

000001

AGRA Earth & Environmental, Inc.
3504 Industrial Avenue
Suite 5
Fairbanks, Alaska
USA 99701-7376
Tel (907) 479-7586
Fax (907) 479-0193

October 7, 1999
6-024-01152-3

RECEIVED

OCT 13 1999

Chevron USA
P.O. Box 5004
San Ramon, CA 94583

**ADEC STORAGE
TANK PROGRAM
FAIRBANKS**

Attention: Robert Cochran

RE: RESULTS OF GROUNDWATER MONITORING AND SAMPLING FOR MINNIE STREET LAND USERS GROUP, AUGUST 1999 ALASKA RAILROAD INDUSTRIAL AREA, FAIRBANKS, ALASKA

Dear Mr. Cochran:

AGRA Earth & Environmental, Inc. (AEE) is pleased to present the results of the groundwater monitoring and sampling event conducted at the referenced site on August 25, 1999. At the request of the Alaska Department of Environmental Conservation (ADEC), this monitoring event was conducted in addition to the annual groundwater monitoring event conducted by AEE in April 1999 to locate and sample fourteen selected monitoring wells in the Alaska Railroad Industrial Area. When AEE personnel were unable to locate a selected monitoring well, a nearby well was sampled, if available. Groundwater samples were not collected at monitoring wells containing free-phase petroleum hydrocarbons (free product). A total of nine monitoring wells were sampled during this event, as summarized below in Table 1. A site vicinity map and well location map are included with this letter in Attachment 1.

**TABLE 1
Sampling Summary for the Selected Wells**

| Selected Wells | Well Location and Sampling Information |
|----------------|---|
| AR-6 | Free product present, no sample collected |
| AR-7 | Sample collected |
| AR-14 | Not located, free product present in AR-13, no sample collected |
| AR-16 | Not located, no sample collected |
| AR-46 | Not located, no sample collected |
| AR-76 | Sample collected |
| AR-77 | Sample collected |
| AR-81 | Sample collected |
| AR-85 | Sample collected |
| AR-90 | Free product present, no sample collected |
| AR-93 | Not located, sample collected from AR-10 |
| AR-101 | Sample collected |
| AR-102 | Sample collected |
| K-5 | Free product present, no sample collected |



The depth to groundwater and the thickness of any free-phase petroleum hydrocarbons were measured at each of the accessible monitoring wells using an A.R.T. interface probe. Monitoring wells K-5, AR-90, AR-6, and AR-13 contained 0.29, 0.26, 0.01, and 0.01 feet of measurable free-phase petroleum hydrocarbons, respectively. A summary of the groundwater monitoring data and analytical results, and the completed groundwater collection form, are presented in Attachment 2.

Following the depth to groundwater measurements, AEE personnel purged and sampled the wells using the procedures outlined in the Alaska Department of Environmental Conservation (ADEC) *Underground Storage Tanks Procedures Manual*. Disposable polyethylene bailers were used for purging and sample retrieval to avoid cross-contamination of the wells. All purge water was discarded on the ground surface in the vicinity of the wellhead. The groundwater samples were collected in laboratory-prepared containers and stored in a chilled cooler through shipment to North Creek Analytical, Inc. in Bothell, Washington. A duplicate sample (DUP-1) was collected from monitoring well AR-81 for quality control purposes. A laboratory-prepared trip blank accompanied the samples in the field and through shipment to the analytical laboratory.

The groundwater samples were submitted for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8020, gasoline range petroleum hydrocarbons (GRPH) by EPA Method 8015M, and diesel range petroleum hydrocarbons (DRPH) by EPA Method 8100M. The reported concentrations from monitoring wells AR-7, AR-10, AR-76, AR-77, and AR-81 exceed the ADEC *Oil and Hazardous Substances Pollution Control Regulations* for one or more petroleum hydrocarbon compounds. Although several compounds were not detected in monitoring wells AR-10 (i.e., benzene and GRPH) and AR-77 (i.e., benzene), the laboratory reporting limits were significantly elevated and the levels of these compounds with respect to the ADEC regulatory limits is inconclusive. The detectable concentrations reported for all other analytes were below the ADEC regulatory limits. A copy of the analytical laboratory report and chain-of-custody form are included in Attachment 3.

