CONESTOGA-ROVERS & ASSOCIATES

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December 15, 2011 Reference No. 622237

Mr. Bruce Wanstall
Alaska Department of Environmental Conservation
410 Willoughby Avenue, Suite 302
Juneau, Alaska 99801

Re: Annual 2011 Groundwater Monitoring and
Ozone System Maintenance Report
Chevron Site 8-2307
9203 Cessna Drive
Juneau, Alaska
ADEC File ID 1513.26.046

Dear Mr. Bruce Wanstall:

Conestoga-Rovers & Associates (CRA) is submitting this *Annual 2011 Groundwater Monitoring and Ozone System Maintenance Report* for the site referenced above (Figure 1) on behalf of Chevron Environmental Management Company. CRA performed groundwater monitoring and sampling in accordance with the Alaska Department of Environmental Conservation's May 2010 *Draft Field Guidance*. The *Groundwater Elevation Map* is presented on Figure 2. Groundwater monitoring and sampling data are presented in Table 1. *CRA's Annual 2011* monitoring data package is included as Attachment A. Lancaster Laboratories' June 28, 2011 *Analytical Results* are included as Attachment B. Site photos are included as Attachment C. Standard operation procedures for groundwater monitoring and sampling are included as Attachment D and the ADEC laboratory data review checklist and memorandum are included as Attachment E.

## RESULTS OF ANNUAL 2011 EVENT

On May 26, 2011, CRA monitored and sampled the site well per the established schedule.

Results of the current monitoring event indicate the following:

- Depth to Water 4.46 feet below grade

Results of the current sampling event are presented below in Table A:

| TABLE A: GROUNDWATER ANALYTICAL DATA SUMMARY | | | | | | |
|---|---|---|---|---|---|---|
| *Well ID* | *DRO (mg/l)* | *GRO (mg/l)* | *Benzene (mg/l)* | *Toluene (mg/l)* | *Ethylbenzene (mg/l)* | *Total Xylenes (mg/l)* |
| *Table C Cleanup Levels* | ***1.5*** | ***2.2*** | ***0.005*** | ***1.0*** | ***0.7*** | ***10*** |
| MW-4 | **19/24** | 0.54/0.56 | NA | NA | NA | NA |
| NA Not Analyzed | | | | | | |

## OZONE SYSTEM MAINTENANCE AND GEOCHEMICAL ANALYSES

*System Maintenance*

CRA installed an ozone injection system in monitoring well MW-4 on August 28, 2007 to reduce dissolved-phase DRO concentrations in groundwater. CRA upgraded the ozone emitter on May 10, 2010. CRA replaced one broken solar panel, after which, each individual solar panel and battery was tested to confirm proper operation. Individual battery output was approximately 14.5 volts per battery. Solar panel output was approximately 0.3 volts per panel. The system was inspected on May 26, 2011 and all components were found to be safe and operational. All implemented safety equipment (i.e. orange safety cones, snow poles, and caution tape) were intact and visible. The westernmost panel was cracked and will be replaced in 2012.. Site photos are presented in Attachment C.

*Groundwater Geochemical Results*

CRA collected field geochemical parameters and groundwater samples on May 26, 2011 to evaluate natural attenuation and the ozone injection system's effectiveness. Temperature, dissolved oxygen (DO), oxidation reduction potential (ORP), conductivity and pH were measured in the field (Attachment A). Groundwater samples were analyzed for carbon dioxide, sulfate, nitrite, nitrate, and alkalinity. The geochemical analytical results are presented in Table 2.

## CONCLUSIONS

Low concentrations of nitrate (0.04 mg/L) and sulfate (2.4 mg/L) indicate hydrocarbon biodegradation is active. High alkalinity and a reducing environment also indicate a high level of hydrocarbon consumption. DRO and GRO concentrations have remained stable.

## ANTICIPATED FUTURE ACTIVITIES

***Groundwater Monitoring***
CRA will continue annual monitoring and sampling and submit a groundwater monitoring and sampling report presenting the results.

Alaska Qualified Personnel in accordance with *Title 18 Alaska Administrative Code (AAC) 78, Articles 2, 6, and 9* conducted all project work.

Please contact John Riggi at (720) 975-9121 if you have any questions or require additional information.

Sincerely,

CONESTOGA-ROVERS & ASSOCIATES

Diane Escobedo
Staff Geologist

John Riggi, P.G.
Senior Project Geologist

Jeffrey Cloud
Chemist

JR/aa/4
Encl.

| | |
|---|---|
| Figure 1 | Vicinity Map |
| Figure 2 | Groundwater Elevation Map |
| Table 1 | Groundwater Analytical Results |
| Table 2 | Geochemical Analytical Results |
| Attachment A | Monitoring Data Package |
| Attachment B | Laboratory Analytical Report |
| Attachment C | Site Photos |
| Attachment D | Standard Operation Procedures for Groundwater Monitoring and Sampling |
| Attachment E | ADEC Laboratory Data Review Checklist and Memorandum |

cc: Dan Carrier, Chevron EMC *(electronic copy)*
Oge Nkenke (Chevron Filing)
Bev Niemann
Allen Hesse

