximate Magnitude)
Maximum TPH-G Concentrations:	140 µg/L (MW-7)	(ppb / well ID)
Maximum TPH-D Concentrations:	540 µg/L (MW-7)	(ppb / well ID)
Maximum TPH-O Concentrations:	None Detected	(ppb / well ID)
Maximum Benzene Concentration:	13 µg/L (MW-5)	(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:	NA	(SVE/AS/P&T/NA etc.)
Permits for Discharge:	None	(NPDES, POTW, etc.)

RECEIVED

\\FS100\projects-001\Staff\CONOCOPHILLIPS\6380 Bellingham\SECOR\GWM 06\1Q06\6380 1Q06 GWM.doc

JAN 03 2007

DEPT OF ECOLOGY

N. ADAMS reviewed
9/17/07

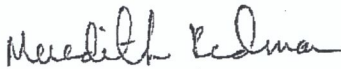
DISCUSSION:

- The groundwater samples were received by Lancaster Laboratories on March 11, 2006. Based on a review of the laboratory reports, it appears that the submitted water samples were analyzed within the specified holding times and that Lancaster followed their appropriate quality assurance/quality control (QA/QC) procedures during analysis.
- TPH-d was detected at concentrations/less than the Model Toxics Control Act Method A Cleanup Levels for groundwater (MTCA A) in the groundwater sample collected from MW-7 at 540 micrograms per liter ($\mu\text{g/L}$). TPH-d was not detected at concentrations greater than the laboratory reporting limits (RLs) in any of the remaining samples collected this quarter.
- TPH-o was not detected at concentrations greater than the RLs in any of the samples collected this quarter.
- TPH-g was detected at concentrations greater than the RLs in the groundwater sample collected from MW-7 at 140 $\mu\text{g/L}$. TPH-g was not detected at concentrations greater than the RLs in any of the remaining samples collected this quarter.
- 36 X Benzene was detected at concentrations greater than MTCA A in the groundwater samples collected from MW-5 at 13 $\mu\text{g/L}$.
- No BTEX constituents were detected at concentrations greater than the RLs in any of the remaining groundwater samples collected this quarter.
- No drums were left on site.

ATTACHMENTS:

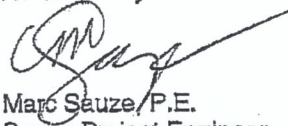
- Figure 1: Site Location Map
- Figure 2: Site Plan with Groundwater Elevations (3/10/06)
- Figure 3: Site Plan with Groundwater Analytical Results (6/09/05 – 3/10/06)
- Table 1: Summary of Cumulative Groundwater Elevations and Sample Analytical Results
- Attachment A: Laboratory Analytical Report and Chain of Custody Record
- Attachment B: SECOR Monitoring Well Gauging, Purging and Sampling Procedures; Groundwater Monitoring Field Data Records

Prepared By:



Meredith Redmon
Project Scientist

Reviewed By:

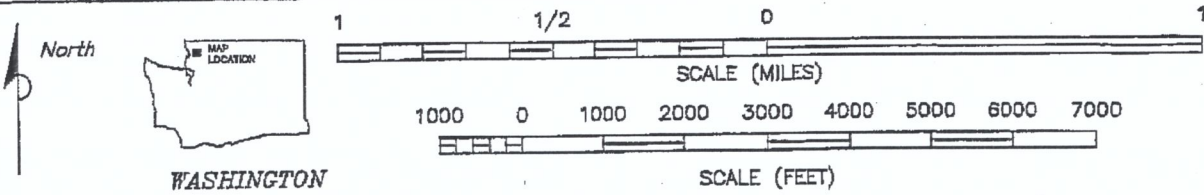
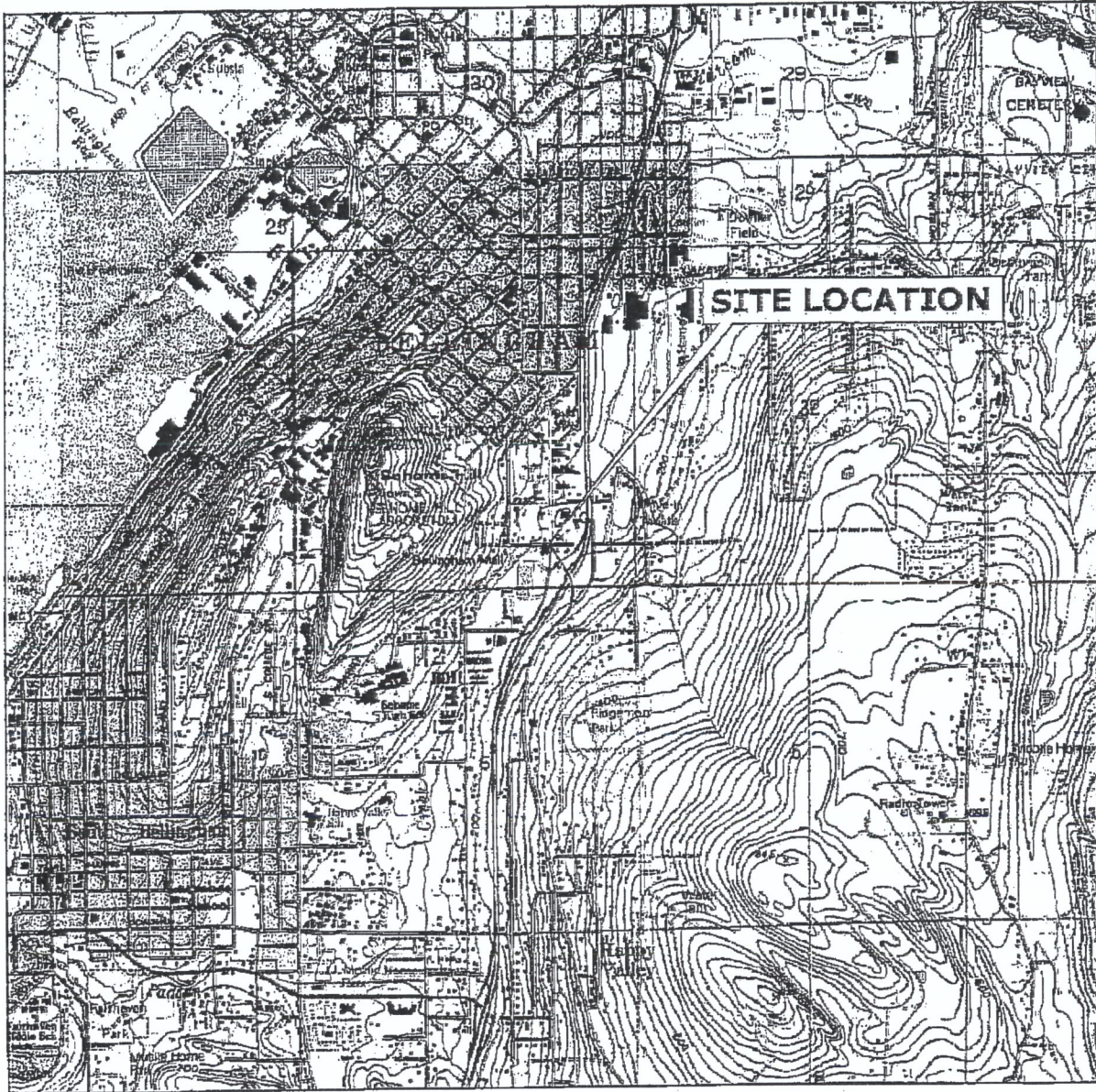