AEE is pleased to be of service to you on this project. If you have any questions or comments regarding this letter, please contact our office at (907) 479-7586.

Sincerely,

AGRA Earth & Environmental, Inc.



Douglas J. Buteyn
Senior Project Manager

Attachment 1: Figure 1, Site Vicinity Map and Figure 2, Site Map
Attachment 2: Summary Table of Monitoring Data and Groundwater Collection Form
Attachment 3: Analytical Laboratory Reports

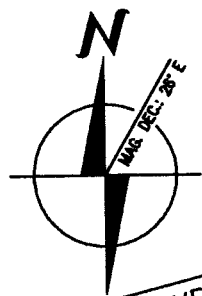
cc: Susan Schrader, Alaska Railroad Corporation
Clint Adler, Alaska Department of Environmental Conservation



ATTACHMENT 1

FIGURES





JOHANSEN EXPRESSWAY

RAILROAD INDUSTRIAL AREA

ALASKA RAILROAD

NOYES ST.

CHARLES ST.

NOYES ST.

ELLINGSON ST.

AR85 AR13

MINNIE ST.

AR81

AR77

AR90

AR76

AR46

K-5

WELL ST.

DRIVEWAY ST.

MONROE ST.

INA ST.

BETTY ST.

FULTON ST.

CLARA ST.

MINNIE ST.

WELL ST.

AR102 AR101

PHILLIPS FIELD RD.

SLATER ST.

Noyes Slough

PHILLIPS

FIELD RD.

POWER PLANT

PIONEER RD.

CIRCLE ST.

BOUNDARY ST.

BRANDT ST.

DRIVEWAY ST.

CHURCH ST.

SLOUGH

SHOREWAY DR.

CHURCH ST.

Chena River
1st AVE
2nd AVE
3rd AVE
GRANT

LINCOLN ST.

BADGER ST.

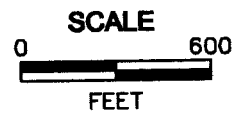
STATE ST.

CLEARY ST.

TERMINAL ST.
ENSB

LEGEND

| | | |
|------|---|-----------------|
| AR76 | ● | MONITORING WELL |
|------|---|-----------------|



AGRA Earth & Environmental
ENGINEERING GLOBAL SOLUTIONS
3504 Industrial Ave. Suite 5
Fairbanks, AK 99701

GROUNDWATER MONITORING
RAILROAD INDUSTRIAL AREA
FAIRBANKS, ALASKA
SITE MAP
FIGURE 2

| | | | | | |
|-------------|------------|--------------------|----------------|------------------|-----------------|
| DESIGN: DJB | DRAWN: PC2 | W/O: 6-024-01152-3 | FILE: 11523002 | DATE: 10/07/1999 | SCALE: AS SHOWN |
|-------------|------------|--------------------|----------------|------------------|-----------------|

000004

ATTACHMENT 2

TABLES



SUMMARY TABLE

**Groundwater Monitoring and Analytical Data
Alaska Railroad Industrial Area
AEE Project No. 6-024-01152-3
August 25, 1999**

