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Suite 140  
Portland, OR 97224-7155  
Tel. 503.624.7200  
Fax. 503.620.7658

May 12, 2000  
Project 803876/00008000

Mr. Mike Whelan  
Arco Products Company  
704 228<sup>th</sup> Avenue NE, Suite 482  
Redmond, Washington 98053

Re: Former ARCO Service Station 0855, 4603 Ocean Beach Highway, Longview,  
Washington

Dear Mr. Whelan:

This letter describes the installation, development, sampling, and analysis of monitoring wells MW-1, MW-2, and MW-3 at former ARCO service station 0855 in Longview, Washington (see Figure 1). This property is currently owned by the Raymond Wakefield Family Trust. In 1999, the Raymond Wakefield Family Trust hired a subcontractor to remove the underground storage tanks (USTs). Soil contamination was noted and a report was filed with the Washington Department of Ecology.

## **DRILLING AND WELL INSTALLATION**

On March 9, 2000, IT Corporation (formerly Pinnacle) and Geo-Tech Explorations, Inc., of Tualatin, Oregon, drilled and installed monitoring wells MW-1, MW-2, and MW-3. We installed the first two wells in the vicinity of the former heating and waste oil underground storage tanks (MW-1) and in the backfill of the former gasoline USTs (MW-2). MW-3 is located adjacent to the former dispenser island (see Figure 2).

### **Drilling Procedures**

MW-1, MW-2, and MW-3 were drilled with a hollow-stem-auger drill rig equipped with 8-inch outside-diameter hollow-stem augers. Unconsolidated materials (fill and alluvium) were sampled continuously from 2 feet below the ground surface (bgs) to the terminal depth with a 1.5-foot-long split-spoon sampler. MW-1 and MW-3 were advanced to 20.5 feet bgs while MW-2 was advanced to 20.0 feet bgs. The soil samples were logged using the Unified Soil Classification System (USCS).

## **WELL DEVELOPMENT**

The newly installed monitoring well screens were developed on March 24, 2000, to remove sediment that had accumulated in the well during installation and to improve hydraulic communication with the aquifer. The techniques employed were a combination of surging, bailing, and pumping with a peristaltic pump. The wells were developed until the field parameters had stabilized to within 10 percent of the previous reading, the discharged water was relatively free of sediment, and approximately 10 casing volumes had been removed. Please see the attached well development forms (Appendix C).

## **SURVEYING**

The ground beside the wellheads at MW-1, MW-2, and MW-3 and the tops of the PVC well casings (at inscribed marks) were surveyed vertically and laterally to an accuracy of 0.01 feet. The survey was completed by Gibbs & Olson, Inc. of Longview, Washington in April 2000. Vertical reference point elevations for the top of casing are referenced to North American Vertical Datum 1988 (NAVD).

## **SAMPLING AND ANALYSIS**

### **Soil**

During monitoring well installation activities, soil samples were collected and screened with a flame ionization detector (FID) calibrated to 98 parts per million (ppm) methane calibration gas. The results of the FID screening are shown on the attached boring logs. Four soil samples from each borehole were analyzed as shown in Table 1.

### **Groundwater**

On March 27, 2000, IT Corporation measured static water levels in the groundwater monitoring wells. The water levels were converted to feet NAVD and plotted on Figure 2. Monitoring wells MW-1, MW-2, and MW-3 were purged of at least three casing volumes. Purging continued until field parameter measurements (temperature, pH, and specific conductance) stabilized. Temperature, pH, and specific conductance parameters were measured and recorded (see Appendix D) after each casing volume was removed. The wells were purged using Voss<sup>TM</sup> disposable double check valve bailers, which were discarded after use in each well.

---

**IT Corporation**

Samples were transferred into sample bottles using a bottom-emptying device. Volatile organic samples were transferred from the bailer to the sample containers via a nonaerating variable-flow bottom-emptying device. Specific analyses for each sample are listed on Table 1 and on chain-of-custody documentation. Samples were packed in iced shipping containers for preservation and delivered by courier using chain-of-custody procedures to North Creek Analytical (NCA), Beaverton, Oregon.

## **ANALYTICAL RESULTS**

### **Soil Analyses**

#### **MW-1 Samples**

Because MW-1 is located near the former heating oil and waste oil USTs, the soil samples were analyzed for several constituents, including polycyclic aromatic hydrocarbons (PAHs); polychlorinated biphenols (PCBs); benzene, toluene, ethylbenzene, and total xylenes (BTEX); 1,2-dibromomethane (EDB); 1,2-dichloromethane (EDC); methyl tert-butyl ether (MTBE); naphthalene; and total lead. In addition, the samples were analyzed for petroleum products: gasoline by NWTPH-Gx and VPH (volatile petroleum hydrocarbons), and for diesel and heavy range petroleum by NWTPH-Dx and EPH (extractable petroleum hydrocarbons). Most of these compounds were not detected above their respective method reporting limits (MRL) (see Tables 2 and 3). No compounds were detected at concentrations greater than the Department of Ecology's (Ecology's) MTCA method A cleanup levels (November 2, 1999, proposed amendments).

#### **MW-2 and MW-3 Samples**

BTEX and gasoline-range hydrocarbons were detected in most of the soil samples collected from the MW-2 and MW-3 borings (see Table 2). Benzene concentrations ranged from below the MRL (in the 3.5-5 foot and 6.5-8 foot samples from MW-2) to 6.83 milligrams per kilogram (mg/kg) in the 9.5-11 foot sample from MW-3. Gasoline-range hydrocarbons (by NWTPH-Gx) ranged from 9.35 mg/kg (in the 18.5-20 foot sample from MW-3) to 682 mg/kg in the 2-3.5 foot sample from MW-3.

In some cases, the NWTPH-Gx concentrations did not correlate well with VPH concentrations. For example, the aggregate VPH concentrations in MW-2 (6.5-8) and MW-3 (2-3.5) are significantly greater than the corresponding NWTPH-Gx concentrations. The analytical laboratory, NCA, reports that the difference for sample MW-2 (6.5-8) is "due to weathered gasoline related hydrocarbons beyond the range of

reporting in the NW-TPHGx method, that are reported by the VPH method.” Regarding sample MW-3 (2-3.5), NCA says the variance in results “appear to be due to hetrogenic (sic) distribution of hydrocarbons in the soil.” In other words, the portion of soil sample used for the NWTPH-Gx analysis contained a lower concentration of hydrocarbons than the portion of soil sample used for the VPH analysis. See Appendix E for laboratory analytical results.

### Groundwater Analyses

The three monitoring well samples were analyzed for BTEX, gasoline-range hydrocarbons, and diesel- and oil-range hydrocarbons (see Table 4). No compounds were detected above their MRLs in sample MW-1. No diesel-or oil range hydrocarbons were detected above their MRLs in samples MW-2 and MW-3. Benzene concentrations ranged from 6.89 micrograms per liter ( $\mu\text{g/L}$ ) in MW-2 to 7,520  $\mu\text{g/L}$  in MW-3. Gasoline concentrations ranged from 17,100  $\mu\text{g/L}$  in MW-2 to 93,700  $\mu\text{g/L}$  in MW-3.

### WASTE GENERATION AND DISPOSAL

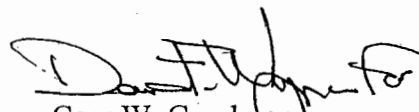
Waste generation consisted of four drums of drill cuttings from the installation of MW-1, MW-2, and MW-3. Disposal of the soil cuttings is being arranged with TPS Technologies of Portland, Oregon. The decontamination, development, and purge water were transferred to the purge water storage tank at Arco Station 5893 in Vancouver, Washington.

Further work is needed to assess the extent of contamination. If you have any questions, please call.

Sincerely,

IT CORPORATION

  
John J. Renda  
Staff Geologist

  
Cary W. Goodman  
Supervising Scientist

Mr. Mike Whelan  
May 12, 2000  
Page 6

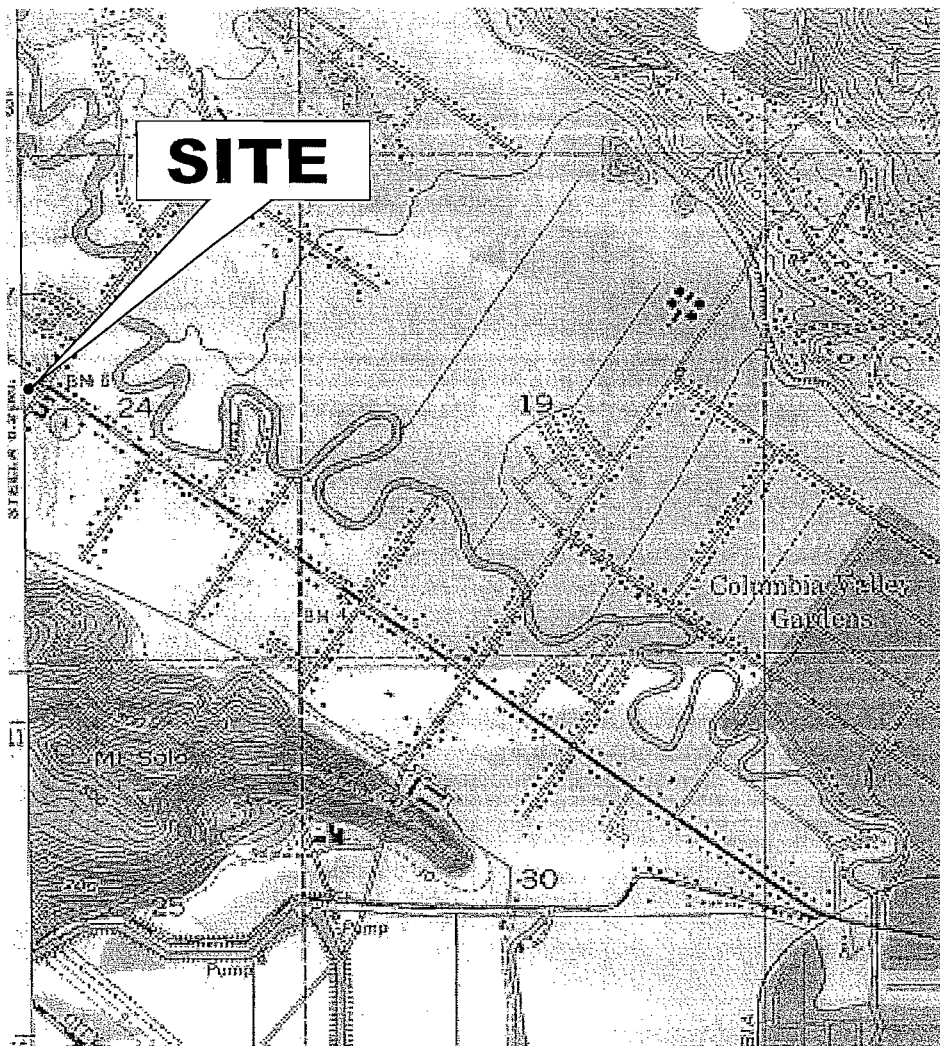
Project 803876/00008000

Attachments: Figures 1 and 2  
Tables 1 through 4  
Well Details (Appendix A)  
Boring Logs (Appendix B)  
Well Development Forms (Appendix C)  
Field Sampling Data Sheets (Appendix D)  
Laboratory Analytical Results (Appendix E)

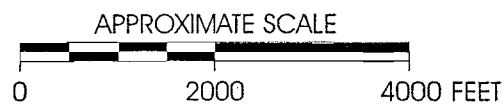
cc: David McDowell; attorney for Wakefield Trust, Vancouver  
Craig Rankine; Department of Ecology, Vancouver

## FIGURES

|       |       |          |             |            |             |                |
|-------|-------|----------|-------------|------------|-------------|----------------|
| IMAGE | X-REF | OFFICE   | DRAWN       | CHECKED BY | APPROVED BY | DRAWING NUMBER |
|       |       | Portland | J. Clugston |            |             | 003876-A1      |



BASE MAP FROM: USGS 7.5' quads., Kelso, WA., (1953).

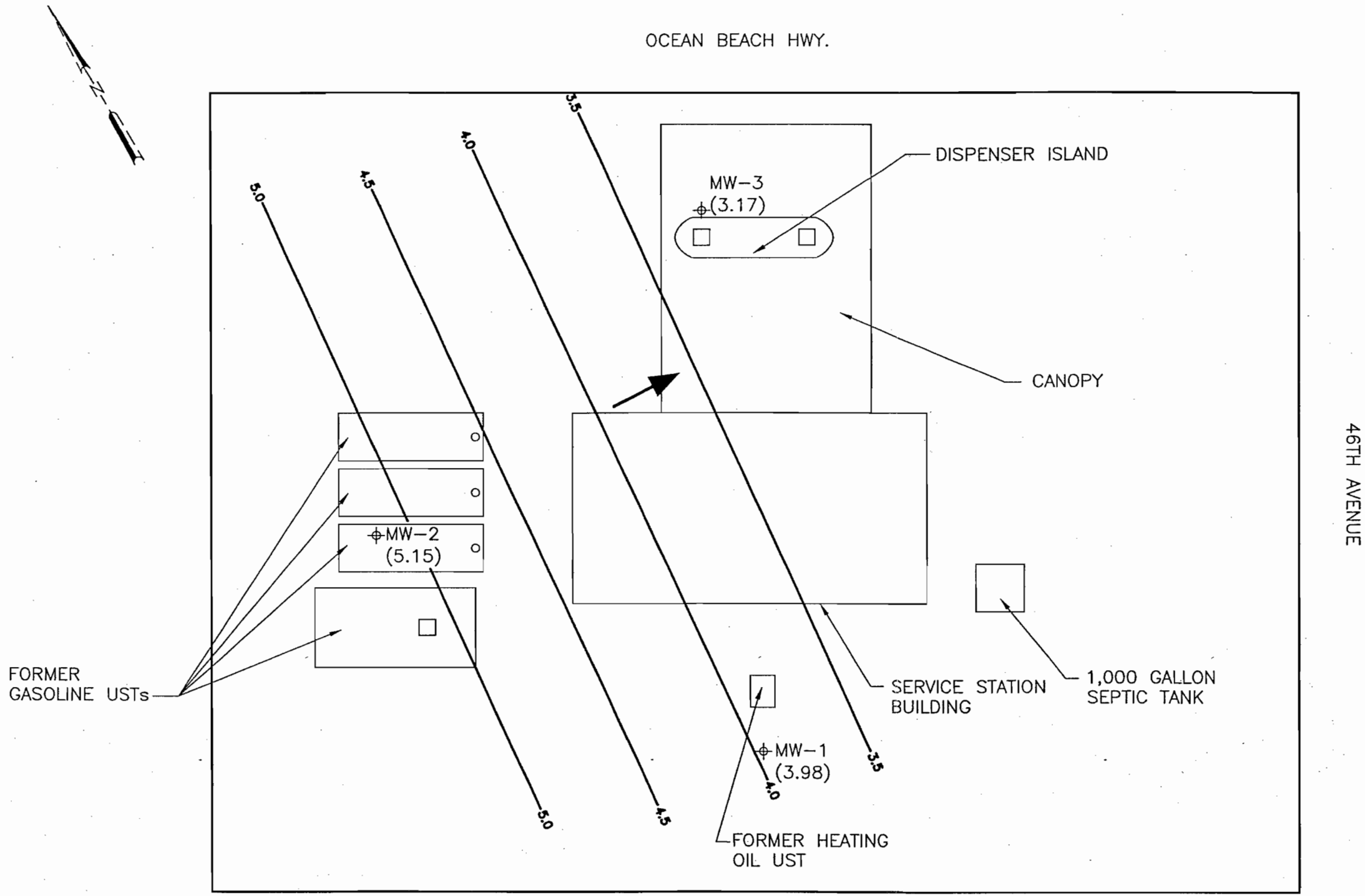


IT CORPORATION  
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FIGURE 1  
SITE LOCATION MAP  
FORMER ARCO SERVICE STATION 0855  
LONGVIEW, WASHINGTON

mscale: 50 Ltscale: 25 Pltscale: 0 XREF Files: <No Xrefs>  
N:\Cad\Drawings\876-ARCO0855\803876-B1.dwg 5/12/00 jclugston

|       |       |          |             |            |             |                |      |
|-------|-------|----------|-------------|------------|-------------|----------------|------|
| IMAGE | X-REF | OFFICE   | DRAWN       | CHECKED BY | APPROVED BY | DRAWING NUMBER | 6-B1 |
|       |       | Portland | J. Clugston |            |             | 80             |      |
|       |       |          | 4/27/2000   |            |             |                |      |



NOTE: MONITORING WELL LOCATIONS AND CORNERS OF BUILDING SURVEYED APRIL 2000 BY GIBBS & OLSEN, INC. OF LONGVIEW, WASHINGTON.

SOURCE: MAP BASED ON ATLANTIC RICHFIELD "GENERAL ARRANGEMENT" DRAWING, NOVEMBER 30, 1966, 1/8"-1'.

**LEGEND**

MW-1  $\oplus$  MONITORING WELL

4.5 — GROUNDWATER CONTOUR

(3.98) GROUNDWATER ELEVATION (FEET NAVD 88)

$\rightarrow$  GROUNDWATER FLOW DIRECTION

**SCALE**

0 15 30 FEET



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**FIGURE 2**  
**GROUNDWATER CONTOUR MAP**  
**MARCH 27, 2000**

FORMER ARCO SERVICE STATION 0855  
LONGVIEW, WASHINGTON

## TABLES

**Table 1**  
**Analysis Matrix**  
**Former ARCO 0855**  
**Longview, Washington**

|                                                                                                          | BTEX | Napthalene | VPH | EPH | NWTPH-Gx | NWTPH-Dx | n-Hexane | Total Lead | EDB/EDC/MTBE | PAHs | PCBs |
|----------------------------------------------------------------------------------------------------------|------|------------|-----|-----|----------|----------|----------|------------|--------------|------|------|
| Soil                                                                                                     |      |            |     |     |          |          |          |            |              |      |      |
| MW-1 (3.5-5)                                                                                             | X    | X          | X   | X   | X        |          |          | X          | X            | X    | X    |
| MW-1 (8-9.5)                                                                                             | X    | X          | X   | X   | X        |          |          | X          | X            | X    | X    |
| MW-1 (9.5-11)                                                                                            | X    | X          | X   | X   | X        |          |          | X          | X            | X    | X    |
| MW-1 (18.5-20)                                                                                           | X    | X          | X   | X   | X        |          |          | X          | X            | X    | X    |
| MW-2 (3.5-5)                                                                                             | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-2 (6.5-8)                                                                                             | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-2 (14.5-15.5)                                                                                         | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-2 (18.5-20)                                                                                           | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-3 (2-3.5)                                                                                             | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-3 (9.5-11)                                                                                            | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-3 (14-15.5)                                                                                           | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| MW-3 (18.5-20)                                                                                           | X    | X          | X   | X   | X        |          | X        | X          |              |      |      |
| Groundwater                                                                                              |      |            |     |     |          |          |          |            |              |      |      |
| MW-1 (18)                                                                                                | X    | X          | X   |     | X        |          |          | X          |              |      |      |
| MW-2 (17)                                                                                                | X    | X          | X   |     | X        |          |          | X          |              |      |      |
| MW-3 (17)                                                                                                | X    | X          | X   |     | X        |          |          | X          |              |      |      |
| BTEX and Napthalene were analyzed by EPA method 8021B.                                                   |      |            |     |     |          |          |          |            |              |      |      |
| PCBs = Polychlorinated Biphenyls by EPA method 8082.                                                     |      |            |     |     |          |          |          |            |              |      |      |
| EDB/EDC/MTBE = 1,2 - Dibromoethane, 1,2-Dichloroethane, and Methyl tert-butyl ether by EPA method 8260B. |      |            |     |     |          |          |          |            |              |      |      |
| PAHs = Polynuclear Aromatic Compounds by EPA method 8270M-SIM.                                           |      |            |     |     |          |          |          |            |              |      |      |
| VPH = Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method.                        |      |            |     |     |          |          |          |            |              |      |      |
| EPH = Extractable Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method.                     |      |            |     |     |          |          |          |            |              |      |      |

**Table 2**  
**Summary of Soil Analytical Results (mg/Kg or ppm)**  
**Former ARCO 0855**  
**Longview, Washington**

|                  | Gasoline Range Hydrocarbons |         |              |                  | WA MTCA VPH (Volatile Petroleum Hydrocarbons) |               |       |            |        |         |        |           |         |      |
|------------------|-----------------------------|---------|--------------|------------------|-----------------------------------------------|---------------|-------|------------|--------|---------|--------|-----------|---------|------|
|                  | Benzene                     | Toluene | Ethylbenzene | Xylenes<br>Total | Naphthalene                                   | Lead<br>Total | C5-C6 | Aliphatics |        |         |        | Aromatics |         |      |
|                  |                             |         |              |                  |                                               |               |       | C6-C8      | C8-C10 | C10-C12 | C8-C10 | C10-C12   | C12-C13 |      |
| MW-1 (3.5-5)     | ND                          | ND      | ND           | ND               | ND                                            | 14.8          | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MW-1 (8-9.5)     | ND                          | ND      | ND           | ND               | ND                                            | ND            | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MW-1 (9.5-11)    | ND                          | ND      | ND           | ND               | ND                                            | 10.5          | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MW-1 (18.5-20)   | ND                          | ND      | ND           | ND               | ND                                            | ND            | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MW-2 (3.5-5)     | ND                          | ND      | ND           | 0.651            | 0.231                                         | ND            | ND    | ND         | ND     | 7.71    | ND     | ND        | ND      | 6.61 |
| MW-2 (6.5-8)     | ND                          | 0.495   | 3.77         | 20.8             | 1.62                                          | 11.8          | 413   | 1460       | 832    | 826     | 639    | 620       | 756     |      |
| MW-2 (14.5-15.5) | 0.0511                      | ND      | 1.39         | 0.508            | 0.296                                         | ND            | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MW-2 (18.5-20)   | 0.145                       | ND      | 1.71         | 1.34             | 0.245                                         | ND            | ND    | ND         | ND     | ND      | 5.4    | ND        | ND      |      |
| MW-3 (2-3.5)     | <0.5                        | 2.05    | 6.73         | 42.4             | 8.53                                          | 10.7          | ND    | 22.0       | 45.4   | 171     | 13.0   | 65.4      | 24300   |      |
| MW-3 (9.5-11)    | 6.83                        | 0.892   | 5.82         | 21.4             | 1.00                                          | 10.7          | ND    | ND         | 9.22   | 21.1    | 39.9   | 28.5      | 14.0    |      |
| MW-3 (14-15.5)   | 1.35                        | 2.67    | 1.93         | 9.67             | 0.808                                         | ND            | ND    | 7.20       | ND     | 15.7    | 18.0   | 13.0      | 10.6    |      |
| MW-3 (18.5-20)   | 2.15                        | 0.102   | 0.0662       | 0.395            | ND                                            | ND            | ND    | ND         | ND     | ND      | ND     | ND        | ND      |      |
| MRL              | 0.0500                      | 0.0500  | 0.0500       | 0.0500           | 0.0500                                        | 10.0          | ND    | 5.00       | ND     | ND      | ND     | 5.00      | ND      |      |
| Ecology          | 0.1                         | 7       | 6            | 9                | —                                             | 250           |       |            |        |         |        |           |         |      |

Note:  
 ND = Not Detected above the method reporting limit (MRL).  
 Ecology = Washington Department of Ecology MTCA Method A cleanup levels for soil, November 2, 1999, proposed amendments.