Marc Sauze, P.E.
Senior Project Engineer


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

MR/MS

FIGURES

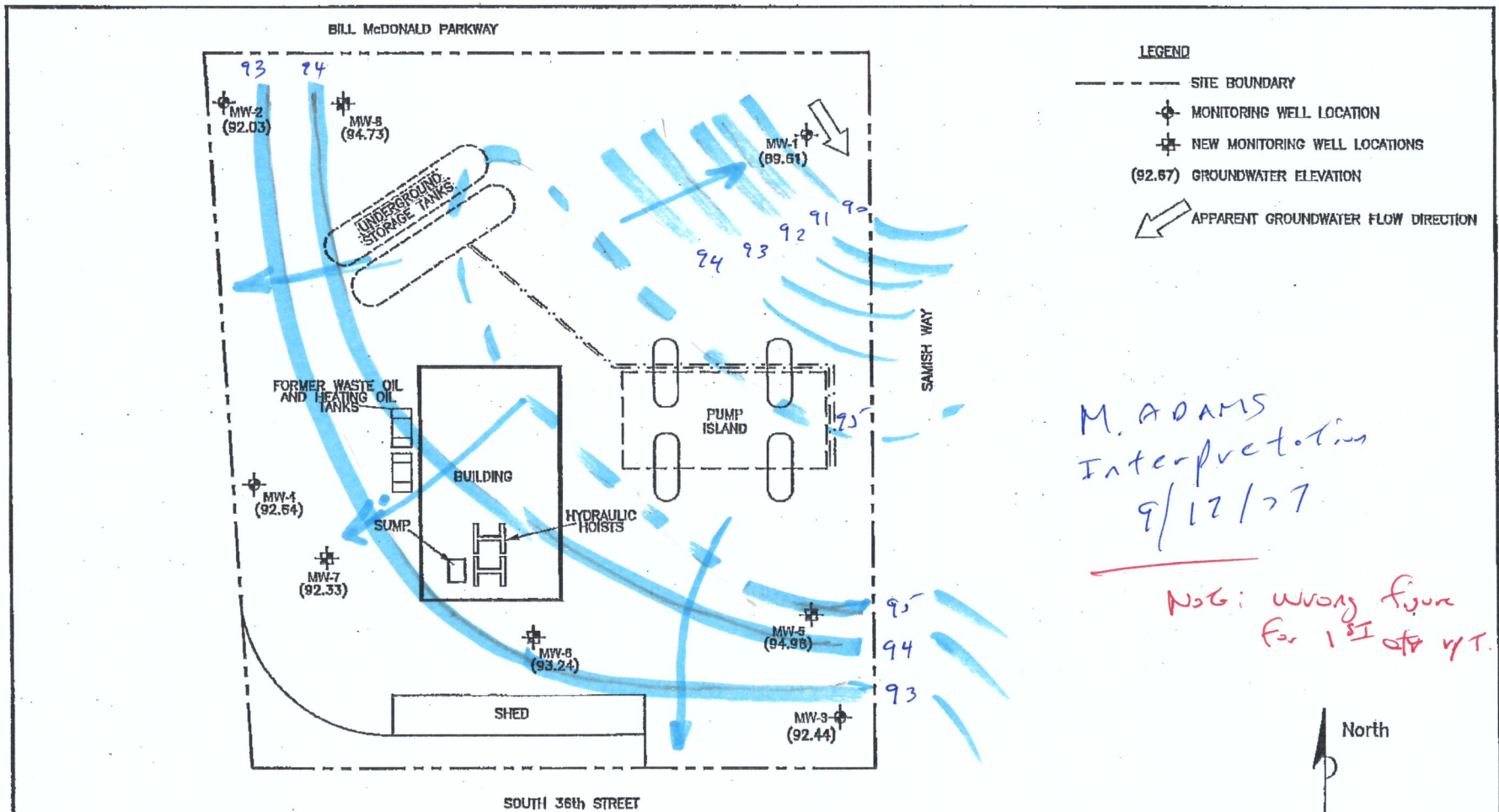


REFERENCE: USGS 7.5 MINUTE QUADRANGLE; BELLINGHAM SOUTH, WASHINGTON; 1972

 SECOR 12034 194th COURT, SUITE 102 REDMOND, WASHINGTON PHONE: (425) 872-1600 FAX: (425) 872-1650	PREPARED FOR: ConocoPhillips FACILITY NO 256380 200 SOUTH 36th STREET BELLINGHAM, WASHINGTON		SITE LOCATION MAP		FIGURE: 1
	JOB NUMBER: 01CP.05380.11	DRAWN BY: E. SIMMONS	CHECKED BY:	APPROVED BY:	DATE: 1/31/06

FILEPATH: Z:\OTHER OFFICE CAD\Radmond\ConocoPhillips E3806380(M).dwg modified by csonetti at Sep 06, 2006 - 14:22

PATH ON LEFT



*M. ADAMS
Interpretation
9/12/07*

*Note: wrong figure
for 1st set of Y/T.*

SOURCE:
BASE MAP FROM: ENVIRONMENTAL RESOLUTIONS, INC.
(ERI) TITLED GROUNDWATER SAMPLE ANALYSIS MAP--
06/10/03, PLATE 1, DATED 07/08/03, PROJECT
NO. 31055. CADD FILE 31065.13.DWG

SECOR
12034 134th COURT, SUITE 102
REDMOND, WASHINGTON
PHONE: (425) 372-1600 FAX: (425) 372-1650

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

**SITE PLAN WITH GROUNDWATER
ELEVATIONS (6/30/06) ?**

FIGURE:
2

JOB NUMBER:
D1CP.06380.11

DRAWN BY:
CFS

CHECKED BY:

APPROVED BY:

DATE:
09/28/06

DATE	6/7/05	8/15/05	12/15/05	3/10/06	6/30/06
MVS-2	µg/L	µg/L	µg/L	µg/L	µg/L
TPHd	<100	<48	<48	<48	<48
TPHl	<38	<38	<38	<38	<38
TPHo	<47.5	<84	<84	<84	<84
B	<1	<0.2	<0.2	<0.2	<0.2
T	<1	<0.2	<0.2	<0.2	<0.2
E	<1	<0.2	<0.2	<0.2	<0.2
X	<3	<1.2	<0.8	<0.8	<0.8
MTBE	<1	---	---	<0.2	---

DATE	1/11/06	3/10/06	6/30/06
MVS-8	µg/L	µg/L	µg/L
TPHd	<48	<48	<48
TPHl	<38	<38	<38
TPHo	<84	<84	<84
B	<0.2	<0.2	<0.2
T	<0.2	<0.2	<0.2
E	<0.2	<0.2	<0.2
X	<0.6	<0.6	<0.6
MTBE	---	---	<0.2

DATE	8/9/05	9/15/05	12/15/05	3/10/06	6/30/06
MVS-4	µg/L	µg/L	µg/L	µg/L	µg/L
TPHd	<100	<48	<48	<48	<48
TPHl	<38	180	<38	130	<38
TPHo	<47.5	<84	<84	<84	<84
B	<1	<0.2	<0.2	<0.2	<0.2
T	<1	<0.2	<0.2	<0.2	<0.2
E	<1	<0.2	<0.2	<0.2	<0.2
X	<3	<1.2	<0.8	<0.8	<0.8
MTBE	<1	---	---	0.8	---