| Well ID | Measuring Point Elevation (feet) | Depth to Water (feet) | Depth to Product (feet) | Water Table Elevation (feet) | Benzene ($\mu\text{g/L}$) | Toluene ($\mu\text{g/L}$) | Ethylbenzene ($\mu\text{g/L}$) | Xylenes ($\mu\text{g/L}$) | GRPH (mg/L) | DRPH (mg/L) |
|-------------------------------|-------------------------------------|-----------------------------|-------------------------------|---------------------------------------|--------------------------------|--------------------------------|-------------------------------------|--------------------------------|---------------------------|---------------------------|
| <i>ADEC Regulatory Limits</i> | | | | | 5 | 1,000 | 700 | 10,000 | 1.3 | 1.5 |
| AR-6 | NA | 15.48 | 15.47 | NA | NS | NS | NS | NS | NS | NS |
| AR-7 | 440.08 | 17.6 | --- | 422.48 | 940 | 1050 | 891 | 5040 | 26.8 | 58.4 |
| AR-10 | 439.23 | 16.14 | --- | 423.09 | ND(100) | ND(100) | ND(100) | 209 | ND(10.0) | 119 |
| AR-13 | 438.21 | 15.08 | 15.07 | 423.13 | NS | NS | NS | NS | NS | NS |
| AR-76 | 436.92 | 13.89 | --- | 423.03 | ND(5.00) | ND(5.00) | ND(5.00) | 20.9 | 0.566 | 14.2 |
| AR-77 | 436.52 | 13.46 | --- | 423.06 | ND(1250) | 3350 | 1620 | 14800 | 523 | 355.00 |
| AR-81 | 437.09 | 14.11 | --- | 422.98 | 9.24 | 0.522 | 8.8 | 14.2 | 0.474 | 3.23 |
| DUP-1 | --- | --- | --- | --- | 9.36 | 0.818 | 9.06 | 18.7 | 0.442 | 3.1 |
| AR-85 | 437.31 | 14.27 | --- | 423.04 | ND(0.500) | ND(0.500) | ND(0.500) | ND(1.00) | ND(0.0500) | 0.606 |
| AR-90 (a) | 440.79 | 17.82 | --- | 422.97 | NS | NS | NS | NS | NS | NS |
| AR-101 | 440.70 | 18.90 | --- | 421.8 | ND(0.500) | ND(0.500) | ND(0.500) | ND(1.00) | ND(0.0500) | 0.151 |
| AR-102 | 440.92 | 19.15 | --- | 421.77 | ND(0.500) | ND(0.500) | ND(0.500) | ND(1.00) | ND(5.00) | 0.148 |
| K-5 | --- | 15.48 | 15.19 | --- | NS | NS | NS | NS | NS | NS |

Notes: NA indicates not available.

NS indicates that a sample was not collected.

ND indicates that the analyte was not detected above the method reporting limit, which is shown in parentheses.

(a) AR-90 was labeled AR-7 in previous AEE reports, and was labeled AR-25 in the Columbia Analytical results reported 9/8/99.



AGRA
Earth & Environmental

GROUNDWATER COLLECTION FORM

PROJECT NAME

MSLUG

SAMPLER

Doug Buteyn/Janice Wieggers/Patrick Cox

EQUIPMENT USED

Sample Kit, 12 disposable bailers,

PROJECT NUMBER

6-024-01152-3

DATE

August 25, 1999

WEATHER

Cloudy, rainy, approx. 50 degrees F

PURGE METHOD

Disposable Bailers

| Sample ID | Date | Time | Water Level Data | | | | | Purge Data | | | | | | | Sample Date | Sample Time | Sample Notes |
|-----------|---------|------|------------------|-------|-------|---------|-----------------|---------------|-------|-------|------------|----------------|----------------|---------|-------------|-------------------------------|--------------|
| | | | MP Elev | DTW | DTP | GW Elev | Depth to Bottom | Column Height | 1 Vol | 3 Vol | Purge Time | Gallons Purged | Purged Dry Y/N | | | | |
| AR13 | 8/25/99 | --- | 438.21 | 15.08 | 15.07 | 423.13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | NO SAMPLE |
| AR76 | 8/25/99 | --- | 436.92 | 13.89 | --- | 423.03 | 20.8 | 6.91 | 1.1 | 3.4 | --- | 4.0 | N | 8/25/99 | 1440 | dark grey, sheen, strong odor | |
| AR77 | 8/25/99 | --- | 436.52 | 13.46 | --- | 423.06 | 21.7 | 8.24 | 1.3 | 4.0 | --- | 4.2 | N | 8/25/99 | 1435 | dark grey, sheen, strong odor | |
| AR7 | 8/25/99 | --- | 440.08 | 17.60 | --- | 422.48 | 23.8 | 6.0 | 1.0 | 3.0 | --- | 4.0 | N | 8/25/99 | 1540 | light grey, odor, sheen | |
| AR6 | 8/25/99 | --- | --- | 15.48 | 15.47 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | NO SAMPLE |
| AR25 | 8/25/99 | --- | 442.44 | 17.82 | 17.56 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | NO SAMPLE |
| AR81 | 8/25/99 | --- | 437.09 | 14.11 | --- | 422.98 | 18.5 | 4.39 | 6.4 | 19.3 | --- | 10.0 | Y | 8/25/99 | 1650 | light grey, turbid, no odor | |
| AR85 | 8/25/99 | --- | 437.31 | 14.27 | --- | 423.04 | 17.4 | 3.13 | 4.6 | 13.8 | --- | 14.0 | N | 8/25/99 | 1725 | rusty color, no odor | |
| AR10 | 8/25/99 | --- | 439.23 | 16.14 | --- | 423.09 | 22.5 | 6.36 | 1.0 | 3.0 | --- | 4.0 | N | 8/25/99 | 1700 | slight odor | |
| AR101 | 8/25/99 | --- | 440.70 | 18.90 | --- | 421.8 | 100.4 | 81.5 | 13.3 | 40.0 | --- | 40.0 | N | 8/25/99 | 1900 | clear, no odor | |
| AR102 | 8/25/99 | --- | 440.92 | 19.15 | --- | 421.77 | 22.8 | 3.65 | 0.6 | 1.8 | --- | 2 | N | 8/25/99 | 1820 | brown, silty | |
| K5 | 8/26/99 | --- | --- | 15.48 | 15.19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | NO SAMPLE |
| | | | | | | 0 | | | | | | | | | | | |
| | | | | | | 0 | | | | | | | | | | | |