FIGURES

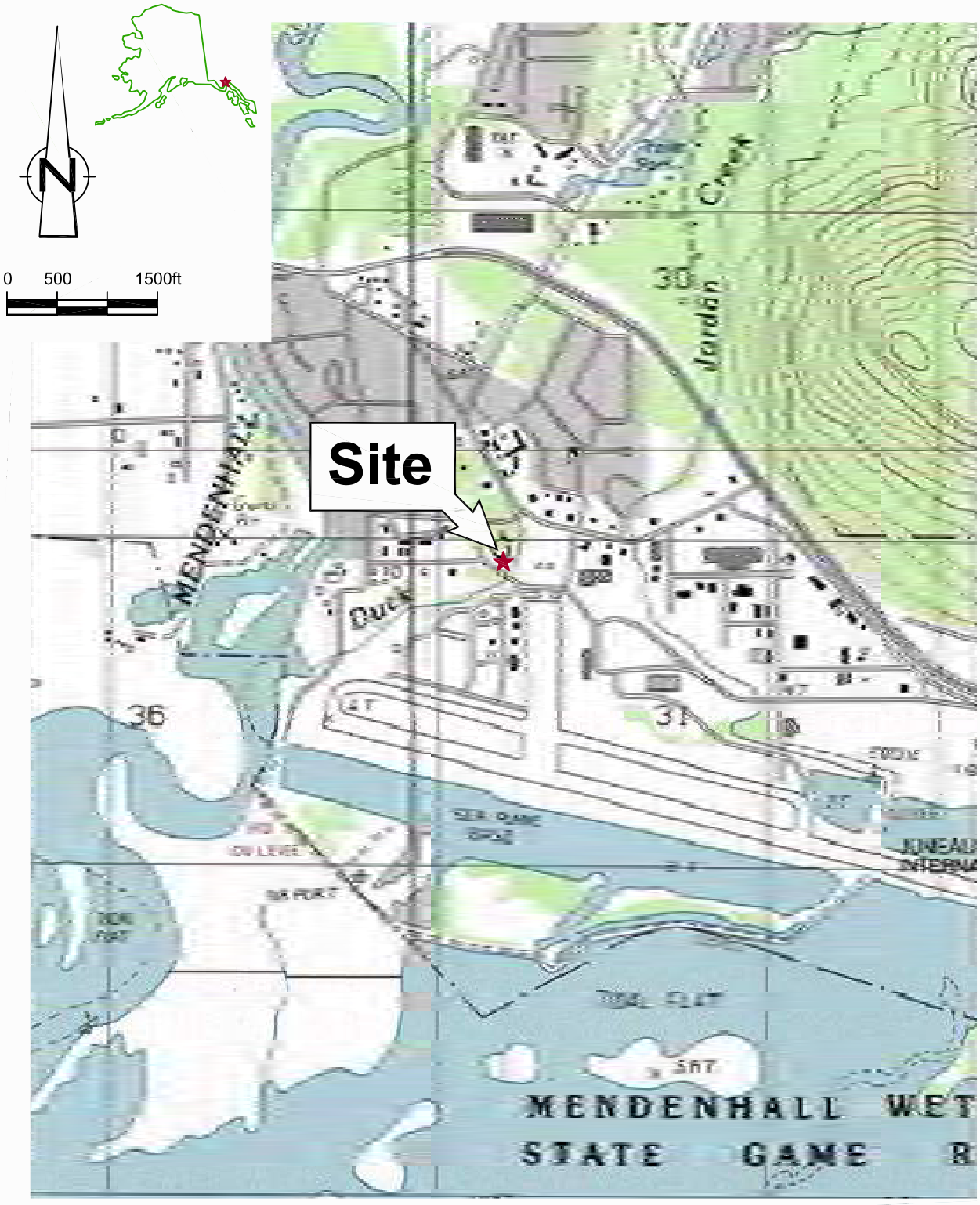


Figure 1

VICINITY MAP
FORMER DELTA WESTERN BULK TERMINAL 8-2307
9203 Cessna Drive
*Juneau, Alaska*

BERNERS AVENUE

GLACIER HIGHWAY

(typ)

N

0 40 80ft

Existing empty UST location, owned and operated by others (concrete pad with fill ports at surface) [typ]

GREENBELT

30' Electrical Easement

50' Setback

Existing Chainlink Fence

(3) 3" vertical electrical conduit

LOT 3
19,028.8 SF

LOT 4
17,483.3 SF

LOT 5
13,900.4 SF

LOT 6
14,555.3 SF

LOT 7
23,557.6 SF

Former Delta Western Bulk Terminal area

Setback Varies

DUCK CREEK

Monument (typ.)

LADD STREET

GREENBELT

concrete vaults

MW-4
23.93

LOT 2
12,491.1 SF

LOT 1
12,645.9 SF

vegetation/ trees

electric gate

LOT 8B
18,5183.3 SF

LOT 8A
10,981.7 SF

Former Delta Western Bulk Terminal

ASTs

pump house

Existing Arch Culvert

Bulk Terminal area new entrance

CESSNA DRIVE

AEL&P Electrical Substation

LOT 9
AEL&P
15,000 SF

DUCK CREEK

ALEX HOLDEN WAY

vegetation / trees

LOT 10
14,107.3 SF

Existing Culvert

TRACT 10

**LEGEND**

- MONITORING WELL LOCATION
- WELL — WELL DESIGNATION
- ELEV — GROUNDWATER ELEVATION (MSL)

Figure 2

GROUNDWATER ELEVATION MAP
FORMER DELTA WESTERN / CHEVRON BULK TERMINAL 8-2307
9203 CESSNA DRIVE
*Juneau, Alaska*
*May 26, 2011*

622237-95(004)GN-EM002 OCT 25/2011

TABLES

**TABLE 1**

**GROUNDWATER ANALYTICAL RESULTS**
**DELTA WESTERN/FORMER CHEVRON BULK TERMINAL 8-2307**
**9203 CESSNA DRIVE**
**JUNEAU, ALASKA**

| | | | | | *HYDROCARBONS* | | | *PRIMARY VOCS* | | | | *ADDITIONAL VOC'S* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Location* | *Date* | *TOC* | *DTW* | *GWE* | *RRO* | *DRO* | *GRO* | *Benzene* | *Toluene* | *Ethyl-benzene* | *Total Xylenes* | *VOCs* |
| | *Units* | *ft msl* | *fbg* | *ft msl* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* |
| *ADEC Groundwater Cleanup Levels*[a] | | | | | ***1.1*** | ***1.5*** | ***2.2*** | ***0.005*** | ***1.0*** | ***0.7*** | ***10.0*** | |
| MW-1 | 06/06/2000 | 25.19 | 8.55 | 16.64 | <0.75 | 0.269 | <0.05 | <0.0005 | <0.0005 | <0.0005 | <0.001 | ND |
| MW-1 | 12/09/2000 | 25.19 | 7.72 | 17.47 | <0.75 | 0.201 | <0.05 | 0.00025 | 0.00082 | <0.0005 | <0.001 | - |
| MW-1 | 03/24/2001 | 25.19 | 8.48 | 16.71 | - | 0.298 | <0.05 | 0.00214 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 06/19/2001 | 25.19 | 8.93 | 16.26 | - | 0.121 | <0.05 | 0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 06/17/2002 | 25.19 | 8.60 | 16.59 | - | 0.181 | <0.05 | 0.00115 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 12/11/2002 | 25.19 | 7.53 | 17.66 | - | 0.1 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 06/25/2003 | 25.19 | 4.72 | 20.47 | - | 0.1 | <0.05 | 0.00457 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 12/09/2003 | 25.19 | 8.43 | 16.76 | - | 0.139 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 05/18/2004 | 25.19 | 9.38 | 15.81 | - | 0.391 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-1 | 05/27/2005 | | | | | | | Well Destroyed | | | | |
| MW-2 | 06/06/2000 | 28.73 | 13.20 | 15.53 | <0.75 | 0.22 | <0.05 | <0.0005 | <0.0005 | <0.0005 | <0.001 | ND |
| MW-2 | 12/09/2000 | 28.73 | 12.12 | 16.61 | <0.75 / <0.75 | 0.22 | <0.05 / <0.05 | 0.000395 / 0.000353 | 0.000951 / 0.001 | <0.0005 / <0.0005 | <0.001 / 0.001 | - |
| MW-2 | 03/24/2001 | 28.73 | 13.28 | 15.45 | - | 0.176 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-2 | 06/19/2001 | 28.73 | 13.72 | 15.01 | - | 0.274 | 0.058 | 0.000213 | <0.0005 | <0.0005 | 0.0011 | - |
| MW-2 | 06/17/2002 | 28.73 | 13.13 | 15.60 | - | 0.393 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-2 | 12/11/2002 | 28.73 | 9.00 | 19.73 | - | 0.159 | <0.05 | <0.0002 | <0.0005 | <0.0005 | 0.001 | - |
| MW-2 | 06/25/2003 | 28.73 | 14.34 | 14.39 | - | 0.209 | 0.08 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-2 | 12/09/2003 | 28.73 | 13.15 | 15.58 | - | 0.132 | <0.05 | <0.0002 | <0.0005 | <0.0005 | 0.001 | - |
| MW-2 | 05/18/2004 | 28.73 | 9.40 | 19.33 | - | 0.391 | <0.05 | <0.0002 | 0.00062 | <0.0005 | 0.00101 | - |
| MW-2 | 05/27/2005 | | | | | | | Well Destroyed | | | | |
| MW-3 | 06/06/2000 | 28.21 | 12.09 | 16.12 | <0.75 | 0.144 | <0.05 | <0.0005 | <0.0005 | <0.0005 | <0.001 | ND |
| MW-3 | 12/10/2000 | 28.21 | 11.29 | 16.92 | <0.75 | 0.439 | <0.05 | 0.000223 | <0.0005 | <0.0005 | <0.001 | - |
| MW-3 | 03/24/2001 | 28.21 | 12.11 | 16.10 | - | 0.188 | <0.05 / <0.05 | <0.0002 / <0.0002 | <0.0005 / <0.0005 | <0.0005 / <0.0005 | <0.001 / <0.001 | - |
| MW-3 | 06/19/2001 | 28.21 | 12.53 | 15.68 | - | 0.163 | <0.05 / <0.05 | <0.0002 / <0.0002 | <0.0005 / <0.0005 | <0.0005 / <0.0005 | <0.001 / <0.001 | - |
| MW-3 | 06/17/2002 | 28.21 | 12.18 | 16.03 | - | 0.105 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-3 | 12/11/2002 | 28.21 | 11.00 | 17.21 | - | 0.122 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-3 | 06/25/2003 | 28.21 | 13.26 | 14.95 | - | 0.1 | <0.05 | 0.00067 | <0.0005 | <0.0005 | <0.001 | - |
| MW-3 | 12/09/2003 | 28.21 | 11.98 | 16.23 | - | 0.186 | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| MW-3 | 05/18/2004 | 28.21 | 12.97 | 15.24 | - | 0.391 | <0.05 | <0.0002 | <0.0005 | 0.000528 | 0.00162 | - |
| MW-3 | 05/27/2005 | | | | | | | Well Destroyed | | | | |
| MW-4 | 06/19/2001 | 28.39 | 4.08 | 24.31 | - | **22.2** | 0.948 | 0.00148 | <0.00125 | 0.00398 | 0.0821 | - |
| MW-4 | 06/17/2002 | 28.39 | 4.17 | 24.22 | - | **33.2** | 1.05 | 0.001 | <0.0005 | 0.0517 | 0.0979 | - |
| MW-4 | 12/11/2002 | 28.39 | 2.25 | 26.14 | - | **29.3** | 0.921 | **0.0091** | 0.00125 | 0.0448 | 0.088 | - |
| MW-4 | 06/25/2003 | 28.39 | 4.14 | 24.25 | - | **22.2** | 0.833 | 0.00128 | 0.00107 | 0.0485 | 0.0795 | - |