DATE	1/11/06	3/10/06	6/30/06
MVS-7	µg/L	µg/L	µg/L
TPHd	180	140	190
TPHl	780	840	1,180
TPHo	<84	<84	<480
B	<0.2	<0.2	<0.2
T	<0.2	<0.2	<0.2
E	<0.2	<0.2	<0.2
X	<0.6	<0.6	<0.6
MTBE	7.5	---	2.0

DATE	1/11/06	3/10/06	6/30/06
MVS-3	µg/L	µg/L	µg/L
TPHd	<48	<48	<48
TPHl	<38	<38	<38
TPHo	<84	<84	<100
B	<0.2	<0.2	<0.2
T	<0.2	<0.2	<0.2
E	<0.2	<0.2	<0.2
X	<0.6	<0.6	<0.6
MTBE	---	---	<0.2

DATE	8/9/05	9/15/05	12/15/05	3/10/06	6/30/06
MVS-5	µg/L	µg/L	µg/L	µg/L	µg/L
TPHd	<100	<48	<48	<48	<48
TPHl	<38	<38	<38	<38	<38
TPHo	<47.5	<84	<84	<84	<84
B	<1	<0.2	<0.2	<0.2	<0.2
T	<1	<0.2	<0.2	<0.2	<0.2
E	<1	<0.2	<0.2	<0.2	<0.2
X	<3	<1.2	<0.8	<0.8	<0.8
MTBE	<1	---	---	<0.2	---

DATE	6/8/05	9/15/05	12/15/05	3/10/06	6/30/06
MVS-1	µg/L	µg/L	µg/L	µg/L	µg/L
TPHd	<100	<48	<48	<48	<48
TPHl	<38	<160	170	<38	<38
TPHo	<47.5	<200	110	<84	<84
B	<1	<0.2	<0.2	1.8	<0.2
T	<1	<0.2	<0.2	<0.2	<0.2
E	<1	<0.2	<0.2	<0.2	<0.2
X	<3	<1.2	<0.8	<0.8	<0.8
MTBE	1.25	---	---	<0.2	---

DATE	1/11/06	3/10/06	6/30/06
MVS-6	µg/L	µg/L	µg/L
TPHd	<48	65	97
TPHl	<38	1	<38
TPHo	<84	<84	<84
B	1.7	15	8.8
T	<0.2	0.2	<0.2
E	<0.2	<0.2	<0.2
X	<0.6	<0.6	<0.6
MTBE	---	---	0.8

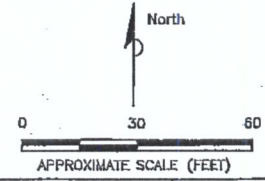
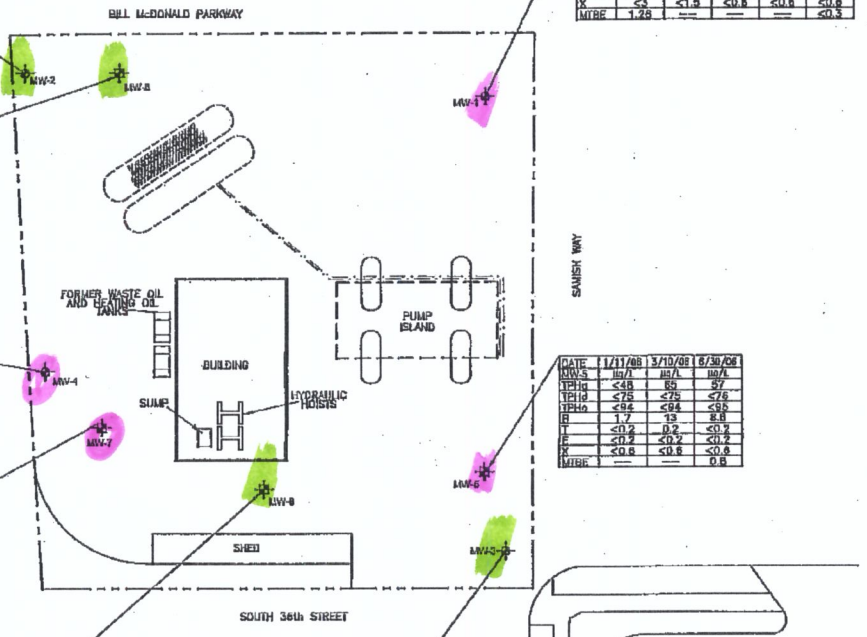
- LEGEND**
- SITE BOUNDARY
 - ⊕ MONITORING WELL LOCATION
 - ⊕ NEW MONITORING WELL LOCATIONS

ANALYTES

TPHd	TOTAL PETROLEUM HYDROCARBONS GARCIA MIE
TPHl	TOTAL PETROLEUM HYDROCARBONS LIBERM
TPHo	TOTAL PETROLEUM HYDROCARBONS OIL
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
MTBE	METHYL TERTIARY BUTYL ETHER

- ND NOT DETECTED AT OR ABOVE THE LABORATORY METHOD REPORTING LIMIT
- NOT ANALYZED OR NOT APPLICABLE
- BOLD ABOVE WASHINGTON STATE MTCA CLEANUP LEVEL

NOTES
 ALL LOCATIONS ARE APPROXIMATE
 ALL UNITS ARE IN MICROGRAMS PER LITER (µg/L)



SOURCES:
 BASE MAP FROM: ENVIRONMENTAL RESOLUTIONS, INC.
 (ER) TILED GROUNDWATER SAMPLE ANALYSIS MAP-
 05/10/03, PLATE 1, DATED 07/08/03, PROJECT
 NO. 31065, CASD FILE 31065.13.DWG

 12034 131st COURT, SUITE 102 REDMOND, WASHINGTON PHONE: (425) 372-1850 FAX: (425) 372-1850	PREPARED FOR: ConocoPhillips FACILITY NO. 256380 203 SOUTH 36th STREET BELLINGHAM, WASHINGTON	FIGURE: 3
	JOB NUMBER: 01CP.0580.11	DRAWN BY: CFS

TABLES

TABLE 1
GROUNDWATER ELEVATIONS AND SAMPLE ANALYTICAL RESULTS
ConocoPhillips Facility, No. 256380
200 South 96th Street
Bellingham, Washington
Page 1 of 1