**Table 3**  
**Diesel/Oil Soil Analytical Results for MW-1 (mg/Kg or ppm)**  
**Former ARCO 0855**  
**Longview, Washington**

|                                                                                                                          | NWTPH-Dx              |                              | WA MTCA EPH (Extractable Petroleum Hydrocarbons) |         |         |         |         |           |         |         |         |  |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|--------------------------------------------------|---------|---------|---------|---------|-----------|---------|---------|---------|--|
|                                                                                                                          | Diesel Range Organics | Heavy Oil Range Hydrocarbons | Aliphatics                                       |         |         |         |         | Aromatics |         |         |         |  |
|                                                                                                                          |                       |                              | C8-C10                                           | C10-C12 | C12-C16 | C16-C21 | C21-C34 | C10-C12   | C12-C16 | C16-C21 | C21-C34 |  |
| MW-1 (3.5-5)                                                                                                             | ND                    | ND                           | ND                                               | ND      | ND      | 8.12    | ND      | ND        | ND      | ND      | 5.24    |  |
| MW-1 (8-9.5)                                                                                                             | ND                    | ND                           | ND                                               | ND      | ND      | ND      | ND      | ND        | ND      | ND      | ND      |  |
| MW-1 (9.5-11)                                                                                                            | ND                    | ND                           | ND                                               | ND      | ND      | 5.46    | ND      | ND        | ND      | ND      | ND      |  |
| MW-1 (18.5-20)                                                                                                           | ND                    | ND                           | ND                                               | ND      | ND      | ND      | ND      | ND        | ND      | ND      | ND      |  |
| MRL                                                                                                                      | 25.00                 | 50.00                        | 5.00                                             |         |         |         |         | 5.00      |         |         |         |  |
| Ecology                                                                                                                  | 2,000                 | 2,000                        |                                                  |         |         |         |         |           |         |         |         |  |
| Note:                                                                                                                    |                       |                              |                                                  |         |         |         |         |           |         |         |         |  |
| ND = Not Detected above the method reporting limit (MRL).                                                                |                       |                              |                                                  |         |         |         |         |           |         |         |         |  |
| Ecology = Washington Department of Ecology MTCA Method A cleanup levels for soil, November 2, 1999, proposed amendments. |                       |                              |                                                  |         |         |         |         |           |         |         |         |  |

**Table 4**  
**Summary of Groundwater Monitoring Results**  
**Former ARCO 0855**  
**Longview, Washington**

| Well | Date     | TOC Elev. (feet) | DTW (feet) | Groundwater Elevation (feet) | USEPA Method 8021B (µg/L) |         |              |               | Method NWTPH-Gx (µg/L)    | Method NWTPH-Dx (µg/L) |
|------|----------|------------------|------------|------------------------------|---------------------------|---------|--------------|---------------|---------------------------|------------------------|
|      |          |                  |            |                              | Benzene                   | Toluene | Ethylbenzene | Total Xylenes |                           |                        |
| MW-1 | 03/27/00 | 8.34             | 4.36       | 3.98                         | ND                        | ND      | ND           | ND            | ND                        | ND                     |
| MW-2 | 03/27/00 | 8.76             | 3.61       | 5.15                         | 6.89                      | 49.5    | 599          | 2,490         | 17,100                    | ND                     |
| MW-3 | 03/27/00 | 8.78             | 5.61       | 3.17                         | 7,520                     | 12,900  | 2,780        | 14,500        | 93,700                    | ND                     |
|      |          |                  |            |                              | MRL                       | 0.500   | 0.500        | 1.00          | 80.0                      | 250 or 500             |
|      |          |                  |            |                              | MCL                       | 5       | 700          | 10,000        | —                         | —                      |
|      |          |                  |            |                              | Ecology                   | 5       | 700          | 1,000         | 800 or 1,000 <sup>a</sup> | 500                    |

NOTE: µg/L = micrograms per liter or parts per billion.  
TOC Elev. = top of casing elevation, NAVD, 1988.  
DTW = depth-to-water.  
— = not applicable.  
ND = not detected at or above analytical method reporting limit (MRL).  
MCL = USEPA drinking water primary maximum contaminant levels.  
Ecology = Washington Department of Ecology MTCA Method A cleanup levels for groundwater, November 2, 1999, proposed amendments.

<sup>a</sup> Cleanup level is 800 if benzene is present, 1,000 if there is no detectable benzene in the groundwater sample.

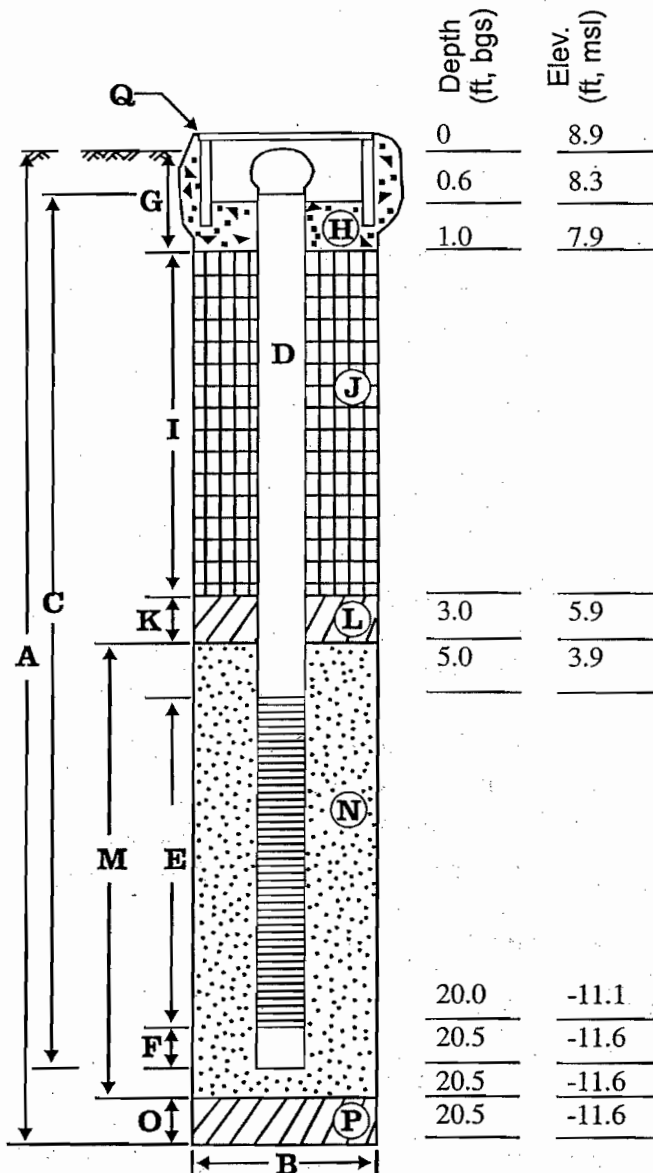
**APPENDIX A**  
**WELL DETAILS**



# WELL DETAILS

Project Number: 803876/00008000  
Client Name: ARCO  
Project Name: ARCO 855  
Location: Longview, WA  
Driller: Geo-Tech Explorations

Boring/Well No.: MW-1  
Top of Casing Elev.: 8.34  
Ground Surface Elev.: 8.87  
Installation Date: 3/9/00  
Permit/Start Card No.: 44046



## EXPLORATORY BORING

A. Total depth: 20.5 ft.  
B. Diameter 8 in.  
Drilling method: HSA

## WELL CONSTRUCTION

C. Well casing length: 20.5 ft.  
Well casing material: Sched 40 PVC  
D. Well casing diameter: 2 in.  
E. Well screen length: 15 ft.  
Well screen type: Machine slot  
Well screen slot size: 0.020 in.  
F. Well sump/end cap length: 0.5 ft.  
G. Surface seal thickness: 1 ft.  
H. Surface seal material: Concrete  
I. Annular seal thickness: 2 ft.  
J. Annular seal material: Bentonite chip  
K. Filter pack seal thickness: NA ft.  
L. Filter pack seal material: NA  
M. Sand pack thickness: 17.5 ft.  
N. Sand pack material: 10x20 sand  
O. Bottom material thickness: NA ft.  
P. Bottom material: NA  
Q. Vault box type: Morris Flush

## NOTES:

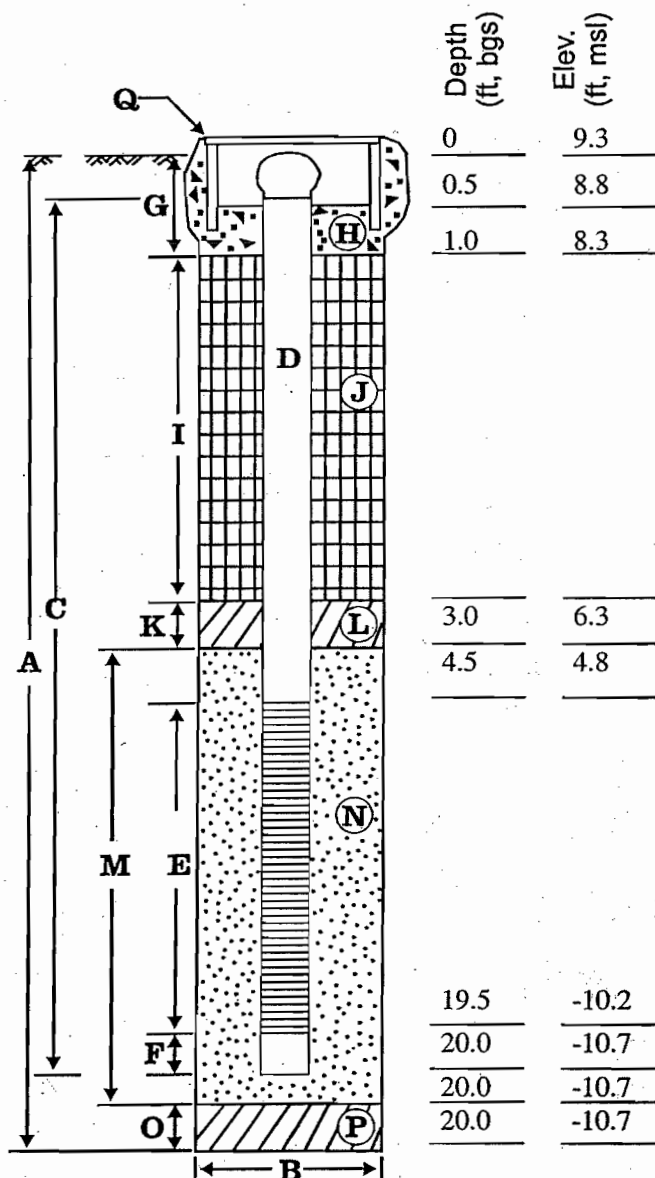
Installed by: John J. Renda  
Reviewed by: [Signature]  
Date: 5/12/00



# WELL DETAILS

Project Number: 803876/00008000  
Client Name: ARCO  
Project Name: ARCO 855  
Location: Longview, WA  
Driller: Geo-Tech Explorations

Boring/Well No.: MW-2  
Top of Casing Elev.: 8.76  
Ground Surface Elev.: 9.31  
Installation Date: 3/9/00  
Permit/Start Card No.: 44046



## EXPLORATORY BORING

A. Total depth: 20.0 ft.  
B. Diameter 8 in.  
Drilling method: HSA

## WELL CONSTRUCTION

C. Well casing length: 20.0 ft.  
Well casing material: Sched 40 PVC  
D. Well casing diameter: 2 in.  
E. Well screen length: 15 ft.  
Well screen type: Machine slot  
Well screen slot size: 0.020 in.  
F. Well sump/end cap length: 0.5 ft.  
G. Surface seal thickness: 1 ft.  
H. Surface seal material: Concrete  
I. Annular seal thickness: 2 ft.  
J. Annular seal material: Bentonite chip  
K. Filter pack seal thickness: NA ft.  
L. Filter pack seal material: NA  
M. Sand pack thickness: 17.0 ft.  
N. Sand pack material: 10x20 sand  
O. Bottom material thickness: NA ft.  
P. Bottom material: NA  
Q. Vault box type: Morris Flush

## NOTES:

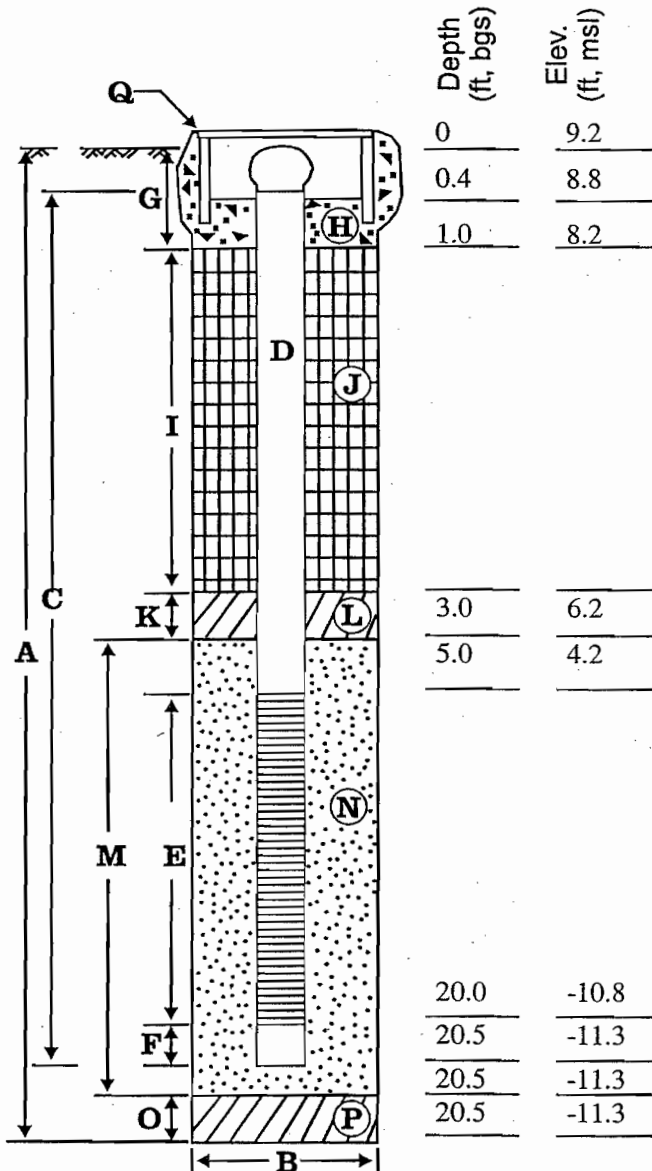
Installed by: John J. Renda  
Reviewed by: [Signature]  
Date: 5/12/00



# WELL DETAILS

Project Number: 803876/00008000  
 Client Name: ARCO  
 Project Name: ARCO 855  
 Location: Longview, WA  
 Driller: Geo-Tech Explorations

Boring/Well No.: MW-3  
 Top of Casing Elev.: 8.78  
 Ground Surface Elev.: 9.21  
 Installation Date: 3/9/00  
 Permit/Start Card No.: 44046



## EXPLORATORY BORING

A. Total depth: 20.5 ft.  
 B. Diameter 8 in.  
 Drilling method: HSA

## WELL CONSTRUCTION

C. Well casing length: 20.5 ft.  
 Well casing material: Sched 40 PVC  
 D. Well casing diameter: 2 in.  
 E. Well screen length: 15 ft.  
 Well screen type: Machine slot  
 Well screen slot size: 0.020 in.  
 F. Well sump/end cap length: 0.5 ft.  
 G. Surface seal thickness: 1 ft.  
 H. Surface seal material: Concrete  
 I. Annular seal thickness: 2 ft.  
 J. Annular seal material: Bentonite chip  
 K. Filter pack seal thickness: NA ft.  
 L. Filter pack seal material: NA  
 M. Sand pack thickness: 17.5 ft.  
 N. Sand pack material: 10x20 sand  
 O. Bottom material thickness: NA ft.  
 P. Bottom material: NA  
 Q. Vault box type: Morris Flush

## NOTES:

Installed by: John J. Renda  
 Reviewed by: [Signature]  
 Date: 5/12/00

## **APPENDIX B**

### **BORING LOGS**

# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-1  
 PAGE 1 OF 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20.5 feet  
 DATE COMPLETED 3/9/00

| SAMPLE NUMBER AND TYPE | FID (ppm) | BLOW COUNT PER 6 INCHES | GROUND WATER LEVEL | DEPTH IN FT. | SAMPLES | BORING DETAILS | LITHO-LOGIC COLUMN | LITHOLOGIC DESCRIPTION                                                                                                                   |
|------------------------|-----------|-------------------------|--------------------|--------------|---------|----------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1                      | 200       | 4-2-3                   |                    |              |         |                |                    | 0.0 to 3.0 feet: GRAVEL (GW). (FILL)                                                                                                     |
| 2                      | 500       | 1-1-1                   |                    |              |         |                |                    | 3.0 to 20.5 feet: CLAYEY SILT (MH); gray; medium to high plasticity fines; soft; moist; some organic matter (roots and wood). (ALLUVIUM) |
| 3                      | 200       | 1-1-1                   |                    | 5            |         |                |                    |                                                                                                                                          |
| 4                      | 150       | 1-1-1                   |                    |              |         |                |                    |                                                                                                                                          |
| 5                      | 200       | 1-1-2                   |                    |              |         |                |                    |                                                                                                                                          |
| 6                      | 500       | 1-1-3                   |                    | 10           |         |                |                    | @ 9.0 feet: wet.                                                                                                                         |
| 7                      | 300       | 3-3-4                   |                    |              |         |                |                    |                                                                                                                                          |
| 8                      | 150       | 3-5-7                   |                    |              |         |                |                    |                                                                                                                                          |
| 9                      | 250       | 3-4-5                   |                    | 15           |         |                |                    |                                                                                                                                          |
| 10                     | 250       | 3-3-3                   |                    |              |         |                |                    |                                                                                                                                          |
| 11                     | 100       | 3-4-4                   |                    |              |         |                |                    | @ 17.5 feet: decrease in clay.                                                                                                           |
| 12                     | 100       | 2-3-3                   |                    | 20           |         |                |                    |                                                                                                                                          |



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REMARKS

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# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-1  
 PAGE 2 OF 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20.5 feet  
 DATE COMPLETED 3/9/00

| SAMPLE<br>NUMBER<br>AND<br>TYPE | FID<br>(ppm) | BLOW<br>COUNT<br>PER<br>6 INCHES | GROUND<br>WATER<br>LEVEL | DEPTH<br>IN FT. | SAMPLES | BORING<br>DETAILS | LITHO-<br>LOGIC<br>COLUMN | LITHOLOGIC<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|--------------|----------------------------------|--------------------------|-----------------|---------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |              |                                  |                          | 25              |         |                   |                           | Boring terminated at 20.5 feet.                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 30              |         |                   |                           | <b>WELL COMPLETION DETAILS:</b><br>0.0 to 5.0 feet: 2-inch-diameter, Schedule 40 PVC blank riser pipe.<br>5.0 to 20.0 feet: 2-inch-diameter, Schedule 40 PVC well screen with 0.020-inch machined slots.<br>20.0 to 20.5 feet: 2-inch-diameter, flush-threaded, Schedule 40 PVC end cap.<br><br>0.0 to 1.0 foot: Concrete.<br>1.0 to 3.0 feet: Hydrated bentonite chips.<br>3.0 to 20.5 feet: 10x20 sand. |
|                                 |              |                                  |                          | 35              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 40              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |



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# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-2  
 PAGE 1 OF 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20 feet  
 DATE COMPLETED 3/9/00

| SAMPLE<br>NUMBER<br>AND<br>TYPE | FID<br>(ppm) | BLOW<br>COUNT<br>PER<br>6 INCHES | GROUND<br>WATER<br>LEVEL | DEPTH<br>IN FT. | SAMPLES | BORING<br>DETAILS | LITHO-<br>LOGIC<br>COLUMN | LITHOLOGIC<br>DESCRIPTION                                                                                                                     |
|---------------------------------|--------------|----------------------------------|--------------------------|-----------------|---------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1                               | 20           | 8-8-35                           |                          |                 |         |                   |                           | 0.0 to 1.0 foot: GRAVEL (GW). (FILL)                                                                                                          |
| 2                               | 30           | 6-7-6                            |                          |                 |         |                   |                           | 1.0 to 4.0 feet: SAND (SP); dark brown; fine to medium sand; trace fine gravel. (FILL)                                                        |
| 3                               | 400          | 15-13-6                          |                          | 5               |         |                   |                           | @ 3.5 feet: asphalt.<br>@ 4.0 feet: wet.<br>4.0 to 6.5 feet: GRAVEL (GP); pea gravel. (FILL)                                                  |
| 4                               | 10000        | 5-2-1                            |                          |                 |         |                   |                           | 6.5 to 9.0 feet: SAND (SP); fine to medium sand. (FILL)                                                                                       |
| 5                               | 7000         | 2-1-1                            |                          |                 |         |                   |                           | @ 9.0 feet: free product.                                                                                                                     |
| 6                               | 1500         | 2-3-2                            |                          | 10              |         |                   |                           | 9.0 to 20.0 feet: CLAYEY SILT (MH); gray; medium to high plasticity fines; soft; moist; wet; some organic matter (roots and wood). (ALLUVIUM) |
| 7                               | 2000         | 2-2-3                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 8                               | 1500         | 1-1-2                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 9                               | 2000         | 4-6-2                            |                          | 15              |         |                   |                           |                                                                                                                                               |
| 10                              | 1000         | 2-2-2                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 11                              | 1500         | 2-4-6                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 12                              | 1000         | 2-4-3                            |                          | 20              |         |                   |                           |                                                                                                                                               |



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REMARKS

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# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-2  
 PAGE 2 OF 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20 feet  
 DATE COMPLETED 3/9/00

| SAMPLE<br>NUMBER<br>AND<br>TYPE | FID<br>(ppm) | BLOW<br>COUNT<br>PER<br>6 INCHES | GROUND<br>WATER<br>LEVEL | DEPTH<br>IN FT. | SAMPLES | BORING<br>DETAILS | LITHO-<br>LOGIC<br>COLUMN | LITHOLOGIC<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|--------------|----------------------------------|--------------------------|-----------------|---------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |              |                                  |                          | 25              |         |                   |                           | Boring terminated at 20.0 feet.                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 30              |         |                   |                           | <b>WELL COMPLETION DETAILS:</b><br>0.0 to 4.5 feet: 2-inch-diameter, Schedule 40 PVC blank riser pipe.<br>4.5 to 19.5 feet: 2-inch-diameter, Schedule 40 PVC well screen with 0.020-inch machined slots.<br>19.5 to 20.0 feet: 2-inch-diameter, flush-threaded, Schedule 40 PVC end cap.<br><br>0.0 to 1.0 foot: Concrete.<br>1.0 to 3.0 feet: Hydrated bentonite chips.<br>3.0 to 20.0 feet: 10x20 sand. |
|                                 |              |                                  |                          | 35              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 40              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |



REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-3  
 PAGE 1 OF 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20.5 feet  
 DATE COMPLETED 3/9/00

| SAMPLE<br>NUMBER<br>AND<br>TYPE | FID<br>(ppm) | BLOW<br>COUNT<br>PER<br>6 INCHES | GROUND<br>WATER<br>LEVEL | DEPTH<br>IN FT. | SAMPLES | BORING<br>DETAILS | LITHO-<br>LOGIC<br>COLUMN | LITHOLOGIC<br>DESCRIPTION                                                                                                                     |
|---------------------------------|--------------|----------------------------------|--------------------------|-----------------|---------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1                               | 10000        | 20-8-3                           |                          |                 |         |                   |                           | 0.0 to 0.6 foot: CONCRETE.                                                                                                                    |
| 2                               | 10000        | 1-2-2                            |                          |                 |         |                   |                           | 0.6 to 1.0 foot: SANDY GRAVEL (GW). (FILL)                                                                                                    |
| 3                               | 10000        | 2-1-2                            |                          | 5               |         |                   |                           | 1.0 to 3.5 feet: SAND (SW); fine to medium sand;<br>strong gasoline odor. (FILL)                                                              |
| 4                               | 2000         | 1-1-2                            |                          |                 |         |                   |                           | 3.5 to 5.5 feet: SILT (MH); brown; medium to high<br>plasticity fines; high organic content (roots and wood).<br>(ALLUVIUM)                   |
| 5                               | 2000         | 0-0-1                            |                          |                 |         |                   |                           | 5.5 to 20.5 feet: CLAYEY SILT (MH); gray; medium to<br>high plasticity fines; soft; moist; some organic matter<br>(root and wood). (ALLUVIUM) |
| 6                               | 1500         | 0-0-1                            | ▽                        | 10              |         |                   |                           | @ 9.0 feet: wet.                                                                                                                              |
| 7                               | 2000         | 1-1-1                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 8                               | 2000         | 1-1-1                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 9                               | 1500         | 0-0-0                            |                          | 15              |         |                   |                           |                                                                                                                                               |
| 10                              | 1500         | 0-1-2                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 11                              | 1500         | 1-2-1                            |                          |                 |         |                   |                           |                                                                                                                                               |
| 12                              | 1000         | 2-3-4                            |                          | 20              |         |                   |                           |                                                                                                                                               |



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REMARKS

# LOG OF EXPLORATORY BORING

PROJECT NAME ARCO 0855  
 LOCATION Longview, Washington  
 DRILLED BY Geo-Tech Explorations, Inc.  
 DRILL METHOD Hollow Stem Auger  
 LOGGED BY John Renda

BORING NO. MW-3  
 PAGE 2 of 2  
 REFERENCE ELEV.  
 TOTAL DEPTH 20.5 feet  
 DATE COMPLETED 3/9/00

| SAMPLE<br>NUMBER<br>AND<br>TYPE | FID<br>(ppm) | BLOW<br>COUNT<br>PER<br>6 INCHES | GROUND<br>WATER<br>LEVEL | DEPTH<br>IN FT. | SAMPLES | BORING<br>DETAILS | LITHO-<br>LOGIC<br>COLUMN | LITHOLOGIC<br>DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|--------------|----------------------------------|--------------------------|-----------------|---------|-------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                 |              |                                  |                          | 25              |         |                   |                           | Boring terminated at 20.5 feet.                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 30              |         |                   |                           | <b>WELL COMPLETION DETAILS:</b><br>0.0 to 5.0 feet: 2-inch-diameter, Schedule 40 PVC blank riser pipe.<br>5.0 to 20.0 feet: 2-inch-diameter, Schedule 40 PVC well screen with 0.020-inch machined slots.<br>20.0 to 20.5 feet: 2-inch-diameter, flush-threaded, Schedule 40 PVC end cap.<br><br>0.0 to 1.0 foot: Concrete.<br>1.0 to 3.0 feet: Hydrated bentonite chips.<br>3.0 to 20.5 feet: 10x20 sand. |
|                                 |              |                                  |                          | 35              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                 |              |                                  |                          | 40              |         |                   |                           |                                                                                                                                                                                                                                                                                                                                                                                                           |



REMARKS

**APPENDIX C**  
**WELL DEVELOPMENT FORMS**

**the *Life* group**

[illegible]

**the *i* group**

[illegible]

**The *i* group**

[illegible]

**APPENDIX D**  
**FIELD SAMPLING DATA SHEETS**

# FIELD SAMPLING DATA SHEET



15055 SW Sequoia Parkway, Suite 140  
Portland, Oregon 97224-7712

Office: (503) 624-7200 Fax: (503) 620-7658

PROJECT NAME: ARCO 835

WELL ID: MW-1

SITE ADDRESS: Lenbiew, WA

BLIND ID: MW1-18

DUP ID: NA

WIND FROM: N NE E SE S SW W NW LIGHT MEDIUM HEAVY  
WEATHER: SUNNY CLOUDY RAIN ? TEMPERATURE: °F 47 °C

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Water Column x Gal/ft]

| Date                                                                                                                 | Time  | DT-Bottom | DT-Product | DT-Water | DTP-DTW | DTB-DTW | Volume (gal) |
|----------------------------------------------------------------------------------------------------------------------|-------|-----------|------------|----------|---------|---------|--------------|
| 3/27/00                                                                                                              | 11:05 | 20.36     | —          | 4.36     | —       | 16.00   | 2.60         |
| / /                                                                                                                  | :     | .         | .          | .        | .       | .       | 10.4         |
| Gal/ft = (dia/2) <sup>2</sup> x 0.163 1" = 0.041 2" = 0.163 3" = 0.367 4" = 0.653 6" = 1.469 10" = 4.080 12" = 5.875 |       |           |            |          |         |         |              |

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[v if used]

| Bottle Type    | Date    | Time  | Method § | Amount & Volume mL | Preservative [circle]                          | Ice | Filter | pH | ✓ |
|----------------|---------|-------|----------|--------------------|------------------------------------------------|-----|--------|----|---|
| VOA Glass      | 3/27/00 | 13:00 | C        | 3 40 ml            | HCl                                            | YES | NO     |    |   |
| Amber Glass    | 3/27/00 | 13:00 | C        | 2 250, 500, 1L     | (None) (HCl) (H <sub>2</sub> SO <sub>4</sub> ) | YES | NO     |    |   |
| White Poly     | / /     | :     |          | 250, 500, 1L       | None                                           | YES | NO     | NA |   |
| Yellow Poly    | / /     | :     |          | 250, 500, 1L       | H <sub>2</sub> SO <sub>4</sub>                 | YES | NO     |    |   |
| Green Poly     | / /     | :     |          | 250, 500, 1L       | NaOH                                           | YES | NO     |    |   |
| Red Total Poly | / /     | :     |          | 250, 500, 1L       | HNO <sub>3</sub>                               | YES | NO     |    |   |
| Red Diss. Poly | / /     | :     |          | 250, 500, 1L       | HNO <sub>3</sub>                               | YES | YES    |    |   |
|                | / /     | :     |          | 250, 500, 1L       |                                                | YES |        |    |   |

Total Bottles (include duplicate count): 5

| BOTTLE TYPE          | TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOA - Glass          | (8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]                                                                                     |
| AMBER - Glass        | (PAH) (TPH-HClD) (TPH-D) (TPH-418.1) (Oil & Grease) OR [ ] WA [ ]                                                                                                     |
| WHITE - Poly         | (pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F) |
| YELLOW - Poly        | (COD) (TOC) (Total PO <sub>4</sub> ) (Total Keldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>3</sub> /NO <sub>2</sub> )                                                  |
| GREEN - Poly         | (Cyanide)                                                                                                                                                             |
| RED TOTAL - Poly     | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na)                                                           |
| RED DISSOLVED - Poly | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)                                       |

## WATER QUALITY DATA

Purge Start Time: :

Pump/Bailer Inlet Depth:

| Meas. | Method § | Purged (gal) | pH   | E Cond (µS) | Temp °C | Other | Diss O <sub>2</sub> (mg/l) | Water Quality |
|-------|----------|--------------|------|-------------|---------|-------|----------------------------|---------------|
| 4     | C        | 12.0         | 6.58 | 534         | 12.3    |       | .                          | Brown/Slity   |
| 3     | C        | 9.0          | 6.68 | 531         | 12.0    |       | .                          |               |
| 2     | C        | 6.0          | 6.64 | 640         | 10.8    |       | .                          |               |
| 1     | C        | 3.0          | 6.73 | 692         | 10.3    |       | .                          |               |
| 0     |          | 0.00         |      |             |         |       | .                          |               |

[Casing] [Select A-G] [Cumulative Totals]

[Clarity, Color]

SAMPLER: Simon Garibaydo  
(PRINTED NAME)

Simon  
(SIGNATURE)

**the *i* group**

Portland, Oregon 97224-7712

PROJECT NAME: AR10 855  
SITE ADDRESS: Longview, WA

WELL ID: MW-2  
BLIND ID: MW2-17

DUP ID: NA

|            |       |    |        |    |      |    |   |    |                        |        |       |
|------------|-------|----|--------|----|------|----|---|----|------------------------|--------|-------|
| WIND FROM: | N     | NE | E      | SE | S    | SW | W | NW | LIGHT                  | MEDIUM | HEAVY |
| WEATHER:   | SUNNY |    | CLOUDY |    | RAIN |    | ? |    | TEMPERATURE: °F 47. °C |        |       |

[Circle appropriate units]

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Water Column x Gal/ft]

| Date                                   | Time    | DT-Bottom | DT-Product | DT-Water | DTP-DTW | DTB-DTW | Volume (gal) |         |         |      |       |       |       |       |
|----------------------------------------|---------|-----------|------------|----------|---------|---------|--------------|---------|---------|------|-------|-------|-------|-------|
| B 127 100                              | 11 : 00 | 19 . 41   | —          | 3 . 61   | —       | 15 . 8  | X 1          | 2 . 57  |         |      |       |       |       |       |
| / /                                    | :       | .         |            | .        | .       |         |              | X 4 X 3 | 10 . 28 |      |       |       |       |       |
| Gal/ft = (dia./2) <sup>2</sup> x 0.163 | 1" =    | 0.041     | 2" =       | 0.163    | 3" =    | 0.367   | 4" =         |         | 0.653   | 6" = | 1.469 | 10" = | 4.080 | 12" = |

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

**GROUNDWATER SAMPLING DATA** (if product is detected, do NOT sample)

Sample Depth:

[✓ if used]

| Bottle Type    | Date    | Time  | Method | Amount & Volume mL | Preservative [circle] | Ice                                            | Filter | pH  | ✓  |
|----------------|---------|-------|--------|--------------------|-----------------------|------------------------------------------------|--------|-----|----|
| VOA Glass      | 3/27/00 | 12:15 | C      | 3                  | 40 ml                 | HCl                                            | YES    | NO  |    |
| Amber Glass    | 3/27/00 | 12:15 | C      | 2                  | 250, 500, 1L          | (None) (HCl) (H <sub>2</sub> SO <sub>4</sub> ) | YES    | NO  |    |
| White Poly     | / /     | :     |        |                    | 250, 500, 1L          | None                                           | YES    | NO  | NA |
| Yellow Poly    | / /     | :     |        |                    | 250, 500, 1L          | H <sub>2</sub> SO <sub>4</sub>                 | YES    | NO  |    |
| Green Poly     | / /     | :     |        |                    | 250, 500, 1L          | NaOH                                           | YES    | NO  |    |
| Red Total Poly | / /     | :     |        |                    | 250, 500, 1L          | HNO <sub>3</sub>                               | YES    | NO  |    |
| Red Diss. Poly | / /     | :     |        |                    | 250, 500, 1L          | HNO <sub>3</sub>                               | YES    | YES |    |
|                | / /     | :     |        |                    | 250, 500, 1L          |                                                | YES    |     |    |

Total Bottles (include duplicate count): 5

| <b>Analysis Allowed<br/>per Bottle Type</b> | BOTTLE TYPE          | TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)                                                            |
|---------------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | VOA - Glass          | (8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]                                                                            |
|                                             | AMBER - Glass        | (PAH) (TPH-HClD) (TPH-D) (TPH-418.1) (Oil & Grease) OR [ ] WA [ ]                                                                                            |
|                                             | WHITE - Poly         | (pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) ( $\text{HCO}_3/\text{CO}_3$ ) (Cl) ( $\text{SO}_4$ ) ( $\text{NO}_3$ ) ( $\text{NO}_2$ ) (F) |
|                                             | YELLOW - Poly        | (COD) (TOC) (Total $\text{PO}_4$ ) (Total Keldahl Nitrogen) ( $\text{NH}_3$ ) ( $\text{NO}_3/\text{NO}_2$ )                                                  |
|                                             | GREEN - Poly         | (Cyanide)                                                                                                                                                    |
|                                             | RED TOTAL - Poly     | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na)                                                  |
|                                             | RED DISSOLVED - Poly | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)                              |

## WATER QUALITY DATA

Purge Start Time:

|                          |  |
|--------------------------|--|
| Pump/Bailer Inlet Depth: |  |
|--------------------------|--|

| Meas. | Method <sup>S</sup> | Purged (gal) | pH   | E Cond (μS) | Temp °C | Other | Diss O <sub>2</sub> (mg/l) | Water Quality |
|-------|---------------------|--------------|------|-------------|---------|-------|----------------------------|---------------|
| 4     | C                   | 10.0         | 6.78 | 547         | 9.8     |       | .                          | Brown/Silty   |
| 3     | C                   | 7.5          | 6.71 | 663         | 9.4     |       | .                          |               |
| ②     | C                   | 5.0          | 6.61 | 548         | 9.8     |       | .                          |               |
| 1     | C                   | 2.5          | 6.48 | 575         | 9.5     |       | .                          |               |
| 0     |                     | 0.00         | .    |             | .       |       | .                          |               |

|          |              |                     |
|----------|--------------|---------------------|
| [Casing] | [Select A-G] | [Cumulative Totals] |
|----------|--------------|---------------------|

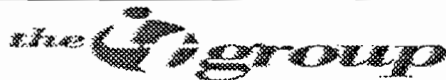
[Clarity, Color]

**SAMPLER:**

(PRINTED NAME)

(SIGNATURE)

# FIELD SAMPLING DATA SHEET



15055 SW Sequoia Parkway, Suite 140  
Portland, Oregon 97224-7712

Office: (503) 624-7200 Fax: (503) 620-7658

PROJECT NAME: ARCO 855

WELL ID: mw-3

SITE ADDRESS: Longview, WA

BLIND ID: mw3-17

DUP ID:

NA

|            |       |               |             |    |   |    |   |    |              |              |       |
|------------|-------|---------------|-------------|----|---|----|---|----|--------------|--------------|-------|
| WIND FROM: | N     | NE            | E           | SE | S | SW | W | NW | LIGHT        | MEDIUM       | HEAVY |
| WEATHER:   | SUNNY | <u>CLOUDY</u> | <u>RAIN</u> |    |   |    |   | ?  | TEMPERATURE: | °F <u>47</u> | °C    |

[Circle appropriate units]

## HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Water Column x Gal/ft]

| Date                                   | Time       | DT-Bottom         | DT-Product | DT-Water   | DTP-DTW    | DTB-DTW     | Volume (gal)    |
|----------------------------------------|------------|-------------------|------------|------------|------------|-------------|-----------------|
| 3/27/00                                | 10:55      | 19.98             | —          | 5.61       | —          | 14.37       | X 1 <u>2.34</u> |
| / /                                    | :          |                   |            |            |            |             | X 4 <u>9.36</u> |
| Gal/ft = (dia./2) <sup>2</sup> x 0.163 | 1" = 0.041 | <u>2" =</u> 0.163 | 3" = 0.367 | 4" = 0.653 | 6" = 1.469 | 10" = 4.080 | 12" = 5.875     |

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other =

## GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[v if used]

| Bottle Type    | Date    | Time  | Method § | Amount & Volume mL | Preservative [circle] | Ice                                                   | Filter     | pH        | ✓  |
|----------------|---------|-------|----------|--------------------|-----------------------|-------------------------------------------------------|------------|-----------|----|
| VOA Glass      | 3/27/00 | 11:35 | L        | 3                  | <u>40 ml</u>          | <u>HCl</u>                                            | <u>YES</u> | <u>NO</u> |    |
| Amber Glass    | 3/27/00 | 11:35 | L        | 2                  | 250, 500, 1L          | <u>(None)</u> (HCl) (H <sub>2</sub> SO <sub>4</sub> ) | <u>YES</u> | <u>NO</u> |    |
| White Poly     | / /     | :     |          |                    | 250, 500, 1L          | None                                                  | YES        | NO        | NA |
| Yellow Poly    | / /     | :     |          |                    | 250, 500, 1L          | H <sub>2</sub> SO <sub>4</sub>                        | YES        | NO        |    |
| Green Poly     | / /     | :     |          |                    | 250, 500, 1L          | NaOH                                                  | YES        | NO        |    |
| Red Total Poly | / /     | :     |          |                    | 250, 500, 1L          | HNO <sub>3</sub>                                      | YES        | NO        |    |
| Red Diss. Poly | / /     | :     |          |                    | 250, 500, 1L          | HNO <sub>3</sub>                                      | YES        | YES       |    |
|                | / /     | :     |          |                    | 250, 500, 1L          |                                                       | YES        |           |    |

Total Bottles (include duplicate count):

5

| Analysis Allowed per Bottle Type | BOTTLE TYPE          | TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)                                                                     |
|----------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                  | <u>VOA - Glass</u>   | (8010) (8010/8020) (8020) (8240) (8260) (BTEX) (TPH-G) (BTEX/TPH-G) OR [ ] WA [ ]                                                                                     |
|                                  | <u>AMBER - Glass</u> | (PAH) (TPH-HClD) (TPH-D) (TPH-418.1) (Oil & Grease) OR [ ] WA [ ]                                                                                                     |
|                                  | WHITE - Poly         | (pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO <sub>3</sub> /CO <sub>3</sub> ) (Cl) (SO <sub>4</sub> ) (NO <sub>3</sub> ) (NO <sub>2</sub> ) (F) |
|                                  | YELLOW - Poly        | (COD) (TOC) (Total PO <sub>4</sub> ) (Total Keldahl Nitrogen) (NH <sub>3</sub> ) (NO <sub>2</sub> /NO <sub>3</sub> )                                                  |
|                                  | GREEN - Poly         | (Cyanide)                                                                                                                                                             |
|                                  | RED TOTAL - Poly     | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na)                                                           |
|                                  | RED DISSOLVED - Poly | (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)                                       |

## WATER QUALITY DATA

Purge Start Time:

Pump/Bailer Inlet Depth:

| Meas.    | Method § | Purged (gal) | pH          | E Cond (µS) | Temp °C     | Other | Diss O <sub>2</sub> (mg/l) | Water Quality        |
|----------|----------|--------------|-------------|-------------|-------------|-------|----------------------------|----------------------|
| 4        | <u>L</u> | <u>10.0</u>  | <u>6.28</u> | <u>406</u>  | <u>11.8</u> |       | .                          | <u>Brown / silty</u> |
| 3        | <u>L</u> | <u>7.5</u>   | <u>6.29</u> | <u>407</u>  | <u>11.7</u> |       | .                          |                      |
| <u>2</u> | <u>L</u> | <u>5.0</u>   | <u>6.46</u> | <u>441</u>  | <u>11.3</u> |       | .                          |                      |
| 1        | <u>L</u> | <u>2.5</u>   | <u>6.91</u> | <u>444</u>  | <u>10.9</u> |       | .                          |                      |
| 0        |          | <u>0.00</u>  |             |             |             |       | .                          |                      |

[Casing] [Select A-G] [Cumulative Totals]

[Clarity, Color]

SAMPLER:

Simon Garibaldo

(PRINTED NAME)

Simon  
(SIGNATURE)

**APPENDIX E**  
**LABORATORY ANALYTICAL RESULTS**



ORIGINAL IN PROJECT FILING

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541.383.9310 fax 541.382.7588

March 30, 2000

Cary Goodman  
IT Corporation  
PO Box 231269  
Portland, OR 97224

RECEIVED  
MAR 29 2000  
PORTLAND EMCON

RE: ARCO #0855, Longview, WA

Dear Cary Goodman

Enclosed are the results of analyses for sample(s) received by the laboratory on March 15, 2000. VPH results for samples P003298-06 & P003298-09 are significantly greater than NW-TPHGx results. Extractions, analysis and reporting were reviewed and no anomalies were discovered. NW-TPHGx extracts were analyzed by GC and GC/MS to confirm analytes and extract dilutions. The difference in sample P003298-09 is due to weathered gasoline related hydrocarbons beyond the range of reporting in the NW-TPHGx method, that are reported by the VPH method. The differences between sample results for sample P003298-06 appear to be due to hetrogenic distribution of hydrocarbons in the soil. Chromatographic patterns produced by both methods are comparable. If you have any further questions please feel free to contact Kent Patton or myself.

Sincerely,

Crystal Burkholder  
Project Manager



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

### ANALYTICAL REPORT FOR SAMPLES:

| Sample Description | Laboratory Sample Number | Sample Matrix | Date Sampled |
|--------------------|--------------------------|---------------|--------------|
| MW-1 (3.5-5)       | P003298-01               | Soil          | 3/9/00       |
| MW-1 (8-9.5)       | P003298-02               | Soil          | 3/9/00       |
| MW-1 (9.5-11)      | P003298-03               | Soil          | 3/9/00       |
| MW-1 (18.5-20)     | P003298-04               | Soil          | 3/9/00       |
| MW-2 (3.5-5)       | P003298-05               | Soil          | 3/9/00       |
| MW-2 (6.5-8)       | P003298-06               | Soil          | 3/9/00       |
| MW-2 (14.5-15.5)   | P003298-07               | Soil          | 3/9/00       |
| MW-2 (18.5-20)     | P003298-08               | Soil          | 3/9/00       |
| MW-3 (2-3.5)       | P003298-09               | Soil          | 3/9/00       |
| MW-3 (9.5-11)      | P003298-10               | Soil          | 3/9/00       |
| MW-3 (14-15.5)     | P003298-11               | Soil          | 3/9/00       |
| MW-3 (18.5-20)     | P003298-12               | Soil          | 3/9/00       |

North Creek Analytical - Portland

*The results in this report apply to the samples analyzed in accordance with the chain of custody doc.*

*This analytical report must be reproduced in its entirety.*

Crystal Burkholder, Project Manager

North Creek Analytical, Inc.  
Environmental Laboratory Network

Page 1 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX/N per EPA Method 8021B  
North Creek Analytical - Portland**

| Analyte                     | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (3.5-5)</b>         |              |               |               | <b>P003298-01</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/21/00       |                   | 0.0500          | ND     | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | 3.02   | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 52.6   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 61.1   | "           | I      |
| <b>MW-1 (8-9.5)</b>         |              |               |               | <b>P003298-02</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/21/00       |                   | 0.0500          | ND     | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | ND     | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 64.9   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 77.2   | "           |        |
| <b>MW-1 (9.5-11)</b>        |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/21/00       |                   | 0.0500          | ND     | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | ND     | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 57.1   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 54.8   | "           | I      |
| <b>MW-1 (18.5-20)</b>       |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/21/00       |                   | 0.0500          | ND     | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | ND     | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 66.7   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 65.5   | "           | I      |

North Creek Analytical - Portland

\*Refer to end of report for text of notes and definitions.

