Delta Environmental Consultants, Inc.

# CONOCOPHILLIPS COMPANY
# GROUNDWATER MONITORING REPORT

August 1, 2005

| | |
|---|---|
| Site No.: 254165 Site Address: | 202 Avenue D, Snohomish, Washington |
| ConocoPhillips Site Manager: | Kipp Eckert |
| Consultant/Contact Person: | Delta Environmental Consultants, Inc. – Eric Larsen |
| Primary Agency/Regulatory ID No.: | **Washington DOE Northwest Region** |

## WORK PERFORMED THIS QUARTER [First - 2005]

- Installed Wells MW-13, MW-14, and MW-15 on March 14, 2005.
- Surveyed top of well casing of newly installed Wells MW-13 through MW-15 with respect to MW-6A and MW-9 on March 21, 2005.
- Measured depth to water in Wells MW-1A, MW-2, MW-6A, and MW-9 through MW-15, and measured separate-phase hydrocarbon (SPH) thickness in Well MW-12 on March 21, 2005.
- Purged and sampled groundwater from Wells MW-1A, MW-2, MW-6A, MW-9, MW-10, MW-11, MW-13, MW-14, and MW-15 on March 21, 2005.
- Analyzed groundwater samples for total petroleum hydrocarbons as gasoline (TPH-G) using Northwest Method NWTPH-Gx; TPH as diesel and heavy oil (TPH-D and TPH-O) using Northwest Method NWTPH-Dx; benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8260B; nitrate and sulfate using EPA Method 300A; and alkalinity using EPA Method 310.1.
- Using a Horiba U-22 water quality meter, measured groundwater quality field parameters in Wells MW-1A, MW-2, MW-6A, MW-9 through MW-11, and MW-13 through MW-15.
- Replaced damaged well monuments on Wells MW-9 and MW-12 on March 30, 2005.

## WORK PROPOSED FOR NEXT QUARTER [Second - 2005]

- Measure depth to water and SPH thickness (if present) in Wells MW-1A, MW-2, MW-6A, and MW-9 through MW-15.
- Measure groundwater quality field parameters in Wells MW-1A, MW-2, MW-6A, and MW-9 through MW-15 using a Horiba U-22 or YSI 556 water quality meter.
- Analyze groundwater samples collected from Wells MW-1A, MW-2, MW-6A, and MW-9 through MW-15 for TPH-G using Northwest Method NWTPH-Gx, TPH-D and TPH-O using Northwest Method NWTPH-Dx, BTEX using EPA Method 8260B, nitrate and sulfate using EPA Method 300A, and alkalinity using EPA Method 310.1
- Next sampling event is scheduled for June 2005.

Delta Environmental Consultants, Inc.

**CONOCOPHILLIPS COMPANY**
**GROUNDWATER MONITORING REPORT**

August 1, 2005

Site No.: 254165 Site Address: 202 Avenue D, Snohomish, Washington
ConocoPhillips Site Manager: Kipp Eckert
Consultant/Contact Person: Delta Environmental Consultants, Inc. – Eric Larsen
Primary Agency/Regulatory ID No.: **Washington DOE Northwest Region**

## SUMMARY

| | | |
|---|---|---|
| Frequency of Sampling Events: | Quarterly | (Quarterly, etc.) |
| Approximate Depth to Groundwater: | 4.71 – 9.72 | (Measured Feet) |
| Groundwater Gradient: | Southerly | (Direction) |
| | Varies (0.03 to 0.07) | (ft/ft) |
| Maximum Benzene Concentration: | 36.8 (MW-11) | (ppb) |
| Measurable Free Product Detected: | Yes (0.01 ft. in MW-12) | (Yes - ID well(s)/No) |
| Free Product Recovered This Quarter: | None | (gallons) |
| Cumulative Free Product Recovered to Date: | Unknown | (gallons) |
| Water Wells or Surface Waters w/in a 2000' | Snohomish River | |
| Radius and Respective Direction: | 800 ft South | (Distance and Direction) |
| Current Remedial Action: | Not Applicable | (SVE/AS/P&T/DVE/ |
| | | Product Removal/Bio/etc.) |
| Permits for Discharge: | Not Applicable | (NPDES, POTW, etc.) |

## DISCUSSION

- Wells MW-13, MW-14, and MW-15 were installed south of the site along Second Street on March 14, 2005. Details summarizing well installation activities are presented in a separate report prepared by Delta. During the March 21, 2005 groundwater monitoring event, Delta personnel surveyed the new top of casing elevations of MW-13 through MW-15 with respect to Wells MW-6A and MW-9. In doing so, the wellhead elevation of MW-9 was observed to be approximately 0.89 foot lower than previously recorded. The new wellhead elevation for MW-9 and the wellhead elevations for MW-13 through MW-15 are included in Table 1 and are used in calculating groundwater elevation in the vicinity of those wells.

- SPH was observed in Well MW-12 at a thickness of 0.01 foot. Due to the presence of SPH, no groundwater samples were collected from MW-12 for analysis.

- TPH-G was detected above the Washington State Model Toxics Control Act (MTCA) Method A cleanup level in the groundwater sample collected from Well MW-6A at a concentration of 1,610 ppb.

Delta Environmental Consultants, Inc.

**CONOCOPHILLIPS COMPANY**
**GROUNDWATER MONITORING REPORT**

August 1, 2005

| | |
|---|---|
| Site No.: 254165 Site Address: | 202 Avenue D, Snohomish, Washington |
| ConocoPhillips Site Manager: | Kipp Eckert |
| Consultant/Contact Person: | Delta Environmental Consultants, Inc. – Eric Larsen |
| Primary Agency/Regulatory ID No.: | **Washington DOE Northwest Region** |

- TPH-D was not detected above the laboratory reporting limit in the groundwater samples collected from Wells MW-1A, MW-2, MW-9 through MW-11, and MW-13 through MW-15 and was detected below the MTCA Method A cleanup level in the groundwater sample collected from Well MW-6A at a concentration of 349 ppb.

- TPH-O was not detected above the laboratory reporting limit in any of the groundwater samples submitted for analysis.

- Benzene was detected above the MTCA Method A cleanup level in the groundwater samples collected from MW-2 and MW-11 at concentrations of 5.07 ppb and 36.8 ppb, respectively.

- Toluene was not detected above the laboratory reporting limit in groundwater samples collected from Wells MW-1A, MW-2, MW-9, MW-10, and MW-14. Toluene was detected below the MTCA Method A cleanup level in the groundwater samples collected from Wells MW-6A, MW-11, MW-13, and MW-15 at concentrations ranging from 1.5 ppb to 4.58 ppb.

- Ethylbenzene was not detected above the laboratory reporting limit in the groundwater samples collected from Wells MW-1A, MW-2, MW-9, MW-14, and MW-15. Ethylbenzene was detected below the MTCA Method A cleanup level in the groundwater samples collected from Wells MW-6A, MW-10, MW-11, and MW-13 at concentrations ranging from 1.93 ppb to 9.48 ppb.

- Total xylenes were not detected above the laboratory reporting limit in the groundwater samples collected from Wells MW-1A, MW-2, MW-9, MW-10, MW-14, and MW-15. Total xylenes were detected below the MTCA Method A cleanup level in the groundwater samples collected from Wells MW-6A and MW-11 at concentrations ranging from 1.86 ppb to 7.34 ppb.

- Natural attenuation parameters are typically monitored at this site. Field parameters were monitored at Wells MW-1A, MW-2, MW-6A, MW-9 through MW-11, and MW-13 through MW-15 using a Horiba U-22 water quality meter and included pH, conductivity, turbidity, dissolved oxygen (DO), temperature, total dissolved solids, and oxidation-reduction potential (ORP). Additional parameters were analyzed by the laboratory and included nitrate, sulfate, and alkalinity.

- Degradation of hydrocarbons is often indicated by decreased dissolved oxygen concentrations. Affected wells MW-1A, MW-2, MW-6A, MW-10, MW-11, and MW-13 contained DO concentrations ranging from 2.43 mg/l to 3.12 mg/l, as measured with the Horiba water quality meter. Unaffected wells MW-9, MW-14, and MW-15 contained slightly higher DO concentrations, ranging from 3.57 mg/l to 4.93 mg/l.

- Upon depletion of dissolved oxygen, ORP decreases and anaerobic conditions increase the availability of alternative electron receptors such as nitrate and sulfate for utilization by microorganisms, which allows for natural attenuation to continue through anaerobic processes. Similar to DO trends, ORP values and nitrate and sulfate concentrations were generally lower in the affected wells and were generally higher in unaffected wells.

- ORP values ranged from -80 millivolts (mV) to 43 mV in affected wells MW-1A, MW-2, MW-6A, MW-10, MW-11, and MW-13 and ranged from 35 mV to 138 mV in unaffected wells MW-9, MW-14, and MW-15. Nitrate concentrations were not detected above the laboratory reporting limit in the affected wells, and ranged from 0.029 mg/l to 2.04 mg/l in the unaffected wells. Sulfate concentrations ranged from 11.3 mg/l to 34.8 mg/l in the affected wells, and were slightly higher in the unaffected wells, ranging from 14.3 mg/l to 46.2 mg/l. These conditions suggest that natural attenuation by anaerobic degradation processes are occurring in the vicinity of the impacted wells at the site.

- As biodegradation occurs, alkalinity increases as carbon dioxide production increases with microbial activity. Analytical results indicate higher alkalinity in the affected wells (ranging from 61.9 mg/l to 229 mg/l) and lower alkalinity in the unaffected wells (ranging from 32.5 mg/l to 97.4 mg/l), which suggests increased microbial activity in the vicinity of the affected wells.

- Purge water from this monitoring event was treated through activated carbon and discharged on-site.

- During the March 21, 2005 groundwater monitoring event, Delta personnel observed that the monument vault for Well MW-9 was damaged. The rim of the vault had completely broken off from the vault. Immediately after MW-9 was monitored, Delta personnel filled the well vault with pea gravel to temporarily protect the well and minimize potential safety hazards until a more permanent repair could be made. On March 30, 2005, Delta returned to the site with Cascade Drilling and replaced the well vault for MW-9. At that time, the well vault for MW-12, which was previously reported as damaged, was also replaced. While on-site, Cascade also filled a post hole located near MW-12 to prevent a tripping or falling hazard.

Delta Environmental Consultants, Inc.

**CONOCOPHILLIPS COMPANY**
**GROUNDWATER MONITORING REPORT**

August 1, 2005

Site No.: 254165 Site Address: 202 Avenue D, Snohomish, Washington
ConocoPhillips Site Manager: Kipp Eckert
Consultant/Contact Person: Delta Environmental Consultants, Inc. – Eric Larsen
Primary Agency/Regulatory ID No.: **Washington DOE Northwest Region**

## LIMITATIONS

The services described in this report were performed in accordance with generally accepted professional consulting principles and practices. No other warranty, either express or implied, is made. These services were performed in accordance with terms established with our client. This report is solely for the use of our client and reliance on any part of this report by a third party is at such party's sole risk.

Delta appreciates the opportunity to provide environmental services for ConocoPhillips Company. Please call if you have any questions regarding the contents of this report.

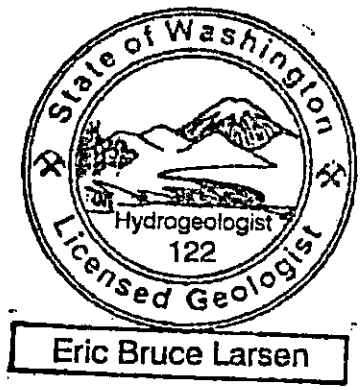
Sincerely,

DELTA ENVIRONMENTAL CONSULTANTS, INC.