Well Name	Sample Date	DTW	GW Elev.	TPH-G	TPH-D	TPH-O	B	T	E	X	MTBE	Total Pb	Diss Pb
MW1 TOC Elevation 98.49	6/9/2005	6.10	92.99	<100	<296	<472	<1	<1	<1	<1	1.26	-	<15
	09/15/05	6.90	91.89	<48	<160	<200	<0.5	<0.5	<0.5	<1.5	-	-	<0.87
	12/15/05	5.94	92.55	<48	170	110	<0.2	<0.2	<0.2	<0.6	-	-	-
	03/10/06	5.82	92.67	<48	<76	<95	0.6	<0.2	<0.2	<0.6	-	-	-
MW2 TOC Elevation 100.74	6/9/2005	6.66	92.08	<100	<296	<475	<1	<1	<1	<1	<1	-	<15
	9/15/2005	5.40	95.34	<48	<75	<94	<0.5	<0.5	<0.5	<1.5	-	-	<0.87
	12/15/2005	6.44	92.30	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
	3/10/2006	8.28	92.46	<48	<76	<95	<0.2	<0.2	<0.2	<0.6	-	-	-
MW3 TOC Elevation 97.84	6/9/2005	5.25	92.59	<100	<296	<475	<1	<1	<1	<1	<1	-	<15
	9/15/2005	7.20	90.64	<48	<75	<93	<0.5	<0.5	<0.5	<1.5	-	-	<0.87
	12/15/2005	5.09	92.75	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
	3/10/2006	4.75	93.09	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
MW4 TOC Elevation 99.44	6/9/2005	6.91	92.53	<100	<237	<473	<1	<1	<1	<1	<1	-	<15
	9/15/2005	6.10	93.34	<48	150	<93	<0.5	<0.5	<0.5	<1.5	-	-	<0.87
	12/15/2005	6.73	92.71	<48	180	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
	3/10/2006	6.28	93.16	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
MW-5 TOC Elevation 101.14	1/11/2006	4.04	NE	<48	<75	<94	1.7	<0.2	<0.2	<0.6	-	<8.4	-
	3/10/2006	3.81	95.63	65	<75	<94	13	0.2	<0.2	<0.6	-	-	-
MW-6 TOC Elevation 99.74	1/11/2006	4.89	NE	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	<8.4	-
	3/10/2006	5.47	94.27	<48	<76	<95	<0.2	<0.2	<0.2	<0.6	-	-	-
MW-7 TOC Elevation 99.64	1/11/2006	6.07	NE	160	780 ^b	<94 ^b	<0.2	<0.2	<0.2	<0.6	2.5	<8.4	-
	3/10/2006	6.71	92.83	140	540	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
MW-8 TOC Elevation 102.7	1/11/2006	7.00	NE	<48	<75	<95	<0.2	<0.2	<0.2	<0.6	-	<8.4	-
	3/10/2006	7.50	95.20	<48	<75	<94	<0.2	<0.2	<0.2	<0.6	-	-	-
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 8260S, refer to laboratory reports.
 Prior to 12/12/03 Total Pb by EPA Method 6020; Diss Pb = Dissolved lead by EPA Method 6020
 After 8/03/03 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 ug/L when no benzene is present and 800 ug/L when benzene is present.
 Data collected before 12/12/03 are taken from prior consultants.
^b = The recovery for the laboratory control sample (LCS) with this sample is below quality control limits. Since no sample remained for a reextraction the data is reported. The observed sample pattern includes #2 fuel/diesel and individual peaks eluting in the diesel organic range (DRO)

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



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2601 • www.lancasterlabs.com

ANALYTICAL RESULTS

Prepared for:

ConocoPhillips c/o Shaw Env.
19909 120th Ave. NE
Suite 101
Bothell WA 98011

206-706-2341

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 981253. Samples arrived at the laboratory on Saturday, March 11, 2006. The PO# for this group is 1571SEC012 and the release number is ECKERT.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MW-1 Grab Water Sample	4726315
MW-2 Grab Water Sample	4726316
MW-3 Grab Water Sample	4726317
MW-4 Grab Water Sample	4726318
MW-5 Grab Water Sample	4726319
MW-6 Grab Water Sample	4726320
MW-7 Grab Water Sample	4726321
MW-8 Grab Water Sample	4726322
Trip Blank Grab Water Sample	4726323

ELECTRONIC SECOR International
COPY TO
ELECTRONIC SECOR International
COPY TO

Attn: August Welch

Attn: Marc Sauze



Analysis Report

2425 New Holland Pk, PO Box 18425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Questions? Contact your Client Services Representative
Teresa L Cunningham at (717) 656-2300

Respectfully Submitted,

A handwritten signature in cursive script that reads "Valerie L. Tomayko".

Valerie L. Tomayko
Group Leader



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 1

Lancaster Laboratories Sample No. WW 4726315

MW-1 Grab Water Sample

Site# 1571 (256380)

200 S 36th St-Bellingham, WA

Collected: 03/10/2006 11:27 by MD

Account Number: 11817

Submitted: 03/11/2006 10:45

Reported: 03/23/2006 at 09:09

Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.

19909 120th Ave. NE

Suite 101

Bothell WA 98011

36TH1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	76.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	95.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	0.6	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 17:03	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/14/2006 14:16	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/14/2006 14:16	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 503DB	1	03/14/2006 14:16	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Feister	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

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Lancaster Laboratories Sample No. WW 4726316

MW-2 Grab Water Sample

Site# 1571 (256380)

200 S 36th St-Bellingham, WA

Collected: 03/10/2006 12:22 by MD

Account Number: 11817

Submitted: 03/11/2006 10:45

Reported: 03/23/2006 at 09:09

Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.

19909 120th Ave. NE

Suite 101

Bothell WA 98011

36TH2

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	76.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	95.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 17:26	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/14/2006 14:49	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/14/2006 14:49	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/14/2006 14:49	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Feister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726317

MW-3 Grab Water Sample
 Site# 1571 (256380)
 200 S 36th St-Bellingham, WA
 Collected: 03/10/2006 10:31

by MD

Account Number: 11817

Submitted: 03/11/2006 10:45
 Reported: 03/23/2006 at 09:09
 Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
 19909 120th Ave. NE
 Suite 101
 Bothell WA 98011

36TE3

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	75.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	94.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 17:50	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/14/2006 15:21	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/14/2006 15:21	Martha L Seidel	1
01146	GC VDA Water Prep	SW-846 5030B	1	03/14/2006 15:21	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Faister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726318

MW-4 Grab Water Sample
 Site# 1571 (256380)
 200 S 36th St-Bellingham, WA
 Collected: 03/10/2006 12:49

by MD

Account Number: 11817

Submitted: 03/11/2006 10:45
 Reported: 03/23/2006 at 09:09
 Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
 19909 120th Ave. NE
 Suite 101
 Bothell WA 98011

36TH4

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	75.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	94.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 18:38	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/14/2006 15:54	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/14/2006 15:54	Martha L Seidel	1
01146	GC VQA Water Prep	SW-846 5030B	1	03/14/2006 15:54	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx	1	03/18/2006 07:30	Joseph S Feister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726319

MW-5 Grab Water Sample
 Site# 1571 (256380)
 200 S 36th St-Bellingham, WA
 Collected: 03/10/2006 10:59

by MD

Account Number: 11817

Submitted: 03/11/2006 10:45
 Reported: 03/23/2006 at 09:09
 Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
 19909 120th Ave. NE
 Suite 101
 Bothell WA 98011

36TH5

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	75.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	94.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	13.	0.2	ug/l	1
00777	Toluene	108-88-3	0.2	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	65.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis		Analyst	Dilution Factor
			Trial#	Date and Time		
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 19:01	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/15/2006 04:51	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/15/2006 04:51	Martha L Seidel	1
01146	GC VDA Water Prep	SW-846 5030B	1	03/15/2006 04:51	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Feister	1



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Lancaster Laboratories Sample No. WW 4726320

MW-6 Grab Water Sample

Site# 1571 (256380)

200 S 36th St-Bellingham, WA

Collected: 03/10/2006 13:41 by MD

Account Number: 11817

Submitted: 03/11/2006 10:45

Reported: 03/23/2006 at 09:09

Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.