Crystal Burkholder, Project Manager

North Creek Analytical, Inc.  
Environmental Laboratory Network



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX/N per EPA Method 8021B  
North Creek Analytical - Portland**

| Analyte                                                                                                                 | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units     | Notes* |
|-------------------------------------------------------------------------------------------------------------------------|--------------|---------------|---------------|------------------|-----------------|--------|-----------|--------|
| <b>MW-2 (3.5-5)</b> <span style="float:right"><b>P003298-05</b></span> <span style="float:right"><b>Soil</b></span>     |              |               |               |                  |                 |        |           |        |
| Benzene                                                                                                                 | 0300408      | 3/16/00       | 3/21/00       |                  | 0.0500          | ND     | mg/kg dry |        |
| Toluene                                                                                                                 | "            | "             | "             |                  | 0.0500          | ND     | "         |        |
| Ethylbenzene                                                                                                            | "            | "             | "             |                  | 0.0500          | ND     | "         |        |
| Xylenes (total)                                                                                                         | "            | "             | "             |                  | 0.0500          | 0.651  | "         |        |
| Naphthalene                                                                                                             | "            | "             | "             |                  | 0.0500          | 0.231  | "         | 2      |
| Gasoline Range Hydrocarbons                                                                                             | "            | "             | "             |                  | 2.50            | 35.4   | "         |        |
| Surrogate: 4-BFB (FID)                                                                                                  | "            | "             | "             | 50.0-150         |                 | 119    | %         |        |
| Surrogate: 4-BFB (PID)                                                                                                  | "            | "             | "             | 75.0-125         |                 | 93.7   | "         |        |
| <b>MW-2 (6.5-8)</b> <span style="float:right"><b>P003298-06</b></span> <span style="float:right"><b>Soil</b></span>     |              |               |               |                  |                 |        |           |        |
| Benzene                                                                                                                 | 0300408      | 3/16/00       | 3/22/00       |                  | 0.200           | ND     | mg/kg dry | 3      |
| Toluene                                                                                                                 | "            | "             | "             |                  | 0.200           | 0.495  | "         |        |
| Ethylbenzene                                                                                                            | "            | "             | "             |                  | 0.200           | 3.77   | "         |        |
| Xylenes (total)                                                                                                         | "            | "             | "             |                  | 0.200           | 20.8   | "         |        |
| Naphthalene                                                                                                             | "            | "             | "             |                  | 0.200           | 1.62   | "         | 2      |
| Gasoline Range Hydrocarbons                                                                                             | "            | "             | "             |                  | 10.0            | 239    | "         |        |
| Surrogate: 4-BFB (FID)                                                                                                  | "            | "             | "             | 50.0-150         |                 | NR     | %         | 4      |
| Surrogate: 4-BFB (PID)                                                                                                  | "            | "             | "             | 75.0-125         |                 | NR     | "         | 4      |
| <b>MW-2 (14.5-15.5)</b> <span style="float:right"><b>P003298-07</b></span> <span style="float:right"><b>Soil</b></span> |              |               |               |                  |                 |        |           |        |
| Benzene                                                                                                                 | 0300408      | 3/16/00       | 3/21/00       |                  | 0.0500          | 0.0511 | mg/kg dry |        |
| Toluene                                                                                                                 | "            | "             | "             |                  | 0.0500          | ND     | "         |        |
| Ethylbenzene                                                                                                            | "            | "             | "             |                  | 0.0500          | 1.39   | "         |        |
| Xylenes (total)                                                                                                         | "            | "             | "             |                  | 0.0500          | 0.508  | "         |        |
| Naphthalene                                                                                                             | "            | "             | "             |                  | 0.0500          | 0.296  | "         | 2      |
| Gasoline Range Hydrocarbons                                                                                             | "            | "             | "             |                  | 2.50            | 14.8   | "         |        |
| Surrogate: 4-BFB (FID)                                                                                                  | "            | "             | "             | 50.0-150         |                 | 74.9   | %         |        |
| Surrogate: 4-BFB (PID)                                                                                                  | "            | "             | "             | 75.0-125         |                 | 65.6   | "         | 1      |
| <b>MW-2 (18.5-20)</b> <span style="float:right"><b>P003298-08</b></span> <span style="float:right"><b>Soil</b></span>   |              |               |               |                  |                 |        |           |        |
| Benzene                                                                                                                 | 0300408      | 3/16/00       | 3/22/00       |                  | 0.0500          | 0.145  | mg/kg dry |        |
| Toluene                                                                                                                 | "            | "             | "             |                  | 0.0500          | ND     | "         |        |
| Ethylbenzene                                                                                                            | "            | "             | "             |                  | 0.0500          | 1.71   | "         |        |
| Xylenes (total)                                                                                                         | "            | "             | "             |                  | 0.0500          | 1.34   | "         |        |
| Naphthalene                                                                                                             | "            | "             | "             |                  | 0.0500          | 0.245  | "         | 2      |
| Gasoline Range Hydrocarbons                                                                                             | "            | "             | "             |                  | 2.50            | 17.7   | "         |        |
| Surrogate: 4-BFB (FID)                                                                                                  | "            | "             | "             | 50.0-150         |                 | 86.4   | %         |        |
| Surrogate: 4-BFB (PID)                                                                                                  | "            | "             | "             | 75.0-125         |                 | 81.8   | "         |        |

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\*Refer to end of report for text of notes and defin

  
Crystal Burkholder, Project Manager

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Page 3 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX/N per EPA Method 8021B  
 North Creek Analytical - Portland**

| Analyte                     | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-3 (2-3.5)</b>         |              |               |               | <b>P003298-09</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/22/00       |                   | 0.500           | ND     | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.500           | 2.05   | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.500           | 6.73   | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.500           | 42.4   | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.500           | 8.53   | "           | 2      |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 25.0            | 682    | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | NR     | %           | 4      |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | NR     | "           | 4      |
| <b>MW-3 (9.5-11)</b>        |              |               |               | <b>P003298-10</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/23/00       |                   | 0.200           | 6.83   | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.200           | 0.892  | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.200           | 5.82   | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.200           | 21.4   | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.200           | 1.00   | "           | 2      |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 10.0            | 103    | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 83.1   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 90.5   | "           |        |
| <b>MW-3 (14-15.5)</b>       |              |               |               | <b>P003298-11</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/22/00       |                   | 0.0500          | 1.35   | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | 2.67   | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | 1.93   | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | 9.67   | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | 0.808  | "           | 2      |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | 87.1   | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 113    | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 84.7   | "           |        |
| <b>MW-3 (18.5-20)</b>       |              |               |               | <b>P003298-12</b> |                 |        | <b>Soil</b> |        |
| Benzene                     | 0300408      | 3/16/00       | 3/22/00       |                   | 0.0500          | 2.15   | mg/kg dry   |        |
| Toluene                     | "            | "             | "             |                   | 0.0500          | 0.102  | "           |        |
| Ethylbenzene                | "            | "             | "             |                   | 0.0500          | 0.0662 | "           |        |
| Xylenes (total)             | "            | "             | "             |                   | 0.0500          | 0.395  | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 0.0500          | ND     | "           |        |
| Gasoline Range Hydrocarbons | "            | "             | "             |                   | 2.50            | 9.35   | "           |        |
| Surrogate: 4-BFB (FID)      | "            | "             | "             | 50.0-150          |                 | 65.9   | %           |        |
| Surrogate: 4-BFB (PID)      | "            | "             | "             | 75.0-125          |                 | 62.2   | "           | 1      |

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Page 4 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method**  
**North Creek Analytical - Portland**

| Analyte                       | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units          | Notes* |
|-------------------------------|--------------|---------------|---------------|------------------|-----------------|--------|----------------|--------|
| <b><u>MW-1 (3.5-5)</u></b>    |              |               |               |                  |                 |        |                |        |
| Diesel Range Organics         | 0300513      | 3/20/00       | 3/21/00       |                  | 25.0            | ND     | Soil mg/kg dry |        |
| Heavy Oil Range Hydrocarbons  | "            | "             | "             |                  | 50.0            | ND     | "              |        |
| Surrogate: 1-Chlorooctadecane | "            | "             | "             | 50.0-150         |                 | 77.0   | %              |        |
| <b><u>MW-1 (8-9.5)</u></b>    |              |               |               |                  |                 |        |                |        |
| Diesel Range Organics         | 0300513      | 3/20/00       | 3/21/00       |                  | 25.0            | ND     | Soil mg/kg dry |        |
| Heavy Oil Range Hydrocarbons  | "            | "             | "             |                  | 50.0            | ND     | "              |        |
| Surrogate: 1-Chlorooctadecane | "            | "             | "             | 50.0-150         |                 | 77.5   | %              |        |
| <b><u>MW-1 (9.5-11)</u></b>   |              |               |               |                  |                 |        |                |        |
| Diesel Range Organics         | 0300513      | 3/20/00       | 3/21/00       |                  | 25.0            | ND     | Soil mg/kg dry |        |
| Heavy Oil Range Hydrocarbons  | "            | "             | "             |                  | 50.0            | ND     | "              |        |
| Surrogate: 1-Chlorooctadecane | "            | "             | "             | 50.0-150         |                 | 80.0   | %              |        |
| <b><u>MW-1 (18.5-20)</u></b>  |              |               |               |                  |                 |        |                |        |
| Diesel Range Organics         | 0300513      | 3/20/00       | 3/21/00       |                  | 25.0            | ND     | Soil mg/kg dry |        |
| Heavy Oil Range Hydrocarbons  | "            | "             | "             |                  | 50.0            | ND     | "              |        |
| Surrogate: 1-Chlorooctadecane | "            | "             | "             | 50.0-150         |                 | 75.9   | %              |        |

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Page 5 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Total Metals per EPA 6000/7000 Series Methods**  
**North Creek Analytical - Portland**

| Analyte                 | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|-------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <u>MW-1 (3.5-5)</u>     |              |               |               | <u>P003298-01</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | 14.8   | mg/kg dry   |        |
| <u>MW-1 (8-9.5)</u>     |              |               |               | <u>P003298-02</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-1 (9.5-11)</u>    |              |               |               | <u>P003298-03</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | 10.5   | mg/kg dry   |        |
| <u>MW-1 (18.5-20)</u>   |              |               |               | <u>P003298-04</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-2 (3.5-5)</u>     |              |               |               | <u>P003298-05</u> |                 |        | <u>Soil</u> |        |
| ad                      | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-2 (6.5-8)</u>     |              |               |               | <u>P003298-06</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | 11.8   | mg/kg dry   |        |
| <u>MW-2 (14.5-15.5)</u> |              |               |               | <u>P003298-07</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-2 (18.5-20)</u>   |              |               |               | <u>P003298-08</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-3 (2-3.5)</u>     |              |               |               | <u>P003298-09</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | 10.7   | mg/kg dry   |        |
| <u>MW-3 (9.5-11)</u>    |              |               |               | <u>P003298-10</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | 10.7   | mg/kg dry   |        |
| <u>MW-3 (14-15.5)</u>   |              |               |               | <u>P003298-11</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |
| <u>MW-3 (18.5-20)</u>   |              |               |               | <u>P003298-12</u> |                 |        | <u>Soil</u> |        |
| Lead                    | 0300517      | 3/20/00       | 3/21/00       | EPA 6010A         | 10.0            | ND     | mg/kg dry   |        |

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Page 6 of 37



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| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Polychlorinated Biphenyls per EPA Method 8082  
North Creek Analytical - Portland**

| Analyte                                 | Batch Number | Date Prepared     | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units     | Notes* |
|-----------------------------------------|--------------|-------------------|---------------|------------------|-----------------|--------|-----------|--------|
| <b>MW-1 (3.5-5)</b>                     |              | <b>P003298-01</b> |               | <b>Soil</b>      |                 |        |           |        |
| Aroclor 1016                            | 0300504      | 3/20/00           | 3/21/00       |                  | 67.0            | ND     | ug/kg dry |        |
| Aroclor 1221                            | "            | "                 | "             |                  | 134             | ND     | "         |        |
| Aroclor 1232                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1242                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1248                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1254                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1260                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "            | "                 | "             | 63.0-119         |                 | 73.7   | %         |        |
| Surrogate: Decachlorobiphenyl           | "            | "                 | "             | 52.0-131         |                 | 74.2   | "         |        |
| <b>MW-1 (8-9.5)</b>                     |              | <b>P003298-02</b> |               | <b>Soil</b>      |                 |        |           |        |
| Aroclor 1016                            | 0300504      | 3/20/00           | 3/21/00       |                  | 67.0            | ND     | ug/kg dry |        |
| Aroclor 1221                            | "            | "                 | "             |                  | 134             | ND     | "         |        |
| Aroclor 1232                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1242                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1248                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1254                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1260                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "            | "                 | "             | 63.0-119         |                 | 69.2   | %         |        |
| Surrogate: Decachlorobiphenyl           | "            | "                 | "             | 52.0-131         |                 | 67.2   | "         |        |
| <b>MW-1 (9.5-11)</b>                    |              | <b>P003298-03</b> |               | <b>Soil</b>      |                 |        |           |        |
| Aroclor 1016                            | 0300504      | 3/20/00           | 3/21/00       |                  | 67.0            | ND     | ug/kg dry |        |
| Aroclor 1221                            | "            | "                 | "             |                  | 134             | ND     | "         |        |
| Aroclor 1232                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1242                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1248                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1254                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1260                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "            | "                 | "             | 63.0-119         |                 | 69.1   | %         |        |
| Surrogate: Decachlorobiphenyl           | "            | "                 | "             | 52.0-131         |                 | 66.7   | "         |        |
| <b>MW-1 (18.5-20)</b>                   |              | <b>P003298-04</b> |               | <b>Soil</b>      |                 |        |           |        |
| Aroclor 1016                            | 0300504      | 3/20/00           | 3/21/00       |                  | 67.0            | ND     | ug/kg dry |        |
| Aroclor 1221                            | "            | "                 | "             |                  | 134             | ND     | "         |        |
| Aroclor 1232                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1242                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |
| Aroclor 1248                            | "            | "                 | "             |                  | 67.0            | ND     | "         |        |

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Page 7 of 37



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Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Polychlorinated Biphenyls per EPA Method 8082**  
**North Creek Analytical - Portland**

| Analyte                                 | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|-----------------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (18.5-20) (continued)</b>       |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| Aroclor 1254                            | 0300504      | 3/20/00       | 3/21/00       |                   | 67.0            | ND     | ug/kg dry   |        |
| Aroclor 1260                            | "            | "             | "             |                   | 67.0            | ND     | "           |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "            | "             | "             | 63.0-119          |                 | 72.0   | %           |        |
| Surrogate: Decachlorobiphenyl           | "            | "             | "             | 52.0-131          |                 | 69.5   | "           |        |



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|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Selected Volatile Organic Compounds per EPA Method 8260B  
 North Creek Analytical - Portland**

| Analyte                         | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|---------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (3.5-5)</b>             |              |               |               | <b>P003298-01</b> |                 |        | <b>Soil</b> |        |
| 1,2-Dibromoethane               | 0300490      |               | 3/22/00       |                   | 50.0            | ND     | ug/kg dry   |        |
| 1,2-Dichloroethane              | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Benzene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Toluene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Ethylbenzene                    | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Xylenes (total)                 | "            | "             | "             |                   | 100             | ND     | "           |        |
| Methyl tert-butyl ether         | "            | "             | "             |                   | 200             | ND     | "           |        |
| Naphthalene                     | "            | "             | "             |                   | 200             | ND     | "           |        |
| Surrogate: 4-BFB                | "            | "             | "             | 70.0-130          |                 | 68.8   | %           | 1      |
| Surrogate: 1,2-DCA-d4           | "            | "             | "             | 70.0-130          |                 | 86.4   | "           |        |
| Surrogate: Dibromofluoromethane | "            | "             | "             | 70.0-130          |                 | 83.4   | "           |        |
| Surrogate: Toluene-d8           | "            | "             | "             | 70.0-130          |                 | 83.1   | "           |        |
| <b>MW-1 (8-9.5)</b>             |              |               |               | <b>P003298-02</b> |                 |        | <b>Soil</b> |        |
| 1,2-Dibromoethane               | 0300490      |               | 3/22/00       |                   | 50.0            | ND     | ug/kg dry   |        |
| 1,2-Dichloroethane              | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Benzene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Toluene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Ethylbenzene                    | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Xylenes (total)                 | "            | "             | "             |                   | 100             | ND     | "           |        |
| Methyl tert-butyl ether         | "            | "             | "             |                   | 200             | ND     | "           |        |
| Naphthalene                     | "            | "             | "             |                   | 200             | ND     | "           |        |
| Surrogate: 4-BFB                | "            | "             | "             | 70.0-130          |                 | 66.7   | %           | 1      |
| Surrogate: 1,2-DCA-d4           | "            | "             | "             | 70.0-130          |                 | 82.4   | "           |        |
| Surrogate: Dibromofluoromethane | "            | "             | "             | 70.0-130          |                 | 80.9   | "           |        |
| Surrogate: Toluene-d8           | "            | "             | "             | 70.0-130          |                 | 82.1   | "           |        |
| <b>MW-1 (9.5-11)</b>            |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| 1,2-Dibromoethane               | 0300490      |               | 3/22/00       |                   | 50.0            | ND     | ug/kg dry   |        |
| 1,2-Dichloroethane              | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Benzene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Toluene                         | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Ethylbenzene                    | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Xylenes (total)                 | "            | "             | "             |                   | 100             | ND     | "           |        |
| Methyl tert-butyl ether         | "            | "             | "             |                   | 200             | ND     | "           |        |
| Naphthalene                     | "            | "             | "             |                   | 200             | ND     | "           |        |
| Surrogate: 4-BFB                | "            | "             | "             | 70.0-130          |                 | 74.1   | %           |        |
| Surrogate: 1,2-DCA-d4           | "            | "             | "             | 70.0-130          |                 | 86.6   | "           |        |

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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

Selected Volatile Organic Compounds per EPA Method 8260B  
North Creek Analytical - Portland

| Analyte                          | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|----------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (9.5-11) (continued)</b> |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| Surrogate: Dibromofluoromethane  | 0300490      |               | 3/22/00       | 70.0-130          |                 | 83.0   | %           |        |
| Surrogate: Toluene-d8            | "            | "             | "             | 70.0-130          |                 | 77.1   | "           |        |
| <b>MW-1 (18.5-20)</b>            |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| 1,2-Dibromoethane                | 0300490      |               | 3/22/00       |                   | 50.0            | ND     | ug/kg dry   |        |
| 1,2-Dichloroethane               | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Benzene                          | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Toluene                          | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Ethylbenzene                     | "            | "             | "             |                   | 50.0            | ND     | "           |        |
| Xylenes (total)                  | "            | "             | "             |                   | 100             | ND     | "           |        |
| Methyl tert-butyl ether          | "            | "             | "             |                   | 200             | ND     | "           |        |
| Naphthalene                      | "            | "             | "             |                   | 200             | ND     | "           |        |
| Surrogate: 4-BFB                 | "            | "             | "             | 70.0-130          |                 | 68.8   | %           | 1      |
| Surrogate: 1,2-DCA-d4            | "            | "             | "             | 70.0-130          |                 | 88.5   | "           |        |
| Surrogate: Dibromofluoromethane  | "            | "             | "             | 70.0-130          |                 | 84.2   | "           |        |
| Surrogate: Toluene-d8            | "            | "             | "             | 70.0-130          |                 | 86.7   | "           |        |

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Page 10 of 37



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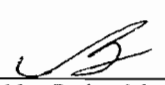
|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

| Analyte                     | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result | Units       | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (3.5-5)</b>         |              |               |               | <b>P003298-01</b> |                 |        | <b>Soil</b> |        |
| 1-Methylnaphthalene         | 0300402      | 3/15/00       | 3/21/00       |                   | 13.4            | ND     | ug/kg dry   | 5      |
| 2-Methylnaphthalene         | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Acenaphthene                | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Acenaphthylene              | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Anthracene                  | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (a) anthracene        | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (a) pyrene            | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (b) fluoranthene      | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (ghi) perylene        | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (k) fluoranthene      | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Chrysene                    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Dibenzo (a,h) anthracene    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Fluoranthene                | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Fluorene                    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Indeno (1,2,3-cd) pyrene    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Naphthalene                 | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Phenanthrene                | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Pyrene                      | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Surrogate: 2-Fluorobiphenyl | "            | "             | "             | 48.0-138          |                 | 63.4   | %           |        |
| Surrogate: Nitrobenzene-d5  | "            | "             | "             | 50.0-132          |                 | 56.7   | "           |        |
| Surrogate: p-Terphenyl-d14  | "            | "             | "             | 58.0-143          |                 | 73.8   | "           |        |
| <b>MW-1 (8-9.5)</b>         |              |               |               | <b>P003298-02</b> |                 |        | <b>Soil</b> |        |
| 1-Methylnaphthalene         | 0300433      | 3/16/00       | 3/21/00       |                   | 13.4            | ND     | ug/kg dry   | 5      |
| 2-Methylnaphthalene         | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Acenaphthene                | "            | "             | 3/22/00       |                   | 13.4            | ND     | "           |        |
| Acenaphthylene              | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Anthracene                  | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (a) anthracene        | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (a) pyrene            | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (b) fluoranthene      | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (ghi) perylene        | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Benzo (k) fluoranthene      | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Chrysene                    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Dibenzo (a,h) anthracene    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Fluoranthene                | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Fluorene                    | "            | "             | "             |                   | 13.4            | ND     | "           |        |
| Indeno (1,2,3-cd) pyrene    | "            | "             | "             |                   | 13.4            | ND     | "           |        |

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Page 11 of 37



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IT Corporation - Portland  
 P.O. Box 231269  
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Project: ARCO #0855, Longview, WA  
 Project Number: 25482 00  
 Project Manager: Cary Goodman