COMMENTS

(All samples collected with disposable bailers unless otherwise noted.)

Volumes: 1" ID...0.04 gal / ft 1.5" ID...0.092 gal / ft 2" ID...0.163 gal / ft 4" ID...0.653 gal / ft 6" ID...1.469 gal / ft 12" ID...5.875 gal / ft

200007

ATTACHMENT 3
ANALYTICAL LABORATORY REPORTS





Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
 425.482.0000 fax 425.420.9210
 Spokane East 1000 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

000009

| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

ANALYTICAL REPORT FOR SAMPLES:

| Sample Description | Laboratory Sample Number | Sample Matrix | Date Sampled |
|--------------------|--------------------------|---------------|--------------|
| AR76 | B908602-01 | Water | 8/25/99 |
| AR77 | B908602-02 | Water | 8/25/99 |
| AR7 | B908602-03 | Water | 8/25/99 |
| AR81 | B908602-04 | Water | 8/25/99 |
| AR85 | B908602-05 | Water | 8/25/99 |
| AR10 | B908602-06 | Water | 8/25/99 |
| AR101 | B908602-07 | Water | 8/25/99 |
| AR102 | B908602-08 | Water | 8/25/99 |
| DUP-1 | B908602-09 | Water | 8/25/99 |
| TRIP BLANK | B908602-10 | Water | 8/25/99 |

AFF FAIRBANKS

SEP 13 1999

RECEIVED

North Creek Analytical - Bothell

*The results in this report apply to the samples analyzed in accordance with the chain of custody document
 This analytical report must be reproduced in its entirety*

Kirk Gendron, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
 425 471 9200 fax 425 420 9210
 Spokane East Montgomery, Suite B, Spokane, WA 99206-4776
 509 924 9200 fax 509 924 9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503 906 9200 fax 503 906 9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541 383 9310 fax 541 382 7588

000010

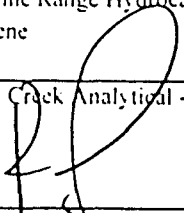
| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

**Gasoline Hydrocarbons (2-Methylpentane to 1,2,4-Trimethylbenzene) and BTEX by EPA 8015M and 8021B
North Creek Analytical - Bothell**

| Analyte | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|--------------|--------|
| AR76 | | | | B908602-01 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 500 | 566 | ug/l | 1 |
| Benzene | " | " | " | | 5.00 | ND | " | |
| Toluene | " | " | " | | 5.00 | ND | " | |
| Ethylbenzene | " | " | " | | 5.00 | ND | " | |
| Nylenes (total) | " | " | " | | 10.0 | 20.9 | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 88.3 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 89.8 | " | |
| AR77 | | | | B908602-02 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 125000 | 523000 | ug/l | 1 |
| Benzene | " | " | " | | 1250 | ND | " | |
| Toluene | " | " | " | | 1250 | 3350 | " | |
| Ethylbenzene | " | " | " | | 1250 | 1620 | " | |
| Nylenes (total) | " | " | " | | 2500 | 14800 | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 100 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 94.0 | " | |
| AR7 | | | | B908602-03 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/30/99 | | 5000 | 26800 | ug/l | 1 |
| Benzene | " | " | " | | 50.0 | 940 | " | |
| Toluene | " | " | " | | 50.0 | 1050 | " | |
| Ethylbenzene | " | " | " | | 50.0 | 891 | " | |
| Nylenes (total) | " | " | " | | 100 | 5040 | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 101 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 93.8 | " | |
| AR81 | | | | B908602-04 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | 474 | ug/l | |
| Benzene | " | " | " | | 0.500 | 9.24 | " | |
| Toluene | " | " | " | | 0.500 | 0.522 | " | |
| Ethylbenzene | " | " | " | | 0.500 | 8.80 | " | |
| Nylenes (total) | " | " | " | | 1.00 | 17.2 | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 136 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 106 | " | |
| AR85 | | | | B908602-05 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | ND | ug/l | |
| Benzene | " | " | " | | 0.500 | ND | " | |