Tena Seeds

Tena Seeds, E.I.T.
Project Engineer

Eric Larsen, L.H.G.
Senior Geologist




## ATTACHMENTS

Table 1 – Groundwater Elevations
Table 2 – Groundwater Analytical Results
Table 3 – Natural Attenuation Parameters
Figure 1 –Site Map with Groundwater Elevations and Petroleum Hydrocarbon and BTEX Concentrations
Laboratory Analytical Report and Chain-of-Custody Documentation
Groundwater Sampling Procedures and Field Sheets

cc: Mr. Brian Sato, Washington State Dept. of Ecology – Northwest Regional Office, Bellevue, WA
Ms. Mary Murphy, City of Snohomish, 116 Union Avenue, Snohomish, WA 98290

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-1A** | 04/04/02 | 69.32 | 7.21 | -- | 62.11 |
| | 07/02/02 | 69.32 | 9.30 | -- | 60.02 |
| | 10/02/02 | 69.32 | 11.67 | -- | 57.65 |
| | 01/14/03 | 69.32 | 7.75 | -- | 61.57 |
| | 04/28/03 | 69.32 | 7.85 | -- | 61.47 |
| | 07/11/03 | 69.32 | 10.31 | -- | 59.01 |
| | 12/17/03 | 69.32 | 7.44 | 0.00 | 61.88 |
| | 03/31/04 | 69.32 | 8.28 | 0.00 | 61.04 |
| | 08/19/04 | 69.32 | 10.89 | 0.00 | 58.43 |
| | 03/21/05 | 69.32 | 9.22 | 0.00 | 60.10 |
| **MW-2** | 01/08/99 | 69.80 | 4.90 | -- | 64.90 |
| | 04/28/99 | 69.80 | 4.91 | -- | 64.89 |
| | 07/23/99 | 69.80 | 6.29 | -- | 63.51 |
| | 10/25/99 | 69.80 | 8.64 | -- | 61.16 |
| | 01/08/00 | 69.80 | 4.72 | -- | 65.08 |
| | 04/19/00 | 69.80 | 5.48 | -- | 64.32 |
| | 07/12/00 | 69.80 | 7.55 | -- | 62.25 |
| | 09/06/00 | 69.80 | -- | -- | -- |
| | 10/16/00 | 69.80 | 8.88 | -- | 60.92 |
| | 11/27/00 | 69.80 | -- | -- | -- |
| | 01/16/01 | 69.80 | 6.02 | -- | 63.78 |
| | 04/04/01 | Unable to locate | | | |
| | 05/22/01 | 69.80 | -- | -- | -- |
| | 07/09/01 | 69.80 | -- | -- | -- |
| | 10/09/01 | 69.80 | -- | -- | -- |
| | 01/08/02 | Obstructed by construction | | | |
| | 04/04/02 | 69.80 | 3.47 | -- | 66.33 |
| | 07/02/02 | 69.80 | 5.49 | -- | 64.31 |
| | 10/02/02 | 69.80 | 7.88 | -- | 61.92 |
| | 01/14/03 | 69.80 | 3.27 | -- | 66.53 |
| | 04/28/03 | 69.80 | 4.05 | -- | 65.75 |
| | 07/11/03 | 69.80 | 6.92 | -- | 62.88 |
| | 12/17/03 | 69.80 | 3.65 | 0.00 | 66.15 |
| | 03/31/04 | 69.80 | 4.60 | 0.00 | 65.20 |
| | 08/19/04 | 69.80 | 7.45 | 0.00 | 62.35 |
| | 03/21/05 | 69.80 | 5.52 | 0.00 | 64.28 |

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-6A** | 04/04/02 | 67.65 | 8.25 | -- | 59.40 |
| | 07/02/02 | 67.65 | 8.98 | -- | 58.67 |
| | 10/02/02 | 67.65 | 10.48 | -- | 57.17 |
| | 01/14/03 | 67.65 | 9.88 | -- | 57.77 |
| | 04/28/03 | 67.65 | 9.20 | -- | 58.45 |
| | 07/11/03 | 67.65 | 8.48 | -- | 59.17 |
| | 12/17/03 | 67.65 | 9.45 | 0.00 | 58.20 |
| | 03/31/04 | 67.65 | 8.97 | 0.00 | 58.68 |
| | 08/19/04 | 67.65 | 9.22 | 0.00 | 58.43 |
| | 03/21/05 | 67.65 | 9.45 | 0.00 | 58.20 |
| **MW-9** | 01/08/99 | 68.66 | 6.50 | -- | 62.16 |
| | 04/28/99 | 68.66 | 7.28 | -- | 61.38 |
| | 07/23/99 | 68.66 | 7.97 | -- | 60.69 |
| | 10/25/99 | 68.66 | -- | -- | -- |
| | 01/08/00 | 68.66 | 6.76 | -- | 61.90 |
| | 04/19/00 | 68.66 | -- | -- | -- |
| | 07/12/00 | 68.66 | 8.65 | -- | 60.01 |
| | 09/06/00 | 68.66 | -- | -- | -- |
| | 10/16/00 | 68.66 | -- | -- | -- |
| | 11/27/00 | 68.66 | -- | -- | -- |
| | 01/16/01 | 68.66 | 8.08 | -- | 60.58 |
| | 04/04/01 | 68.66 | 7.78 | -- | 60.88 |
| | 05/22/01 | 68.66 | -- | -- | -- |
| | 07/09/01 | 68.66 | -- | -- | -- |
| | 10/09/01 | 68.66 | 9.70 | -- | 58.96 |
| | 01/08/02 | 68.66 | 6.16 | -- | 62.50 |
| | 04/04/02 | 68.66 | 6.54 | -- | 62.12 |
| | 07/02/02 | 68.66 | 8.49 | -- | 60.17 |
| | 10/02/02 | 68.66 | 10.13 | -- | 58.53 |
| | 01/14/03 | 68.66 | 7.28 | -- | 61.38 |
| | 04/28/03 | 68.66 | 6.93 | -- | 61.73 |
| | 07/11/03 | 68.66 | 8.91 | -- | 59.75 |
| | 12/23/03 | 68.66 | 6.81 | 0.00 | 61.85 |
| | 03/31/04 | 68.66 | 7.34 | 0.00 | 61.32 |
| | 08/19/04 | 68.66 | 9.53 | 0.00 | 59.13 |
| | 03/21/05[4] | 67.77 | 8.11 | 0.00 | 59.66 |

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-10** | 01/08/99 | 67.33 | 4.91 | -- | 62.42 |
| | 04/28/99 | 67.33 | 5.04 | -- | 62.29 |
| | 07/23/99 | 67.33 | 5.44 | -- | 61.89 |
| | 10/25/99 | 67.33 | 7.00 | -- | 60.33 |
| | 01/08/00 | 67.33 | 4.64 | -- | 62.69 |
| | 04/19/00 | 67.33 | 5.02 | -- | 62.31 |
| | 07/12/00 | 67.33 | 8.27 | -- | 59.06 |
| | 09/06/00 | 67.33 | -- | -- | -- |
| | 10/16/00 | 67.33 | 7.41 | -- | 59.92 |
| | 11/27/00 | 67.33 | -- | -- | -- |
| | 01/16/01 | 67.33 | 4.39 | -- | 62.94 |
| | 04/04/01 | 67.33 | 5.00 | -- | 62.33 |
| | 05/22/01 | 67.33 | -- | -- | -- |
| | 07/09/01 | 67.33 | 6.03 | -- | 61.30 |
| | 10/09/01 | 67.33 | 7.15 | -- | 60.18 |
| | 01/08/02 | 67.33 | 4.61 | -- | 62.72 |
| | 04/04/02 | 67.33 | 4.48 | -- | 62.85 |
| | 07/02/02 | 67.33 | 6.00 | -- | 61.33 |
| | 10/02/02 | 67.33 | 7.96 | -- | 59.37 |
| | 01/14/03 | 67.33 | 4.25 | -- | 63.08 |
| | 04/28/03 | 67.33 | 4.71 | -- | 62.62 |
| | 07/11/03 | 67.33 | 6.40 | -- | 60.93 |
| | 12/17/03 | Inaccessible; buried under gravel from recent road construction | | | |
| | 03/31/04 | 67.33 | 4.28 | 0.00 | 63.05 |
| | 08/19/04 | 67.33 | 6.84 | 0.00 | 60.49 |
| | 03/21/05 | 67.33 | 4.71 | 0.00 | 62.62 |

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-11** | 01/08/99 | 66.37 | 9.32 | -- | 57.05 |
| | 04/28/99 | 66.37 | 9.58 | -- | 56.79 |
| | 07/23/99 | 66.37 | 9.83 | -- | 56.54 |
| | 10/25/99 | 66.37 | 10.69 | -- | 55.68 |
| | 01/08/00 | 66.37 | 9.21 | -- | 57.16 |
| | 04/19/00 | 66.37 | 9.52 | -- | 56.85 |
| | 07/12/00 | 66.37 | 10.10 | -- | 56.27 |
| | 09/06/00 | 66.37 | -- | -- | -- |
| | 10/16/00 | 66.37 | 10.80 | -- | 55.57 |
| | 11/27/00 | 66.37 | -- | -- | -- |
| | 01/16/01 | 66.37 | 10.75 | -- | 55.62 |
| | 04/04/01 | 66.37 | -- | -- | -- |
| | 05/22/01 | 66.37 | 9.69 | -- | 56.68 |
| | 07/09/01 | 66.37 | 9.98 | -- | 56.39 |
| | 10/09/01 | 66.37 | 10.67 | -- | 55.70 |
| | 01/08/02 | 66.37 | 9.05 | -- | 57.32 |
| | 04/04/02 | 66.37 | 5.67 | -- | 60.70 |
| | 07/02/02 | 66.37 | 5.90 | -- | 60.47 |
| | 10/02/02 | 66.37 | 10.94 | -- | 55.43 |
| | 01/14/03 | 66.37 | 9.18 | -- | 57.19 |
| | 04/28/03 | 66.37 | 9.25 | -- | 57.12 |
| | 07/11/03 | 66.37 | 10.19 | -- | 56.18 |
| | 12/17/03 | 66.37 | 8.35 | 0.00 | 58.02 |
| | 03/31/04 | 66.37 | 8.70 | 0.00 | 57.67 |
| | 08/19/04[2] | 65.52 | 9.73 | 0.00 | 55.79 |
| | 03/21/05 | 65.52 | 9.10 | 0.00 | 56.42 |

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-12** | 01/08/99 | 66.40 | 8.74 | -- | 57.66 |
| | 04/28/99 | 66.40 | 9.22 | 0.03 | 57.20 |
| | 07/23/99 | 66.40 | 9.51 | 0.01 | 56.90 |
| | 10/25/99 | 66.40 | 10.81 | 0.29 | 55.82 |
| | 01/08/00 | 66.40 | 8.71 | -- | 57.69 |
| | 04/19/00 | 66.40 | 8.97 | -- | 57.43 |
| | 07/12/00 | 66.40 | -- | 0.20 | -- |
| | 09/06/00 | 66.40 | -- | -- | -- |
| | 10/16/00 | 66.40 | -- | 0.25 | -- |
| | 11/27/00 | 66.40 | -- | -- | -- |
| | 01/16/01 | 66.40 | 9.44 | -- | 56.96 |
| | 04/06/01 | 66.40 | 9.16 | -- | 57.24 |
| | 05/22/01 | 66.40 | 9.39 | -- | 57.01 |
| | 07/09/01 | 66.40 | -- | 0.30 | -- |
| | 10/09/01 | 66.40 | 10.65 | 0.20 | 55.91 |
| | 01/08/02 | 66.40 | 8.15 | 0.08 | 58.31 |
| | 04/04/02 | 66.40 | 8.65 | 0.15 | 57.87 |
| | 07/02/02 | 66.40 | 9.66 | 0.36 | 57.03 |
| | 10/02/02 | 66.40 | 11.18 | 0.60 | 55.70 |
| | 01/14/03 | 66.40 | 8.66 | 0.10 | 57.82 |
| | 04/28/03 | 66.40 | -- | 0.25 | -- |
| | 07/11/03 | 66.40 | 11.10 | 0.04 | 55.33 |
| | 12/17/03 | 66.40 | 8.52 | 0.01 | 57.89 |
| | 03/31/04 | 66.40 | 8.98 | sheen | 57.42 |
| | 08/19/04[2] | 66.33 | 10.32 | 0.14 | 56.12 |
| | 10/14/04[3] | 66.33 | 10.00 | sheen | 56.33 |
| | 03/21/05 | 66.33 | 9.30 | 0.01 | 57.04 |