19909 120th Ave. NE

Suite 101

Bothell WA 98011

36TH6

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	N.D.	76.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	95.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SiGel	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 19:25	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/15/2006 05:24	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/15/2006 05:24	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/15/2006 05:24	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Feister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726321

MW-7 Grab Water Sample
 Site# 1571 (256380)
 200 S 36th St-Bellingham, WA
 Collected: 03/10/2006 13:15

by MD

Account Number: 11817

Submitted: 03/11/2006 10:45
 Reported: 03/23/2006 at 09:09
 Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
 19909 120th Ave. NE
 Suite 101
 Bothell WA 98011

36TH7

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPE-Dx(water) w/SiGel					
02095	Diesel Range Organics	n.a.	540.	75.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	94.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1230-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPE-Gx waters					
01648	TPH by NWTPE-Gx waters	n.a.	140.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPE-Dx(water) w/SiGel	ECY 97-602 NWTPE-Dx modified	1	03/20/2006 19:49	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/15/2006 05:56	Martha L Seidel	1
08274	TPH by NWTPE-Gx waters	ECY 97-602 NWTPE-Gx modified	1	03/15/2006 05:56	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/15/2006 05:56	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPE-Dx	1	03/18/2006 07:30	Joseph S Peister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726322

MW-8 Grab Water Sample
 Site# 1571 (256380)
 200 S 36th St-Bellingham, WA
 Collected: 03/10/2006 11:57

by MD

Account Number: 11817

Submitted: 03/11/2006 10:45
 Reported: 03/23/2006 at 09:09
 Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
 19909 120th Ave. NE
 Suite 101
 Bothell WA 98011

36TH8

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SigEl					
02095	Diesel Range Organics	n.a.	N.D.	75.	ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	94.	ug/l	1
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02211	TPH by NWTPH-Dx(water) w/SigEl	ECY 97-602 NWTPH-Dx modified	1	03/20/2006 20:12	Matthew E Barton	1
08213	BTEX (8021)	SW-846 8021B	1	03/15/2006 06:29	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/15/2006 06:29	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/15/2006 06:29	Martha L Seidel	1
02135	Extraction - DRO Water Special	ECY 97-602 NWTPH-Dx 06/97	1	03/18/2006 07:30	Joseph S Feister	1



Analysis Report

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Lancaster Laboratories Sample No. WW 4726323

Trip Blank Grab Water Sample
Site# 1571 (256380)
200 S 36th St-Bellingham, WA
Collected: n.a.

Account Number: 11817

Submitted: 03/11/2006 10:45
Reported: 03/23/2006 at 09:10
Discard: 04/23/2006

ConocoPhillips c/o Shaw Env.
19909 120th Ave. NE
Suite 101
Bothell WA 98011

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
08213	BTEX (8021)					
00776	Benzene	71-43-2	N.D.	0.2	ug/l	1
00777	Toluene	108-88-3	N.D.	0.2	ug/l	1
00778	Ethylbenzene	100-41-4	N.D.	0.2	ug/l	1
00779	Total Xylenes	1330-20-7	N.D.	0.6	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	48.	ug/l	1

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08213	BTEX (8021)	SW-846 8021B	1	03/15/2006 03:14	Martha L Seidel	1
08274	TPH by NWTPH-Gx waters	ECY 97-602 NWTPH-Gx modified	1	03/15/2006 03:14	Martha L Seidel	1
01146	GC VOA Water Prep	SW-846 5030B	1	03/15/2006 03:14	Martha L Seidel	1

Quality Control Summary

 Client Name: ConocoPhillips c/o Shaw Env.
 Reported: 03/23/06 at 09:10 AM

Group Number: 981253

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 06072A07B Sample number(s): 4726315-4726318								
Benzene	N.D.	0.2	ug/l	92	89	86-119	3	30
Toluene	N.D.	0.2	ug/l	100	98	82-119	3	30
Ethylbenzene	N.D.	0.2	ug/l	102	99	81-119	3	30
Total Xylenes	N.D.	0.6	ug/l	103	100	82-120	3	30
TPH by NWTPE-Gx waters	N.D.	46.	ug/l	118	104	70-130	13	30
Batch number: 06073A07A Sample number(s): 4726319-4726323								
Benzene	N.D.	0.2	ug/l	94	91	86-119	2	30
Toluene	N.D.	0.2	ug/l	107	103	82-119	3	30
Ethylbenzene	N.D.	0.2	ug/l	107	104	81-119	3	30
Total Xylenes	N.D.	0.6	ug/l	108	105	82-120	3	30
TPH by NWTPE-Gx waters	N.D.	46.	ug/l	89	93	70-130	5	30
Batch number: 060760012A Sample number(s): 4726315-4726322								
Diesel Range Organics	N.D.	0.080	wg/l	76	66	51-113	14	20
Heavy Range Organics	N.D.	0.10	wg/l					

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 06072A07B Sample number(s): 4726315-4726318 UNSPK: P725444, P725445									
Benzene	94		78-131						
Toluene	104		78-129						
Ethylbenzene	105		75-133						
Total Xylenes	106		84-131						
TPH by NWTPE-Gx waters	96		63-154						
Batch number: 06073A07A Sample number(s): 4726319-4726323 UNSPK: 4726320, 4726322									
Benzene	102		78-131						
Toluene	107		78-129						
Ethylbenzene	105		75-133						
Total Xylenes	106		84-131						
TPH by NWTPE-Gx waters	99		63-154						

Surrogate Quality Control

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

Quality Control Summary

Client Name: ConocoPhillips c/o Shaw Env.
Reported: 03/23/06 at 09:10 AM

Group Number: 981253

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX (8021)

Batch number: 06072A07B

	Trifluorotoluene-P	Trifluorotoluene-F
4726315	115	106
4726316	112	105
4726317	113	105
4726318	113	104
Blank	113	106
LCS	113	115
LCSD	113	114
MS	115	114
Limits:	69-129	63-135

Analysis Name: BTEX (8021)

Batch number: 06073A07A

	TriFluorotoluene-P	Trifluorotoluene-F
4726319	117	109
4726320		106
4726321	114	108
4726322		105
4726323	113	105
Blank	114	106
LCS	114	113
LCSD	114	113
MS	116	116
Limits:	69-129	63-135

Analysis Name: TPH by NWTPH-Dx(water) w/SiGel

Batch number: 060760012A

	Orthoterphenyl
4726315	94
4726316	92
4726317	90
4726318	90
4726319	89
4726320	88
4726321	96
4726322	88
Blank	92
LCS	103
LCSD	99
Limits:	52-141

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

ConocoPhillips Analysis Request/Chain of Custody



001782

Acct #: 11817 For Lancaster Laboratories use only Group #: 981253 Sample #: 4726315-23

SCR#: 855 92

Site # 236380 WNO # _____
 Site Address: Birmingham, VA
 ConocoPhillips PM: _____ Company Code: 506
 Core Work Order #: 1571500012 Total Lab Budget: _____
 Consultant/Office: _____
 Consultant Proj. Mgr: M. Sauze
 Consultant Phone #: 425-372-1600 Fax #: 425-372-1600
 Sampler: MATT DAVIS

List total number of containers in the Analyzes Requested box under each analysis.