**TABLE 1**

**GROUNDWATER ANALYTICAL RESULTS**
**DELTA WESTERN/FORMER CHEVRON BULK TERMINAL 8-2307**
**9203 CESSNA DRIVE**
**JUNEAU, ALASKA**

| | | | | | HYDROCARBONS | | | PRIMARY VOCS | | | | ADDITIONAL VOC'S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Location* | *Date* | *TOC* | *DTW* | *GWE* | *RRO* | *DRO* | *GRO* | *Benzene* | *Toluene* | *Ethyl-benzene* | *Total Xylenes* | *VOCs* |
| | *Units* | *ft msl* | *fbg* | *ft msl* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* |
| *ADEC Groundwater Cleanup Levels*[a] | | | | | ***1.1*** | ***1.5*** | ***2.2*** | ***0.005*** | ***1.0*** | ***0.7*** | ***10.0*** | |
| MW-4 | 12/09/2003 | 28.39 | 3.66 | 24.73 | - | **27.5** | 0.537 | 0.00149 | <0.0025 | 0.0517 | 0.0547 | - |
| MW-4 | 05/18/2004 | 28.39 | 4.74 | 23.65 | - | **12.8** | 2.2 | 0.00139 | <0.001 | 0.0492 | 0.0786 | - |
| MW-4 | 05/27/2005 | 28.39 | 5.50 | 22.89 | - | **24** | 0.51 / 0.52 | 0.0008 / 0.0008 | <0.0005 / <0.0005 | 0.037 / 0.038 | 0.04 / 0.041 | - |
| MW-4 | 06/01/2006 | 28.39 | 5.80 | 22.59 | - | **26** | 0.55 | <0.0005 | <0.0005 | 0.035 | 0.045 | - |
| MW-4 | 08/28/2007 | 28.39 | 4.18 | 24.21 | - | **17** | 0.5 / 0.5 | <0.001 / <0.001 | <0.001 / <0.001 | 0.02 / 0.02 | 0.05 / 0.04 | - |
| MW-4 | 06/24/2008 | 28.39 | 5.20 | 23.19 | - | **37** | - | <0.001 / <0.001 | 0.001 / 0.001 | 0.02 / 0.02 | 0.03 / 0.03 | - |
| MW-4 | 08/25/2008 | 28.39 | 2.23 | 26.16 | - | **9.12** | - | <0.0005 / <0.0005 | <0.0005 / <0.0005 | 0.0161 / 0.0142 | 0.0264 / 0.0211 | - |
| MW-4 | 06/23/2009 | 28.39 | 6.41 | 21.98 | - | **12.2 / 13.1** | 0.578 / 0.476 | - | - | - | - | - |
| MW-4 | 05/11/2010 | 28.39 | 4.44 | 23.95 | - | **17 / 13** | 0.57 J / 0.81 J | - | - | - | - | - |
| MW-4 | 05/26/2011 | 28.39 | 4.46 | 23.93 | - | **19 / 24** | 0.54 / 0.56 | - | - | - | - | - |
| Trip Blank | 12/09/2000 | - | - | - | - | - | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| Trip Blank | 03/24/2001 | - | - | - | - | - | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| Trip Blank | 06/19/2001 | - | - | - | - | - | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| Trip Blank-1 | 12/09/2003 | - | - | - | - | 0.165 | <0.05 / <0.05 | <0.0002 / <0.0002 | <0.0005 / <0.0005 | <0.0005 / <0.0005 | <0.001 / <0.001 | - |
| Trip Blank-2 | 12/09/2003 | | | | | | <0.05 | <0.0002 | <0.0005 | <0.0005 | <0.001 | - |
| Trip Blank | 05/18/2004 | - | - | - | - | - | <0.01 | <0.0005 | <0.0005 | <0.0005 | <0.0015 | - |
| Trip Blank | 06/01/2006 | - | - | - | - | - | <0.01 | <0.0005 | <0.0005 | <0.0005 | <0.0015 | - |
| Trip Blank | 08/28/2007 | - | - | - | - | - | <0.01 | <0.001 | <0.001 | <0.001 | <0.002 | <0.0005 |
| Trip Blank | 06/24/2008 | - | - | - | - | - | - | <0.001 | <0.001 | <0.001 | <0.002 | - |
| Trip Blank | 08/25/2008 | - | - | - | - | - | - | <0.0005 | <0.0005 | <0.0005 | <0.001 | - |
| Trip Blank | 06/23/2009 | - | - | - | - | - | <0.0100 | - | - | - | - | - |
| Trip Blank | 05/11/2010 | - | - | - | - | - | <0.010 | - | - | - | - | - |