North Creek Analytical - Bothell

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


 Kirk Gendron, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
 425.480.0000 fax 425.420.9210
 Spokane East 1005 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

000011

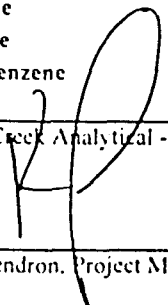
| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

**Gasoline Hydrocarbons (2-Methylpentane to 1,2,4-Trimethylbenzene) and BTEX by EPA 8015M and 8021B
 North Creek Analytical - Bothell**

| Analyte | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|--------------|--------|
| <u>AR85 (continued)</u> | | | | <u>B908602-05</u> | | | <u>Water</u> | |
| Toluene | 0891031 | 8/29/99 | 8/29/99 | | 0.500 | ND | ug/l | |
| Ethylbenzene | " | " | " | | 0.500 | ND | " | |
| Xylenes (total) | " | " | " | | 1.00 | ND | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 82.9 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 84.8 | " | |
| <u>AR10</u> | | | | <u>B908602-06</u> | | | <u>Water</u> | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 10000 | ND | ug/l | 1 |
| Benzene | " | " | " | | 100 | ND | " | |
| Toluene | " | " | " | | 100 | ND | " | |
| Ethylbenzene | " | " | " | | 100 | ND | " | |
| Xylenes (total) | " | " | " | | 200 | 209 | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 86.7 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 90.0 | " | |
| <u>AR101</u> | | | | <u>B908602-07</u> | | | <u>Water</u> | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | ND | ug/l | |
| Benzene | " | " | " | | 0.500 | ND | " | |
| Toluene | " | " | " | | 0.500 | ND | " | |
| Ethylbenzene | " | " | " | | 0.500 | ND | " | |
| Xylenes (total) | " | " | " | | 1.00 | ND | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 76.9 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 80.8 | " | |
| <u>AR102</u> | | | | <u>B908602-08</u> | | | <u>Water</u> | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | ND | ug/l | |
| Benzene | " | " | " | | 0.500 | ND | " | |
| Toluene | " | " | " | | 0.500 | ND | " | |
| Ethylbenzene | " | " | " | | 0.500 | ND | " | |
| Xylenes (total) | " | " | " | | 1.00 | ND | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 80.6 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 84.6 | " | |
| <u>DUP-1</u> | | | | <u>B908602-09</u> | | | <u>Water</u> | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | 442 | ug/l | |
| Benzene | " | " | " | | 0.500 | 9.36 | " | |
| Toluene | " | " | " | | 0.500 | 0.818 | " | |
| Ethylbenzene | " | " | " | | 0.500 | 9.06 | " | |

North Creek Analytical - Bothell

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


 Kirk Gendron, Project Manager



Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9503
 425.477.0000 fax 425.420.9210
 Spokane East 1000 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

000012

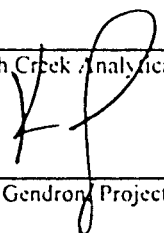
| | | |
|---|--|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indst. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|--|---|