Matrix	Preservation Codes			
	H	N	T	S
<input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Water <input type="checkbox"/> Oil <input type="checkbox"/> Air	FPW-9X BTX TPH-dX T.OTA Lead			

Preservative Codes	
H = HCl	T = Thiosulfate
N = HNO ₃	B = NaOH
S = H ₂ SO ₄	O = Other

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Oil	Air	Remarks
MW-1	3-10-06	1127							* Do not run Total Lead analysis per Marc Sauze email on 3/14/06. KAU 885 3/14/06
MW-2		1222							
MW-3		1031							
MW-4		1249							
MW-5		1059							
MW-6		1341							
MW-7		1315							
MW-8		1157							
T/Blanks									

Turnaround Time Requested in Business Days (TAT) (please circle):
 STD. TAT 5 day 48 hour
 24 hour other _____

Reporting Requirements (please circle)
 NJ Reduced NY ASP Cat. A Raw Data Diskette
 NY ASP Cat. B Full Type I Other _____

Relinquished by: <u>[Signature]</u>	Date: <u>3-10-06</u>	Time: <u>1127</u>	Received by: _____	Date: _____	Time: _____
Relinquished by: <u>[Signature]</u>	Date: <u>3-10-06</u>	Time: <u>1559</u>	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: _____	Time: _____
Relinquished by: _____	Date: _____	Time: _____	Received by: _____	Date: <u>3/14/06</u>	Time: <u>1045</u>
Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____	Temperature Upon Receipt: <u>20-4.5</u> °C				

Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers		
A	TIC is a possible aldol-condensation product	B	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	E	Estimated due to interference
C	Pesticide result confirmed by GC/MS	M	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	N	Spike amount not within control limits
E	Concentration exceeds the calibration range of the instrument	S	Method of standard additions (MSA) used for calculation
J	Estimated value	U	Compound was not detected
N	Presumptive evidence of a compound (TICs only)	W	Post digestion spike out of control limits
P	Concentration difference between primary and confirmation columns >25%	*	Duplicate analysis not within control limits
U	Compound was not detected	+	Correlation coefficient for MSA <0.995
X,Y,Z	Defined in case narrative		

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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

SECOR MONITORING WELL GAUGING, PURGING AND SAMPLING PROCEDURES

Monitoring well purging and sampling was conducted based on USEPA approved (Puls and Barcelona, 1996) low-flow sampling techniques whenever possible.

Purging Procedures

- A. Using a decontaminated instrument (i.e., tape measure, continuity meter, or interface probe) measure the depth to groundwater in reference to the measuring point at the top of the casing. Measure the total depth of the well and diameter of the well casing to calculate the volume of water in the well casing.
- B. Based on previously obtained data, if a monitoring well is suspected of containing LPH concentrations, lower a transparent bailer into the well to evaluate the presence of a hydrocarbon sheen on the water table.
- C. 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. Purge by low-flow pumping (less than 0.5 liters per minute) for approximately five minutes. Monitor the static water level in the well using a decontaminated instrument and adjust the pumping rate to maintain a minimal drawdown. If low-flow purging is not possible and bailing is used to purge the well, then a minimum of three well volumes will be removed. When purging 3 well volumes, parameters should be measured after each casing volume is removed. If the well goes dry, the procedure listed in step E2 (below) should be followed.
- E. Conduct field measurements (i.e., pH, specific conductivity, temperature, and oxidation-reduction potential) note clarity, color, turbidity, and odor of purge water, and measure depth to groundwater.
 1. If the well has not been purged dry and drawdown is minimal, continue to pump and conduct field measurements (including depth to water) again every three to five minutes during purging.
 - a) If the first through third series of measurements vary by less than 10 percent, the well has been adequately purged. If bailers are used to purge the well, then the water level is allowed to recover to 80 percent of its static condition, or for two hours, whichever comes first prior to beginning the sampling procedure.
 - b) If the measurements vary by 10 percent or greater, repeat Step E1 above.
 - c) If a minimum of three parameters cannot be measured during purging and or drawdown cannot be controlled to minimal, remove three well volumes with a bailer prior to sampling.
 2. 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 occurs first. Calculate the percent recovery, and begin the sampling procedure.

Sampling 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 clean, dedicated polyethylene disposable bailer.
- 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.
- 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.

Reference:

Puls, R.W., and Barcelona M.J., 1996. EPA Ground Water Issue Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504.

SECOR

DAILY FIELD LOG

Page: 1 of 1
Date: 3-10-06

Client: ConocoPhillips	Site No:	Project No:
Scope of Work: <u> x </u> Quarter Monitoring/Sampling	W/O #:	

Describe Daily Activities:

Gauged 8 monitoring wells.
 Purged 8 monitoring wells.
 Sampled 8 monitoring wells.

Number of drums left on site: 0

Field Notes:

1000 - MD onsite, setup. Reviewed HASP.
 1031 - Sampled MW-3.
 1059 - Sampled MW-5.
 1127 - Sampled MW-1.
 1157 - Sampled MW-8.
 1238 - Sampled MW-2.
 1299 - Sampled MW-4.
 1315 - Sampled MW-7.
 1391 - Sampled MW-6.
 1900 - MD OFFSITE

Arrived on Site: 1000

Departed Site: 1900

Decontamination Procedures: 3-Stage (Alconox Wash, Tap Water Rinse, & Distilled Water Rinse)	
Daily Health and Safety Log Completed?: <u> j </u>	Utility Locations Checked?:
Important Conversations:	
Important Changes in Scope of Work:	
Weather Conditions:	Subcontractors On Site:
SECOR Personnel On Site: <u> MJ </u>	
Signed: <u> Michele D... </u>	Date: <u> 3/10/06 </u>

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: 6-10-06 WELL NO. MW- 81
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Partly Cloudy

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 5.82 FT. or IN.
- B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
- C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
- D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
- E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:

	<u>3 Well Vols.</u>	<u>5 Well Vols.</u>		
2" Diameter =	0.5 gals/ft	0.82 gals/ft	x feet of water =	_____ PV (Gal)
4" Diameter =	2.0 gals/ft	3.25 gals/ft	x feet of water =	_____ PV (Gal)
6" Diameter =	4.4 gals/ft	7.35 gals/ft	x feet of water =	_____ PV (Gal)

PURGING METHOD: LOW FLOW DURATION: START: 11:15 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>11:20</u>	<u>NA</u>	<u>Grey</u>	<u>152</u>	<u>6.38</u>	<u>12.18</u>	<u>788</u>	<u>5.80</u>
2nd Volume:	<u>11:23</u>	<u>↓</u>	<u>↓</u>	<u>134</u>	<u>6.39</u>	<u>12.25</u>	<u>803</u>	<u>5.83</u>
3rd Volume:	<u>11:26</u>	<u>↓</u>	<u>↓</u>	<u>128</u>	<u>6.39</u>	<u>12.37</u>	<u>797</u>	<u>5.82</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: 25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 5.82

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW- 81</u>	<u>11:27</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

- Casing Capacities:**
- 2-inch hole.....0.16 gal/in. ft.
 - 4-inch hole.....0.55 gal/in. ft.
 - 6.5-inch hole.....1.70 gal/in. ft.
 - 8-inch hole.....2.60 gal/in. ft.
 - 10-inch hole.....4.10 gal/in. ft.

Recharge Calculation at Time of Sample Collection:

Original Water Column: _____ x 0.80 = _____
 Total Depth of Well: _____
 Collect sample when Depth to Water measures _____
 Less than or equal to:

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: 3-10-06 WELL NO. MW-2
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Sunny

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 8.26 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:
- | | | | | |
|---------------|---------------------|---------------------|-----------------|------------------|
| | <u>3 Well Vols.</u> | <u>5 Well Vols.</u> | | |
| 2" Diameter = | 0.5 gals/ft | 0.82 gals/ft | x feet of water | = _____ PV (Gal) |
| 4" Diameter = | 2.0 gals/ft | 3.25 gals/ft | x feet of water | = _____ PV (Gal) |
| 6" Diameter = | 4.4 gals/ft | 7.35 gals/ft | x feet of water | = _____ PV (Gal) |

PURGING METHOD: LOW FLOW DURATION: START: 12:10 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct	SWL
1st Volume:	<u>12:15</u>	<u>L</u>	<u>C</u>	<u>225</u>	<u>6.68</u>	<u>13.14</u>	<u>590</u>	<u>8.27</u>
2nd Volume:	<u>12:18</u>	<u>↓</u>	<u>↓</u>	<u>225</u>	<u>6.57</u>	<u>13.25</u>	<u>581</u>	<u>8.27</u>
3rd Volume:	<u>12:21</u>	<u>↓</u>	<u>↓</u>	<u>224</u>	<u>6.52</u>	<u>13.03</u>	<u>1582</u>	<u>8.27</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: 25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 8.27

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW-2</u>	<u>12:22</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

Casing Capacities:
 2-inch hole.....0.16 gal/in. ft.
 4-inch hole.....0.65 gal/in. ft.
 6-inch hole.....1.70 gal/in. ft.
 8-inch hole.....2.60 gal/in. ft.
 10-inch hole.....4.10 gal/in. ft.