**Notes and Abbreviations**

VOCs = Volatile Organic Compounds
TOC = Top of Casing
DTW = Depth to Water
GWE = Groundwater Elevation
RRO = Residual Range Organics AK103
DRO = Diesel Range Organics by Alaska Series Method AK102
GRO = Gasoline Range Organics by Alaska Series Method AK101
Benzene, Toluene, Ethylbenzene, and Total Xylenes by Environmental Protection Agency (EPA) Method 8021B or 8260B
Total Xylenes = Sum of m-, o-, and p-xylenes
ft msl = Feet Above Mean Sea Level
fbg = Feet Below Grade

**TABLE 1**

**GROUNDWATER ANALYTICAL RESULTS**
**DELTA WESTERN/FORMER CHEVRON BULK TERMINAL 8-2307**
**9203 CESSNA DRIVE**
**JUNEAU, ALASKA**

| | | | | | HYDROCARBONS | | | PRIMARY VOCS | | | | ADDITIONAL VOC'S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Location* | *Date* | *TOC* | *DTW* | *GWE* | *RRO* | *DRO* | *GRO* | *Benzene* | *Toluene* | *Ethyl-benzene* | *Total Xylenes* | *VOCs* |
| | *Units* | *ft msl* | *fbg* | *ft msl* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* | *mg/L* |
| *ADEC Groundwater Cleanup Levels*[a] | | | | | ***1.1*** | ***1.5*** | ***2.2*** | ***0.005*** | ***1.0*** | ***0.7*** | ***10.0*** | |

mg/L = Milligrams per Liter
ADEC = Alaska Department of Environmental Conservation
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
<x = Constituent not detected above x milligrams per liter
- = Not Measured/Not Analyzed
ND = Not detected above laboratory method detection limits
x / y = Sample Results / Blind Duplicate Results
**BOLD** = Indicates concentration above the ADEC Table C Groundwater Cleanup Level

**TABLE 2**

**GEOCHEMICAL ANALYTICAL RESULTS**
**DELTA WESTERN/FORMER CHEVRON BULK TERMINAL 8-2307**
**9203 CESSNA DRIVE**
**JUNEAU, ALASKA**

| | | MNA PARAMETERS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Location* | *Date* | *Ferrous Iron* | *Nitrite/Nitrate* | *Nitrate* | *Nitrite* | *Carbon Dioxide* | *Alkalinity, Total (as CaCO3)* | *Alkalinity, Bicarbonate* | *Alkalinity, Carbonate* | *Alkalinity, Hydroxide* | *Sulfate* | *pH** | *Conductivity** |
| | *Units* | *mg/L* | *mg/L* | | | *mg/L* | *mgCaCO3/L* | *mgCaCO3/L* | *mgCaCO3/L* | *mgCaCO3/L* | *mg/L* | | |
| | *ADEC Groundwater Cleanup Levels*[a] | | | | | | | | | | | | |
| MW-4 | 06/24/2008 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6.3 | 393.5 |
| MW-4 | 08/26/2008 | 3.9 | 0.531 | -- | -- | 81.8 | 149 | 149 | 5 | 5 | 11.7 | 6.65 | 383.8 |
| MW-4 | 10/12/2009 | -- | 0.0910 J | -- | -- | -- | 137 | 137 | <0.640 | <0.640 | 0.920 J | 6.33 | -- |
| MW-4 | 05/11/2010 | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3.5 J / 3.6 J | 6.91 | -74.8 |
| MW-4 | 05/26/2011 | -- | -- | 0.040 UJ | <0.015 | 89 | 127 | -- | -- | -- | 2.4 J | 6.40 | 0.279 |

**Notes and Abbreviations**

MNA = Monitored Natural Attenuation
CaCO3 = Calcium Carbonate
* = Average of readings during purging
mg/L = Milligrams per Liter
ADEC = Alaska Department of Environmental Conservation
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
-- = Not Measured/Not Analyzed
J = Estimated value

ATTACHMENT A

MONITORING DATA PACKAGE

CRA

# Groundwater Monitoring Field Sheet

| Well ID | Time | DTP | DTW | Depth to Bottom | Product Thickness | Amount of Product Removed | Casing Diam. | Comments |
|---|---|---|---|---|---|---|---|---|
| MW-4 | 13:25 | — | 4.46 | 9.45 | — | — | 2" | |
| | | | | | | | | |
| | | | | | | | | |
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Project Name: 8-2307

Project Number/Task: 602237/GWS

Technician: D.ESCOBEDO/N.GRECO

Date: 5/26/11

CONESTOGA-ROVERS & ASSOCIATES

# WELL SAMPLING FORM
## *DISPOSABLE BAILER SAMPLING*

| | | | |
|---|---|---|---|
| Site ID: 8-2307 | CRA Mgr: John Riggi | Well ID: MW-4 | |
| CRA Project No.: 622237 | Date: 5/26/11 | Field Staff: DE / NG | |
| Street Address: 9203 Cessna Dr. | City, State: Juneau, AK | Purging Device: | Teflon Disp. Bailer ○ poly bailer ● |
| | | Sampling Method: | Teflon Disp. Bailer ○ poly bailer ● |
| Depth to Water: 4.46 | Depth to Bottom: 9.45 | Water Column Height: 4.99 | |
| Volume/ft: 0.16 | 1 Casing Volume: 0.79 | 3 Casing Volumes: 2.40 | |
| Well Diameter: 2" | Did Well Dewater?: NO | Total Gallons Purged: 2.5 | |
| Start Purge Time: 13:32 | Stop Purge Time: 13:38 | Total Time: 6 minutes | |

1 Casing Volume = Water column height x Volume/ ft.

| Well Diam. | Volume/ft (gallons) |
|---|---|
| 2" | 0.16 |
| 4" | 0.65 |
| 6" | 1.47 |

**NO PURGE APPROVED BY ADEC?** ☐ **YES** ☒ **NO** *(If NO, please enter parameters below.)*

| Time | Volume Purged (gallons) | Temp. (°C) ± 10% | DO ± 10% | pH ± 0.1 | Cond. (mS) ± 3% | ORP (mv) ± 10 | Comments |
|---|---|---|---|---|---|---|---|
| 13:33 | < 1/4gal | 9.95 | 85.5 | 6.20 | 0.691 | -208.3 | |
| 13:34 | 3/4gal | 9.00 | 34.3 | 6.40 | 0.309 | -196.3 | |
| 13:35 | 2 | 8.70 | 27.7 | 6.42 | 0.279 | -186.1 | |
| 13:37 | 2.5 | 9.30 | 31.5 | 6.38 | 0.278 | -176.4 | |
| | | | | | | | |
| | | | | | | | |