Sampled: 3/9/00  
 Received: 3/15/00  
 Reported: 3/30/00 08:50

Polynuclear Aromatic Compounds per EPA 8270M-SIM  
 North Creek Analytical - Portland

| Analyte                         | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits  | Reporting Limit | Result      | Units     | Notes* |
|---------------------------------|--------------|---------------|---------------|-------------------|-----------------|-------------|-----------|--------|
| <b>MW-1 (8-9.5) (continued)</b> |              |               |               | <b>P003298-02</b> |                 | <b>Soil</b> |           |        |
| Naphthalene                     | 0300433      | 3/16/00       | 3/22/00       |                   | 13.4            | ND          | ug/kg dry |        |
| Phenanthrene                    | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Pyrene                          | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Surrogate: 2-Fluorobiphenyl     | "            | "             | "             | 48.0-138          |                 | 77.0        | %         |        |
| Surrogate: Nitrobenzene-d5      | "            | "             | "             | 50.0-132          |                 | 100         | "         |        |
| Surrogate: p-Terphenyl-d14      | "            | "             | "             | 58.0-143          |                 | 84.4        | "         |        |
| <b>MW-1 (9.5-11)</b>            |              |               |               | <b>P003298-03</b> |                 | <b>Soil</b> |           |        |
| 1-Methylnaphthalene             | 0300402      | 3/15/00       | 3/21/00       |                   | 13.4            | ND          | ug/kg dry | 5      |
| 2-Methylnaphthalene             | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Acenaphthene                    | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Acenaphthylene                  | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| thracene                        | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| lizo (a) anthracene             | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (a) pyrene                | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (b) fluoranthene          | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (ghi) perylene            | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (k) fluoranthene          | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Chrysene                        | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Dibenzo (a,h) anthracene        | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Fluoranthene                    | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Fluorene                        | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Indeno (1,2,3-cd) pyrene        | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Naphthalene                     | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Phenanthrene                    | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Pyrene                          | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Surrogate: 2-Fluorobiphenyl     | "            | "             | "             | 48.0-138          |                 | 59.7        | %         |        |
| Surrogate: Nitrobenzene-d5      | "            | "             | "             | 50.0-132          |                 | 51.1        | "         |        |
| Surrogate: p-Terphenyl-d14      | "            | "             | "             | 58.0-143          |                 | 69.4        | "         |        |
| <b>MW-1 (18.5-20)</b>           |              |               |               | <b>P003298-04</b> |                 | <b>Soil</b> |           |        |
| 1-Methylnaphthalene             | 0300402      | 3/15/00       | 3/21/00       |                   | 13.4            | ND          | ug/kg dry | 5      |
| 2-Methylnaphthalene             | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Acenaphthene                    | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Acenaphthylene                  | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Anthracene                      | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (a) anthracene            | "            | "             | "             |                   | 13.4            | ND          | "         |        |
| Benzo (a) pyrene                | "            | "             | "             |                   | 13.4            | ND          | "         |        |

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Crystal Burkholder, Project Manager

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Page 12 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Polynuclear Aromatic Compounds per EPA 8270M-SIM**  
**North Creek Analytical - Portland**

| Analyte                           | Batch<br>Number | Date<br>Prepared  | Date<br>Analyzed | Surrogate<br>Limits | Reporting<br>Limit | Result | Units     | Notes* |
|-----------------------------------|-----------------|-------------------|------------------|---------------------|--------------------|--------|-----------|--------|
| <b>MW-1 (18,5-20) (continued)</b> |                 | <b>P003298-04</b> |                  | <b>Soil</b>         |                    |        |           |        |
| Benzo (b) fluoranthene            | 0300402         | 3/15/00           | 3/21/00          |                     | 13.4               | ND     | ug/kg dry |        |
| Benzo (ghi) perylene              | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Benzo (k) fluoranthene            | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Chrysene                          | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Dibenzo (a,h) anthracene          | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Fluoranthene                      | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Fluorene                          | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Indeno (1,2,3-cd) pyrene          | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Naphthalene                       | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Phenanthrene                      | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Pyrene                            | "               | "                 | "                |                     | 13.4               | ND     | "         |        |
| Surrogate: 2-Fluorobiphenyl       | "               | "                 | "                | 48.0-138            |                    | 44.7   | %         | 1      |
| Surrogate: Nitrobenzene-d5        | "               | "                 | "                | 50.0-132            |                    | 40.9   | "         | 1      |
| Surrogate: p-Terphenyl-d14        | "               | "                 | "                | 58.0-143            |                    | 57.7   | "         | 1      |

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Page 13 of 37



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method  
North Creek Analytical - Bothell**

| Analyte                           | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|-----------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (18.5-20) (continued)</b> |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| C10-C12 Aromatics                 | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C12-C13 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID)            | "            | "             | "             | 60-140            |                 | 81.1   | %           |        |
| Surrogate: 4-BFB (PID)            | "            | "             | "             | 60-140            |                 | 102    | "           |        |
| <b>MW-2 (3.5-5)</b>               |              |               |               | <b>P003298-05</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics                  | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics                  | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics                | "            | "             | "             | WA MTCA-VPH       | 5.00            | 7.71   | "           |        |
| C8-C10 Aromatics                  | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | 6.61   | "           |        |
| Surrogate: 4-BFB (FID)            | "            | "             | "             | 60-140            |                 | 91.3   | %           |        |
| Surrogate: 4-BFB (PID)            | "            | "             | "             | 60-140            |                 | 111    | "           |        |
| <b>MW-2 (6.5-8)</b>               |              |               |               | <b>P003298-06</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics                  | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 250             | 413    | mg/kg dry   |        |
| C6-C8 Aliphatics                  | "            | "             | "             | WA MTCA-VPH       | 250             | 1460   | "           |        |
| C8-C10 Aliphatics                 | "            | "             | "             | WA MTCA-VPH       | 250             | 832    | "           |        |
| C10-C12 Aliphatics                | "            | "             | 3/21/00       | WA MTCA-VPH       | 250             | 826    | "           |        |
| C8-C10 Aromatics                  | "            | "             | 3/20/00       | WA MTCA-VPH       | 250             | 639    | "           |        |
| C10-C12 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 250             | 620    | "           |        |
| C12-C13 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 250             | 756    | "           |        |
| Surrogate: 4-BFB (FID)            | "            | "             | "             | 60-140            |                 | NR     | %           | 1      |
| Surrogate: 4-BFB (PID)            | "            | "             | "             | 60-140            |                 | NR     | "           | 1      |
| <b>MW-2 (14.5-15.5)</b>           |              |               |               | <b>P003298-07</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics                  | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics                  | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics                | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics                  | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics                 | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID)            | "            | "             | "             | 60-140            |                 | 81.0   | %           |        |
| Surrogate: 4-BFB (PID)            | "            | "             | "             | 60-140            |                 | 96.8   | "           |        |

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Page 15 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method  
 North Creek Analytical - Bothell**

| Analyte                | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (3.5-5)</b>    |              |               |               | <b>P003298-01</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | "             | 60-140            |                 | 98.7   | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 112    | "           |        |
| <b>MW-1 (8-9.5)</b>    |              |               |               | <b>P003298-02</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C8 Aliphatics          | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10 Aliphatics         | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | "             | 60-140            |                 | 83.5   | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 101    | "           |        |
| <b>MW-1 (9.5-11)</b>   |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | "             | 60-140            |                 | 84.2   | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 105    | "           |        |
| <b>MW-1 (18.5-20)</b>  |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |

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\*Refer to end of report for text of notes and definitions.

Crystal Burkholder, Project Manager

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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method  
North Creek Analytical - Bothell**

| Analyte                | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-2 (18.5-20)</b>  |              |               |               | <b>P003298-08</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aromatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | 5.40   | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C12-C13 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | "             | 60-140            |                 | 81.3   | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 96.9   | "           |        |
| <b>MW-3 (2-3.5)</b>    |              |               |               | <b>P003298-09</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/20/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C8 Aliphatics          | "            | "             | "             | WA MTCA-VPH       | 5.00            | 22.0   | "           |        |
| C10 Aliphatics         | "            | "             | "             | WA MTCA-VPH       | 5.00            | 45.4   | "           |        |
| C10-C12 Aliphatics     | "            | "             | 3/21/00       | WA MTCA-VPH       | 100             | 171    | "           |        |
| C8-C10 Aromatics       | "            | "             | 3/20/00       | WA MTCA-VPH       | 5.00            | 13.0   | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | 65.4   | "           |        |
| C12-C13 Aromatics      | "            | "             | 3/21/00       | WA MTCA-VPH       | 250             | 24300  | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | 3/20/00       | 60-140            |                 | 101    | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 77.5   | "           |        |
| <b>MW-3 (9.5-11)</b>   |              |               |               | <b>P003298-10</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/21/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | 9.22   | "           |        |
| C10-C12 Aliphatics     | "            | "             | 3/22/00       | WA MTCA-VPH       | 10.0            | 21.1   | "           |        |
| C8-C10 Aromatics       | "            | "             | 3/21/00       | WA MTCA-VPH       | 5.00            | 39.9   | "           |        |
| C10-C12 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | 28.5   | "           |        |
| C12-C13 Aromatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | 14.0   | "           |        |
| Surrogate: 4-BFB (FID) | "            | "             | "             | 60-140            |                 | 78.6   | %           |        |
| Surrogate: 4-BFB (PID) | "            | "             | "             | 60-140            |                 | 91.1   | "           |        |
| <b>MW-3 (14-15.5)</b>  |              |               |               | <b>P003298-11</b> |                 |        | <b>Soil</b> |        |
| C5-C6 Aliphatics       | 0C18006      | 3/18/00       | 3/21/00       | WA MTCA-VPH       | 5.00            | ND     | mg/kg dry   |        |
| C6-C8 Aliphatics       | "            | "             | "             | WA MTCA-VPH       | 5.00            | 7.20   | "           |        |
| C8-C10 Aliphatics      | "            | "             | "             | WA MTCA-VPH       | 5.00            | ND     | "           |        |
| C10-C12 Aliphatics     | "            | "             | 3/22/00       | WA MTCA-VPH       | 10.0            | 15.7   | "           |        |
| C8-C10 Aromatics       | "            | "             | 3/21/00       | WA MTCA-VPH       | 5.00            | 18.0   | "           |        |

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\*Refer to end of report for text of notes and definitions.

Crystal Burkholder, Project Manager

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Page 16 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

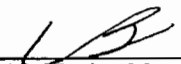
Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method**  
**North Creek Analytical - Bothell**

| Analyte                           | Batch Number | Date Prepared     | Date Analyzed | Specific Method | Reporting Limit | Result | Units     | Notes* |
|-----------------------------------|--------------|-------------------|---------------|-----------------|-----------------|--------|-----------|--------|
| <b>MW-3 (14-15.5) (continued)</b> |              | <b>P003298-11</b> |               | <b>Soil</b>     |                 |        |           |        |
| C10-C12 Aromatics                 | 0C18006      | 3/18/00           | 3/21/00       | WA MTCA-VPH     | 5.00            | 13.0   | mg/kg dry |        |
| C12-C13 Aromatics                 | "            | "                 | "             | WA MTCA-VPH     | 5.00            | 10.6   | "         |        |
| Surrogate: 4-BFB (FID)            | "            | "                 | "             | 60-140          |                 | 79.2   | %         |        |
| Surrogate: 4-BFB (PID)            | "            | "                 | "             | 60-140          |                 | 94.9   | "         |        |
| <b>MW-3 (18.5-20)</b>             |              | <b>P003298-12</b> |               | <b>Soil</b>     |                 |        |           |        |
| C5-C6 Aliphatics                  | 0C18006      | 3/18/00           | 3/21/00       | WA MTCA-VPH     | 5.00            | ND     | mg/kg dry |        |
| C6-C8 Aliphatics                  | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| C8-C10 Aliphatics                 | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| C10-C12 Aliphatics                | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| C8-C10 Aromatics                  | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| C10-C12 Aromatics                 | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| C12-C13 Aromatics                 | "            | "                 | "             | WA MTCA-VPH     | 5.00            | ND     | "         |        |
| Surrogate: 4-BFB (FID)            | "            | "                 | "             | 60-140          |                 | 72.7   | %         |        |
| Surrogate: 4-BFB (PID)            | "            | "                 | "             | 60-140          |                 | 89.2   | "         |        |

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\*Refer to end of report for text of notes and definitions

  
Crystal Burkholder, Project Manager

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Page 17 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Extractable Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method**  
**North Creek Analytical - Bothell**

| Analyte                                   | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|-------------------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (3.5-5)</b>                       |              |               |               | <b>P003298-01</b> |                 |        | <b>Soil</b> |        |
| C8-C10 Aliphatics                         | 0C20038      | 3/20/00       | 3/22/00       | WA MTCA-EPH       | 5.00            | ND     | mg/kg dry   |        |
| C10-C12 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | 8.12   | "           |        |
| C10-C12 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | 5.24   | "           |        |
| <b>Extractable Petroleum Hydrocarbons</b> | "            | "             | "             | WA MTCA-EPH       |                 | 13.4   | "           |        |
| Surrogate: 2-FBP                          | "            | "             | "             | 50-150            |                 | 64.5   | %           |        |
| Surrogate: Octacosane                     | "            | "             | "             | 50-150            |                 | 62.8   | "           |        |
| Surrogate: Undecane                       | "            | "             | "             | 30-150            |                 | 50.7   | "           |        |
| <b>MW-1 (8-9.5)</b>                       |              |               |               | <b>P003298-02</b> |                 |        | <b>Soil</b> |        |
| C8-C10 Aliphatics                         | 0C20038      | 3/20/00       | 3/22/00       | WA MTCA-EPH       | 5.00            | ND     | mg/kg dry   |        |
| C10-C12 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| <b>Extractable Petroleum Hydrocarbons</b> | "            | "             | "             | WA MTCA-EPH       |                 | 0      | "           |        |
| Surrogate: 2-FBP                          | "            | "             | "             | 50-150            |                 | 72.6   | %           |        |
| Surrogate: Octacosane                     | "            | "             | "             | 50-150            |                 | 67.0   | "           |        |
| Surrogate: Undecane                       | "            | "             | "             | 30-150            |                 | 54.1   | "           |        |
| <b>MW-1 (9.5-11)</b>                      |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| C8-C10 Aliphatics                         | 0C20038      | 3/20/00       | 3/22/00       | WA MTCA-EPH       | 5.00            | ND     | mg/kg dry   |        |
| C10-C12 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aliphatics                        | "            | "             | "             | WA MTCA-EPH       | 5.00            | 5.46   | "           |        |
| C10-C12 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aromatics                         | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |

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\*Refer to end of report for text of notes and definitions.

Crystal Burkholder, Project Manager

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Page 18 of 37



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Extractable Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method  
 North Creek Analytical - Bothell**

| Analyte                            | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|------------------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <b>MW-1 (9.5-11) (continued)</b>   |              |               |               | <b>P003298-03</b> |                 |        | <b>Soil</b> |        |
| C21-C34 Aromatics                  | 0C20038      | 3/20/00       | 3/22/00       | WA MTCA-EPH       | 5.00            | ND     | mg/kg dry   |        |
| Extractable Petroleum Hydrocarbons | "            | "             | "             | WA MTCA-EPH       |                 | 5.46   | "           |        |
| Surrogate: 2-FBP                   | "            | "             | "             | 50-150            |                 | 69.6   | %           |        |
| Surrogate: Octacosane              | "            | "             | "             | 50-150            |                 | 72.0   | "           |        |
| Surrogate: Undecane                | "            | "             | "             | 30-150            |                 | 55.7   | "           |        |
| <b>MW-1 (18.5-20)</b>              |              |               |               | <b>P003298-04</b> |                 |        | <b>Soil</b> |        |
| C8-C10 Aliphatics                  | 0C20038      | 3/20/00       | 3/22/00       | WA MTCA-EPH       | 5.00            | ND     | mg/kg dry   |        |
| C10-C12 Aliphatics                 | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aliphatics                 | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aliphatics                 | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aliphatics                 | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C10-C12 Aromatics                  | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C12-C16 Aromatics                  | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C16-C21 Aromatics                  | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| C21-C34 Aromatics                  | "            | "             | "             | WA MTCA-EPH       | 5.00            | ND     | "           |        |
| Extractable Petroleum Hydrocarbons | "            | "             | "             | WA MTCA-EPH       |                 | 0      | "           |        |
| Surrogate: 2-FBP                   | "            | "             | "             | 50-150            |                 | 80.5   | %           |        |
| Surrogate: Octacosane              | "            | "             | "             | 50-150            |                 | 72.3   | "           |        |
| Surrogate: Undecane                | "            | "             | "             | 30-150            |                 | 60.8   | "           |        |

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\*Refer to end of report for text of notes and defin

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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

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

| Analyte                 | Batch Number | Date Prepared | Date Analyzed | Specific Method   | Reporting Limit | Result | Units       | Notes* |
|-------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|-------------|--------|
| <u>MW-1 (3.5-5)</u>     |              |               |               | <u>P003298-01</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 59.4   | %           |        |
| <u>MW-1 (8-9.5)</u>     |              |               |               | <u>P003298-02</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 63.3   | %           |        |
| <u>MW-1 (9.5-11)</u>    |              |               |               | <u>P003298-03</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 58.2   | %           |        |
| <u>MW-1 (18.5-20)</u>   |              |               |               | <u>P003298-04</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 71.2   | %           |        |
| <u>MW-2 (3.5-5)</u>     |              |               |               | <u>P003298-05</u> |                 |        | <u>Soil</u> |        |
| Weight                  | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 93.7   | %           |        |
| <u>MW-2 (6.5-8)</u>     |              |               |               | <u>P003298-06</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 79.4   | %           |        |
| <u>MW-2 (14.5-15.5)</u> |              |               |               | <u>P003298-07</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 71.5   | %           |        |
| <u>MW-2 (18.5-20)</u>   |              |               |               | <u>P003298-08</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 72.7   | %           |        |
| <u>MW-3 (2-3.5)</u>     |              |               |               | <u>P003298-09</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 86.3   | %           |        |
| <u>MW-3 (9.5-11)</u>    |              |               |               | <u>P003298-10</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 60.1   | %           |        |
| <u>MW-3 (14-15.5)</u>   |              |               |               | <u>P003298-11</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 67.5   | %           |        |
| <u>MW-3 (18.5-20)</u>   |              |               |               | <u>P003298-12</u> |                 |        | <u>Soil</u> |        |
| Dry Weight              | 0C21033      | 3/21/00       | 3/22/00       | BSOPSPL003R07     | 1.00            | 68.6   | %           |        |

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IT Corporation - Portland  
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Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Dry Weight Determination  
North Creek Analytical - Bothell**

| Sample Name      | Lab ID     | Matrix | Result | Units |
|------------------|------------|--------|--------|-------|
| MW-1 (3.5-5)     | P003298-01 | Soil   | 59.40  | %     |
| MW-1 (8-9.5)     | P003298-02 | Soil   | 63.33  | %     |
| MW-1 (9.5-11)    | P003298-03 | Soil   | 58.18  | %     |
| MW-1 (18.5-20)   | P003298-04 | Soil   | 71.21  | %     |
| MW-2 (3.5-5)     | P003298-05 | Soil   | 93.70  | %     |
| MW-2 (6.5-8)     | P003298-06 | Soil   | 79.42  | %     |
| MW-2 (14.5-15.5) | P003298-07 | Soil   | 71.51  | %     |
| MW-2 (18.5-20)   | P003298-08 | Soil   | 72.69  | %     |
| MW-3 (2-3.5)     | P003298-09 | Soil   | 86.33  | %     |
| MW-3 (9.5-11)    | P003298-10 | Soil   | 60.11  | %     |
| MW-3 (14-15.5)   | P003298-11 | Soil   | 67.52  | %     |
| MW-3 (18.5-20)   | P003298-12 | Soil   | 68.58  | %     |

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Page 21 of 37



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Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Dry Weight Determination  
North Creek Analytical - Portland**

| Sample Name      | Lab ID     | Matrix | Result | Units |
|------------------|------------|--------|--------|-------|
| MW-1 (3.5-5)     | P003298-01 | Soil   | 59.3   | %     |
| MW-1 (8-9.5)     | P003298-02 | Soil   | 61.8   | %     |
| MW-1 (9.5-11)    | P003298-03 | Soil   | 59.6   | %     |
| MW-1 (18.5-20)   | P003298-04 | Soil   | 71.7   | %     |
| MW-2 (3.5-5)     | P003298-05 | Soil   | 87.6   | %     |
| MW-2 (6.5-8)     | P003298-06 | Soil   | 86.2   | %     |
| MW-2 (14.5-15.5) | P003298-07 | Soil   | 68.4   | %     |
| MW-2 (18.5-20)   | P003298-08 | Soil   | 71.1   | %     |
| MW-3 (2-3.5)     | P003298-09 | Soil   | 86.2   | %     |
| MW-3 (9.5-11)    | P003298-10 | Soil   | 62.2   | %     |
| MW-3 (14-15.5)   | P003298-11 | Soil   | 68.3   | %     |
| MW-3 (18.5-20)   | P003298-12 | Soil   | 67.6   | %     |

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Crystal Burkholder, Project Manager

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Project: ARCO #0855, Longview, WA  
 Project Number: 25482 00  
 Project Manager: Cary Goodman