Recharge Calculation at Time of Sample Collection:

Original Water Column: _____ x 0.80 = _____ Total Depth of Well: _____
 Collect sample when Depth to Water measures _____
 Less than or equal to: _____

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: 8-10-06 WELL NO. MW-3
 FACILITY NAME: 6380 TEMPERATURE: 40 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Partly cloudy

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 4.74 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:
- | | | | |
|---------------|---------------------|---------------------|----------------------------------|
| | <u>3 Well Vols.</u> | <u>5 Well Vols.</u> | x feet of water = _____ PV (Gal) |
| 2" Diameter = | 0.5 gals/ft | 0.82 gals/ft | x feet of water = _____ PV (Gal) |
| 4" Diameter = | 2.0 gals/ft | 3.25 gals/ft | x feet of water = _____ PV (Gal) |
| 6" Diameter = | 4.4 gals/ft | 7.35 gals/ft | |

PURGING METHOD: LOW FLOW DURATION: START: 1019 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>1024</u>	<u>4</u>	<u>2</u>	<u>20</u>	<u>6.52</u>	<u>11.14</u>	<u>875</u>	<u>4.74</u>
2nd Volume:	<u>1027</u>	<u>↓</u>	<u>↓</u>	<u>27</u>	<u>6.32</u>	<u>11.08</u>	<u>864</u>	<u>4.79</u>
3rd Volume:	<u>1030</u>	<u>↓</u>	<u>↓</u>	<u>30</u>	<u>6.31</u>	<u>10.92</u>	<u>860</u>	<u>4.79</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: 25-gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 4.79

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW-3</u>	<u>1031</u>	<u>3 vials/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

Casing Capacities:
 2-inch hole.....0.16 gal/in ft.
 4-inch hole.....0.65 gal/in ft.
 6.5-inch hole.....1.70 gal/in ft.
 8-inch hole.....2.60 gal/in ft.
 10-inch hole.....4.10 gal/in ft.

Recharge Calculation at Time of Sample Collection:
 Original Water Column: _____ x 0.80 = _____
 Collect sample when Depth to Water measures
Less than or equal to:

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: _____ WELL NO. MW-4
 FACILITY NAME: 6380 TEMPERATURE: _____ °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: _____

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 6.26 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (H = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:
- | | 3 Well Vols. | 5 Well Vols. | | |
|---------------|--------------|--------------|-----------------|------------------|
| 2" Diameter = | 0.5 gals/ft | 0.82 gals/ft | x feet of water | = _____ PV (Gal) |
| 4" Diameter = | 2.0 gals/ft | 3.25 gals/ft | x feet of water | = _____ PV (Gal) |
| 6" Diameter = | 4.4 gals/ft | 7.35 gals/ft | x feet of water | = _____ PV (Gal) |

PURGING METHOD: LOW FLOW DURATION: START: 1237 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct	SWL
1st Volume:	<u>1242</u>	<u>↓</u>	<u>↓</u>	<u>241</u>	<u>6.39</u>	<u>11.42</u>	<u>.639</u>	<u>6.36</u>
2nd Volume:	<u>1243</u>	<u>↓</u>	<u>↓</u>	<u>237</u>	<u>6.26</u>	<u>11.52</u>	<u>.631</u>	<u>6.39</u>
3rd Volume:	<u>1248</u>	<u>↓</u>	<u>↓</u>	<u>235</u>	<u>6.19</u>	<u>11.56</u>	<u>.631</u>	<u>6.42</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: .25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: _____

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW- U</u>	<u>1249</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

Recharge Calculation at Time of Sample Collection:

- Casing Capacities:
 2-inch hole.....0.16 gal/in ft.
 4-inch hole.....0.65 gal/in ft.
 6.5-inch hole.....1.70 gal/in ft.
 8-inch hole.....2.60 gal/in ft.
 10-inch hole.....4.10 gal/in ft.

Original Water Column: _____ x 0.80 = _____
 Total Depth of Well: _____
 Collect sample when Depth to Water measures
 Less than or equal to: _____

SECOR
GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR FN: _____ DATE: 3-10-06 WELL NO. MW- 5
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Partly Cloudy

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 3.81 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:
- | | | | |
|---------------|---------------------|---------------------|--|
| | <u>3 Well Vols.</u> | <u>5 Well Vols.</u> | x feet of water _____ = _____ PV (Gal) |
| 2" Diameter = | 0.5 gals/ft | 0.82 gals/ft | x feet of water _____ = _____ PV (Gal) |
| 4" Diameter = | 2.0 gals/ft | 3.25 gals/ft | x feet of water _____ = _____ PV (Gal) |
| 6" Diameter = | 4.4 gals/ft | 7.35 gals/ft | |

PURGING METHOD: LOW FLOW DURATION: START: 1047 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>1052</u>	<u>↓</u>	<u>0</u>	<u>165</u>	<u>6.64</u>	<u>10.58</u>	<u>.617</u>	<u>4.28</u>
2nd Volume:	<u>1055</u>	<u>↓</u>	<u>↓</u>	<u>161</u>	<u>6.57</u>	<u>10.65</u>	<u>.611</u>	<u>4.36</u>
3rd Volume:	<u>1058</u>	<u>↓</u>	<u>↓</u>	<u>156</u>	<u>6.57</u>	<u>10.81</u>	<u>.610</u>	<u>4.42</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: .25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 9.42

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW- 5</u>	<u>1059</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

Casing Capacities:
 2-inch hole.....0.16 gal/in ft.
 4-inch hole.....0.65 gal/in ft.
 6.5-inch hole.....1.70 gal/in ft.
 8-inch hole.....2.60 gal/in ft.
 10-inch hole.....4.10 gal/in ft.

Recharge Calculation at Time of Sample Collection:

Original Water Column: _____ x 0.80 = _____
 Collect sample when Depth to Water measures
 Less than or equal to: _____

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: 3-10-06 WELL NO. MW- 6
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Cloudy

FIELD MEASUREMENTS:

A. Static Water Level (SWL) below top of casing/piezometer: 5.47 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:

	<u>3 Well Vols.</u>	<u>5 Well Vols.</u>		
2" Diameter =	0.5 gals/ft	0.82 gals/ft	x feet of water	= _____ PV (Gal)
4" Diameter =	2.0 gals/ft	3.25 gals/ft	x feet of water	= _____ PV (Gal)
6" Diameter =	4.4 gals/ft	7.35 gals/ft	x feet of water	= _____ PV (Gal)

PURGING METHOD: LOW FLOW DURATION: START: 1329 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>1339</u>	<u>↓</u>	<u>2</u>	<u>129</u>	<u>6.93</u>	<u>10.75</u>	<u>1.19</u>	<u>5.67</u>
2nd Volume:	<u>1337</u>	<u>↓</u>	<u>↓</u>	<u>127</u>	<u>6.90</u>	<u>10.71</u>	<u>1.19</u>	<u>5.68</u>
3rd Volume:	<u>1340</u>	<u>↓</u>	<u>↓</u>	<u>125</u>	<u>6.89</u>	<u>10.71</u>	<u>1.19</u>	<u>5.67</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: .25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 5.67

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW- 6</u>	<u>1341</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

Recharge Calculation at Time of Sample Collection:

Casing Capacities:
 2-inch hole.....0.16 gal/in ft.
 4-inch hole.....0.65 gal/in ft.
 6.5-inch hole.....1.70 gal/in ft.
 8-inch hole.....2.60 gal/in ft.
 10-inch hole.....4.10 gal/in ft.