**** A minimum of three parameters must be monitored and recorded. ****
*NOTE: If well is purged dry, DO NOT collect sample until it has recharged to approximately 80% of its pre-purge volume.*

**FIELD KIT RESULTS:** Ferrous Iron _____ mg/L Nitrate _____ mg/L

| Sample ID | Date | Time | Analytes / Analytical Method |
|---|---|---|---|
| MW-4-052611 | 5/26/11 | 13:20 | ● DRO by AK102 ○ SVOCs by TCL8270 ○ PAHs by 8270<br>○ RRO by AK103 ○ Lead by 6010 ○ PAHs by 8270SIM<br>● Alkalinity by 310.1 ○ Methane by RSK175 ● Nitrate/Nitrite by 353.2<br>● Sulfate by 300 PH4.5 ● $CO_2$ ○ _____<br>● GRO by AK101<br>○ BTEX by 8021B ○ BTEX by 8260B ○ EDB by 8011<br>○ HVOCs by 8260B ○ MtBE by 8260B ○ 1,2-DCA by 8260B |
| | | | |

**Additional Comments:**

ATTACHMENT B

LABORATORY ANALYTICAL REPORT

Lancaster Laboratories

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# Type III Data Package

**Prepared for:**

**ChevronTexaco**
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

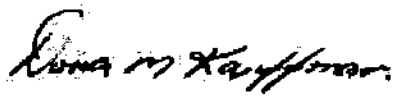
Project: 82307
Water Samples
Collected on 05/26/11

## SDG# AKE89

| GROUP | SAMPLE NUMBERS |
|---|---|
| 1249125 | 6301430-6301432 |

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-08A-TX

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

**Authorized by:**  **Date: 06/28/2011**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Natalie Luciano at Ext. 1881.

Total Number of Pages 137

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# Table of Contents for SDG# AKE89

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# Sample Reference List for SDG Number AKE89
# with a Data Package Type of III

**10880 - ChevronTexaco**

Project: 82307

| Lab Sample Number | Lab Sample Code | Client Sample Description |
|---|---|---|
| 6301430 | CJMW5 | MW-4-052611 Grab Water Sample Facility# 82307 |
| 6301431 | CJDU1 | DUP-1-052611 Grab Water Sample Facility# 82307 |
| 6301432 | CJTB1 | Trip_Blank-1-052611 Water Sample Facility# 82307 |

# Chevron Generic Analysis Request/Chain of Custody

Lancaster Laboratories
*Where quality is a science.*

LAB

For Lancaster Laboratories use only
Acct. #: 10880 Sample #: 6301430-32 SCR#: 017649

Grp# 1249125

Facility #: Chevron 8-2307
Site Address: 9203 Cessna Dr.
Chevron PM: Dan Carrier Lead Consultant: CRA
Consultant/Office: CRA Denver
Consultant Prj. Mgr.: John Riggi
Consultant Phone #: 7209759121 Fax #: 7209759150
Sampler: Diane Escobedo
Service Order #: ____ ☐ Non SAR: ____

| Sample Identification | Date Collected | Time Collected | Grab | Composite | Matrix: Soil | Matrix: Water | Matrix: Oil | Matrix: Air | Total Number of Containers | BTEX + MTBE 8021 | 8260 All Scan | Oxygenates | TPH-d/Salinity to pH 45 | TPH D (Extended Rng, Silica Gel Cleanup) | Lead Total | Diss. | Method | VPH EPH Cor by Hunt pnc | NWTPH HCID quantification | DRO AK102 | GRO AK101 | Nitrate Nitrogen | Nitrite Nitrogen |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-04-052611 | 5/26/11 | 13:20 | X | | | X | | | 12 | | X | | X | | | | | X | | X | X | X | X |
| DUP-1-052611 | 5/26/11 | — | X | | | X | | | 5 | | | | | | | | | | | X | X | | |
| TripBlank-1-052611 | 5/26/11 | — | | | | X | | | 2 | | | | | | | | | | | | X | | |

Preservative Codes
H = HCl T = Thiosulfate
N = $HNO_3$ B = NaOH
S = $H_2SO_4$ O = Other

☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

Comments / Remarks
Report MDL
mg/L

Turnaround Time Requested (TAT) (please circle)
STD. TAT 72 hour 48 hour
24 hour 4 day 5 day

Data Package Options (please circle if required)
QC Summary Type I - Full
Type VI (Raw Data) Disk / EDD
WIP (RWQCB) Standard Format
Disk ____ Other.
Type III

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| | | | | 5/26/11 | 11:00 |
| | 5/27/11 | 0850 | | | |
| | | | | | |
| Relinquished by Commercial Carrier: UPS FedEx Other | | | | | |
| Temperature Upon Receipt 4.4 C° | | | Custody Seals Intact? Yes No | | |

Lancaster Laboratories

# Environmental Sample Administration
# Receipt Documentation Log

**Client/Project:** CRA

**Date of Receipt:** 5/28/11

**Time of Receipt:** 0900

**Source Code:** 50-1

**Shipping Container Sealed:** ~~YES~~ NO

**Custody Seal Present * :** ~~YES~~ NO

* Custody seal was intact unless otherwise noted in the discrepancy section

**Package:** ~~Chilled~~ Not Chilled

| Temperature of Shipping Containers | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cooler # | Thermometer ID | Temperature (°C) | Temp Bottle (TB) or Surface Temp (ST) | Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP) | Ice Present? Y/N | Loose (L) Bagged Ice (B) or NA | Comments |
| 1 | 3119961 | 4.9 | TB | WI | Y | B | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

**Number of Trip Blanks received NOT listed on chain of custody:** 0

**Paperwork Discrepancy/Unpacking Problems:**

REC. 2 EXTRA MW-04 VIALS & MISSING 2 DUP-01 VIALS

(1) KM2 5-28-11

**Unpacker Signature/Emp#:** 1454 **Date/Time:** 5/28/11 / 0935

AKE89 8883

Issued by Dept. 6042 Management

2174.06

# Batchlog Summary 11153A53A

| QC | ID | Sample Code | Amt | SS/IS S | Amt (mL) | MS Sol. | Amt (mL) | FV (mL) | SW | DF | PH | BC | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6297939MS | AA | FTA01MS | 1.00 | SS1112525A | 0.0002 | MS1112625A | 0.002001 | 1.00 | | 1.00 | ≤2 | 026A | |
| 6297939MS (AB) | AB | FTA01MS | 1.00 | SS1112525A | 0.0002 | MS1115125A | 0.000220 | 1.00 | | 1.00 | ≤2 | 026B | |
| 6297940MSD | AA | FTA01MSI | 1.00 | SS1112525A | 0.0002 | MS1112625A | 0.002001 | 1.00 | | 1.00 | ≤2 | 026A | |
| 6297940MSD (AB) | AB | FTA01MSI | 1.00 | SS1112525A | 0.0002 | MS1115125A | 0.000220 | 1.00 | | 1.00 | ≤2 | 026B | |
| BLANKA | AA | BLKFI | 1.00 | SS1112525A | 0.0002 | | | 1.00 | | 1.00 | | | |
| LCSA | AA | LCSE4 | 1.00 | SS1112525A | 0.0002 | MS1112625A | 0.002001 | 1.00 | | 1.00 | | | |
| LCSB | AA | LCSE5 | 1.00 | SS1112525A | 0.0002 | MS1115125A | 0.000220 | 1.00 | | 1.00 | | | |