**TABLE 1**
**GROUNDWATER ELEVATIONS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Well I.D. | Monitoring Date | TOC Elevation (feet) | Depth to Groundwater (feet) | SPH Thickness (feet) | Groundwater Elevation[1] (feet) |
|---|---|---|---|---|---|
| **MW-13** | 03/21/05[4] | 67.59 | 9.72 | 0.00 | 57.87 |
| **MW-14** | 03/21/05[4] | 67.67 | 9.17 | 0.00 | 58.50 |
| **MW-15** | 03/21/05[4] | 66.66 | 9.02 | 0.00 | 57.64 |

**Notes:**
TOC = Top of casing elevation, referenced to a site datum with an assumed elevation of 100.00 feet (National Geodetic Vertical Datum of 1929).
SPH = Separate-phase hydrocarbon thickness
"--" - Not measured or reported
[1] Where applicable, groundwater elevations have been corrected to account for separate-phase hydrocarbon thickness, assuming a specific gravity of 0.80 for the product.
[2] TOC elevations of MW-11 and MW-12 were re-surveyed on October 14, 2004 in reference to MW-6A. The well casing of MW-12 had been shortened following the March 31, 2004 monitoring event.
[3] Delta monitored Well MW-12 on October 14, 2004 to measure SPH thickness in the well. No other wells were monitored at that time.
[4] TOC elevations of MW-13 through MW-15 were surveyed on March 21, 2005 in reference to MW-6A and MW-9. In doing so, the wellhead elevation of MW-9 was observed to be approximately 0.89 foot lower than previously recorded.

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | TPH-Gasoline (µg/l) | TPH-Diesel (µg/l) | TPH-Oil (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | Xylenes (µg/l) |
|---|---|---|---|---|---|---|---|---|
| **MW-1A** | 04/04/02 | 73.6 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 07/02/02 | <50.0 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 10/02/02 | <100 | <250 | <500 | <0.500 | <2.00 | <1.00 | <1.50 |
| | 01/14/03 | 90.5 | <250 | <500 | 0.550 | <0.500 | <0.500 | <1.00 |
| | 04/28/03 | 59.2 | <250 | <500 | 1.54 | <0.500 | <0.500 | <1.00 |
| | 07/11/03 | <50.0 | <281 | <562 | <0.500 | 0.702 | 0.517 | 1.74 |
| | 12/17/03 | <100 | <129 | <259 | 0.339 | <0.5 | <0.5 | <1 |
| | 03/31/04 | <100 | <119 | <237 | <1 | <1 | <1 | <2 |
| | 08/19/04 | <100 | <264 | <527 | <1 | <1 | <1 | <2 |
| | 03/21/05 | 266 | <248 | <496 | <1 | <1 | <1 | <2 |
| **MW-2** | 01/08/99 | 1,510 | 314 | <750 | 20.7 | <2.75 | <2.50 | <5.00 |
| | 04/28/99 | 1,180 | 324 | <750 | 16.1 | <1.60 | <1.32 | <3.30 |
| | 07/23/99 | 805 | 368 | <750 | 12.3 | <1.50 | <0.500 | <4.00 |
| | 10/25/99 | 2,100 | 250 | <750 | <0.700 | <19.6 | <0.700 | <1.90 |
| | 01/08/00 | 1,530 | <250 | <750 | 22.2 | <2.27 | <2.43 | <6.44 |
| | 04/19/00 | 1,210 | 257 | <718 | <0.500 | 28.5 | <2.55 | <4.22 |
| | 07/12/00 | 888 | 653 | <750 | <1.25 | 4.75 | <1.25 | <2.50 |
| | 09/06/00 | -- | -- | -- | -- | -- | -- | -- |
| | 10/16/00 | 1,110 | <358 | <1,070 | 42.3 | <4.13 | <2.08 | <5.00 |
| | 11/27/00 | -- | -- | -- | -- | -- | -- | -- |
| | 01/16/01 | 2,000 | 614 | <918 | <2.50 | 29.1 | <2.50 | <5.00 |
| | 04/04/01 | -- | -- | -- | -- | -- | -- | -- |
| | 05/22/01 | -- | -- | -- | -- | -- | -- | -- |
| | 07/09/01 | -- | -- | -- | -- | -- | -- | -- |
| | 10/09/01 | -- | -- | -- | -- | -- | -- | -- |
| | 01/08/02 | | -- | -- | -- | -- | -- | -- |
| | 04/04/02 | 159 | <250 | <500 | 16.3 | 1.25 | <0.500 | 2.57 |
| | 07/02/02 | 387 | 273 | <500 | 23.4 | <0.500 | <0.500 | <1.00 |
| | 10/02/02 | 505 | <250 | <500 | 22.5 | <2.00 | <1.00 | <1.50 |
| | 01/14/03 | 681 | <250 | <500 | 8.10 | <0.500 | 0.515 | 2.49 |
| | 04/28/03 | 269 | <250 | <500 | 3.51 | <0.500 | <0.500 | 1.45 |
| | 07/11/03 | 358 | <291 | <581 | 5.64 | 0.557 | 0.792 | 3.04 |
| | 12/17/03 | 124 | <129 | <259 | <0.25 | <0.5 | <0.5 | <1.00 |
| | 03/31/04 | <100 | 123 | <237 | 9.05 | <1 | <1 | 1.12 |
| | 08/19/04 | <100 | <244 | <488 | <1 | <1 | <1 | <2 |
| | 03/21/05 | <100 | <251 | <502 | 5.07 | <1 | <1 | <2 |

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | TPH-Gasoline (µg/l) | TPH-Diesel (µg/l) | TPH-Oil (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | Xylenes (µg/l) |
|---|---|---|---|---|---|---|---|---|
| **MW-6A** | 04/04/02 | 2,570 | 665 | <500 | 2.99 | 3.16 | 2.25 | 7.27 |
| | 07/02/02 | 3,000 | 613 | <500 | 4.70 | 4.51 | 3.42 | 9.81 |
| | 10/02/02 | 2,970 | 384 | <500 | 32.4 | 6.38 | 8.44 | 9.75 |
| | 01/14/03 | 1,680 | <250 | <500 | 6.69 | 2.24 | 1.60 | 13.4 |
| | 04/28/03 | 1,720 | 288 | <562 | 1.65 | 2.20 | 2.99 | 12.6 |
| | 07/11/03 | 1,470 | <281 | <562 | 2.13 | 2.45 | 3.23 | 6.92 |
| | 12/17/03 | 2,380 | 457 | <265 | 0.875 | 1.75 | 0.941 | <1 |
| | 03/31/04 | 1,810 | 682 | <247 | <5 | <5 | <5 | <10 |
| | 08/19/04 | 988 | 347 | <476 | <1 | <1 | <1 | <2 |
| | 03/21/05 | 1,610 | 349 | <501 | <0.5 | 4.58 | 4.95 | 4.71 |
| **MW-9** | 01/08/99 | <50.0 | <250 | <750 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 04/28/99 | <50.0 | <250 | <750 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 07/23/99 | <50.0 | <250 | <750 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 10/25/99 | -- | -- | -- | -- | -- | -- | -- |
| | 01/08/00 | <50.0 | <250 | <750 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 04/19/00 | -- | -- | -- | -- | -- | -- | -- |
| | 07/12/00 | <50.0 | <249 | <745 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 09/06/00 | -- | -- | -- | -- | -- | -- | -- |
| | 10/16/00 | -- | -- | -- | -- | -- | -- | -- |
| | 11/27/00 | -- | -- | -- | -- | -- | -- | -- |
| | 01/16/01 | <50.0 | -- | -- | <0.500 | <0.500 | <0.500 | <1.00 |
| | 04/04/01 | <50.0 | <250 | <750 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 05/22/01 | -- | -- | -- | -- | -- | -- | -- |
| | 07/09/01 | -- | -- | -- | -- | -- | -- | -- |
| | 10/09/01 | <50.0 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 01/08/02 | <50.0 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 04/04/02 | <50.0 | <250 | <500 | <0.500 | 0.593 | <0.500 | <1.00 |
| | 07/02/02 | <50.0 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 10/02/02 | 144 | <250 | <500 | 3.15 | <2.00 | 7.22 | 2.25 |
| | 01/14/03 | <50.0 | <284 | <568 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 04/28/03 | <50.0 | <250 | <500 | <0.500 | <0.500 | <0.500 | <1.00 |
| | 07/11/03 | <50.0 | <329 | <658 | <0.500 | <0.500 | <0.500 | 1.20 |
| | 12/23/03 | <100 | <126 | <253 | <0.25 | <0.5 | <0.5 | <1 |
| | 03/31/04 | <100 | <118 | <237 | <1 | <1 | <1 | <2 |
| | 08/19/04 | <100 | <256 | <512 | <1 | <1 | <1 | <2 |
| | 03/21/05 | <100 | <247 | <494 | <1 | <1 | <1 | <2 |

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | TPH-Gasoline (µg/l) | TPH-Diesel (µg/l) | TPH-Oil (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | Xylenes (µg/l) |
|---|---|---|---|---|---|---|---|---|
| **MW-10** | 01/08/99 | 331 | 266 | <750 | 2.30 | <0.500 | <1.50 | <2.50 |
| | 04/28/99 | 280 | <250 | <750 | 2.99 | <0.800 | <1.10 | <3.00 |
| | 07/23/99 | 529 | <250 | <750 | 2.34 | <2.60 | 2.81 | 9.37 |
| | 10/25/99 | 519 | 251 | <750 | <0.800 | <5.65 | <2.75 | <8.65 |
| | 01/08/00 | 504 | <250 | <750 | <1.22 | <0.828 | <3.27 | <7.59 |
| | 04/19/00 | 332 | <250 | <750 | <0.610 | <4.43 | <2.84 | <6.91 |
| | 07/12/00 | 498 | <250 | <750 | <0.500 | 4.02 | <3.52 | <7.18 |
| | 09/06/00 | -- | -- | -- | -- | -- | -- | -- |
| | 10/16/00 | 770 | 616 | <1,330 | <4.17 | <3.47 | <2.69 | <8.05 |
| | 11/27/00 | -- | -- | -- | -- | -- | -- | -- |
| | 01/16/01 | 209 | 299 | <859 | <0.500 | 2.33 | 0.980 | 2.65 |
| | 04/04/01 | 198 | <250 | <750 | <0.500 | <0.500 | 1.03 | 2.71 |
| | 05/22/01 | -- | -- | -- | -- | -- | -- | -- |
| | 07/09/01 | 311 | 334 | <853 | <0.500 | 1.97 | 0.949 | 1.07 |
| | 10/09/01 | 675 | 291 | <581 | 2.16 | 0.678 | 0.777 | 4.67 |
| | 01/08/02 | 258 | 675 | <500 | 0.837 | 0.722 | 1.48 | 2.71 |
| | 04/04/02 | 208 | 392 | <500 | <0.500 | <0.500 | <0.500 | 1.33 |
| | 07/02/02 | 201 | 250 | <500 | 0.552 | <0.500 | <0.500 | 1.16 |
| | 10/02/02 | 811 | 326 | <500 | 3.90 | <2.00 | 4.12 | 4.63 |
| | 01/14/03 | 280 | <309 | <617 | 0.549 | 0.844 | <0.500 | 1.76 |
| | 04/28/03 | 270 | <250 | <500 | 0.842 | <0.500 | <0.500 | 2.29 |
| | 07/11/03 | 548 | <284 | <568 | 0.929 | <0.500 | 3.19 | 4.18 |
| | 12/17/03 | Inaccessible; buried under gravel from recent road construction | | | | | | |
| | 03/31/04 | 390 | 308 | <237 | <1 | <1 | <1 | <2 |
| | 08/19/04 | 244 | <251 | <501 | <1 | <1 | <1 | <2 |
| | 03/21/05 | 396 | <247 | <494 | <1 | <1 | 1.93 | <2 |