Total Depth of Well:
 Original Water Column: _____ x 0.80 = -()
 Collect sample when Depth to Water measures
Less than or equal to:

SECOR
GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PIN: _____ DATE: 3-10-06 WELL NO. MW-7
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Sunny

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 6.71 FT. or IN.
- B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
- C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
- D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
- E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:

	<u>3 Well Vols.</u>	<u>5 Well Vols.</u>		
2" Diameter =	0.5 gals/ft	0.82 gals/ft	x feet of water	= _____ PV (Gal)
4" Diameter =	2.0 gals/ft	3.25 gals/ft	x feet of water	= _____ PV (Gal)
6" Diameter =	4.4 gals/ft	7.35 gals/ft	x feet of water	= _____ PV (Gal)

PURGING METHOD: LOW FLOW DURATION: START: 1303 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>1308</u>	<u>L</u>	<u>0</u>	<u>187</u>	<u>6.68</u>	<u>11.15</u>	<u>948</u>	<u>6.88</u>
2nd Volume:	<u>1311</u>	<u>↓</u>	<u>↓</u>	<u>162</u>	<u>6.60</u>	<u>11.27</u>	<u>937</u>	<u>6.90</u>
3rd Volume:	<u>1314</u>	<u>↓</u>	<u>↓</u>	<u>139</u>	<u>6.59</u>	<u>11.21</u>	<u>932</u>	<u>6.92</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: .25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 6.92

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW-7</u>	<u>1315</u>	<u>3 vols/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS: INCONSISTENT ORP

- Casing Capacities:**
- 2-inch hole.....0.16 gal/in ft.
 - 4-inch hole.....0.65 gal/in ft.
 - 6.5-inch hole.....1.70 gal/in ft.
 - 8-inch hole.....2.60 gal/in ft.
 - 10-inch hole.....4.10 gal/in ft.

Recharge Calculation at Time of Sample Collection:

Original Water Column: _____ x 0.80 = -()
 Total Depth of Well: _____
 Collect sample when Depth to Water measures _____
 Less than or equal to: _____

SECOR GROUNDWATER SAMPLING FIELD DATA SHEET

SECOR PN: _____ DATE: 8-10-06 WELL NO. MW-8
 FACILITY NAME: 6380 TEMPERATURE: 45 °F or °C
 FIELD PERSONNEL: Matt Davis WEATHER: Sunny

FIELD MEASUREMENTS:

- A. Static Water Level (SWL) below top of casing/piezometer: 7.50 FT. or IN.
 B. Thickness of Free Product, if present: _____ Inches _____ FT. or IN.
 C. Total Depth of well (TD) from top of casing/piezometer: _____ FT. or IN.
 D. Height of Water Column in casing (h = TD - SWL): _____ FT. or IN.
 E. Useful approximate Purge Volumes (PV) per foot of water column for common casing sizes:

	<u>3 Well Vols.</u>	<u>5 Well Vols.</u>	x feet of water = _____ PV (Gal)
2" Diameter =	0.5 gals/ft	0.82 gals/ft	x feet of water = _____ PV (Gal)
4" Diameter =	2.0 gals/ft	3.25 gals/ft	x feet of water = _____ PV (Gal)
6" Diameter =	4.4 gals/ft	7.35 gals/ft	

PURGING METHOD: LOW FLOW DURATION: START: 1145 END: _____

OBSERVATIONS:

	Time	Turbidity	Color	ORP	pH	Temp.	Conduct.	SWL
1st Volume:	<u>1150</u>	<u>L</u>	<u>C</u>	<u>180</u>	<u>6.75</u>	<u>12.20</u>	<u>1.13</u>	<u>7.64</u>
2nd Volume:	<u>1153</u>	<u>↓</u>	<u>↓</u>	<u>172</u>	<u>6.74</u>	<u>12.42</u>	<u>1.09</u>	<u>7.67</u>
3rd Volume:	<u>1156</u>	<u>↓</u>	<u>↓</u>	<u>167</u>	<u>6.72</u>	<u>12.53</u>	<u>1.06</u>	<u>7.71</u>
4th Volume:	_____	_____	_____	_____	_____	_____	_____	_____
Addl. Volumes:	_____	_____	_____	_____	_____	_____	_____	_____

TOTAL VOLUME OF WATER PURGED FROM WELL: .25 gallons
 PURGE WATER STORED/DISPOSED OF WHERE/HOW: Taken Offsite

SAMPLES COLLECTED: Depth to Water at time of sample collection: 7.71

Sample Number(s)	Time	Size/Number of Container(s)	Preservative
<u>MW-8</u>	<u>1157</u>	<u>3 voas/1 amber/1 poly</u>	<u>HCL/HCL/Nothing</u>
_____	_____	_____	_____
_____	_____	_____	_____

COMMENTS:

- Casing Capacities:
 2-inch hole.....0.16 gal/in ft.
 4-inch hole.....0.65 gal/in ft.
 6.5-inch hole.....1.70 gal/in ft.
 8-inch hole.....2.60 gal/in ft.
 10-inch hole.....4.10 gal/in ft.

Recharge Calculation at Time of Sample Collection:

Original Water Column: _____ x 0.80 = _____
 Total Depth of Well: _____
 Collect sample when Depth to Water measures _____
 Less than or equal to:

ConocoPhillips Analysis Request/Chain of Custody



U01782

For Lancaster Laboratories use only

Acct. #: _____ Group #: _____ Sample #: _____

SCR#: 21592

Site #: <u>256280</u> WNO #: _____ Site Address: <u>Littlington, VA</u> ConocoPhillips PM: _____ Company Code: <u>300</u> Core Work Order #: <u>1571500012</u> Total Lab Budget: _____ Consultant/Office: _____ Consultant Prj. Mgr: <u>M. S. H. C.</u> Consultant Phone #: <u>425-372-1000</u> Fax #: <u>425-372-1661</u> Sampler: <u>L.A. - M. J.</u>			Analyses Requested <small>List total number of containers in the box under each analysis.</small> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" rowspan="2">Matrix</th> <th colspan="10">Preservation Codes</th> </tr> <tr> <th>F</th><th>T</th><th>N</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Soil</td> <td style="text-align: center;"><input type="checkbox"/> Potable <input type="checkbox"/> NPDES</td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td style="text-align: center;">Water</td> <td style="text-align: center;"><input type="checkbox"/> Air</td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td style="text-align: center;">Oil</td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>										Matrix		Preservation Codes										F	T	N									Soil	<input type="checkbox"/> Potable <input type="checkbox"/> NPDES	1	1	1											Water	<input type="checkbox"/> Air	1	1	1											Oil		1	1	1													1	1	1													1	1	1													1	1	1													1	1	1													1	1	1													1	1	1													1	1	1													1	1	1											Preservative Codes H = HCl T = Thiou sulfate N = HNO ₃ B = NaOH S = H ₂ SO ₄ O = Other	
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