| Sample# | ID | Sample Code | Amt | SS/IS Std. | Amt (mL) | FV (mL) | SW | DF | PH | BC | HS | Due Date | Hold Date | P | Analyses | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6297938 | AA | FTA01 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6297942 | AA | FTA02 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6297943 | AA | FTAEB | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6297944 | AA | FTATB | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6297949 | AA | FTEBA | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6297950 | AA | FTTBA | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 026A | □ | 6/7 | 6/7 | N | 02102 | |
| 6298649 | AA | 14573 | 1.00 | SS1112525A | 0.0010 | 1.00 | | 5.00 | ≤2 | 041B | □ | 8/6 | | P | 02102 | |
| 6299141 | AA | GAAM8 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/6 | 6/7 | P | 01440 02102 | |
| 6299142 | AA | GAAD1 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/6 | 6/7 | P | 01440 02102 | |
| 6299143 | AA | GAAM9 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/6 | 6/7 | P | 01440 02102 | |
| 6299144 | AA | GAATB | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/6 | 6/7 | P | 01440 02102 | |
| 6301430 | AA | CJMW5 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/8 | 6/9 | P | 01440 | |
| 6301431 | AA | CJDU1 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/8 | 6/9 | P | 01440 | |
| 6301432 | AA | CJTB1 | 1.00 | SS1112525A | 0.0002 | 1.00 | | 1.00 | ≤2 | 104A | □ | 6/8 | 6/9 | P | 01440 | |

**Spike Solutions:**

| | |
|---|---|
| MS1112625A | Waters MI working Spike |
| MS1115125A | Waters GRO Spike #2 |
| SS1112525A | Waters 2 Component Surr. Sol. |

Analyst: cem1991 Verifier: MDJ0001

Date: 6/3/11 Date: 6/3/11 Comments

AKE69 6864

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## 01146 GC VOA Water Prep

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030B, December 1996.

---

## 01438 TPH-GRO AK water C6-C10

The volatile compounds are extracted by bubbling an inert gas through the sample and collecting them on a sorbent trap. The trap is thermally desorbed onto a capillary column and analysis is performed using gas chromatography with a flame ionization detector (FID) and, optionally, a photoionization detector (PID) in series. Quantitation for Gasoline Range Organics (GRO) is performed using the total peak area detected within the hydrocarbon range defined in the method.

Reference: Method AK101 for the Determination of Gasoline Range Organics, April 8, 2002

---

## 00219 Nitrite Nitrogen

Nitrite ions react with sulfanilamide to yield a diazo compound which couples with N-1-naphthylethylene diamine dihydrochloride to form a soluble, highly-colored dye. The result is determined colorimetrically.

Reference: Method 353.2, Methods for Chemical Analysis of Water and Wastes USEPA 600, Revision 2.0, 1993

---

## 00220 Nitrate Nitrogen

Nitrate ions are reduced to nitrite by passing through a cadmium coil. The nitrite ions then react with sulfanilamide to yield a diazo compound which couples with N-1-naphthylethylene diamine dihydrochloride to form a soluble, highly-colored dye. The result is determined colorimetrically.

Reference: Method 353.2, Methods for Chemical Analysis of Water and Wastes USEPA 600, Revision 2.0, 1993

---

## 00228 Sulfate

A small volume of sample is introduced into an ion chromatograph. The anions are then separated and measured by a system consisting of a guard column, separator column, suppressor, and conductivity detector.

Reference: Method 300.0, Methods for Chemical Analysis of Water and Wastes USEPA 600, Revision 2.1, 1993

---

## 00201 Alkalinity to pH 8.3

Alkalinity is determined by titrating the sample with standardized sulfuric acid to pH of 8.3 for the phenolphthalein alkalinity.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2320 B

---

## 00202 Alkalinity to pH 4.5

Alkalinity is determined by titrating the sample with standardized sulfuric acid to a pH of 4.5 for the total alkalinity.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2320 B

---

## 01741 TPH-DRO AK water C10-C25

Sample extracts in methylene chloride are analyzed by capillary chromatography using flame ionization detection. Quantitation is performed using the total peak area detected within the hydrocarbon ranges defined in the method.

Reference: Alaska Method 102/103 for Determination of Diesel Range Organics, April 8, 2002.

---

## 11184 AK DRO Waters Extraction

An aliquot of sample is extracted with methylene chloride using either separatory funnel extraction or micro extraction technique.

Reference: Alaska Method 102/103 for Determination of Diesel Range Organics, April 8, 2002.

---

## 08097 CO2 by Headspace

An aliquot of sample is placed in a headspace vial and warmed to 35C. A portion of the headspace is analyzed on a gas chromatograph using a capillary column and thermal conductivity detection.

Reference: Test Methods for Evaluating Solid Wastes SW-846, Method 8015B Modified, December 1996.

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

ChevronTexaco
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

June 07, 2011

Project: 82307

Submittal Date: 05/28/2011
Group Number: 1249125
SDG: AKE89
PO Number: 0015074818
Release Number: CARRIER
State of Sample Origin: AK

| Client Sample Description | Lancaster Labs (LLI) # |
|---|---|
| MW-4-052611 Grab Water Sample | 6301430 |
| DUP-1-052611 Grab Water Sample | 6301431 |
| Trip_Blank-1-052611 Water Sample | 6301432 |

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

| | | |
|---|---|---|
| ELECTRONIC COPY TO | CRA | Attn: Nick Greco |
| ELECTRONIC COPY TO | Chevron | Attn: CRA EDD |
| ELECTRONIC COPY TO | CRA | Attn: Jeffrey Cloud |
| ELECTRONIC COPY TO | CRA | Attn: Sarah Gillette |
| ELECTRONIC COPY TO | Chevron | Attn: Anna Avina |
| ELECTRONIC COPY TO | CRA | Attn: Diane Escobedo |
| ELECTRONIC COPY TO | CRA | Attn: John Riggi |
| 1 COPY TO | Data Package Group | |

AKE89 0007

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2425 New Holland Pike
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Questions? Contact your Client Services Representative
Natalie R Luciano at (717) 656-2300 Ext. 1881