**Gasoline Hydrocarbons (2-Methylpentane to 1,2,4-Trimethylbenzene) and BTEX by EPA 8015M and 8021B
 North Creek Analytical - Bothell**

| Analyte | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units | Notes* |
|-----------------------------|--------------|---------------|---------------|-------------------|-----------------|--------|--------------|--------|
| DUP-1 (continued) | | | | B908602-09 | | | Water | |
| Xylenes (total) | 0891031 | 8/29/99 | 8/29/99 | | 1.00 | 18.7 | ug/l | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 133 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 110 | " | |
| TRIP BLANK | | | | B908602-10 | | | Water | |
| Gasoline Range Hydrocarbons | 0891031 | 8/29/99 | 8/29/99 | | 50.0 | ND | ug/l | |
| Benzene | " | " | " | | 0.500 | ND | " | |
| Toluene | " | " | " | | 0.500 | ND | " | |
| Ethylbenzene | " | " | " | | 0.500 | ND | " | |
| Xylenes (total) | " | " | " | | 1.00 | ND | " | |
| Surrogate: 4-BFB (FID) | " | " | " | 50.0-150 | | 78.3 | % | |
| Surrogate: 4-BFB (PID) | " | " | " | 50.0-150 | | 82.3 | " | |

North Creek Analytical - Bothell

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


 Kirk Gendron, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



Seattle 18930 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
 425.420.2000 fax 425.420.9210
 Spokane East 1515 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

000013

| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

**Diesel Hydrocarbons (C10-C28) by EPA Method 8100 (modified)
 North Creek Analytical - Bothell**

| Analyte | Batch Number | Date Prepared | Date Analyzed | Surrogate Limits | Reporting Limit | Result | Units | Notes* |
|--|--------------|---------------|---------------|-------------------------------|-----------------|---------------|---------------------------|--------|
| AR76 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-01</u> 50.0-150 | 0.100 | 14.2 62.5 | <u>Water</u> mg/l % | |
| AR77 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-02</u> 50.0-150 | 10.1 | 355 NR | <u>Water</u> mg/l % | 2 |
| AR7 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-03</u> 50.0-150 | 1.10 | 58.4 106 | <u>Water</u> mg/l % | |
| AR81 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-04</u> 50.0-150 | 0.100 | 3.23 82.0 | <u>Water</u> mg/l % | |
| AR85 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-05</u> 50.0-150 | 0.100 | 0.606 81.6 | <u>Water</u> mg/l % | |
| AR10 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-06</u> 50.0-150 | 1.10 | 119 93.8 | <u>Water</u> mg/l % | |
| AR101 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-07</u> 50.0-150 | 0.100 | 0.151 79.2 | <u>Water</u> mg/l % | |
| AR102 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-08</u> 50.0-150 | 0.100 | 0.148 68.4 | <u>Water</u> mg/l % | |
| DUP-1 Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i> | 0891035 | 8/30/99 | 9/2/99 | <u>B908602-09</u> 50.0-150 | 0.100 | 3.10 77.3 | <u>Water</u> mg/l % | |

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-4568
 425.482.2000 fax 425.420.9210
 Spokane East 666 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

000014

Agra - Fairbanks, AK Project: Chevron MSLUG ARR Indust. Area, #6284991 Sampled: 8/25/99
 3504 Industrial Ave. Suite S Project Number: #6-024-01152-3 Received: 8/27/99
 Fairbanks, Ak 99701 Project Manager: Doug Buteyn Reported: 9/8/99 12:38

**Gasoline Hydrocarbons (2-Methylpentane to 1,2,4-Trimethylbenzene) and BTEX by EPA 8015M and 8021B/Quality Control
 North Creek Analytical - Bothell**

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

Batch: 0891031 **Date Prepared: 8/29/99** **Extraction Method: EPA 5030B (P/T)**
Blank **0891031-BLK1**

| | | | | | | | | | |
|-----------------------------|---------|------|--|------|------|----------|------|--|--|
| Gasoline Range Hydrocarbons | 8/29/99 | | | ND | ug/l | 50.0 | | | |
| Benzene | " | | | ND | " | 0.500 | | | |
| Toluene | " | | | ND | " | 0.500 | | | |
| Ethylbenzene | " | | | ND | " | 0.500 | | | |
| Xylenes (total) | " | | | ND | " | 1.00 | | | |
| Surrogate: 4-BFB (FID) | " | 48.0 | | 35.7 | " | 50.0-150 | 74.4 | | |
| Surrogate: 4-BFB (PID) | " | 48.0 | | 37.0 | " | 50.0-150 | 77.1 | | |

LCS **0891031-BS1**

| | | | | | | | | | |
|-----------------------------|---------|------|--|------|------|----------|------|--|--|
| Gasoline Range Hydrocarbons | 8/29/99 | 500 | | 519 | ug/l | 70.0-130 | 104 | | |
| Surrogate: 4-BFB (FID) | " | 48.0 | | 45.6 | " | 50.0-150 | 95.0 | | |