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | TPH-Gasoline (µg/l) | TPH-Diesel (µg/l) | TPH-Oil (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | Xylenes (µg/l) |
|---|---|---|---|---|---|---|---|---|
| **MW-11** | 01/08/99 | 371 | -- | -- | 141 | 4.95 | 10.8 | 6.66 |
| | 04/28/99 | 782 | <250 | <750 | 175 | <11.0 | 26.1 | 29.9 |
| | 07/23/99 | 474 | <250 | <750 | 43.7 | <2.70 | 3.40 | 8.32 |
| | 10/25/99 | 845 | <250 | <750 | 9.22 | <2.90 | <3.75 | <6.20 |
| | 01/08/00 | 133 | <250 | <750 | 22.5 | <1.03 | 1.11 | 3.34 |
| | 04/19/00 | 869 | <250 | <750 | 92.8 | 8.15 | 9.25 | 20.2 |
| | 07/12/00 | 581 | 387 | <896 | 25.6 | 2.32 | <2.31 | <7.94 |
| | 09/06/00 | -- | -- | -- | -- | -- | -- | -- |
| | 10/16/00 | 322 | <250 | <750 | <2.80 | <0.640 | <0.860 | <4.20 |
| | 11/27/00 | -- | -- | -- | -- | -- | -- | -- |
| | 01/16/01 | 725 | 311 | <866 | 16.7 | 2.41 | 4.46 | 7.09 |
| | 04/04/01 | -- | -- | -- | -- | -- | -- | -- |
| | 05/22/01 | 385 | -- | -- | 15.8 | 2.37 | 2.47 | 4.37 |
| | 07/09/01 | 439 | <310 | <931 | 39.6 | 2.63 | 1.72 | 3.71 |
| | 10/09/01 | 410 | 333 | <500 | 6.04 | 1.08 | 1.74 | 4.40 |
| | 01/08/02 | 1,280 | 572 | <500 | 184 | 10.6 | 35.7 | 21.9 |
| | 04/04/02 | 757 | 366 | <500 | 30.6 | 2.20 | 2.81 | 5.72 |
| | 07/02/02 | 1,060 | 384 | <500 | 107 | 8.73 | 24.2 | 15.5 |
| | 10/02/02 | 785 | <250 | <500 | 13.9 | <2.00 | 4.96 | 3.59 |
| | 01/14/03 | 570 | <305 | <610 | 19.3 | 1.12 | 1.96 | 3.82 |
| | 04/28/03 | 1,100 | <287 | <575 | 135 | 10.7 | 34.1 | 20.1 |
| | 07/11/03 | 684 | <250 | <500 | 29.7 | 3.20 | 10.0 | 9.17 |
| | 12/17/03 | 673 | 215 | <265 | 15.1 | 0.569 | <0.5 | <1 |
| | 03/31/04 | 409 | <127 | <253 | 93.9 | 5.02 | 10.4 | 5.39 |
| | 08/19/04 | 289 | <240 | <480 | 2.69 | <1 | <1 | <2 |
| | 03/21/05 | 564 | <244 | <488 | 36.8 | 4.18 | 9.48 | 7.34 |

**TABLE 2**
**GROUNDWATER ANALYTICAL RESULTS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | TPH-Gasoline (µg/l) | TPH-Diesel (µg/l) | TPH-Oil (µg/l) | Benzene (µg/l) | Toluene (µg/l) | Ethyl-benzene (µg/l) | Xylenes (µg/l) |
|---|---|---|---|---|---|---|---|---|
| **MW-12** | 01/08/99[1] | 2,670 | -- | -- | 21.1 | <5.00 | 40.1 | 48.1 |
| | 04/28/99 | Not sampled due to presence of SPH | | | | | | |
| | 07/23/99 | Not sampled due to presence of SPH | | | | | | |
| | 10/25/99 | Not sampled due to presence of SPH | | | | | | |
| | 01/08/00 | 5,480 | 8,380 | <8,250 | <15.6 | <10.2 | 53.2 | 47.8 |
| | 04/19/00 | 5,980 | 3,060 | <3,750 | <2.60 | <21.5 | 66.6 | <63.5 |
| | 07/12/00 | Not sampled due to presence of SPH | | | | | | |
| | 09/06/00 | -- | -- | -- | -- | -- | -- | -- |
| | 10/16/00 | Not sampled due to presence of SPH | | | | | | |
| | 11/27/00 | -- | -- | -- | -- | -- | -- | -- |
| | 01/16/01 | 5,360 | 20,100 | <8,250 | <5.00 | 12.9 | 72.0 | 63.8 |
| | 04/06/01 | 15,900 | 6,950 | 2,280 | 17.6 | 9.04 | 219 | 131 |
| | 05/22/01 | 15,800 | -- | -- | <10.0 | 10.3 | 307 | 142 |
| | 07/09/01 | Not sampled due to presence of SPH | | | | | | |
| | 10/09/01 | Not sampled due to presence of SPH | | | | | | |
| | 01/08/02 | Not sampled due to presence of SPH | | | | | | |
| | 04/04/02 | Not sampled due to presence of SPH | | | | | | |
| | 07/02/02 | Not sampled due to presence of SPH | | | | | | |
| | 10/02/02 | Not sampled due to presence of SPH | | | | | | |
| | 01/14/03 | Not sampled due to presence of SPH | | | | | | |
| | 04/28/03 | Not sampled due to presence of SPH | | | | | | |
| | 07/11/03 | Not sampled due to presence of SPH | | | | | | |
| | 12/17/03 | Not sampled due to presence of SPH | | | | | | |
| | 03/31/04 | 23,400 | 17,800 | 2,200 | <50 | <50 | <50 | <100 |
| | 08/19/04 | Not sampled due to presence of SPH | | | | | | |
| | 03/21/05 | Not sampled due to presence of SPH | | | | | | |
| **MW-13** | 03/21/05 | 424 | <239 | <478 | 2.84 | 1.71 | 5.21 | 1.86 |
| **MW-14** | 03/21/05 | <100 | <245 | <489 | <1 | <1 | <1 | <2 |
| **MW-15** | 03/21/05 | <100 | <248 | <497 | <1 | 1.5 | <1 | <2 |
| **MTCA Method A Cleanup Levels:** | | **800[2]** | **500** | **500** | **5** | **1000** | **700** | **1000** |

**Notes:**
µg/l = micrograms per liter
<n = Below the detection limit
"--" - Not analyzed
TPH as Diesel and Oil - Analysis by Method NWTPH-Dx
TPH as Gasoline (Toluene to Dodecane) - Analysis by Method NWTPH-Gx
BTEX Compounds - Analysis by EPA Method 8021B
[1] Sample collected without purging
[2] MTCA Method A Cleanup Level for TPH-Gasoline is 1,000 µg/l if benzene is not detectable in groundwater

**TABLE 3**
**NATURAL ATTENUATION PARAMETERS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | FIELD PARAMETERS | | | | | | | | | LABORATORY ANALYSES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | pH | Conductivity (S/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp. (°C) | Salinity (%) | Total Dissolved Solids (g/L) | Oxidation Reduction Potential (mV) | Ferrous Iron (mg/L) | Alkalinity (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) |
| **MW-1A** | 10/09/01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 01/08/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 04/04/02 | 4.97 | 0.406 | 999 | 9.56 | 12.2 | 0.0 | 0.26 | 212 | 3.2 | 61.6 | 0.886 | 47.8 |
| | 07/02/02 | 5.49 | 0.252 | 999 | 19.99 | 16.9 | 0.0 | 0.16 | 186 | 0.0 | 42.4 | <0.200 | 54.5 |
| | 10/02/02 | 5.33 | 0.246 | 999 | 10.91 | 15.53 | 0.0 | 0.16 | 364 | 0.0 | 103 | <0.200 | 50.3 |
| | 04/28/03 | 5.43 | 0.353 | 164 | 4.49 | 14.91 | 0.0 | 0.23 | 64 | 0.5 | 64.8 | 0.300 | 30.4 |
| | 12/17/03 | 4.45 | 0.018 | 10 | 4.15 | 9.1 | -- | 0.12 | 253 | -- | 64 | 0.406 | 40.9 |
| | 03/31/04 | 5.67 | 0.222 | 94 | 1.44 | 11.2 | -- | 0.14 | 83 | -- | 62 | 1.01 | 30.4 |
| | 08/19/04 | 4.59 | 0.022 | 999 | 3.20 | 20.1 | -- | 0.14 | 130 | -- | 66 | 0.8 | 35.7 |
| | 03/21/05 | 6.48 | 0.226 | -5 | 3.00 | 12.07 | -- | 0.15 | 43 | -- | 61.9 | 1.41 | 32.6 |
| **MW-2** | 10/09/01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 01/08/02 | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 04/04/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 07/02/02 | 5.43 | 0.368 | 26.9 | 17.76 | 19.6 | 0.0 | 0.24 | 37 | 3.4 | 148 | <0.200 | 29.6 |
| | 10/02/02 | 5.34 | 0.373 | 21.3 | 8.97 | 17.93 | 0.0 | 0.24 | 255 | 3.4 | 150 | <0.200 | 41.6 |
| | 04/28/03 | 6.24 | 1.06 | 638 | 7.03 | 15.48 | 0.0 | 0.7 | -6.5 | 2.6 | 276 | <0.200 | 26.8 |
| | 12/17/03 | 4.47 | 0.017 | 9 | 3.85 | 9.5 | -- | 0.12 | 252 | -- | 310 | <0.015 | 23 |
| | 03/31/04 | 6.14 | 0.564 | 80 | 1.62 | 11.3 | -- | 0.36 | -5 | -- | 251 | <0.015 | 23 |
| | 08/19/04 | 5.68 | 0.043 | 404 | 2.81 | 20.7 | -- | 0.28 | -22 | -- | 208 | 0.2 | 8.71 |
| | 03/21/05 | 7.39 | 0.500 | 220 | 3.12 | 11.71 | -- | 0.32 | -47 | -- | 205 | <0.015 | 26.9 |