Respectfully Submitted,

Robert Heisey

Robert Heisey
Senior Specialist

AKE89 6068

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax. 717-656-2681

Lancaster Laboratories



**Sample Description:** MW-4-052611 Grab Water Sample
Facility# 82307
9203 Cessna Dr - Juneau, AK

LLI Sample # WW 6301430
LLI Group # 1249125
Account # 10880

**Project Name:** 82307

Collected: 05/26/2011 13:20 by DE

Submitted: 05/28/2011 09:00
Reported: 06/07/2011 10:11

ChevronTexaco
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CJMW5 SDG#: AKE89-01

| CAT No. | Analysis Name | | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|---|
| **GC Volatiles** | | **AK 101** | | **mg/l** | **mg/l** | **mg/l** | |
| 01438 | TPH-GRO AK water C6-C10 | | n.a. | 0.54 | 0.010 | 0.10 | 1 |
| **GC Extractable TPH** | | **AK 102/AK 103 04/08/02** | | **mg/l** | **mg/l** | **mg/l** | |
| 01741 | TPH-DRO AK water C10-C25 | | n.a. | 19 | 1.2 | 6.2 | 25 |
| **GC Miscellaneous** | | **SW-846 8015B modified** | | **mg/l** | **mg/l** | **mg/l** | |
| 08097 | CO2 by Headspace | | 124-38-9 | 89 | 4.0 | 12 | 1 |
| **Wet Chemistry** | | **EPA 300.0** | | **mg/l** | **mg/l** | **mg/l** | |
| 00228 | Sulfate | | 14808-79-8 | 2.4 J | 1.5 | 5.0 | 5 |
| | | **EPA 353.2** | | **mg/l** | **mg/l** | **mg/l** | |
| 00220 | Nitrate Nitrogen | | 14797-55-8 | N.D. | 0.040 | 0.10 | 1 |
| 00219 | Nitrite Nitrogen | | 14797-65-0 | N.D. | 0.015 | 0.050 | 1 |
| | | **SM20 2320 B** | | **mg/l as CaCO3** | **mg/l as CaCO3** | **mg/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | | n.a. | 127 | 0.46 | 2.0 | 1 |
| 00201 | Alkalinity to pH 8.3 | | n.a. | N.D. | 0.46 | 2.0 | 1 |

## General Sample Comments

State of Alaska Lab Certification No. UST-061

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01438 | TPH-GRO AK water C6-C10 | AK 101 | 1 | 11153A53A | 06/02/2011 20:03 | Carrie E Miller | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11153A53A | 06/02/2011 20:03 | Carrie E Miller | 1 |
| 01741 | TPH-DRO AK water C10-C25 | AK 102/AK 103 04/08/02 | 1 | 111520013A | 06/03/2011 22:10 | Heather E Williams | 25 |
| 08097 | CO2 by Headspace | SW-846 8015B modified | 1 | 111520033A | 06/02/2011 17:19 | Elizabeth J Marin | 1 |
| 11184 | AK DRO Waters Extraction | AK 102/AK 103 04/08/02 | 1 | 111520013A | 06/02/2011 03:00 | Sherry L Morrow | 1 |
| 00228 | Sulfate | EPA 300.0 | 1 | 11152196901C | 06/02/2011 09:46 | Ashley M Adams | 5 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 11152106102A | 06/01/2011 20:41 | Venia B McFadden | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 11148105101A | 05/28/2011 12:11 | Joseph E McCauley | 1 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 11153020201B | 06/02/2011 06:26 | Susan A Engle | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 11153020201B | 06/02/2011 06:26 | Susan A Engle | 1 |

Lancaster Laboratories, Inc.
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

*=This limit was used in the evaluation of the final result

Lancaster Laboratories



**Sample Description:** DUP-1-052611 Grab Water Sample
Facility# 82307
9203 Cessna Dr - Juneau, AK

**LLI Sample # WW 6301431**
**LLI Group # 1249125**
**Account # 10880**

**Project Name: 82307**

Collected: 05/26/2011 by DE

Submitted: 05/28/2011 09:00
Reported: 06/07/2011 10:11

ChevronTexaco
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CJDU1 SDG#: AKE89-02FD

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC Volatiles** | **AK 101** | | mg/l | mg/l | mg/l | |
| 01438 | TPH-GRO AK water C6-C10 | n.a. | 0.56 | 0.010 | 0.10 | 1 |
| **GC Extractable TPH** | **AK 102/AK 103 04/08/02** | | mg/l | mg/l | mg/l | |
| 01741 | TPH-DRO AK water C10-C25 | n.a. | 24 | 2.4 | 12 | 50 |

## General Sample Comments

State of Alaska Lab Certification No. UST-061

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01438 | TPH-GRO AK water C6-C10 | AK 101 | 1 | 11153A53A | 06/03/2011 00:31 | Carrie E Miller | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11153A53A | 06/03/2011 00:31 | Carrie E Miller | 1 |
| 01741 | TPH-DRO AK water C10-C25 | AK 102/AK 103 04/08/02 | 1 | 111520013A | 06/03/2011 22:37 | Heather E Williams | 50 |
| 11184 | AK DRO Waters Extraction | AK 102/AK 103 04/08/02 | 1 | 111520013A | 06/02/2011 03:00 | Sherry L Morrow | 1 |

AKE89 2218

Lancaster Laboratories, Inc.
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

*=This limit was used in the evaluation of the final result

# Analysis Report

Lancaster Laboratories



**Sample Description:** Trip_Blank-1-052611 Water Sample
Facility# 82307
9203 Cessna Dr - Juneau, AK

LLI Sample # WW 6301432
LLI Group # 1249125
Account # 10880

**Project Name:** 82307

Collected: 05/26/2011

Submitted: 05/28/2011 09:00
Reported: 06/07/2011 10:11

ChevronTexaco
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

CJTB1 SDG#: AKE89-03TB*

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit* | As Received Limit of Quantitation | Dilution Factor |
|---|---|---|---|---|---|---|
| **GC Volatiles** | **AK 101** | | mg/l | mg/l | mg/l | |
| 01438 | TPH-GRO AK water C6-C10 | n.a. | N.D. | 0.010 | 0.10 | 1 |

## General Sample Comments

State of Alaska Lab Certification No. UST-061

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

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 01438 | TPH-GRO AK water C6-C10 | AK 101 | 1 | 11153A53A | 06/02/2011 18:42 | Carrie E Miller | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 11153A53A | 06/02/2011 18:42 | Carrie E Miller | 1 |

AKE89 8011

*=This limit was used in the evaluation of the final result

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# Volatiles by GC-GRO

# Case Narrative Conformance/ Non-Conformance Summary

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## Volatiles by GC

**Fraction: Volatiles by GC-GRO**

TPH-GRO AK water C6-C10

| Sample # | Client ID | Matrix Liquid | Matrix Solid | Comments |
|---|---|---|---|---|
| 6301430 | MW-4-052611 Grab Water Sample | X | | |
| 6301431 | DUP-1-052611 Grab Water Sample | X | | Field Duplicate Sample |
| 6301432 | Trip_Blank-1-052611 Water Sample | X | | Trip Blank |

See QC Reference List for Associated Batch QC Samples

## SAMPLE PREPARATION:

No problems were encountered with the preparation of the samples.

## ANALYSIS:

There were no dilutions performed for analyses associated with samples in this SDG.

No problems were encountered with the analysis of the samples.