Duplicate **0891031-DUP1** **B908602-04**

| | | | | | | | | | |
|-----------------------------|---------|------|-----|------|------|----------|-----|------|------|
| Gasoline Range Hydrocarbons | 8/30/99 | | 474 | 489 | ug/l | | | 25.0 | 3.12 |
| Surrogate: 4-BFB (FID) | " | 48.0 | | 66.9 | " | 50.0-150 | 139 | | |

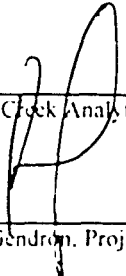
Matrix Spike **0891031-MS1** **B908602-07**

| | | | | | | | | | |
|------------------------|---------|------|----|------|------|----------|------|--|--|
| Benzene | 8/30/99 | 10.0 | ND | 9.71 | ug/l | 70.0-130 | 97.1 | | |
| Toluene | " | 10.0 | ND | 9.43 | " | 70.0-130 | 94.3 | | |
| Ethylbenzene | " | 10.0 | ND | 9.25 | " | 70.0-130 | 92.5 | | |
| Xylenes (total) | " | 30.0 | ND | 27.7 | " | 70.0-130 | 92.3 | | |
| Surrogate: 4-BFB (PID) | " | 48.0 | | 40.1 | " | 50.0-150 | 83.5 | | |

Matrix Spike Dup **0891031-MSD1** **B908602-07**

| | | | | | | | | | |
|------------------------|---------|------|----|------|------|----------|------|------|-------|
| Benzene | 8/30/99 | 10.0 | ND | 9.76 | ug/l | 70.0-130 | 97.6 | 15.0 | 0.514 |
| Toluene | " | 10.0 | ND | 9.53 | " | 70.0-130 | 95.3 | 15.0 | 1.05 |
| Ethylbenzene | " | 10.0 | ND | 9.41 | " | 70.0-130 | 94.1 | 15.0 | 1.71 |
| Xylenes (total) | " | 30.0 | ND | 28.4 | " | 70.0-130 | 94.7 | 15.0 | 2.57 |
| Surrogate: 4-BFB (PID) | " | 48.0 | | 41.4 | " | 50.0-150 | 86.3 | | |

North Creek Analytical - Bothell



Kirk Gendron, Project Manager

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



000015

Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98041-1201
 425 485 9200 fax 425 420 9210
 Spokane East 1555 Montgomery, Suite B, Spokane, WA 99206-4776
 509 924 9200 fax 509 924 9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503 906 9200 fax 503 906 9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541 383 9310 fax 541 382 7588

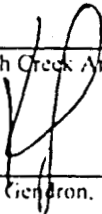
| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

**Diesel Hydrocarbons (C10-C28) by EPA Method 8100 (modified)/Quality Control
 North Creek Analytical - Bothell**

| Analyte | Date Analyzed | Spike Level | Sample Result | QC Result | Units | Reporting Limit Recov. Limits | Recov. % | RPD Limit | RPD % | Notes* |
|---------------------------|---------------|-------------|-------------------------------|-----------|-------|--|-------------|--------------|----------|--------|
| Batch: 0891035 | | | Date Prepared: 8/30/99 | | | Extraction Method: EPA 3520C/600 Series | | | | |
| Blank | | | 0891035-BLK1 | | | | | | | |
| Diesel Range Hydrocarbons | 9/2/99 | | | ND | mg/l | 0.100 | | | | |
| Surrogate: 2-FBP | " | 0.321 | | 0.262 | " | 50.0-150 | 81.6 | | | |
| LCS | | | 0891035-BS1 | | | | | | | |
| Diesel Range Hydrocarbons | 9/2/99 | 2.00 | | 1.91 | mg/l | 54.0-121 | 95.5 | | | |
| Surrogate: 2-FBP | " | 0.321 | | 0.235 | " | 50.0-150 | 73.2 | | | |
| LCS Dup | | | 0891035-BSD1 | | | | | | | |
| Diesel Range Hydrocarbons | 9/2/99 | 2.00 | | 1.76 | mg/l | 54.0-121 | 88.0 | 20.0 | 8.17 | |
| Surrogate: 2-FBP | " | 0.321 | | 0.236 | " | 50.0-150 | 73.5 | | | |