**TABLE 3**
**NATURAL ATTENUATION PARAMETERS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | FIELD PARAMETERS | | | | | | | | | LABORATORY ANALYSES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | pH | Conductivity (S/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp. (°C) | Salinity (%) | Total Dissolved Solids (g/L) | Oxidation Reduction Potential (mV) | Ferrous Iron (mg/L) | Alkalinity (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) |
| **MW-6A** | 10/09/01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 01/08/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 04/04/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 07/02/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 10/02/02 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| | 04/28/03 | 6.16 | 0.794 | 522 | 4.55 | 15.85 | 0.0 | 0.51 | -92 | 2.8 | 203 | <0.200 | 12.1 |
| | 12/17/03 | 4.47 | 0.018 | 9 | 2.97 | 9.6 | -- | 0.12 | 250 | -- | 87 | 0.442 | 39.6 |
| | 03/31/04 | 6.03 | 0.487 | 200 | 0.54 | 13.0 | -- | 0.32 | -60 | -- | 230 | <0.015 | 5.56 |
| | 08/19/04 | 5.70 | 0.047 | 673 | 3.92 | 19.9 | -- | 0.30 | -16 | -- | 205 | 0.2 | 9.48 |
| | 03/21/05 | 7.35 | 0.471 | 640 | 2.76 | 13.48 | -- | 0.31 | -61 | -- | 201 | <0.015 | 11.3 |
| **MW-9** | 10/09/01 | 5.16 | 0.135 | 242 | 8.52 | 16.5 | 0.0 | 0.09 | 313 | 0.0 | 33.0 | 3.05 | 13.5 |
| | 01/08/02 | 4.77 | 0.369 | 206 | 6.25 | 12.6 | 0.0 | 0.21 | 182 | 0.0 | 32.6 | 1.78 | 13.1 |
| | 04/04/02 | 5.10 | 0.152 | 278 | 7.54 | 15.2 | 0.0 | 0.10 | 350 | 0.0 | 29.8 | 2.49 | 12.6 |
| | 07/02/02 | 6.36 | 0.279 | 550 | 18.10 | 17.0 | 0.0 | 0.17 | 448 | 0.0 | 28.6 | 2.02 | 11.2 |
| | 10/02/02 | 4.90 | 0.128 | 275 | 10.73 | 17.18 | 0.0 | 0.08 | 498 | 0.0 | 32.4 | 2.49 | 10.4 |
| | 04/28/03 | 4.91 | 0.251 | 63.5 | 3.77 | 13.47 | 0.0 | 0.16 | 136 | 0.0 | 33.4 | 1.28 | 17.3 |
| | 12/23/03 | 4.53 | 0.018 | 640 | 4.60 | 11.6 | -- | 0.10 | 252 | -- | 32 | 2.71 | 14.4 |
| | 03/31/04 | 5.75 | 0.134 | 170 | 3.13 | 10.8 | -- | 0.09 | 89 | -- | 30 | 1.88 | 14.9 |
| | 08/19/04 | 3.91 | 0.013 | 999 | 7.64 | 21.8 | -- | 0.08 | 283 | -- | 29 | 2.5 | 13.2 |
| | 03/21/05 | 5.49 | 0.167 | -5 | 4.93 | 11.91 | -- | 0.11 | 138 | -- | 32.5 | 1.92 | 14.3 |

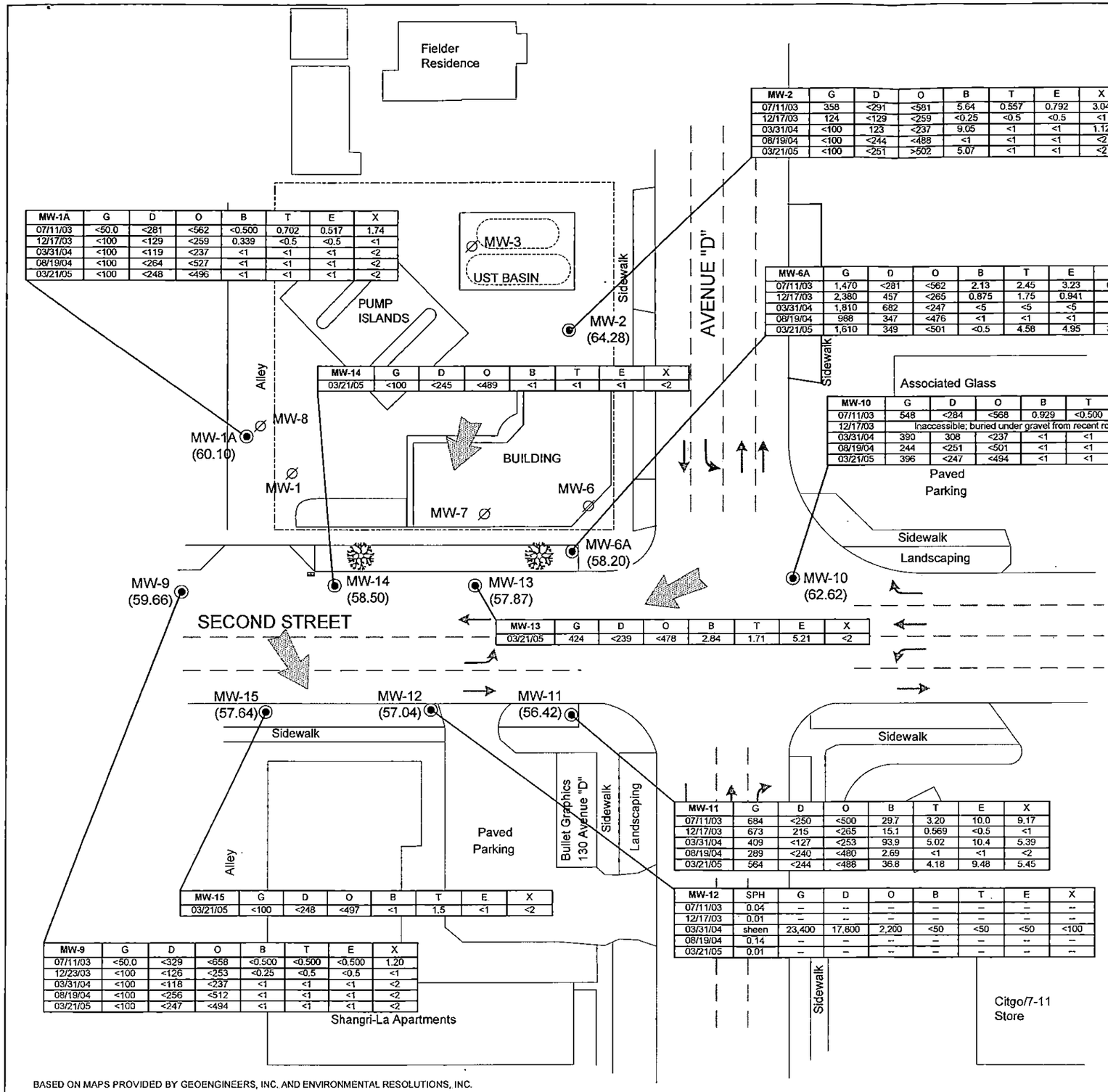
**TABLE 3**
**NATURAL ATTENUATION PARAMETERS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | FIELD PARAMETERS | | | | | | | | | LABORATORY ANALYSES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | pH | Conductivity (S/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp. (°C) | Salinity (%) | Total Dissolved Solids (g/L) | Oxidation Reduction Potential (mV) | Ferrous Iron (mg/L) | Alkalinity (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) |
| **MW-10** | 10/09/01 | 7.20 | 0.290 | 999 | 4.23 | 17.4 | 0.0 | 0.19 | 7 | 4.6 | 132 | <0.100 | 19.4 |
| | 01/08/02 | 5.28 | 0.588 | 498 | 6.67 | 13.7 | 0.0 | 0.33 | -107 | 4.2 | 168 | <0.100 | 13.5 |
| | 04/04/02 | 5.89 | 0.368 | 349 | 7.81 | 19.1 | 0.0 | 0.24 | 22 | 2.0 | 170 | <0.200 | 13.2 |
| | 07/02/02 | 5.86 | 0.339 | 550 | 19.53 | 23.4 | 0.0 | 0.22 | 21 | 2.2 | 133 | <0.200 | 20.3 |
| | 10/02/02 | 5.50 | 0.285 | 162 | 7.72 | 18.02 | 0.0 | 0.18 | 302 | 2.2 | 129 | <0.200 | 21.3 |
| | 04/28/03 | 5.82 | 0.592 | 285 | 3.75 | 14.86 | 0.0 | 0.38 | -110 | 2.4 | 162 | <0.200 | 15.7 |
| | 12/17/03 | Inaccessible; buried under gravel from recent road construction | | | | | | | | | -- | -- | -- |
| | 03/31/04 | 5.87 | 0.313 | 990 | 0.50 | 11.4 | -- | 0.20 | -17 | -- | 141 | <0.015 | 17.6 |
| | 08/19/04 | 5.43 | 0.028 | 999 | 3.74 | 23.7 | -- | 0.18 | 4 | -- | 127 | 0.2 | 22.7 |
| | 03/21/05 | 7.63 | 0.319 | -5 | 2.54 | 12.47 | -- | 0.21 | -60 | -- | 154 | <0.015 | 15.1 |
| **MW-11** | 10/09/01 | 6.65 | 0.319 | 25.0 | 4.62 | 17.3 | 0.0 | 0.21 | 1 | 3.2 | 158 | <0.100 | 9.41 |
| | 01/08/02 | 5.15 | 0.462 | 201 | 6.45 | 13.4 | 0.0 | 0.11 | 166 | 3.2 | 186 | <0.100 | 6.55 |
| | 04/04/02 | 5.00 | 0.414 | 56.7 | 8.84 | 15.7 | 0.0 | 0.27 | 43 | 5.4 | 203 | <0.200 | 2.19 |
| | 07/02/02 | 6.52 | 0.421 | 31.6 | 19.55 | 21.9 | 0.0 | 0.27 | -68 | 4.0 | 203 | <0.200 | 2.93 |
| | 10/02/02 | 5.85 | 0.346 | 43.1 | 8.75 | 17.01 | 0.0 | 0.22 | 219 | 4.0 | 169 | <0.200 | 4.04 |
| | 04/28/03 | 5.97 | 0.734 | 13.9 | 3.56 | 15.12 | 0.0 | 0.47 | -80 | 4.0 | 208 | <0.200 | 3.32 |
| | 12/17/03 | 4.45 | 0.019 | 10 | 3.77 | 10.4 | -- | 0.12 | 247 | -- | 170 | <0.15 | 73.2 |
| | 03/31/04 | 6.15 | 0.470 | 20 | 0.72 | 12.6 | -- | 0.31 | -18 | -- | 218 | <0.015 | 30.1 |
| | 08/19/04 | 5.48 | 0.039 | 937 | 2.39 | 21.4 | -- | 0.26 | -5 | -- | 167 | 0.2 | 10.6 |
| | 03/21/05 | 7.69 | 0.429 | 0 | 2.56 | 13.30 | -- | 0.28 | -80 | -- | 189 | <0.015 | 34.8 |
| **MW-12** | 03/31/04 | 6.12 | 0.345 | 230 | 0.93 | 11.6 | -- | 0.22 | -58 | -- | 129 | <0.015 | 37.5 |
| | 08/19/04 | Not measured due to presence of SPH | | | | | | | | | -- | -- | -- |
| | 03/21/05 | Not measured due to presence of SPH | | | | | | | | | -- | -- | -- |

**TABLE 3**
**NATURAL ATTENUATION PARAMETERS**
ConocoPhillips Site No. 254165
202 Avenue D
Snohomish, Washington

| Sample I.D. | Sample Date | FIELD PARAMETERS | | | | | | | | | LABORATORY ANALYSES | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | pH | Conductivity (S/cm) | Turbidity (NTU) | Dissolved Oxygen (mg/L) | Temp. (°C) | Salinity (%) | Total Dissolved Solids (g/L) | Oxidation Reduction Potential (mV) | Ferrous Iron (mg/L) | Alkalinity (mg/L) | Nitrate (mg/L) | Sulfate (mg/L) |
| **MW-13** | 03/21/05 | 6.97 | 0.507 | -5 | 2.43 | 13.37 | -- | 0.32 | 15 | -- | 229 | <0.015 | 13.8 |
| **MW-14** | 03/21/05 | 6.95 | 0.472 | 150 | 3.68 | 11.34 | -- | 0.31 | 35 | -- | 97.4 | 0.029 | 46.2 |
| **MW-15** | 03/21/05 | 5.81 | 0.179 | -5 | 3.57 | 12.82 | -- | 0.12 | 109 | -- | 54.1 | 2.04 | 21 |