Sampled: 3/9/00  
 Received: 3/15/00  
 Reported: 3/30/00 08:50

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX/N per EPA Method 8021B/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                        | Date Analyzed | Spike Level | Sample Result | QC Result | Units     | Reporting Limit Recov. Limits | Recov. % | RPD Limit | RPD % | Notes* |
|--------------------------------|---------------|-------------|---------------|-----------|-----------|-------------------------------|----------|-----------|-------|--------|
| <b>Batch: 0300408</b>          |               |             |               |           |           |                               |          |           |       |        |
| <b>Blank</b>                   |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-BLK1</b>            |               |             |               |           |           |                               |          |           |       |        |
| Benzene                        | 3/21/00       |             |               | ND        | mg/kg dry | 0.0500                        |          |           |       |        |
| Toluene                        | "             |             |               | ND        | "         | 0.0500                        |          |           |       |        |
| Ethylbenzene                   | "             |             |               | ND        | "         | 0.0500                        |          |           |       |        |
| Xylenes (total)                | "             |             |               | ND        | "         | 0.0500                        |          |           |       |        |
| Naphthalene                    | "             |             |               | ND        | "         | 0.0500                        |          |           |       |        |
| Gasoline Range Hydrocarbons    | "             |             |               | ND        | "         | 2.50                          |          |           |       |        |
| Surrogate: 4-BFB (FID)         | "             | 1.25        |               | 1.29      | "         | 50.0-150                      | 103      |           |       |        |
| Surrogate: 4-BFB (PID)         | "             | 1.25        |               | 1.53      | "         | 75.0-125                      | 122      |           |       |        |
| <b>LCS</b>                     |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-BS1</b>             |               |             |               |           |           |                               |          |           |       |        |
| Gasoline Range Hydrocarbons    | 3/23/00       | 31.3        |               | 27.8      | mg/kg dry | 50.0-150                      | 88.8     |           |       |        |
| Surrogate: 4-BFB (FID)         | "             | 1.25        |               | 1.38      | "         | 50.0-150                      | 110      |           |       |        |
| <b>LCS</b>                     |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-BS2</b>             |               |             |               |           |           |                               |          |           |       |        |
| Benzene                        | 3/21/00       | 0.500       |               | 0.505     | mg/kg dry | 65.0-130                      | 101      |           |       |        |
| Toluene                        | "             | 0.500       |               | 0.493     | "         | 65.0-130                      | 98.6     |           |       |        |
| Ethylbenzene                   | "             | 0.500       |               | 0.520     | "         | 65.0-130                      | 104      |           |       |        |
| Xylenes (total)                | "             | 1.50        |               | 1.56      | "         | 65.0-130                      | 104      |           |       |        |
| Surrogate: 4-BFB (PID)         | "             | 1.25        |               | 1.39      | "         | 75.0-125                      | 111      |           |       |        |
| <b>Duplicate</b>               |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-DUP1 P003298-02</b> |               |             |               |           |           |                               |          |           |       |        |
| Gasoline Range Hydrocarbons    | 3/21/00       |             | ND            | ND        | mg/kg dry |                               |          | 50.0      |       |        |
| Surrogate: 4-BFB (FID)         | "             | 2.02        |               | 1.23      | "         | 50.0-150                      | 60.9     |           |       |        |
| <b>Duplicate</b>               |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-DUP2 P003298-03</b> |               |             |               |           |           |                               |          |           |       |        |
| Gasoline Range Hydrocarbons    | 3/21/00       |             | ND            | ND        | mg/kg dry |                               |          | 50.0      |       |        |
| Surrogate: 4-BFB (FID)         | "             | 2.10        |               | 1.59      | "         | 50.0-150                      | 75.7     |           |       |        |
| <b>Matrix Spike</b>            |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-MS1 P003298-01</b>  |               |             |               |           |           |                               |          |           |       |        |
| Benzene                        | 3/21/00       | 0.843       | ND            | 0.460     | mg/kg dry | 65.0-130                      | 54.6     |           |       | 6      |
| Toluene                        | "             | 0.843       | ND            | 0.531     | "         | 65.0-130                      | 63.0     |           |       | 6      |
| Ethylbenzene                   | "             | 0.843       | ND            | 0.666     | "         | 65.0-130                      | 79.0     |           |       |        |
| Xylenes (total)                | "             | 2.53        | ND            | 1.98      | "         | 65.0-130                      | 78.3     |           |       |        |
| Surrogate: 4-BFB (PID)         | "             | 2.11        |               | 1.59      | "         | 75.0-125                      | 75.4     |           |       |        |
| <b>Matrix Spike Dup</b>        |               |             |               |           |           |                               |          |           |       |        |
| <b>0300408-MSD1 P003298-01</b> |               |             |               |           |           |                               |          |           |       |        |
| Benzene                        | 3/21/00       | 0.843       | ND            | 0.325     | mg/kg dry | 65.0-130                      | 38.6     | 20.0      | 34.3  | 6      |

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Page 23 of 37



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IT Corporation - Portland  
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Project: ARCO #0855, Longview, WA  
 Project Number: 25482 00  
 Project Manager: Cary Goodman

Sampled: 3/9/00  
 Received: 3/15/00  
 Reported: 3/30/00 08:50

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX/N per EPA Method 8021B/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                             | Date Analyzed       | Spike Level       | Sample Result | QC Result | Units     | Reporting Limit<br>Recov. Limits | Recov.<br>% | RPD<br>Limit | RPD<br>% | Notes* |
|-------------------------------------|---------------------|-------------------|---------------|-----------|-----------|----------------------------------|-------------|--------------|----------|--------|
| <b>Matrix Spike Dup (continued)</b> | <b>0300408-MSD1</b> | <b>P003298-01</b> |               |           |           |                                  |             |              |          |        |
| Toluene                             | 3/21/00             | 0.843             | ND            | 0.392     | mg/kg dry | 65.0-130                         | 46.5        | 20.0         | 30.1     | 6      |
| Ethylbenzene                        | "                   | 0.843             | ND            | 0.481     | "         | 65.0-130                         | 57.1        | 20.0         | 32.2     | 6      |
| Xylenes (total)                     | "                   | 2.53              | ND            | 1.44      | "         | 65.0-130                         | 56.9        | 20.0         | 31.7     | 6      |
| Surrogate: 4-BFB (PID)              | "                   | 2.11              |               | 1.41      | "         | 75.0-125                         | 66.8        |              |          | 1      |

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Page 24 of 37



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                                    | Date Analyzed | Spike Level | Sample Result | QC Result | Reporting Limit Units | Recov. Limits | Recov. % | RPD Limit | RPD % | Notes* |
|--------------------------------------------|---------------|-------------|---------------|-----------|-----------------------|---------------|----------|-----------|-------|--------|
| <b>Batch: 0300513</b>                      |               |             |               |           |                       |               |          |           |       |        |
| <b>Blank</b>                               |               |             |               |           |                       |               |          |           |       |        |
| <b>Date Prepared: 3/20/00</b>              |               |             |               |           |                       |               |          |           |       |        |
| <b>0300513-BLK1</b>                        |               |             |               |           |                       |               |          |           |       |        |
| <b>Extraction Method: TPH-D Extraction</b> |               |             |               |           |                       |               |          |           |       |        |
| Diesel Range Organics                      | 3/20/00       |             |               | ND        | mg/kg dry             | 25.0          |          |           |       |        |
| Heavy Oil Range Hydrocarbons               | "             |             |               | ND        | "                     | 50.0          |          |           |       |        |
| Surrogate: 1-Chlorooctadecane              | "             | 5.00        |               | 4.50      | "                     | 50.0-150      | 90.0     |           |       |        |
| <b>LCS</b>                                 |               |             |               |           |                       |               |          |           |       |        |
| <b>0300513-BS1</b>                         |               |             |               |           |                       |               |          |           |       |        |
| Diesel Range Organics                      | 3/21/00       | 127         |               | 134       | mg/kg dry             | 50.0-150      | 106      |           |       |        |
| Heavy Oil Range Hydrocarbons               | "             | 65.9        |               | 58.5      | "                     | 50.0-150      | 88.8     |           |       |        |
| Surrogate: 1-Chlorooctadecane              | "             | 5.00        |               | 5.53      | "                     | 50.0-150      | 111      |           |       |        |
| <b>Duplicate</b>                           |               |             |               |           |                       |               |          |           |       |        |
| <b>0300513-DUP1 P003277-01</b>             |               |             |               |           |                       |               |          |           |       |        |
| Diesel Range Organics                      | 3/21/00       |             | ND            | ND        | mg/kg dry             |               |          | 50.0      |       |        |
| Heavy Oil Range Hydrocarbons               | "             |             | 88.8          | 109       | "                     |               |          | 50.0      | 20.4  |        |
| Surrogate: 1-Chlorooctadecane              | "             | 6.02        |               | 6.32      | "                     | 50.0-150      | 105      |           |       |        |
| <b>Duplicate</b>                           |               |             |               |           |                       |               |          |           |       |        |
| <b>0300513-DUP2 P003364-01</b>             |               |             |               |           |                       |               |          |           |       |        |
| Diesel Range Organics                      | 3/21/00       |             | ND            | ND        | mg/kg dry             |               |          | 50.0      |       |        |
| Heavy Oil Range Hydrocarbons               | "             |             | 51.1          | ND        | "                     |               |          | 50.0      |       | 7      |
| Surrogate: 1-Chlorooctadecane              | "             | 5.50        |               | 5.28      | "                     | 50.0-150      | 96.0     |           |       |        |



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Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

Total Metals per EPA 6000/7000 Series Methods/Quality Control  
North Creek Analytical - Portland

| Analyte               | Date Analyzed | Spike Level | Sample Result      | QC Result | Units     | Reporting Limit<br>Recov. Limits | Recov.<br>% | RPD<br>Limit | RPD<br>% | Notes* |
|-----------------------|---------------|-------------|--------------------|-----------|-----------|----------------------------------|-------------|--------------|----------|--------|
| <b>Batch: 0300517</b> |               |             |                    |           |           |                                  |             |              |          |        |
| <b>Blank</b>          |               |             |                    |           |           |                                  |             |              |          |        |
| Lead                  | 3/21/00       |             |                    | ND        | mg/kg dry | 10.0                             |             |              |          |        |
| <b>LCS</b>            |               |             |                    |           |           |                                  |             |              |          |        |
| Lead                  | 3/21/00       | 100         |                    | 95.5      | mg/kg dry | 80.0-120                         | 95.5        |              |          |        |
| <b>Duplicate</b>      |               |             |                    |           |           |                                  |             |              |          |        |
| Lead                  | 3/21/00       |             | P003316-02<br>ND   | ND        | mg/kg dry |                                  |             | 40.0         |          |        |
| <b>Matrix Spike</b>   |               |             |                    |           |           |                                  |             |              |          |        |
| Lead                  | 3/21/00       | 128         | P003316-02<br>ND   | 128       | mg/kg dry | 75.0-125                         | 100         |              |          |        |
| <b>Matrix Spike</b>   |               |             |                    |           |           |                                  |             |              |          |        |
| Lead                  | 3/21/00       | 112         | P003298-06<br>11.8 | 112       | mg/kg dry | 75.0-125                         | 89.5        |              |          |        |

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\*Refer to end of report for text of notes and definitions.

  
Crystal Burkholder, Project Manager

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Page 26 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

**Polychlorinated Biphenyls per EPA Method 8082/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                                 | Date Analyzed | Spike Level | Sample Result | QC Result | Reporting Limit Units | Recov. Limits | Recov. % | RPD Limit | RPD % | Notes* |
|-----------------------------------------|---------------|-------------|---------------|-----------|-----------------------|---------------|----------|-----------|-------|--------|
| <b>Batch: 0300504</b>                   |               |             |               |           |                       |               |          |           |       |        |
| <b>Blank</b>                            |               |             |               |           |                       |               |          |           |       |        |
| <b>Date Prepared: 3/20/00</b>           |               |             |               |           |                       |               |          |           |       |        |
| <b>0300504-BLK1</b>                     |               |             |               |           |                       |               |          |           |       |        |
| <b>Extraction Method: EPA 3550</b>      |               |             |               |           |                       |               |          |           |       |        |
| Aroclor 1016                            | 3/21/00       |             |               | ND        | ug/kg dry             | 67.0          |          |           |       |        |
| Aroclor 1221                            | "             |             |               | ND        | "                     | 134           |          |           |       |        |
| Aroclor 1232                            | "             |             |               | ND        | "                     | 67.0          |          |           |       |        |
| Aroclor 1242                            | "             |             |               | ND        | "                     | 67.0          |          |           |       |        |
| Aroclor 1248                            | "             |             |               | ND        | "                     | 67.0          |          |           |       |        |
| Aroclor 1254                            | "             |             |               | ND        | "                     | 67.0          |          |           |       |        |
| Aroclor 1260                            | "             |             |               | ND        | "                     | 67.0          |          |           |       |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "             | 33.3        |               | 27.5      | "                     | 63.0-119      | 82.6     |           |       |        |
| Surrogate: Decachlorobiphenyl           | "             | 33.3        |               | 28.4      | "                     | 52.0-131      | 85.3     |           |       |        |
| <b>LCS</b>                              |               |             |               |           |                       |               |          |           |       |        |
| <b>0300504-BS1</b>                      |               |             |               |           |                       |               |          |           |       |        |
| Aroclor 1016                            | 3/21/00       | 333         |               | 274       | ug/kg dry             | 57.0-132      | 82.3     |           |       |        |
| Aroclor 1260                            | "             | 333         |               | 273       | "                     | 60.0-136      | 82.0     |           |       |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "             | 33.3        |               | 24.2      | "                     | 63.0-119      | 72.7     |           |       |        |
| Surrogate: Decachlorobiphenyl           | "             | 33.3        |               | 24.3      | "                     | 52.0-131      | 73.0     |           |       |        |
| <b>Matrix Spike</b>                     |               |             |               |           |                       |               |          |           |       |        |
| <b>0300504-MS1 P003317-01</b>           |               |             |               |           |                       |               |          |           |       |        |
| Aroclor 1016                            | 3/21/00       | 855         | ND            | 873       | ug/kg dry             | 57.0-132      | 102      |           |       |        |
| Aroclor 1260                            | "             | 855         | ND            | 521       | "                     | 60.0-136      | 60.9     |           |       |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "             | 85.5        |               | 64.6      | "                     | 63.0-119      | 75.6     |           |       |        |
| Surrogate: Decachlorobiphenyl           | "             | 85.5        |               | 127       | "                     | 52.0-131      | 149      |           |       | 8      |
| <b>Matrix Spike Dup</b>                 |               |             |               |           |                       |               |          |           |       |        |
| <b>0300504-MSD1 P003317-01</b>          |               |             |               |           |                       |               |          |           |       |        |
| Aroclor 1016                            | 3/21/00       | 855         | ND            | 932       | ug/kg dry             | 57.0-132      | 109      | 50.0      | 6.64  |        |
| Aroclor 1260                            | "             | 855         | ND            | 564       | "                     | 60.0-136      | 66.0     | 50.0      | 8.04  |        |
| Surrogate: 2,4,5,6-Tetrachloro-m-xylene | "             | 85.5        |               | 61.0      | "                     | 63.0-119      | 71.3     |           |       |        |
| Surrogate: Decachlorobiphenyl           | "             | 85.5        |               | 122       | "                     | 52.0-131      | 143      |           |       | 8      |

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Page 27 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

Selected Volatile Organic Compounds per EPA Method 8260B/Quality Control  
 North Creek Analytical - Portland

| Analyte                                   | Date Analyzed | Spike Level | Sample Result | QC Result | Reporting Limit Units | Recov. Limits | Recov. % | RPD Limit | RPD % | Notes* |
|-------------------------------------------|---------------|-------------|---------------|-----------|-----------------------|---------------|----------|-----------|-------|--------|
| <b>Batch: 0300490</b>                     |               |             |               |           |                       |               |          |           |       |        |
| <b>Blank</b>                              |               |             |               |           |                       |               |          |           |       |        |
| <b>Date Prepared: 0300490-BLK1</b>        |               |             |               |           |                       |               |          |           |       |        |
| <b>Extraction Method: MeOH Extraction</b> |               |             |               |           |                       |               |          |           |       |        |
| 1,2-Dibromoethane                         | 3/22/00       |             | ND            | ug/kg dry | 50.0                  |               |          |           |       |        |
| 1,2-Dichloroethane                        | "             |             | ND            | "         | 50.0                  |               |          |           |       |        |
| Benzene                                   | "             |             | ND            | "         | 50.0                  |               |          |           |       |        |
| Toluene                                   | "             |             | ND            | "         | 50.0                  |               |          |           |       |        |
| Ethylbenzene                              | "             |             | ND            | "         | 50.0                  |               |          |           |       |        |
| Xylenes (total)                           | "             |             | ND            | "         | 100                   |               |          |           |       |        |
| Methyl tert-butyl ether                   | "             |             | ND            | "         | 200                   |               |          |           |       |        |
| Naphthalene                               | "             |             | ND            | "         | 200                   |               |          |           |       |        |
| Surrogate: 4-BFB                          | "             | 2000        | 1650          | "         | 70.0-130              | 82.5          |          |           |       |        |
| Surrogate: 1,2-DCA-d4                     | "             | 2000        | 2280          | "         | 70.0-130              | 114           |          |           |       |        |
| Surrogate: Dibromofluoromethane           | "             | 2000        | 2170          | "         | 70.0-130              | 109           |          |           |       |        |
| Surrogate: Toluene-d8                     | "             | 2000        | 2220          | "         | 70.0-130              | 111           |          |           |       |        |
| <b>LCS</b>                                |               |             |               |           |                       |               |          |           |       |        |
| <b>0300490-BS1</b>                        |               |             |               |           |                       |               |          |           |       |        |
| Benzene                                   | 3/23/00       | 2500        | 2490          | ug/kg dry | 80.0-135              | 99.6          |          |           |       |        |
| Toluene                                   | "             | 2500        | 2580          | "         | 80.0-130              | 103           |          |           |       |        |
| Surrogate: 4-BFB                          | "             | 2000        | 1450          | "         | 70.0-130              | 72.5          |          |           |       |        |
| Surrogate: 1,2-DCA-d4                     | "             | 2000        | 2030          | "         | 70.0-130              | 102           |          |           |       |        |
| Surrogate: Dibromofluoromethane           | "             | 2000        | 1990          | "         | 70.0-130              | 99.5          |          |           |       |        |
| Surrogate: Toluene-d8                     | "             | 2000        | 2070          | "         | 70.0-130              | 104           |          |           |       |        |
| <b>Matrix Spike</b>                       |               |             |               |           |                       |               |          |           |       |        |
| <b>0300490-MS1 P003322-06</b>             |               |             |               |           |                       |               |          |           |       |        |
| Benzene                                   | 3/23/00       | 3110        | ND            | 2470      | ug/kg dry             | 60.0-135      | 79.4     |           |       |        |
| Toluene                                   | "             | 3110        | ND            | 3010      | "                     | 60.0-125      | 96.8     |           |       |        |
| Surrogate: 4-BFB                          | "             | 2490        | 2000          | "         | 70.0-130              | 80.3          |          |           |       |        |
| Surrogate: 1,2-DCA-d4                     | "             | 2490        | 2040          | "         | 70.0-130              | 81.9          |          |           |       |        |
| Surrogate: Dibromofluoromethane           | "             | 2490        | 2030          | "         | 70.0-130              | 81.5          |          |           |       |        |
| Surrogate: Toluene-d8                     | "             | 2490        | 2350          | "         | 70.0-130              | 94.4          |          |           |       |        |
| <b>Matrix Spike Dup</b>                   |               |             |               |           |                       |               |          |           |       |        |
| <b>0300490-MSD1 P003322-06</b>            |               |             |               |           |                       |               |          |           |       |        |
| Benzene                                   | 3/23/00       | 3110        | ND            | 2750      | ug/kg dry             | 60.0-135      | 88.4     | 25.0      | 10.7  |        |
| Toluene                                   | "             | 3110        | ND            | 2770      | "                     | 60.0-125      | 89.1     | 25.0      | 8.28  |        |
| Surrogate: 4-BFB                          | "             | 2490        | 1920          | "         | 70.0-130              | 77.1          |          |           |       |        |
| Surrogate: 1,2-DCA-d4                     | "             | 2490        | 2320          | "         | 70.0-130              | 93.2          |          |           |       |        |
| Surrogate: Dibromofluoromethane           | "             | 2490        | 2280          | "         | 70.0-130              | 91.6          |          |           |       |        |
| Surrogate: Toluene-d8                     | "             | 2490        | 2160          | "         | 70.0-130              | 86.7          |          |           |       |        |

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Page 28 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

**Polynuclear Aromatic Compounds per EPA 8270M-SIM/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                     | Date Analyzed | Spike Level                   | Sample Result | QC Result                          | Units     | Reporting Limit | Recov. % | RPD Limit | RPD % | Notes* |
|-----------------------------|---------------|-------------------------------|---------------|------------------------------------|-----------|-----------------|----------|-----------|-------|--------|
| <b>Batch: 0300402</b>       |               | <b>Date Prepared: 3/15/00</b> |               | <b>Extraction Method: EPA 3550</b> |           |                 |          |           |       |        |
| <b>Blank</b>                |               | <b>0300402-BLK1</b>           |               |                                    |           |                 |          |           |       |        |
| 1-Methylnaphthalene         | 3/20/00       |                               |               | ND                                 | ug/kg dry | 13.4            |          |           |       | 5      |
| 2-Methylnaphthalene         | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Acenaphthene                | 3/16/00       |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Acenaphthylene              | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Anthracene                  | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Benzo (a) anthracene        | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Benzo (a) pyrene            | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Benzo (b) fluoranthene      | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Benzo (ghi) perylene        | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Benzo (k) fluoranthene      | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Chrysene                    | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Dibenzo (a,h) anthracene    | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Fluoranthene                | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Fluorene                    | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Indeno (1,2,3-cd) pyrene    | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Naphthalene                 | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Phenanthrene                | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Pyrene                      | "             |                               |               | ND                                 | "         | 13.4            |          |           |       |        |
| Surrogate: 2-Fluorobiphenyl | "             | 83.3                          |               | 78.1                               | "         | 48.0-138        | 93.8     |           |       |        |
| Surrogate: Nitrobenzene-d5  | "             | 83.3                          |               | 74.9                               | "         | 50.0-132        | 89.9     |           |       |        |
| Surrogate: p-Terphenyl-d14  | "             | 83.3                          |               | 79.6                               | "         | 58.0-143        | 95.6     |           |       |        |
| <b>LCS</b>                  |               | <b>0300402-BS1</b>            |               |                                    |           |                 |          |           |       |        |
| Acenaphthene                | 3/16/00       | 83.3                          |               | 79.3                               | ug/kg dry | 50.0-150        | 95.2     |           |       |        |
| Benzo (a) pyrene            | "             | 83.3                          |               | 74.0                               | "         | 50.0-150        | 88.8     |           |       |        |
| Pyrene                      | "             | 83.3                          |               | 83.3                               | "         | 50.0-150        | 100      |           |       |        |
| Surrogate: 2-Fluorobiphenyl | "             | 83.3                          |               | 66.7                               | "         | 48.0-138        | 80.1     |           |       |        |
| Surrogate: Nitrobenzene-d5  | "             | 83.3                          |               | 48.0                               | "         | 50.0-132        | 57.6     |           |       |        |
| Surrogate: p-Terphenyl-d14  | "             | 83.3                          |               | 86.0                               | "         | 58.0-143        | 103      |           |       |        |
| <b>Matrix Spike</b>         |               | <b>0300402-MS1</b>            |               | <b>P003235-08</b>                  |           |                 |          |           |       |        |
| Acenaphthene                | 3/16/00       | 102                           | ND            | 94.7                               | ug/kg dry | 50.0-150        | 92.8     |           |       |        |
| Benzo (a) pyrene            | "             | 102                           | ND            | 79.1                               | "         | 50.0-150        | 77.5     |           |       |        |
| Pyrene                      | "             | 102                           | ND            | 92.2                               | "         | 50.0-150        | 90.4     |           |       |        |
| Surrogate: 2-Fluorobiphenyl | "             | 102                           |               | 93.0                               | "         | 48.0-138        | 91.2     |           |       |        |
| Surrogate: Nitrobenzene-d5  | "             | 102                           |               | 83.2                               | "         | 50.0-132        | 81.6     |           |       |        |
| Surrogate: p-Terphenyl-d14  | "             | 102                           |               | 94.7                               | "         | 58.0-143        | 92.8     |           |       |        |