North Creek Analytical - Bothell

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


 Kirk Gendron, Project Manager

North Creek Analytical, Inc.
 Environmental Laboratory Network



000016

Seattle 18930 20th Avenue NE, Suite 101, Bothell, WA 98011-4588
 425.420.9200 fax 425.420.9210
 Spokane East 1515 Montgomery, Suite B, Spokane, WA 99206-4776
 509.924.9200 fax 509.924.9290
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
 503.906.9200 fax 503.906.9210
 Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
 541.383.9310 fax 541.382.7588

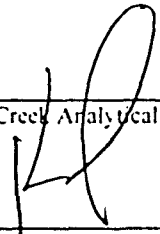
| | | |
|---|---|---|
| Agra - Fairbanks, AK 3504 Industrial Ave. Suite S Fairbanks, Ak 99701 | Project: Chevron MSLUG ARR Indust. Area, #6284991 Project Number: #6-024-01152-3 Project Manager: Doug Buteyn | Sampled: 8/25/99 Received: 8/27/99 Reported: 9/8/99 12:38 |
|---|---|---|

Notes and Definitions

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

- 1 This sample appears to contain extractable diesel range organics.
- 2 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- 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
- RPD Relative Percent Difference

North Creek Analytical - Bothell



Kirk Gendron, Project Manager



North Creek Analytical, Inc.
Environmental Laboratory Network
www.mcalabs.com

CHAIN OF CUSTODY REPORT

Work Order #: **B908602**

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 98206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711

(425) 420-9200 FAX 420-9210
(509) 924-9200 FAX 924-9290
(503) 906-9200 FAX 906-9210
(541) 383-9310 FAX 382-7588

TURNAROUND REQUEST in Business Days*

Organic & Inorganic Analyses
 10 7 5 4 3 2 1 <1
 STD. 5 4 3 2 1 <1
 STD. OTHER Send/Inv
 Please Specify

* Turnaround Request less than standard may vary on our part (lab fees)

CLIENT: **Agria Earth & Environmental**
 REPORT TO: **Doug Bideyn**
 ADDRESS: **3504 Industrial Ave. Fairbanks, AK 99701**
 PHONE: **907-439-3580** FAX: **907-439-0193**
 PROJECT NAME: **MSLU19**
 PROJECT NUMBER: **6-024-01152-3**
 SAMPLED BY: **DJB/PC2/KRW**

INVOICE TO: **Lawren USA**
 ATTN: **Bob Cochran**
 P.O. Box 5004
 San Ramon, CA 94583
 P.O. NUMBER:

| CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | REQUESTED ANALYSES | DATE/TIME | RECEIVED BY | PRINT NAME | FIRM |
|------------------------------|--------------------|--|-----------|-------------|------------|------|
| 1. AR76 | 8/25/99 1440 | BTEX by 8020 GRO by 8015M DRO by 8100M | | | | |
| 2. AR77 | 1435 | | | | | |
| 3. AR7 | 1540 | | | | | |
| 4. AR281 | 1650 | | | | | |
| 5. AR285 | 1725 | | | | | |
| 6. AR10 | 1700 | | | | | |
| 7. AR101 | 1900 | | | | | |
| 8. AR102 | 1820 | | | | | |
| 9. DUP-1 | 8/25/99 | | | | | |
| 10. Trip Blank | 8/25/99 | | | | | |
| 11. | | | | | | |
| 12. | | | | | | |
| 13. | | | | | | |
| 14. | | | | | | |
| 15. | | | | | | |

| MATRIX (W.S.O) | # OF CONT. | COMMENTS | NCA W/ ID |
|----------------|------------|----------|-----------|
| Water | 12/2001 | | |
| Water | 1/2001 | | |
| Water | 2/2001 | | |
| Water | 2/2001 | | |
| Water | 2/2001 | | |

RELINQUISHED BY: **James Hays** FIRM: **Agria** DATE: **7/26/99** TIME: **1200**
 PRINT NAME: **Jahice Wieggers** FIRM: **Agria** DATE: **7/26/99** TIME: **1200**
 ADDITIONAL REMARKS: **5646** FIRM: **NCA** DATE: **8/27/99** TIME: **10:30**