**Notes:**
Field measurements were collected using Model U-22 Horiba Probe.
Total Alkalinity reported as $CaCO_3$ by EPA Method 310.1
Nitrate reported as Nitrogen by EPA Method 300.0
Sulfate analyzed by EPA Method 300.0




| MW-1A | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | <50.0 | <281 | <562 | <0.500 | 0.702 | 0.517 | 1.74 |
| 12/17/03 | <100 | <129 | <259 | 0.339 | <0.5 | <0.5 | <1 |
| 03/31/04 | <100 | <119 | <237 | <1 | <1 | <1 | <2 |
| 08/19/04 | <100 | <264 | <527 | <1 | <1 | <1 | <2 |
| 03/21/05 | <100 | <248 | <496 | <1 | <1 | <1 | <2 |

| MW-2 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | 358 | <291 | <581 | 5.64 | 0.557 | 0.792 | 3.04 |
| 12/17/03 | 124 | <129 | <259 | <0.25 | <0.5 | <0.5 | <1 |
| 03/31/04 | <100 | 123 | <237 | 9.05 | <1 | <1 | 1.12 |
| 08/19/04 | <100 | <244 | <488 | <1 | <1 | <1 | <2 |
| 03/21/05 | <100 | <251 | >502 | 5.07 | <1 | <1 | <2 |

| MW-6A | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | 1,470 | <281 | <562 | 2.13 | 2.45 | 3.23 | 6.92 |
| 12/17/03 | 2,380 | 457 | <265 | 0.875 | 1.75 | 0.941 | <1 |
| 03/31/04 | 1,810 | 682 | <247 | <5 | <5 | <5 | <10 |
| 08/19/04 | 988 | 347 | <476 | <1 | <1 | <1 | <2 |
| 03/21/05 | 1,610 | 349 | <501 | <0.5 | 4.58 | 4.95 | 3.29 |

| MW-14 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 03/21/05 | <100 | <245 | <489 | <1 | <1 | <1 | <2 |

| MW-10 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | 548 | <284 | <568 | 0.929 | <0.500 | 3.19 | 4.16 |
| 12/17/03 | Inaccessible; buried under gravel from recent road construction | | | | | | |
| 03/31/04 | 390 | 308 | <237 | <1 | <1 | <1 | <2 |
| 08/19/04 | 244 | <251 | <501 | <1 | <1 | <1 | <2 |
| 03/21/05 | 396 | <247 | <494 | <1 | <1 | 1.93 | <2 |

| MW-13 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 03/21/05 | 424 | <239 | <478 | 2.84 | 1.71 | 5.21 | <2 |

| MW-11 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | 684 | <250 | <500 | 29.7 | 3.20 | 10.0 | 9.17 |
| 12/17/03 | 673 | 215 | <265 | 15.1 | 0.569 | <0.5 | <1 |
| 03/31/04 | 409 | <127 | <253 | 93.9 | 5.02 | 10.4 | 5.39 |
| 08/19/04 | 289 | <240 | <480 | 2.69 | <1 | <1 | <2 |
| 03/21/05 | 564 | <244 | <488 | 36.8 | 4.18 | 9.48 | 5.45 |

| MW-15 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 03/21/05 | <100 | <248 | <497 | <1 | 1.5 | <1 | <2 |

| MW-12 | SPH | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|---|
| 07/11/03 | 0.04 | -- | -- | -- | -- | -- | -- | -- |
| 12/17/03 | 0.01 | -- | -- | -- | -- | -- | -- | -- |
| 03/31/04 | sheen | 23,400 | 17,800 | 2,200 | <50 | <50 | <50 | <100 |
| 08/19/04 | 0.14 | -- | -- | -- | -- | -- | -- | -- |
| 03/21/05 | 0.01 | -- | -- | -- | -- | -- | -- | -- |

| MW-9 | G | D | O | B | T | E | X |
|---|---|---|---|---|---|---|---|
| 07/11/03 | <50.0 | <329 | <658 | <0.500 | <0.500 | <0.500 | 1.20 |
| 12/23/03 | <100 | <126 | <253 | <0.25 | <0.5 | <0.5 | <1 |
| 03/31/04 | <100 | <118 | <237 | <1 | <1 | <1 | <2 |
| 08/19/04 | <100 | <256 | <512 | <1 | <1 | <1 | <2 |
| 03/21/05 | <100 | <247 | <494 | <1 | <1 | <1 | <2 |

LEGEND

| | |
|---|---|
| MW-1A ◉ | GROUNDWATER MONITORING WELL |
| (60.10) | GROUNDWATER ELEVATION, MARCH 21, 2005 |
| MW-3 ∅ | DESTROYED GROUNDWATER MONITORING WELL |
| SPH | SEPARATE-PHASE HYDROCARBON THICKNESS (feet) |
| G | GASOLINE RANGE HYDROCARBONS (ug/l) |
| D | DIESEL RANGE HYDROCARBONS (ug/l) |
| O | OIL RANGE HYDROCARBONS (ug/l) |
| B | BENZENE (ug/l) |
| T | TOLUENE (ug/l) |
| E | ETHYLBENZENE (ug/l) |
| X | XYLENES (ug/l) |
| <80.0 | ANALYTE NOT DETECTED AT OR ABOVE THE LABORATORY REPORTING LIMIT OF 80.0 ug/l |
| ug/l | MICROGRAMS PER LITER |
| -- | NOT MEASURED OR ANALYZED |
| | GROUNDWATER FLOW DIRECTION |

0 40 FT

APPROX. SCALE

North

0 40 FT

APPROX. SCALE

BASED ON MAPS PROVIDED BY GEOENGINEERS, INC. AND ENVIRONMENTAL RESOLUTIONS, INC.

FIGURE 1

SITE MAP WITH GROUNDWATER ELEVATIONS AND PETROLEUM HYDROCARBON AND BTEX CONCENTRATIONS

CONOCOPHILLIPS SITE NO. 254165
202 AVENUE D
SNOHOMISH, WASHINGTON

| | |
|---|---|
| PROJECT NO. WA254-1604-1 | DRAWN BY TS 1/15/04 |
| FILE NO. WA254-1604-1 | PREPARED BY TS 1/15/04 |
| REVISION NO. 0 | REVIEWED BY EL |

Delta Environmental Consultants, Inc.

**LABORATORY ANALYTICAL REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION**

Quarterly Groundwater Sampling
ConocoPhillips Site No. 254165

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: April 5, 2005

TO: Eric Larsen
Delta Environmental
17720 NE 65th Street Ste 201
Redmond, WA 98052

PROJECT: 254165 Snohomish / WA254-1604-1

REPORT NUMBER: 126939

TOTAL NUMBER OF PAGES: 50

Enclosed are the test results for nine samples received at STL Seattle on March 22, 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 |
|---|---|---|---|
| 126939-1 | MW-1A | 03-21-05 08:50 | Liquid |
| 126939-2 | MW-2 | 03-21-05 08:30 | Liquid |
| 126939-3 | MW-6A | 03-21-05 10:05 | Liquid |
| 126939-4 | MW-9 | 03-21-05 09:50 | Liquid |
| 126939-5 | MW-10 | 03-21-05 10:40 | Liquid |
| 126939-6 | MW-11 | 03-21-05 10:20 | Liquid |
| 126939-7 | MW-13 | 03-21-05 09:15 | Liquid |
| 126939-8 | MW-14 | 03-21-05 09:35 | Liquid |
| 126939-9 | MW-15 | 03-21-05 11:10 | Liquid |

# STL Seattle

| | |
|---|---|
| **Client Name** | Delta Environmental |
| **Project Name** | 254165 Snohomish / WA254-1604-1 |
| **Date Received** | 03-22-05 |

General Chemistry Parameters

| **Client Sample ID** | | | MW-1A | | |
|---|---|---|---|---|---|
| **Lab ID** | | | 126939-01 | | |
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 61.9 | 5 |

| **Client Sample ID** | | | MW-2 | | |
|---|---|---|---|---|---|
| **Lab ID** | | | 126939-02 | | |
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 205 | 5 |

| **Client Sample ID** | | | MW-6A | | |
|---|---|---|---|---|---|
| **Lab ID** | | | 126939-03 | | |
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 201 | 5 |

| **Client Sample ID** | | | MW-9 | | |
|---|---|---|---|---|---|
| **Lab ID** | | | 126939-04 | | |
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 32.5 | 5 |

| **Client Sample ID** | | | MW-10 | | |
|---|---|---|---|---|---|
| **Lab ID** | | | 126939-05 | | |
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 154 | 5 |

# STL Seattle

| | Client Sample ID<br>Lab ID | | | MW-11<br>126939-06 | |
|---|---|---|---|---|---|
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 189 | 5 |

| | Client Sample ID<br>Lab ID | | | MW-13<br>126939-07 | |
|---|---|---|---|---|---|
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 229 | 5 |

| | Client Sample ID<br>Lab ID | | | MW-14<br>126939-08 | |
|---|---|---|---|---|---|
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 97.4 | 5 |

| | Client Sample ID<br>Lab ID | | | MW-15<br>126939-09 | |
|---|---|---|---|---|---|
| **Parameter** | **Method** | **Date Analyzed** | **Units** | **Result** | **PQL** |
| Alkalinity (as CaCO3) | EPA 310.1 | 03-23-05 | mg/L | 54.1 | 5 |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-1A |
| Lab ID: | 126939-01 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | 1.41 | 0.03 | 0.015 | |
| Sulfate | 32.6 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-2 |
| Lab ID: | 126939-02 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | 26.9 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-6A |
| Lab ID: | 126939-03 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | 11.3 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-9 |
| Lab ID: | 126939-04 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | 1.92 | 0.03 | 0.015 | |
| Sulfate | 14.3 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-10 |
| Lab ID: | 126939-05 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | 15.1 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-11 |
| Lab ID: | 126939-06 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | 34.8 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-13 |
| Lab ID: | 126939-07 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | 13.8 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-14 |
| Lab ID: | 126939-08 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | 0.029 | 0.03 | 0.015 | J |
| Sulfate | 46.2 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name | Delta Environmental |
| Client ID: | MW-15 |
| Lab ID: | 126939-09 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | 2.04 | 0.03 | 0.015 | |
| Sulfate | 21 | 0.3 | 0.15 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-1A |
| Lab ID: | 126939-01 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 120 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 111 | | 80 | 120 |
| Bromofluorobenzene | 109 | | 80 | 120 |
| Pentafluorobenzene | 111 | | 81 | 126 |

| Analyte | | Result (mg/L) | RL | Flags |
|---|---|---|---|---|
| Gasoline By NWTPH-G | | 0.266 | 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: | Delta Environmental |
| Client ID: | MW-2 |
| Lab ID: | 126939-02 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 116 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 110 | | 80 | 120 |
| Bromofluorobenzene | 110 | | 80 | 120 |
| Pentafluorobenzene | 108 | | 81 | 126 |

| Analyte | | Result (mg/L) | RL | Flags |
|---|---|---|---|---|
| Gasoline By NWTPH-G | ND | | 0.1 | |
| Benzene | | 0.00507 | 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: | Delta Environmental |
| Client ID: | MW-6A |
| Lab ID: | 126939-03 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Gasoline Range Organics by Method NWTPH-Gx**