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Page 29 of 37



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Polynuclear Aromatic Compounds per EPA 8270M-SIM/Quality Control**  
**North Creek Analytical - Portland**

| Analyte                     | Date Analyzed                 | Spike Level       | Sample Result | QC Result | Reporting Limit Units | Recovery Limits | Recovery % | RPD Limit | RPD % | Notes* |
|-----------------------------|-------------------------------|-------------------|---------------|-----------|-----------------------|-----------------|------------|-----------|-------|--------|
| <b>Matrix Spike Dup</b>     | <b>0300402-MSD1</b>           | <b>P003235-08</b> |               |           |                       |                 |            |           |       |        |
| Acenaphthene                | 3/16/00                       | 102               | ND            | 92.2      | ug/kg dry             | 50.0-150        | 90.4       | 60.0      | 2.62  |        |
| Benzo (a) pyrene            | "                             | 102               | ND            | 79.2      | "                     | 50.0-150        | 77.6       | 60.0      | 0.129 |        |
| Pyrene                      | "                             | 102               | ND            | 87.3      | "                     | 50.0-150        | 85.6       | 60.0      | 5.45  |        |
| Surrogate: 2-Fluorobiphenyl | "                             | 102               |               | 93.0      | "                     | 48.0-138        | 91.2       |           |       |        |
| Surrogate: Nitrobenzene-d5  | "                             | 102               |               | 94.7      | "                     | 50.0-132        | 92.8       |           |       |        |
| Surrogate: p-Terphenyl-d14  | "                             | 102               |               | 91.4      | "                     | 58.0-143        | 89.6       |           |       |        |
| <b>Batch: 0300433</b>       | <b>Date Prepared: 3/16/00</b> |                   |               |           |                       |                 |            |           |       |        |
| <b>Blank</b>                | <b>0300433-BLK1</b>           |                   |               |           |                       |                 |            |           |       |        |
| 1-Methylnaphthalene         | 3/20/00                       |                   |               | ND        | ug/kg dry             | 13.4            |            |           |       | 5      |
| 2-Methylnaphthalene         | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Acenaphthene                | 3/21/00                       |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| naphthylene                 | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| hracene                     | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Benzo (a) anthracene        | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Benzo (a) pyrene            | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Benzo (b) fluoranthene      | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Benzo (ghi) perylene        | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Benzo (k) fluoranthene      | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Chrysene                    | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Dibenzo (a,h) anthracene    | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Fluoranthene                | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Fluorene                    | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Indeno (1,2,3-cd) pyrene    | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Naphthalene                 | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Phenanthrene                | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Pyrene                      | "                             |                   |               | ND        | "                     | 13.4            |            |           |       |        |
| Surrogate: 2-Fluorobiphenyl | "                             | 83.3              |               | 83.3      | "                     | 48.0-138        | 100        |           |       |        |
| Surrogate: Nitrobenzene-d5  | "                             | 83.3              |               | 82.7      | "                     | 50.0-132        | 99.3       |           |       |        |
| Surrogate: p-Terphenyl-d14  | "                             | 83.3              |               | 80.9      | "                     | 58.0-143        | 97.1       |           |       |        |
| <b>LCS</b>                  | <b>0300433-BS1</b>            |                   |               |           |                       |                 |            |           |       |        |
| Acenaphthene                | 3/21/00                       | 83.3              |               | 71.5      | ug/kg dry             | 50.0-150        | 85.8       |           |       |        |
| Benzo (a) pyrene            | "                             | 83.3              |               | 68.9      | "                     | 50.0-150        | 82.7       |           |       |        |
| Pyrene                      | "                             | 83.3              |               | 67.1      | "                     | 50.0-150        | 80.6       |           |       |        |
| Surrogate: 2-Fluorobiphenyl | "                             | 83.3              |               | 79.3      | "                     | 48.0-138        | 95.2       |           |       |        |
| Surrogate: Nitrobenzene-d5  | "                             | 83.3              |               | 79.6      | "                     | 50.0-132        | 95.6       |           |       |        |
| Surrogate: p-Terphenyl-d14  | "                             | 83.3              |               | 73.9      | "                     | 58.0-143        | 88.7       |           |       |        |

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Page 30 of 37



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IT Corporation - Portland  
 P.O. Box 231269  
 Portland, OR 97224

Project: ARCO #0855, Longview, WA  
 Project Number: 25482 00  
 Project Manager: Cary Goodman

Sampled: 3/9/00  
 Received: 3/15/00  
 Reported: 3/30/00 08:50

Polynuclear Aromatic Compounds per EPA 8270M-SIM/Quality Control  
 North Creek Analytical - Portland

| Analyte                     | Date Analyzed       | Spike Level       | Sample Result | QC Result | Units     | Reporting Limit<br>Recov. Limits | Recov.<br>% | RPD<br>Limit | RPD<br>% | Notes* |
|-----------------------------|---------------------|-------------------|---------------|-----------|-----------|----------------------------------|-------------|--------------|----------|--------|
| <b>Matrix Spike</b>         | <b>0300433-MS1</b>  | <b>P003133-01</b> |               |           |           |                                  |             |              |          | 2      |
| Acenaphthene                | 3/21/00             | 102               | ND            | 85.1      | ug/kg dry | 50.0-150                         | 83.4        |              |          |        |
| Benzo (a) pyrene            | "                   | 102               | ND            | 78.8      | "         | 50.0-150                         | 77.3        |              |          |        |
| Pyrene                      | "                   | 102               | ND            | 87.7      | "         | 50.0-150                         | 86.0        |              |          |        |
| Surrogate: 2-Fluorobiphenyl | "                   | 102               |               | 87.4      | "         | 48.0-138                         | 85.7        |              |          |        |
| Surrogate: Nitrobenzene-d5  | "                   | 102               |               | 76.7      | "         | 50.0-132                         | 75.2        |              |          |        |
| Surrogate: p-Terphenyl-d14  | "                   | 102               |               | 79.7      | "         | 58.0-143                         | 78.1        |              |          |        |
| <b>Matrix Spike Dup</b>     | <b>0300433-MSD1</b> | <b>P003133-01</b> |               |           |           |                                  |             |              |          | 2      |
| Acenaphthene                | 3/21/00             | 102               | ND            | 89.3      | ug/kg dry | 50.0-150                         | 87.5        | 60.0         | 4.80     |        |
| Benzo (a) pyrene            | "                   | 102               | ND            | 84.2      | "         | 50.0-150                         | 82.5        | 60.0         | 6.51     |        |
| Pyrene                      | "                   | 102               | ND            | 91.9      | "         | 50.0-150                         | 90.1        | 60.0         | 4.66     |        |
| Surrogate: 2-Fluorobiphenyl | "                   | 102               |               | 88.5      | "         | 48.0-138                         | 86.8        |              |          |        |
| Surrogate: Nitrobenzene-d5  | "                   | 102               |               | 85.6      | "         | 50.0-132                         | 83.9        |              |          |        |
| Surrogate: p-Terphenyl-d14  | "                   | 102               |               | 82.0      | "         | 58.0-143                         | 80.4        |              |          |        |

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Page 31 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method/Quality Control  
North Creek Analytical - Bothell

| Analyte | Date Analyzed | Spike Level | Sample Result | QC Result | Reporting Limit Units | Recovery Limits | Recovery % | RPD Limit | RPD % | Notes* |
|---------|---------------|-------------|---------------|-----------|-----------------------|-----------------|------------|-----------|-------|--------|
|---------|---------------|-------------|---------------|-----------|-----------------------|-----------------|------------|-----------|-------|--------|

**Batch: 0C18006**

**Date Prepared: 3/18/00**

**Extraction Method: EPA 5030B (MeOH)**

**Blank**

**0C18006-BLK1**

|                        |         |      |      |           |        |     |  |  |  |  |
|------------------------|---------|------|------|-----------|--------|-----|--|--|--|--|
| C5-C6 Aliphatics       | 3/20/00 |      | ND   | mg/kg dry | 5.00   |     |  |  |  |  |
| C6-C8 Aliphatics       | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| C8-C10 Aliphatics      | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| C10-C12 Aliphatics     | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| C8-C10 Aromatics       | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| C10-C12 Aromatics      | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| C12-C13 Aromatics      | "       |      | ND   | "         | 5.00   |     |  |  |  |  |
| Surrogate: 4-BFB (FID) | "       | 4.00 | 4.15 | "         | 60-140 | 104 |  |  |  |  |
| Surrogate: 4-BFB (PID) | "       | 4.00 | 4.71 | "         | 60-140 | 118 |  |  |  |  |

**LCS**

**0C18006-BS1**

|                        |         |      |       |           |        |      |  |  |  |   |
|------------------------|---------|------|-------|-----------|--------|------|--|--|--|---|
| C5-C6 Aliphatics       | 3/20/00 | 2.00 | 2.13  | mg/kg dry | 70-130 | 107  |  |  |  |   |
| C6-C8 Aliphatics       | "       | 1.00 | 1.20  | "         | 70-130 | 120  |  |  |  |   |
| C8-C10 Aliphatics      | "       | 1.00 | 0.790 | "         | 70-130 | 79.0 |  |  |  |   |
| C10-C12 Aliphatics     | "       | 1.00 | 0.696 | "         | 70-130 | 69.6 |  |  |  | 6 |
| C8-C10 Aromatics       | "       | 4.00 | 4.31  | "         | 70-130 | 108  |  |  |  |   |
| C10-C12 Aromatics      | "       | 1.00 | 1.14  | "         | 70-130 | 114  |  |  |  |   |
| C12-C13 Aromatics      | "       | 2.00 | 1.64  | "         | 70-130 | 82.0 |  |  |  |   |
| Surrogate: 4-BFB (FID) | "       | 4.00 | 4.12  | "         | 60-140 | 103  |  |  |  |   |
| Surrogate: 4-BFB (PID) | "       | 4.00 | 4.64  | "         | 60-140 | 116  |  |  |  |   |

**Duplicate**

**0C18006-DUP1**

**B0C0207-02**

|                        |         |      |        |      |           |      |  |    |      |    |
|------------------------|---------|------|--------|------|-----------|------|--|----|------|----|
| C5-C6 Aliphatics       | 3/20/00 |      | 0.307  | ND   | mg/kg dry |      |  | 25 | 13.9 |    |
| C6-C8 Aliphatics       | "       |      | 0.300  | ND   | "         |      |  | 25 | 13.9 |    |
| C8-C10 Aliphatics      | "       |      | 0.300  | ND   | "         |      |  | 25 | 36.2 | 10 |
| C10-C12 Aliphatics     | "       |      | 4.38   | ND   | "         |      |  | 25 | 31.4 | 10 |
| C8-C10 Aromatics       | "       |      | 0.0503 | ND   | "         |      |  | 25 | 2.01 |    |
| C10-C12 Aromatics      | "       |      | 0.454  | ND   | "         |      |  | 25 | 36.2 | 10 |
| C12-C13 Aromatics      | "       |      | 15.6   | 14.8 | "         |      |  | 25 | 5.26 |    |
| Surrogate: 4-BFB (FID) | "       | 4.29 | 4.12   | "    | 60-140    | 96.0 |  |    |      |    |
| Surrogate: 4-BFB (PID) | "       | 4.29 | 5.15   | "    | 60-140    | 120  |  |    |      |    |

**Duplicate**

**0C18006-DUP2**

**B0C0326-01**

|                    |         |  |      |    |           |  |  |    |      |   |
|--------------------|---------|--|------|----|-----------|--|--|----|------|---|
| C5-C6 Aliphatics   | 3/22/00 |  | 2.02 | ND | mg/kg dry |  |  | 25 |      |   |
| C6-C8 Aliphatics   | "       |  | 31.2 | ND | "         |  |  | 25 | 22.1 |   |
| C8-C10 Aliphatics  | "       |  | 37.8 | ND | "         |  |  | 25 | 17.9 |   |
| C10-C12 Aliphatics | "       |  | 81.4 | ND | "         |  |  | 25 | 36.3 | 6 |

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\*Refer to end of report for text of notes and definitions.

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Page 32 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

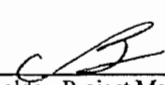
Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method/Quality Control  
North Creek Analytical - Bothell

| Analyte                      | Date Analyzed       | Spike Level       | Sample Result | QC Result | Units     | Reporting Limit<br>Recov. Limits | Recov.<br>% | RPD<br>Limit | RPD<br>% | Notes* |
|------------------------------|---------------------|-------------------|---------------|-----------|-----------|----------------------------------|-------------|--------------|----------|--------|
| <b>Duplicate (continued)</b> | <b>0C18006-DUP2</b> | <b>B0C0326-01</b> |               |           |           |                                  |             |              |          |        |
| C8-C10 Aromatics             | 3/22/00             |                   | 5.90          | ND        | mg/kg dry |                                  |             | 25           | 27.8     | 10     |
| C10-C12 Aromatics            | "                   |                   | 33.6          | ND        | "         |                                  |             | 25           | 7.73     |        |
| C12-C13 Aromatics            | "                   |                   | 109           | ND        | "         |                                  |             | 25           | 18.3     |        |
| Surrogate: 4-BFB (FID)       | "                   | 4.44              |               | 7.44      | "         | 60-140                           | 168         |              |          | 1      |
| Surrogate: 4-BFB (PID)       | "                   | 4.44              |               | 7.77      | "         | 60-140                           | 175         |              |          | 1      |

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Page 33 of 37



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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

**Extractable Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method/Quality Control**  
**North Creek Analytical - Bothell**

| Analyte                             | Date Analyzed | Spike Level | Sample Result | QC Result | Reporting Limit Units | Recover. % | RPD Limit | RPD % | Notes* |
|-------------------------------------|---------------|-------------|---------------|-----------|-----------------------|------------|-----------|-------|--------|
| <b>Batch: 0C20038</b>               |               |             |               |           |                       |            |           |       |        |
| <b>Blank</b>                        |               |             |               |           |                       |            |           |       |        |
| <b>Date Prepared: 3/20/00</b>       |               |             |               |           |                       |            |           |       |        |
| <b>0C20038-BLK1</b>                 |               |             |               |           |                       |            |           |       |        |
| <b>Extraction Method: EPA 3550B</b> |               |             |               |           |                       |            |           |       |        |
| C8-C10 Aliphatics                   | 3/22/00       |             |               | ND        | mg/kg dry             | 5.00       |           |       |        |
| C10-C12 Aliphatics                  | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C12-C16 Aliphatics                  | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C16-C21 Aliphatics                  | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C21-C34 Aliphatics                  | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C10-C12 Aromatics                   | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C12-C16 Aromatics                   | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C16-C21 Aromatics                   | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| C21-C34 Aromatics                   | "             |             |               | ND        | "                     | 5.00       |           |       |        |
| Extractable Petroleum Hydrocarbons  | "             |             |               | 0         | "                     |            |           |       |        |
| Surrogate: 2-FBP                    | "             | 12.0        |               | 9.62      | "                     | 50-150     | 80.2      |       |        |
| Surrogate: Octacosane               | "             | 12.3        |               | 10.6      | "                     | 50-150     | 86.2      |       |        |
| Surrogate: Undecane                 | "             | 13.3        |               | 9.32      | "                     | 30-150     | 70.1      |       |        |
| <b>LCS</b>                          |               |             |               |           |                       |            |           |       |        |
| <b>0C20038-BS1</b>                  |               |             |               |           |                       |            |           |       |        |
| Extractable Petroleum Hydrocarbons  | 3/22/00       | 167         |               | 128       | mg/kg dry             | 30-120     | 76.6      |       |        |
| Surrogate: 2-FBP                    | "             | 12.0        |               | 10.0      | "                     | 50-150     | 83.3      |       |        |
| Surrogate: Octacosane               | "             | 12.3        |               | 10.6      | "                     | 50-150     | 86.2      |       |        |
| Surrogate: Undecane                 | "             | 13.3        |               | 9.11      | "                     | 30-150     | 68.5      |       |        |
| <b>LCS Dup</b>                      |               |             |               |           |                       |            |           |       |        |
| <b>0C20038-BSD1</b>                 |               |             |               |           |                       |            |           |       |        |
| Extractable Petroleum Hydrocarbons  | 3/22/00       | 167         |               | 130       | mg/kg dry             | 30-120     | 77.8      | 40    | 1.55   |
| Surrogate: 2-FBP                    | "             | 12.0        |               | 10.1      | "                     | 50-150     | 84.2      |       |        |
| Surrogate: Octacosane               | "             | 12.3        |               | 10.3      | "                     | 50-150     | 83.7      |       |        |
| Surrogate: Undecane                 | "             | 13.3        |               | 8.73      | "                     | 30-150     | 65.6      |       |        |
| <b>Matrix Spike</b>                 |               |             |               |           |                       |            |           |       |        |
| <b>0C20038-MS1 B0C0207-01</b>       |               |             |               |           |                       |            |           |       |        |
| Extractable Petroleum Hydrocarbons  | 3/22/00       | 181         | 419           | 512       | mg/kg dry             | 30-120     | 51.4      |       |        |
| Surrogate: 2-FBP                    | "             | 13.1        |               | 9.94      | "                     | 50-150     | 75.9      |       |        |
| Surrogate: Octacosane               | "             | 13.3        |               | 10.8      | "                     | 50-150     | 81.2      |       |        |
| Surrogate: Undecane                 | "             | 14.4        |               | 8.90      | "                     | 30-150     | 61.8      |       |        |

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Page 34 of 37



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|                           |                                   |                         |
|---------------------------|-----------------------------------|-------------------------|
| IT Corporation - Portland | Project: ARCO #0855, Longview, WA | Sampled: 3/9/00         |
| P.O. Box 231269           | Project Number: 25482 00          | Received: 3/15/00       |
| Portland, OR 97224        | Project Manager: Cary Goodman     | Reported: 3/30/00 08:50 |

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

| Analyte               | Date Analyzed       | Spike Level                   | Sample Result | QC Result | Units                                | Reporting Limit<br>Recov. Limits | Recov.<br>% | RPD<br>Limit | RPD<br>% | Notes* |
|-----------------------|---------------------|-------------------------------|---------------|-----------|--------------------------------------|----------------------------------|-------------|--------------|----------|--------|
| <u>Batch: 0C21033</u> |                     | <u>Date Prepared: 3/21/00</u> |               |           | <u>Extraction Method: Dry Weight</u> |                                  |             |              |          |        |
| <u>Blank</u>          | <u>0C21033-BLK1</u> |                               |               |           |                                      |                                  |             |              |          |        |
| Dry Weight            | 3/22/00             |                               |               | 100       | %                                    | 1.00                             |             |              |          |        |
| <u>Blank</u>          | <u>0C21033-BLK2</u> |                               |               |           |                                      |                                  |             |              |          |        |
| Dry Weight            | 3/22/00             |                               |               | 100       | %                                    | 1.00                             |             |              |          |        |

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\*Refer to end of report for text of notes and defin.

  
Crystal Burkholder, Project Manager

North Creek Analytical, Inc.  
Environmental Laboratory Network

Page 35 of 37



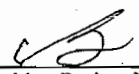
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|                                                                    |                                                                                                |                                                                 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| IT Corporation - Portland<br>P.O. Box 231269<br>Portland, OR 97224 | Project: ARCO #0855, Longview, WA<br>Project Number: 25482 00<br>Project Manager: Cary Goodman | Sampled: 3/9/00<br>Received: 3/15/00<br>Reported: 3/30/00 08:50 |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|

### Notes and Definitions

| #      | Note                                                                                                                                                                                                                             |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interferences.                                                                            |
| 2      | Analyte hit confirmed by GC/MS.                                                                                                                                                                                                  |
| 3      | Tentative analyte hit not confirmed by GC/MS.                                                                                                                                                                                    |
| 4      | The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.                                                                               |
| 5      | Quantitation based on 2-methylnaphthalene response.                                                                                                                                                                              |
| 6      | The spike recovery, and/or RPD, for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch. |
| 7      | RPD is not applicable for analyte concentrations less than 5 times the MRL.                                                                                                                                                      |
| 8      | Surrogate recovery is out of control limits. QA criteria are met when one surrogate is within control limits.                                                                                                                    |
| 9      | Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.                                                                 |
| 10     | Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.                                                                                                                     |
| DET    | Analyte DETECTED                                                                                                                                                                                                                 |
| ND     | Analyte NOT DETECTED at or above the reporting limit                                                                                                                                                                             |
| NR     | Not Reported                                                                                                                                                                                                                     |
| dry    | Sample results reported on a dry weight basis                                                                                                                                                                                    |
| Recov. | Recovery                                                                                                                                                                                                                         |

North Creek Analytical - Portland

  
Crystal Burkholder, Project Manager

North Creek Analytical, Inc.  
Environmental Laboratory Network

Page 36 of 37



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: Cary Goodman

Sampled: 3/9/00  
Received: 3/15/00  
Reported: 3/30/00 08:50

### Notes and Definitions

| # | Note |
|---|------|
|---|------|

RPD Relative Percent Difference

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Page 37 of 37

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TT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

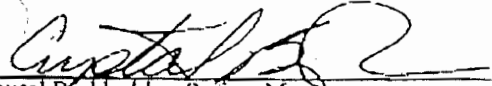
Reported:  
04/12/00 10:05

### ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled   | Date Received  |
|-----------|---------------|--------|----------------|----------------|
| MW3-17    | P003563-01    | Water  | 03/27/00 11:35 | 03/28/00 15:25 |
| MW2-17    | P003563-02    | Water  | 03/27/00 12:15 | 03/28/00 15:25 |
| MW1-18    | P003563-03    | Water  | 03/27/00 13:00 | 03/28/00 15:25 |

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Page 1 of 9



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0835, Longview, WA  
Project Number: 25182 00  
Project Manager: John Renda

Reported:  
04/12/00 10:05

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B**  
**North Creek Analytical - Portland**

| Analyte                             | Result | Reporting Limit | Units | Dilution | Method      | Prepared                             | Analyzed | Batch   | Notes |
|-------------------------------------|--------|-----------------|-------|----------|-------------|--------------------------------------|----------|---------|-------|
| <b>MW3-17 (P003563-01RE1) Water</b> |        |                 |       |          |             | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Benzene                             | 7520   | 100             | ug/l  | 200      | NW-G, 8021B | 04/06/00                             | 04/06/00 | 0040176 |       |
| Toluene                             | 12900  | 100             | "     | "        | "           | "                                    | "        | "       |       |
| Ethylbenzene                        | 2780   | 100             | "     | "        | "           | "                                    | "        | "       |       |
| Xylenes (total)                     | 14500  | 200             | "     | "        | "           | "                                    | "        | "       |       |
| Gasoline Range Hydrocarbons         | 93700  | 16000           | "     | "        | "           | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                   | 95.6 % | 50-150          |       |          |             |                                      |          |         |       |
| Surr: 4-BFB (PID)                   | 89.4 % | 75-120          |       |          |             |                                      |          |         |       |
| <b>MW2-17 (P003563-02RE1) Water</b> |        |                 |       |          |             | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Benzene                             | 6.89   | 5.00            | ug/l  | 10       | NW-G, 8021B | 04/06/00                             | 04/06/00 | 0040176 |       |
| Toluene                             | 49.5   | 5.00            | "     | "        | "           | "                                    | "        | "       |       |
| Ethylbenzene                        | 599    | 5.00            | "     | "        | "           | "                                    | "        | "       |       |
| Xylenes (total)                     | 2490   | 10.0            | "     | "        | "           | "                                    | "        | "       |       |
| Gasoline Range Hydrocarbons         | 17100  | 800             | "     | "        | "           | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                   | 118 %  | 50-150          |       |          |             |                                      |          |         |       |
| Surr: 4-BFB (PID)                   | 98.6 % | 75-120          |       |          |             |                                      |          |         |       |
| <b>MW1-18 (P003563-03RE1) Water</b> |        |                 |       |          |             | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Benzene                             | ND     | 0.500           | ug/l  | 1        | NW-G, 8021B | 04/06/00                             | 04/06/00 | 0040176 |       |
| Toluene                             | ND     | 0.500           | "     | "        | "           | "                                    | "        | "       |       |
| Ethylbenzene                        | ND     | 0.500           | "     | "        | "           | "                                    | "        | "       |       |
| Xylenes (total)                     | ND     | 1.00            | "     | "        | "           | "                                    | "        | "       |       |
| Gasoline Range Hydrocarbons         | ND     | 80.0            | "     | "        | "           | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                   | 92.6 % | 50-150          |       |          |             |                                      |          |         |       |
| Surr: 4-BFB (PID)                   | 85.0 % | 75-120          |       |          |             |                                      |          |         |       |