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 128 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 94.6 | | 50 | 150 |
| Bromofluorobenzene | 83 | | 50 | 150 |
| Pentafluorobenzene | 128 | | 50 | 150 |

| Analyte | Result (mg/L) | RL | Flags |
|---|---|---|---|
| Gasoline by NWTPH-G | 1.61 | 0.1 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-6A |
| Lab ID: | 126939-03 |
| Date Received: | 3/22/05 |
| Date Prepared: | 4/1/05 |
| Date Analyzed: | 4/1/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Volatile Aromatic Hydrocarbons by EPA Method 5030/8021B**

| | | | Recovery Limits | |
|---|---|---|---|---|
| **Surrogate** | **% Recovery** | **Flags** | **Low** | **High** |
| a,a,a-Trifluorotoluene | 91.1 | | 84 | 122 |
| 1-Chloro-3-fluorobenzene | 85 | | 80 | 120 |
| Bromofluorobenzene | 84.6 | | 80 | 120 |
| Pentafluorobenzene | 240 | X9 | 81 | 126 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| Benzene | ND | 0.0005 | |
| Toluene | 0.00458 | 0.001 | |
| Ethylbenzene | 0.00495 | 0.001 | |
| m&p-Xylene | 0.00329 | 0.002 | |
| o-Xylene | 0.00142 | 0.001 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-9 |
| Lab ID: | 126939-04 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 116 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 108 | | 80 | 120 |
| Bromofluorobenzene | 106 | | 80 | 120 |
| Pentafluorobenzene | 107 | | 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: | Delta Environmental |
| Client ID: | MW-10 |
| Lab ID: | 126939-05 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 117 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 111 | | 80 | 120 |
| Bromofluorobenzene | 109 | | 80 | 120 |
| Pentafluorobenzene | 113 | | 81 | 126 |

| Analyte | | Result (mg/L) | RL | Flags |
|---|---|---|---|---|
| Gasoline By NWTPH-G | | 0.396 | 0.1 | |
| Benzene | ND | | 0.001 | |
| Toluene | ND | | 0.001 | |
| Ethylbenzene | | 0.00193 | 0.001 | |
| m&p-Xylene | ND | | 0.002 | |
| o-Xylene | ND | | 0.001 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-11 |
| Lab ID: | 126939-06 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Gasoline Range Organics by Method NWTPH-Gx**

| | | | Recovery Limits | |
|---|---|---|---|---|
| **Surrogate** | **% Recovery** | **Flags** | **Low** | **High** |
| Trifluorotoluene | 94.5 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 100 | | 50 | 150 |
| Bromofluorobenzene | 82.2 | | 50 | 150 |
| Pentafluorobenzene | 107 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| Gasoline by NWTPH-G | 0.564 | 0.1 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-11 |
| Lab ID: | 126939-06 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Volatile Aromatic Hydrocarbons by EPA Method 5030/8021B**

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| a,a,a-Trifluorotoluene | 99.1 | | 84 | 122 |
| 1-Chloro-3-fluorobenzene | 96.4 | | 80 | 120 |
| Bromofluorobenzene | 92.3 | | 80 | 120 |
| Pentafluorobenzene | 126 | | 81 | 126 |

| Analyte | Result (mg/L) | RL | Flags |
|---|---|---|---|
| Benzene | 0.0368 | 0.0005 | |
| Toluene | 0.00418 | 0.001 | |
| Ethylbenzene | 0.00948 | 0.001 | |
| m&p-Xylene | 0.00545 | 0.002 | |
| o-Xylene | 0.00189 | 0.001 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-13 |
| Lab ID: | 126939-07 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Gasoline Range Organics by Method NWTPH-Gx**

| | | | Recovery Limits | |
|---|---|---|---|---|
| **Surrogate** | **% Recovery** | **Flags** | **Low** | **High** |
| Trifluorotoluene | 105 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 91.6 | | 50 | 150 |
| Bromofluorobenzene | 87.7 | | 50 | 150 |
| Pentafluorobenzene | 115 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| Gasoline by NWTPH-G | 0.424 | 0.1 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-13 |
| Lab ID: | 126939-07 |
| Date Received: | 3/22/05 |
| Date Prepared: | 4/1/05 |
| Date Analyzed: | 4/1/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Volatile Aromatic Hydrocarbons by EPA Method 5030/8021B**

| | | | Recovery Limits | |
|---|---|---|---|---|
| **Surrogate** | **% Recovery** | **Flags** | **Low** | **High** |
| a,a,a-Trifluorotoluene | 94.7 | | 84 | 122 |
| 1-Chloro-3-fluorobenzene | 91.9 | | 80 | 120 |
| Bromofluorobenzene | 86.5 | | 80 | 120 |
| Pentafluorobenzene | 133 | X9 | 81 | 126 |

| | | Result | | |
|---|---|---|---|---|
| **Analyte** | | **(mg/L)** | **RL** | **Flags** |
| Benzene | | 0.00284 | 0.0005 | |
| Toluene | | 0.00171 | 0.001 | |
| Ethylbenzene | | 0.00521 | 0.001 | |
| m&p-Xylene | ND | | 0.002 | |
| o-Xylene | | 0.00186 | 0.001 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-14 |
| Lab ID: | 126939-08 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 118 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 111 | | 80 | 120 |
| Bromofluorobenzene | 109 | | 80 | 120 |
| Pentafluorobenzene | 112 | | 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: | Delta Environmental |
| Client ID: | MW-15 |
| Lab ID: | 126939-09 |
| Date Received: | 3/22/05 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 118 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 109 | | 80 | 120 |
| Bromofluorobenzene | 108 | | 80 | 120 |
| Pentafluorobenzene | 109 | | 81 | 126 |

| Analyte | | Result (mg/L) | RL | Flags |
|---|---|---|---|---|
| Gasoline By NWTPH-G | ND | | 0.1 | |
| Benzene | ND | | 0.001 | |
| Toluene | | 0.0015 | 0.001 | |
| Ethylbenzene | ND | | 0.001 | |
| m&p-Xylene | ND | | 0.002 | |
| o-Xylene | ND | | 0.001 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-1A |
| Lab ID: | 126939-01 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 96.3 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.248 | |
| Motor Oil | ND | 0.496 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-2 |
| Lab ID: | 126939-02 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 87.8 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.251 | |
| Motor Oil | ND | 0.502 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-6A |
| Lab ID: | 126939-03 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 87 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | 0.349 | 0.25 | X1 |
| Motor Oil | ND | 0.501 | |

X1 - Chromatogram suggests this might be overlap from gasoline range

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-9 |
| Lab ID: | 126939-04 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 84.8 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.247 | |
| Motor Oil | ND | 0.494 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-10 |
| Lab ID: | 126939-05 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 86.4 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.247 | |
| Motor Oil | ND | 0.494 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-11 |
| Lab ID: | 126939-06 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 87.8 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.244 | |
| Motor Oil | ND | 0.488 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-13 |
| Lab ID: | 126939-07 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 82.7 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.239 | |
| Motor Oil | ND | 0.478 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-14 |
| Lab ID: | 126939-08 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 82.9 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| #2 Diesel | ND | 0.245 | |
| Motor Oil | ND | 0.489 | |

# STL Seattle

| | |
|---|---|
| Client Name: | Delta Environmental |
| Client ID: | MW-15 |
| Lab ID: | 126939-09 |
| Date Received: | 3/22/2005 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 85.6 | | 50 | 150 |

| | | Result | | |
|---|---|---|---|---|
| **Analyte** | | **(mg/L)** | **RL** | **Flags** |
| #2 Diesel | ND | | 0.248 | |
| Motor Oil | ND | | 0.497 | |

# STL Seattle

## QUALITY CONTROL REPORT

Client Sample ID: Batch QC
Lab ID: 126722-1
QC Batch Number: 1165-112

**Method Blank**

| Parameter | Result (mg/L) | PQL |
|---|---|---|
| Alkalinity (as CaCO3) | ND | 3 |

**Duplicate**

| Parameter | Sample Result (mg/L) | Duplicate Result (mg/L) | RPD (%) | Flag |
|---|---|---|---|---|
| Alkalinity (as CaCO3) | 139 | 135 | 2.9 | |

# STL Seattle

| | |
|---|---|
| Lab ID: | Method Blank - 2239 |
| Date Received: | - |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| % Solids | - |
| Dilution Factor | 1 |

**Anions by USEPA Method 300A**

| Analyte | Result (mg/L) | PQL | MRL | Flags |
|---|---|---|---|---|
| Nitrate | ND | 0.03 | 0.015 | |
| Sulfate | ND | 0.3 | 0.15 | |

# STL Seattle

Blank Spike Report

| | |
|---|---|
| Lab ID: | 2239 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| QC Batch ID: | 2239 |

Anions by USEPA Method 300A

| Compound Name | Blank Result (mg/L) | Spike Amount (mg/L) | BS Result (mg/L) | BS % Rec. | Flag |
|---|---|---|---|---|---|
| Nitrate | 0 | 1 | 0.992 | 99.2 | |
| Sulfate | 0 | 10 | 9.74 | 97.4 | |

# STL Seattle

Matrix Spike Report

| | |
|---|---|
| Client Sample ID: | MW-1A |
| Lab ID: | 126939-01 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| QC Batch ID: | 2239 |

Anions by USEPA Method 300A

| Compound Name | Sample Result (mg/L) | Spike Amount (mg/L) | MS Result (mg/L) | MS % Rec. | Flag |
|---|---|---|---|---|---|
| Nitrate | 1.4 | 4 | 5.12 | 92.6 | |
| Sulfate | 33 | 40 | 69.8 | 93.1 | |

# STL Seattle

Duplicate Report

| | |
|---|---|
| Client Sample ID: | MW-1A |
| Lab ID: | 126939-01 |
| Date Prepared: | 3/23/05 |
| Date Analyzed: | 3/23/05 |
| QC Batch ID: | 2239 |

Anions by USEPA Method 300A

| Parameter Name | Sample Result (mg/L) | Duplicate Result (mg/L) | RPD % | Flag |
|---|---|---|---|---|
| Nitrate | 1.41 | 1.41 | 0.0 | |
| Sulfate | 32.6 | 32.4 | 0.6 | |

# STL Seattle

| | |
|---|---|
| Lab ID: | Method Blank - GB5063 |
| Date Received: | - |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| % Solids | - |
| Dilution Factor | 1 |

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

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| Trifluorotoluene | 110 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 102 | | 80 | 120 |
| Bromofluorobenzene | 103 | | 80 | 120 |
| Pentafluorobenzene | 102 | | 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

Blank Spike/Blank Spike Duplicate Report

| | |
|---|---|
| Lab ID: | GB5063 |
| Date Prepared: | 3/28/05 |
| Date Analyzed: | 3/28/05 |
| QC Batch ID: | GB5063 |

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 | 1.25 | 99.8 | 1.24 | 99 | -0.8 | |
| Benzene | 0 | 0.025 | 0.0253 | 101 | 0.0248 | 99.1 | -1.9 | |
| Toluene | 0 | 0.025 | 0.0256 | 102 | 0.0248 | 99.2 | -2.8 | |
| Ethylbenzene | 0 | 0.025 | 0.0251 | 100 | 0.0245 | 98 | -2 | |
| m&p-Xylene | 0 | 0.05 | 0.0503 | 101 | 0.0497 | 99.4 | -1.6 | |
| o-Xylene | 0 | 0.025 | 0.0249 | 99.7 | 0.0247 | 98.8 | -0.91 | |

# STL Seattle

| | |
|---|---|
| Lab ID: | Method Blank - GB5069 |
| Date Received: | - |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Gasoline Range Organics by Method NWTPH-Gx**

| | | | Recovery Limits | |
|---|---|---|---|---|
| **Surrogate** | **% Recovery** | **Flags** | **Low** | **High** |
| Trifluorotoluene | 101 | | 50 | 150 |
| 1-Chloro-3-fluorobenzene | 97.3 | | 50 | 150 |
| Bromofluorobenzene | 97.2 | | 50 | 150 |
| Pentafluorobenzene | 86 | | 50 | 150 |

| **Analyte** | **Result (mg/L)** | **RL** | **Flags** |
|---|---|---|---|
| Gasoline by NWTPH-G | ND | 0.1 | |

# STL Seattle

| | |
|---|---|
| Lab ID: | Method Blank - GB5069 |
| Date Received: | - |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| % Solids | - |
| Dilution Factor | 1 |