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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

Reported:  
04/12/00 10:05

**Diesel and Heavy Range Hydrocarbons per NWTPH-Dx Method**  
**North Creek Analytical - Portland**

| Analyte                      | Result | Reporting Limit | Units | Dilution | Method   | Prepared                             | Analyzed | Batch   | Notes |
|------------------------------|--------|-----------------|-------|----------|----------|--------------------------------------|----------|---------|-------|
| MW3-17 (P003563-01) Water    |        |                 |       |          |          | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Diesel Range Organics        | ND     | 0.250           | mg/l  | 1        | NWTPH-Dx | 03/31/00                             | 03/31/00 | 0300877 |       |
| Heavy Oil Range Hydrocarbons | ND     | 0.500           | "     | "        | "        | "                                    | "        | "       |       |
| Surr: 1-Chlorooctadecane     | 110 %  | 50-150          |       |          |          |                                      |          |         |       |
| MW2-17 (P003563-02) Water    |        |                 |       |          |          | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Diesel Range Organics        | ND     | 0.250           | mg/l  | 1        | NWTPH-Dx | 03/31/00                             | 03/31/00 | 0300877 |       |
| Heavy Oil Range Hydrocarbons | ND     | 0.500           | "     | "        | "        | "                                    | "        | "       |       |
| Surr: 1-Chlorooctadecane     | 100 %  | 50-150          |       |          |          |                                      |          |         |       |
| MW1-18 (P003563-03) Water    |        |                 |       |          |          | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| Diesel Range Organics        | ND     | 0.250           | mg/l  | 1        | NWTPH-Dx | 03/31/00                             | 03/31/00 | 0300877 |       |
| Heavy Oil Range Hydrocarbons | ND     | 0.500           | "     | "        | "        | "                                    | "        | "       |       |
| Surr: 1-Chlorooctadecane     | 96.5 % | 50-150          |       |          |          |                                      |          |         |       |

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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

Reported:  
04/12/00 10:05

**Volatile Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method**  
**North Creek Analytical - Bothell**

| Analyte                          | Result | Reporting Limit | Units | Dilution | Method | Prepared                             | Analyzed | Batch   | Notes |
|----------------------------------|--------|-----------------|-------|----------|--------|--------------------------------------|----------|---------|-------|
| <b>MW3-17 (P003563-01) Water</b> |        |                 |       |          |        | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| C5-C6 Aliphatics                 | ND     | 10000           | ug/l  | 200      | WA     | 04/03/00                             | 04/03/00 | 0D03016 |       |
| C6-C8 Aliphatics                 | ND     | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aliphatics                | ND     | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aliphatics               | ND     | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aromatics                 | 26700  | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aromatics                | ND     | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| C12-C13 Aromatics                | ND     | 10000           | "     | "        | "      | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                | 102 %  | 60-140          |       |          |        |                                      |          |         |       |
| Surr: 4-BFB (PID)                | 116 %  | 60-140          |       |          |        |                                      |          |         |       |
| <b>MW2-17 (P003563-02) Water</b> |        |                 |       |          |        | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| C5-C6 Aliphatics                 | 1760   | 1000            | ug/l  | 20       | WA     | 04/03/00                             | 04/03/00 | 0D03016 |       |
| C6-C8 Aliphatics                 | 2300   | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aliphatics                | ND     | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aliphatics               | ND     | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aromatics                 | 7340   | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aromatics                | 1940   | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| C12-C13 Aromatics                | ND     | 1000            | "     | "        | "      | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                | 110 %  | 60-140          |       |          |        |                                      |          |         |       |
| Surr: 4-BFB (PID)                | 119 %  | 60-140          |       |          |        |                                      |          |         |       |
| <b>MW1-18 (P003563-03) Water</b> |        |                 |       |          |        | Sampled: 03/27/00 Received: 03/28/00 |          |         |       |
| C5-C6 Aliphatics                 | ND     | 50.0            | ug/l  | 1        | WA     | 04/03/00                             | 04/03/00 | 0D03016 |       |
| C6-C8 Aliphatics                 | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aliphatics                | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aliphatics               | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| C8-C10 Aromatics                 | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| C10-C12 Aromatics                | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| C12-C13 Aromatics                | ND     | 50.0            | "     | "        | "      | "                                    | "        | "       |       |
| Surr: 4-BFB (FID)                | 98.3 % | 60-140          |       |          |        |                                      |          |         |       |
| Surr: 4-BFB (PID)                | 115 %  | 60-140          |       |          |        |                                      |          |         |       |

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Page 4 of 9

|                           |                                   |                |
|---------------------------|-----------------------------------|----------------|
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| Box 231269                | Project Number: 25482 00          | 04/12/00 10:05 |
| Portland, OR 97224        | Project Manager: John Renda       |                |

### Gasoline Hydrocarbons per NW-TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control

#### North Creek Analytical - Portland

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

#### Batch 0040127 - EPA 5030

##### Blank (0040127-BL(K1))

Prepared &amp; Analyzed: 04/05/00

|                             |      |       |      |      |  |      |        |  |  |  |
|-----------------------------|------|-------|------|------|--|------|--------|--|--|--|
| Benzene                     | ND   | 0.500 | ug/l |      |  |      |        |  |  |  |
| Toluene                     | ND   | 0.500 | "    |      |  |      |        |  |  |  |
| Ethylbenzene                | ND   | 0.500 | "    |      |  |      |        |  |  |  |
| Xylenes (total)             | ND   | 1.00  | "    |      |  |      |        |  |  |  |
| Gasoline Range Hydrocarbons | ND   | 80.0  | "    |      |  |      |        |  |  |  |
| Surr: 4-BFB (FID)           | 42.8 |       | "    | 50.0 |  | 85.6 | 50-150 |  |  |  |
| Surr: 4-BFB (PID)           | 46.4 |       | "    | 50.0 |  | 92.8 | 75-120 |  |  |  |

##### LCS (0040127-BS1)

Prepared &amp; Analyzed: 04/05/00

|                             |      |      |      |      |  |      |        |  |  |  |
|-----------------------------|------|------|------|------|--|------|--------|--|--|--|
| Gasoline Range Hydrocarbons | 1230 | 80.0 | ug/l | 1250 |  | 98.4 | 70-130 |  |  |  |
| Surr: 4-BFB (FID)           | 53.0 |      | "    | 50.0 |  | 106  | 50-150 |  |  |  |

##### LCS (0040127-BS2)

Prepared &amp; Analyzed: 04/05/00

|                   |      |       |      |      |  |      |        |  |  |  |
|-------------------|------|-------|------|------|--|------|--------|--|--|--|
| Benzene           | 21.1 | 0.500 | ug/l | 20.0 |  | 106  | 70-130 |  |  |  |
| Toluene           | 19.0 | 0.500 | "    | 20.0 |  | 95.0 | 70-130 |  |  |  |
| Ethylbenzene      | 20.4 | 0.500 | "    | 20.0 |  | 102  | 70-130 |  |  |  |
| Xylenes (total)   | 61.3 | 1.00  | "    | 60.0 |  | 102  | 70-130 |  |  |  |
| Surr: 4-BFB (PID) | 44.8 |       | "    | 50.0 |  | 89.6 | 75-120 |  |  |  |

##### Duplicate (0040127-DUP1)

Source: P003563-01 Prepared &amp; Analyzed: 04/05/00

|                             |       |      |      |      |       |      |        |      |    |  |
|-----------------------------|-------|------|------|------|-------|------|--------|------|----|--|
| Gasoline Range Hydrocarbons | 71000 | 4000 | ug/l |      | 68100 |      |        | 4.17 | 50 |  |
| Surr: 4-BFB (FID)           | 35.7  |      | "    | 50.0 |       | 71.4 | 50-150 |      |    |  |

##### Duplicate (0040127-DUP2)

Source: P004051-01 Prepared &amp; Analyzed: 04/05/00

|                             |      |      |      |      |    |      |        |  |    |  |
|-----------------------------|------|------|------|------|----|------|--------|--|----|--|
| Gasoline Range Hydrocarbons | ND   | 80.0 | ug/l |      | ND |      |        |  | 50 |  |
| Surr: 4-BFB (FID)           | 38.0 |      | "    | 50.0 |    | 76.0 | 50-150 |  |    |  |

##### Matrix Spike (0040127-MS1)

Source: P003648-01 Prepared: 04/05/00 Analyzed: 04/06/00

|                   |      |       |      |      |      |      |        |  |  |  |
|-------------------|------|-------|------|------|------|------|--------|--|--|--|
| Benzene           | 22.9 | 0.500 | ug/l | 20.0 | 1.65 | 106  | 70-130 |  |  |  |
| Toluene           | 19.5 | 0.500 | "    | 20.0 | ND   | 97.5 | 70-130 |  |  |  |
| Ethylbenzene      | 22.0 | 0.500 | "    | 20.0 | 1.25 | 104  | 70-130 |  |  |  |
| Xylenes (total)   | 63.3 | 1.00  | "    | 60.0 | ND   | 105  | 70-130 |  |  |  |
| Surr: 4-BFB (PID) | 42.7 |       | "    | 50.0 |      | 85.4 | 75-120 |  |  |  |

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IT Corporation - Portland  
 P.O. Box 231269  
 Portland, OR 97224

 Project: ARCO #0855, Longview, WA  
 Project Number: 25482 00  
 Project Manager: John Renda

 Reported:  
 04/12/00 10:05

**Gasoline Hydrocarbons per NW TPH-Gx Method and BTEX per EPA Method 8021B - Quality Control**
**North Creek Analytical - Portland**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 0040127 - EPA 5030**
**Matrix Spike Dup (0040127-MSD1)**

Source: P003648-01

Prepared: 04/05/00 Analyzed: 04/06/00

|                   |      |       |      |      |      |      |        |      |    |  |
|-------------------|------|-------|------|------|------|------|--------|------|----|--|
| Benzene           | 21.2 | 0.500 | ug/l | 20.0 | 1.65 | 97.8 | 70-130 | 7.71 | 15 |  |
| Toluene           | 17.8 | 0.500 | "    | 20.0 | ND   | 89.0 | 70-130 | 9.12 | 15 |  |
| Ethylbenzene      | 19.9 | 0.500 | "    | 20.0 | 1.25 | 93.2 | 70-130 | 10.0 | 15 |  |
| Xylenes (total)   | 57.4 | 1.00  | "    | 60.0 | ND   | 95.7 | 70-130 | 9.78 | 15 |  |
| Surr: 4-BFB (PID) | 40.6 |       | "    | 50.0 |      | 81.2 | 75-120 |      |    |  |

**Batch 0040176 - EPA 5030**
**Blank (0040176-BLK1)**

Prepared &amp; Analyzed: 04/06/00

|                             |      |       |      |      |  |      |        |  |  |  |
|-----------------------------|------|-------|------|------|--|------|--------|--|--|--|
| Benzene                     | ND   | 0.500 | ug/l |      |  |      |        |  |  |  |
| Toluene                     | ND   | 0.500 | "    |      |  |      |        |  |  |  |
| Ethylbenzene                | ND   | 0.500 | "    |      |  |      |        |  |  |  |
| Xylenes (total)             | ND   | 1.00  | "    |      |  |      |        |  |  |  |
| Gasoline Range Hydrocarbons | ND   | 80.0  | "    |      |  |      |        |  |  |  |
| Surr: 4-BFB (PID)           | 47.9 |       | "    | 50.0 |  | 95.8 | 50-150 |  |  |  |
| Surr: 4-BFB (PID)           | 44.8 |       | "    | 50.0 |  | 89.6 | 75-120 |  |  |  |

**LCS (0040176-BS2)**

Prepared &amp; Analyzed: 04/06/00

|                   |      |       |      |      |  |      |        |  |  |  |
|-------------------|------|-------|------|------|--|------|--------|--|--|--|
| Benzene           | 19.1 | 0.500 | ug/l | 20.0 |  | 95.5 | 70-130 |  |  |  |
| Toluene           | 18.9 | 0.500 | "    | 20.0 |  | 94.5 | 70-130 |  |  |  |
| Ethylbenzene      | 19.4 | 0.500 | "    | 20.0 |  | 97.0 | 70-130 |  |  |  |
| Xylenes (total)   | 57.9 | 1.00  | "    | 60.0 |  | 96.5 | 70-130 |  |  |  |
| Surr: 4-BFB (PID) | 48.4 |       | "    | 50.0 |  | 96.8 | 75-120 |  |  |  |

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Page 6 of 9



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

Reported:  
04/12/00 10:05

**Diesel and Heavy Range Hydrocarbons per NWTPH-D Method - Quality Control**

**North Creek Analytical - Portland**

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**Batch 0300877 - TPH-D Extraction**

**Blank (0300877-BLK1)**

Prepared & Analyzed: 03/31/00

|                              |        |       |      |       |  |      |        |  |  |  |
|------------------------------|--------|-------|------|-------|--|------|--------|--|--|--|
| Diesel Range Organics        | ND     | 0.250 | mg/l |       |  |      |        |  |  |  |
| Heavy Oil Range Hydrocarbons | ND     | 0.500 | "    |       |  |      |        |  |  |  |
| Surr: 1-Chlorooctadecane     | 0.0865 |       | "    | 0.100 |  | 86.5 | 50-150 |  |  |  |

**LCS (0300877-BS1)**

Prepared & Analyzed: 03/31/00

|                              |        |       |      |       |  |      |        |  |  |  |
|------------------------------|--------|-------|------|-------|--|------|--------|--|--|--|
| Diesel Range Organics        | 2.52   | 0.250 | mg/l | 2.53  |  | 99.6 | 50-150 |  |  |  |
| Heavy Oil Range Hydrocarbons | 1.56   | 0.500 | "    | 1.52  |  | 103  | 50-150 |  |  |  |
| Surr: 1-Chlorooctadecane     | 0.0880 |       | "    | 0.100 |  | 88.0 | 50-150 |  |  |  |

**LCS Dup (0300877-BSD1)**

Prepared & Analyzed: 03/31/00

|                              |        |       |      |       |  |      |        |       |    |  |
|------------------------------|--------|-------|------|-------|--|------|--------|-------|----|--|
| Diesel Range Organics        | 2.50   | 0.250 | mg/l | 2.53  |  | 98.8 | 50-150 | 0.797 | 50 |  |
| Heavy Oil Range Hydrocarbons | 1.55   | 0.500 | "    | 1.52  |  | 102  | 50-150 | 0.643 | 50 |  |
| Surr: 1-Chlorooctadecane     | 0.0870 |       | "    | 0.100 |  | 87.0 | 50-150 |       |    |  |

North Creek Analytical - Portland

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Crystal Burkholder, Project Manager

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Environmental Laboratory Network

Page 7 of 9



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503.906.0000 fax 503.906.9210  
Head 20339 Empira Avenue, Suite F-1, Bend, OR 97701-5711  
541.383.9310 fax 541.382.7589

IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

Reported:  
04/12/00 10:05

Volatiles Petroleum Hydrocarbons by modified WDOE Interim TPH Policy Method - Quality Control

North Creek Analytical - Bothell

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 0D03016 - EPA 5030B (P/T)

Blank (0D03016-BLK1)

Prepared & Analyzed: 04/03/00

|                    |      |      |      |      |  |      |        |  |  |  |
|--------------------|------|------|------|------|--|------|--------|--|--|--|
| C5-C6 Aliphatics   | ND   | 50.0 | ug/l |      |  |      |        |  |  |  |
| C6-C8 Aliphatics   | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| C8-C10 Aliphatics  | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| C10-C12 Aliphatics | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| C8-C10 Aromatics   | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| C10-C12 Aromatics  | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| C12-C13 Aromatics  | ND   | 50.0 | "    |      |  |      |        |  |  |  |
| Surr: 4-BFB (FID)  | 47.4 |      | "    | 48.0 |  | 98.8 | 60-140 |  |  |  |
| Surr: 4-BFB (PID)  | 55.2 |      | "    | 48.0 |  | 115  | 60-140 |  |  |  |

LCS (0D03016-BS1)

Prepared & Analyzed: 04/03/00

|                    |      |      |      |      |  |      |        |  |  |  |
|--------------------|------|------|------|------|--|------|--------|--|--|--|
| C5-C6 Aliphatics   | 35.0 | 5.00 | ug/l | 40.0 |  | 87.5 | 70-130 |  |  |  |
| C6-C8 Aliphatics   | 12.2 | 5.00 | "    | 20.0 |  | 61.0 | 70-130 |  |  |  |
| C8-C10 Aliphatics  | 5.28 | 5.00 | "    | 20.0 |  | 26.4 | 70-130 |  |  |  |
| C10-C12 Aliphatics | 15.6 | 5.00 | "    | 20.0 |  | 78.0 | 70-130 |  |  |  |
| C8-C10 Aromatics   | 87.4 | 5.00 | "    | 80.0 |  | 109  | 70-130 |  |  |  |
| C10-C12 Aromatics  | 23.0 | 5.00 | "    | 20.0 |  | 115  | 70-130 |  |  |  |
| C12-C13 Aromatics  | 44.9 | 5.00 | "    | 40.0 |  | 112  | 70-130 |  |  |  |
| Surr: 4-BFB (FID)  | 48.5 |      | "    | 48.0 |  | 101  | 60-140 |  |  |  |
| Surr: 4-BFB (PID)  | 55.1 |      | "    | 48.0 |  | 115  | 60-140 |  |  |  |

Duplicate (0D03016-DUP1)

Source: P003563-03

Prepared & Analyzed: 04/03/00

|                    |      |      |      |      |  |      |        |    |  |      |
|--------------------|------|------|------|------|--|------|--------|----|--|------|
| C5-C6 Aliphatics   | ND   | 50.0 | ug/l | ND   |  |      |        | 25 |  |      |
| C6-C8 Aliphatics   | ND   | 50.0 | "    | ND   |  |      |        | 25 |  |      |
| C8-C10 Aliphatics  | ND   | 50.0 | "    | ND   |  |      |        | 25 |  |      |
| C10-C12 Aliphatics | ND   | 50.0 | "    | ND   |  |      |        | 25 |  |      |
| C8-C10 Aromatics   | ND   | 50.0 | "    | 3.36 |  |      | 83.5   | 25 |  | Q-05 |
| C10-C12 Aromatics  | ND   | 50.0 | "    | 10.1 |  |      | 15.7   | 25 |  |      |
| C12-C13 Aromatics  | ND   | 50.0 | "    | 13.6 |  |      | 27.8   | 25 |  | Q-05 |
| Surr: 4-BFB (FID)  | 47.5 |      | "    | 48.0 |  | 99.0 | 60-140 |    |  |      |
| Surr: 4-BFB (PID)  | 55.5 |      | "    | 48.0 |  | 116  | 60-140 |    |  |      |

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Page 8 of 9



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IT Corporation - Portland  
P.O. Box 231269  
Portland, OR 97224

Project: ARCO #0855, Longview, WA  
Project Number: 25482 00  
Project Manager: John Renda

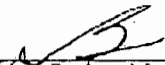
Reported:  
04/12/00 10:05

#### Notes and Definitions

- Q-01 The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
- Q-05 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- wet Sample results reported on a wet weight basis
- RPD Relative Percent Difference

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Page 9 of 9

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Task Order No. 25482 00

## Chain of Custody

8 di 9

| ARCO Facility no. 0855                                                                                                                                  |         | City (Facility) Longview WA                                       |        | Project manager (Consultant) Cary Goodman                         |       | Telephone no. (Consultant) 624-7200 |      | Fax no. (Consultant) 620-7658             |               |                   |                               |                           |                                |                          |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------|--------|-------------------------------------------------------------------|-------|-------------------------------------|------|-------------------------------------------|---------------|-------------------|-------------------------------|---------------------------|--------------------------------|--------------------------|--------------|--------------|--------------|-------------------------------|--------------------------|------------------------|--------------------|--------------------|-----------------------------------|--------------------|-----------------|-----------------|--|
| ARCO engineer Mike Whelan                                                                                                                               |         | Telephone no. (ARCO) 425-868-1133                                 |        | Address (Consultant) 15055 SW Sequoia PKwy Suite 140 Portland, OR |       | Telephone no. (Consultant) 624-7200 |      | Fax no. (Consultant) 620-7658             |               |                   |                               |                           |                                |                          |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| Consultant name IT CORP.                                                                                                                                |         | Address (Consultant) 15055 SW Sequoia PKwy Suite 140 Portland, OR |        | Telephone no. (Consultant) 624-7200                               |       | Fax no. (Consultant) 620-7658       |      | Project manager (Consultant) Cary Goodman |               |                   |                               |                           |                                |                          |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| Sample I.D.                                                                                                                                             | Lab no. | Container no.                                                     | Matrix |                                                                   |       | Preservation                        |      | Sampling date                             | Sampling time | DTPX 602/EPA 8020 | BTEX/TPH EPA Method 8020/8015 | VOCs EPA Method 8020/8015 | Semi-VOCs EPA Method 8020/8015 | TPH EPA Method 8020/8015 | EPA 601/8010 | EPA 824/8240 | EPA 825/8270 | TCLP Metals [VOC] [VOC] [VOC] | CAM Metals EPA 6010/8000 | TCLP [VOC] [VOC] [VOC] | Lead Org./Pb [VOC] | Lead EPA 7420/7421 | Special detection Limit/reporting | Method of shipment | Contract number | Laboratory name |  |
|                                                                                                                                                         |         |                                                                   | Soil   | Water                                                             | Other | Ice                                 | Acid |                                           |               |                   |                               |                           |                                |                          |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| 3-17                                                                                                                                                    |         | 8                                                                 |        | X                                                                 |       | X                                   | X    | 3-27-00                                   | 11:35         | X                 | X                             | X                         | X                              | X                        |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| 2-17                                                                                                                                                    |         | 8                                                                 |        | X                                                                 |       | X                                   | X    | ↓                                         | 12:15         | X                 | X                             | X                         | X                              | X                        |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| 1-18                                                                                                                                                    |         | 8                                                                 |        | X                                                                 |       | X                                   | X    | ↓                                         | 13:00         | X                 | X                             | X                         | X                              | X                        |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |
| <p>Condition of sample: <i>Good</i></p> <p>Relinquished by sample <i>John</i></p> <p>Relinquished by <i>John</i></p> <p>Relinquished by <i>John</i></p> |         |                                                                   |        |                                                                   |       |                                     |      |                                           |               |                   |                               |                           |                                |                          |              |              |              |                               |                          |                        |                    |                    |                                   |                    |                 |                 |  |