**Volatile Aromatic Hydrocarbons by EPA Method 5030/8021B**

| Surrogate | % Recovery | Flags | Recovery Limits Low | Recovery Limits High |
|---|---|---|---|---|
| a,a,a-Trifluorotoluene | 107 | | 84 | 122 |
| 1-Chloro-3-fluorobenzene | 103 | | 80 | 120 |
| Bromofluorobenzene | 102 | | 80 | 120 |
| Pentafluorobenzene | 110 | | 81 | 126 |

| Analyte | Result (mg/L) | RL | Flags |
|---|---|---|---|
| Benzene | ND | 0.0005 | |
| 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: | GB5069 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| QC Batch ID: | GB5069 |

Gasoline Range Organics by Method NWTPH-Gx

| 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 | 1.19 | 95.5 | 1.19 | 95 | -0.52 | |

# STL Seattle

Blank Spike/Blank Spike Duplicate Report

| | |
|---|---|
| Lab ID: | GB5069 |
| Date Prepared: | 4/1/2005 |
| Date Analyzed: | 4/1/2005 |
| QC Batch ID: | GB5069 |

Volatile Aromatic Hydrocarbons by EPA Method 5030/8021B

| Compound Name | Blank Result (mg/L) | Spike Amount (mg/L) | BS Result (mg/L) | BS % Rec. | BSD Result (mg/L) | BSD % Rec. | RPD | Flag |
|---|---|---|---|---|---|---|---|---|
| Benzene | 0 | 0.025 | 0.0225 | 89.8 | 0.0221 | 88.3 | -1.7 | |
| Toluene | 0 | 0.025 | 0.0219 | 87.7 | 0.0215 | 86 | -2 | |
| Ethylbenzene | 0 | 0.025 | 0.0225 | 89.9 | 0.022 | 88 | -2.1 | |
| m&p-Xylene | 0 | 0.05 | 0.0467 | 93.4 | 0.0459 | 91.9 | -1.6 | |
| o-Xylene | 0 | 0.025 | 0.0223 | 89.3 | 0.0218 | 87.1 | -2.5 | |

# STL Seattle - New Nonconformance Page

Go Back

Submit

Analyst: Chris Funkhouser *

* - Required

Work Order: 126939 *

QC Batch: gb5069

Matrix: liquid

Method: EPA Method 5030/8021B *

Nonconformances requiring QA Approval: Select...

Nonconformances requiring PM Approval: Select...

Other Nonconformances: Select...

GC-MS confirmation recommended for the btex hits in samples 3 and 7 due to hydrocarbon co-elution with analytes.

Corrective Action: Select...

None.

00046

# STL Seattle

| | |
|---|---|
| Lab ID: | Method Blank - DW0749 |
| Date Received: | - |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| % 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 | 98.4 | | 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: | DW0749 |
| Date Prepared: | 3/28/2005 |
| Date Analyzed: | 3/29/2005 |
| QC Batch ID: | DW0749 |

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 | 0.02 | 5 | 5.12 | 102 | 5.33 | 106 | 3.8 | |
| Motor Oil | 0.001 | 5 | 4.69 | 93.8 | 4.9 | 98 | 4.4 | |

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 presence of this analyte was not verified per WAC 246-290-010. 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

MRL: Method Reporting Limit

N: See analytical narrative

ND: Not Detected

PQL: Practical Quantitation Limit

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.

00049

# 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

4.8°

126939

SEVERN TRENT STL

| | | | |
|---|---|---|---|
| Client: Conoco Phillips c/o Delta Env | Project Manager: Eric Larsen / elarsen@deltaenv.com | Date: 3/21/05 | Chain of Custody Number: 13108 |
| Address: 17720 NE 65th St. Suite 201 | Telephone Number (Area Code)/Fax Number: 425-558-0134 | Lab Number | Page 1 of 1 |
| City: Redmond / State: WA / Zip Code: 98052 | Site Contact: Lindsey Burchak | Lab Contact: Tom Coyner | |
| Project Name and Location (State): 25465 Snohomish / WA254-1604-1 | Carrier/Waybill Number | | |
| Contract/Purchase Order/Quote No.: WO# 1234DEL004 | | | |

| 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 | Analysis: NWTPH-GX | BTEX | Sulfate | Nitrate | Alkalinity | NWTPH-Dx w/silica gel cleanup |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 MW-1A | 3/21/05 | 850 | | X | | | 1 | | | 4 | | | X | X | X | X | X | X |
| 2 MW-2 | | 830 | | | | | | | | | | | | | | | | |
| 3 MW-6A | | 1005 | | | | | | | | | | | | | | | | |
| 4 MW-9 | | 950 | | | | | | | | | | | | | | | | |
| 5 MW-10 | | 1040 | | | | | | | | | | | | | | | | |
| 6 MW-11 | | 1020 | | | | | | | | | | | | | | | | |
| ~~MW-12~~ | | | | | | | | | | | | | | | | | | |
| 7 MW-13 | | 915 | | | | | | | | | | | | | | | | |
| 8 MW-14 | | 935 | | | | | | | | | | | | | | | | |
| 9 MW-15 | | 1110 | | | | | | | | | | | | | | | | |

Special Instructions/ Conditions of Receipt

MW-12 not sampled

Cooler: ☒ Yes ☐ No Cooler Temp: _____

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

Sample Disposal: ☒ Disposal By Lab ☐ Return To Client ☐ 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 STD COP

QC Requirements (Specify)

| | | | | | |
|---|---|---|---|---|---|
| 1. Relinquished By: Laura E. Brock, Delta | Date: 3-22-05 | Time: | 1. Received By: STL | Date: 3/22/05 | Time: 11:10 |
| 2. Relinquished By: | Date: 3/22/05 | Time: 12:10 | 2. Received By: | Date: 3/22/05 | Time: 17 10 |
| 3. Relinquished By: | Date: | Time: | 3. Received By: | Date: | Time: |

Comments

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

STL8274-580 (12/02)

**GROUNDWATER SAMPLING PROCEDURES AND FIELD SHEETS**

Quarterly Groundwater Sampling
ConocoPhillips Site No. 254165

## GROUNDWATER MONITORING AND SAMPLING

Before the sampling event, Delta measured depth to water in each groundwater monitoring well at the facility with an electronic water level meter. This information was recorded on waterproof field sheets. Groundwater elevations (GWE) were measured to an accuracy of 0.01 feet. Wells were sampled after purging three casing volumes of water from the well (or until dry). After the well had recharged to approximately 80% of static level, samples were collected using a disposable polyethylene bailer and placed in the appropriate laboratory-provided container. Samples were labeled, placed into ice filled coolers, logged onto chain-of-custody forms and transported to the laboratory.

GROUNDWATER SAMPLING FIELD SHEET

DELTA PROJECT NUMBER: WA254-1604-1
SITE No./JOB No.: 254/65 Snohomish
SITE ADDRESS/LOCATION: 202 Ave D Snohomish
FIELD PERSONNEL: Laura Brock, Alan [redacted] Staff

CLIENT: COP
PAGE: 1 of 2
DATE: 3-21-05
WEATHER:

| Well ID | Time | Well Diameter (in.) | Depth to Bottom (feet) | Depth to Water (feet) | Depth to LPH (feet) | LPH Thickness (feet) | Calc. Purge (gal) | Actual Purge (gal) | Purge Method (B/LF/P) | Dissolved Oxygen (mg/l) | Sample Appearance/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-1A | 850 | 2 | 14.44 | 9.22 | — | — | 2.7 | 3.0 | P | | |
| MW-2 | 830 | | 16.73 | 5.52 | — | — | 5.7 | 6.0 | | | |
| MW-6A | 1005 | | 18.51 | 9.45 | — | — | 4.6 | 4.75 | | | |
| MW-9 | ~~945~~ 950 | | 16.92 | 8.11 | — | — | 4.5 | 4.75 | | | |
| MW-10 | 1040 | | 13.28 | 4.71 | — | — | 4.4 | 4.5 | | | |
| MW-11 | 1020 | | 14.24 | 9.10 | — | — | 2.6 | 3.0 | ↓ | | HCO |
| MW-12 | NS | | 13.29 | 9.30 | 9.29 | 0.01 | — | | | | no sample |
| MW-13 | 915 | | 15.00 | 9.72 | — | — | 2.7 | 3.0 | P | | |
| MW-14 | 935 | | 15.00 | 9.17 | — | — | 3.0 | 3.25 | | | |
| MW-15 | 1110 | ↓ | 15.00 | 9.02 | — | — | 3.0 | 3.25 | ↓ | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| MW-9 | | | | | | | | | | | |

**System Instructions:**

Remedial System On-Site (Y/N)? Comments:
Operational Upon Arrival (Y/N)? Comments:
Shut Down System 1 / 24 hours before gauging (Y/N)? Time/Date Downed:
Re-Start System (Y/N)? Time/Date Restarted:
Purge Method: Comments:

**Purge Water Disposal Method:**

- [x] Treated through mobile carbon treatment unit and discharged on-site
- [ ] Placed in drums on site — No. of drums:
- [ ] Transported off-site for treatment — Facility/Location:

**Measuring Device(s):**

: 6 Drums on-site from well installation. Need to be removed
4 drums of soil.
2 drums of development water.

## GROUNDWATER SAMPLING FIELD SHEET

| | | | |
|---|---|---|---|
| **DELTA PROJECT NUMBER:** | WA254-1604-1 | **CLIENT:** | COP |
| **SITE No./JOB No.:** | 254165 Snohomish | **PAGE** | 2 of 2 |
| **SITE ADDRESS/LOCATION:** | 202 Ave D Snohomish, WA | **DATE:** | 3-21-05 |
| **FIELD PERSONNEL:** | Laura Brock, Alan Starr | **WEATHER:** | |

**Additional Field Parameters:** (Pre-Purge / Post-Purge / Low-flow Cell)

| Well ID | pH | Conductivity (µS/cm) | Turbidity (NTU) | DO (mg/L) | Temp. (°C) °F | TDS (g/L) | ORP (mV) | Comments |
|---|---|---|---|---|---|---|---|---|
| MW-1A | 6.48 | 0.226 | -5 | 3.00 | 12.07 | 0.15 | 43 | |
| MW-2 | 7.39 | 0.500 | 220 | 3.12 | 11.71 | 0.32 | -47 | |
| MW-6A | 7.35 | 0.471 | 640 | 2.76 | 13.48 | 0.31 | -61 | |
| MW-9 | 5.49 | 0.167 | -5 | 4.93 | 11.91 | 0.11 | 138 | monument needs repair |
| MW-10 | 7.63 | 0.319 | -5 | 2.54 | 12.47 | 0.21 | -60 | |
| MW-11 | 7.69 | 0.429 | 0 | 2.56 | 13.30 | 0.28 | -80 | |
| MW-12 | — | — | — | — | — | — | — | product in well |
| MW-13 | 6.97 | 0.507 | -5 | 2.43 | 13.37 | 0.32 | 15 | |
| MW-14 | 6.95 | 0.472 | 150 | 3.68 | 11.34 | 0.31 | 35 | |
| MW-15 | 5.81 | 0.179 | -5 | 3.57 | 12.82 | 0.12 | 109 | |

**Measuring Device(s):** Oil/H2O Probe
Horiba

**Additional Comments:** Turbidity was flashing on meter

Snohomish "76" Conoco-Phillips 3-21-05

Wellhead elevation Survey "New Wells"

| | Top | Mid | Bottom | Check | |
|---|---|---|---|---|---|
| MW-13 | 6.420 | 6.275 | 6.130 | 0.145 | 0.145 |
| MW-14 | 6.320 | 6.200 | 6.080 | 0.120 | 0.120 |
| MW-15 | 7.570 | 7.210 | 6.840 | 0.370 | 0.370 |
| MW-6 | 6.530 | 6.215 | 5.900 | .315 | .315 |
| MW-9 | 6.500 | 6.100 | 5.700 | .400 | .400 |

NOTE: MW-9 Vault rim & Lid found on roadway. Need to replace vault.