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

All QC is within specifications

## DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## Volatiles by GC

**Fraction: Volatiles by GC-GRO**

Nancy E. Saunders
NANCY E. SAUNDERS
Specialist

Narrative Reviewed and Approved 6/22/11 by
(Date)

Lancaster Laboratories

## CONFORMANCE/NON-CONFORMANCE SUMMARY

**SDG: AKE89**

| | Indicate Yes, No, N/A |
|---|---|
| 1. Chromatograms labeled / Compounds identified (Field Samples & Method Blanks) | YES |
| 2. Retention times for chromatograms provided | YES |
| 3. Standards summary meet criteria | YES |
| 4. Calibration - Initial calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis. | YES |
| 5. Blank contamination<br>If yes, list compounds and concentrations in each blank: N/A | NO |
| 6. Surrogate recoveries meet criteria<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: N/A<br>If not met, were the calculations checked and the results qualified as "estimated"? N/A | YES |
| 7. Matrix Spike / Matrix Spike Duplicate recoveries meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | N/A |
| 8. Laboratory Control Sample / Laboratory Control Sample Duplicate meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | YES |
| 9. Retention time summaries for primary and confirmation analyses meet criteria | N/A |
| 10. Were samples run on dissimilar columns? | N/A |
| 11. Extraction holding time met<br>If not met, list number of days exceeded for each sample: N/A | N/A |
| 12. Analysis holding time met<br>If not met, list number of days exceeded for each sample: N/A | YES |

Additional Comments:

**Summary reviewed and approved by:**

Nancy E. Saunders

**Dana Kauffman, Manager Data Deliverables**

6/22/11

**Date**

AKE89 6016

# Quality Control and QC Summary Forms

Lancaster Laboratories

# Quality Control Reference List
## Volatiles by GC

**CLIENT: ChevronTexaco**
**SDG: AKE89**

**Fraction: Volatiles by GC-GRO**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| TPH-GRO AK water C6-C10 | 11153A53A | BLKFI | 06/02/2011 15:09:00 |
| | | LCSE5 | 06/02/2011 16:02:00 |
| | | 6301430 | 06/02/2011 20:03:00 |
| | | 6301431 | 06/03/2011 00:31:00 |
| | | 6301432 | 06/02/2011 18:42:00 |

AKE89 8010

Lancaster Laboratories

**Quality Control Summary**
**Method Blank**
**Volatiles by GC**
**SDG: AKE89**
**Matrix: LIQUID**

**Fraction: Volatiles by GC-GRO**

| 11153A53 / BLKFI<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| TPH-GRO AK water C6-C10 | 06/02/11 | N.D. | ug/l | 10 | 100 |

Lancaster Laboratories

**Quality Control Summary**
**Surrogates**
**Volatiles by GC**
**SDG: AKE89**
**Matrix: LIQUID**

**Fraction: Volatiles by GC-GRO**

| 11153A53A | Trifluorotoluene-F | |
|---|---|---|
| | Spike Added | 30 ug/l |
| Sample | % Recovery | Limits |
| 6301430 | 69 | 60 - 120 |
| 6301431 | 72 | 60 - 120 |
| 6301432 | 68 | 60 - 120 |
| BLKFI | 69 | 60 - 120 |
| LCSE5 | 88 | 60 - 120 |

Lancaster Laboratories

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: AKE89**
**Matrix: LIQUID**

## Volatiles by GC

**Fraction: Volatiles by GC-GRO**

| LCS: LCSE5 | Batch: 11153A53A (Sample number(s): 6301430-6301432 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Analyte | Spike Added ug/l | LCS Conc ug/l | LCSD Conc ug/l | LCS %Rec | LCSD %Rec | %Rec Limits | %RPD | %RPD Limits |
| TPH-GRO AK water C6-C10 | 1100 | 1200 | | 109 | | 60-120 | | |

AKE89 0021

# 6D
# INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: 10995F Calibration File: ALK53105

GC Column (1) : J&W DB-VRX ID: 75 (mm) Update File:

Date(s) Analyzed: 4/16/2011 4/16/2011

| COMPOUND | RT OF STANDARDS | | | | | | | MIDPOINT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | LEVEL 7 | RT | FROM | TO |
| Trifluorotoluene-F | 3.84 | 3.84 | 3.84 | 3.84 | 3.84 | 3.84 | 3.84 | 3.84 | 3.61 | 3.88 |
| 1-Chloro-3-fluorobenzene | 5.11 | 5.11 | 5.11 | 5.11 | 5.11 | 5.11 | 5.11 | 5.11 | 5.08 | 5.15 |

AKE89 6822

6E

# INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 10995F  Calibration File: ALK53105

GC Column (1) : J&W DB-VRX  ID: 75 (mm)  Date(s) Analyzed: 4/16/2011  4/16/2011

| COMPOUND | CALIBRATION FACTORS | | | | | | | | %RSD |
|---|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | LEVEL 6 | LEVEL 7 | MEAN | |
| Trifluorotoluene-F | 2.11E+04 | 2.13E+04 | 1.99E+04 | 1.85E+04 | 1.97E+04 | | | 2.01E+04 | 5.6 |
| 1-Chloro-3-fluorobenzene | 1.32E+04 | 1.22E+04 | 1.28E+04 | 1.73E+04 | 2.15E+04 | 2.72E+04 | 3.53E+04 | 1.99E+04 | 43.7 |

Average % RSD: 24.7

AME89 0023



FORM VI-2

6F

# INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 10995F  Calibration File: ALK53105

GC Column (1) : J&W DB-VRX  ID: 75 (mm)  Date(s) Analyzed: 4/16/2011  4/16/2011

| COMPOUND | PEAK | RT | RT WINDOW FROM | RT WINDOW TO | CALIBRATION FACTOR | AVERAGE CF | LEVEL | AMOUNT | PEAK AREA | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO | 1 | | 2.52 | 6.50 | 16332 | 15960 | 1 | 21.4 | 392315 | 10.3 |
| | | | | | 18066 | | 2 | 53 | 957511 | |
| | | | | | 16109 | | 3 | 107 | 1723709 | |
| | | | | | 15481 | | 4 | 536 | 8297846 | |
| | | | | | 15031 | | 5 | 1072 | 16113350 | |
| | | | | | 14303 | | 6 | 2680 | 38332888 | |
| | | | | | 14398 | | 7 | 5360 | 77173928 | |

MDJ20001
4-20-11

AREB9 0024



FORM VI-3

File Name: I:\Cal\53\ALK53105.cal
Version: 17

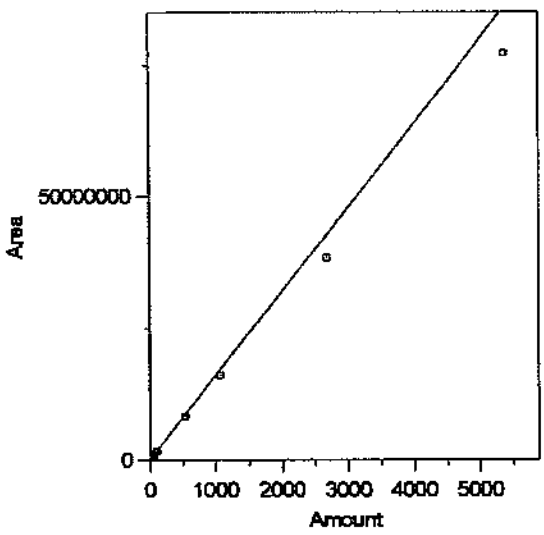
Creator: LCP/895
Description: ALASKA
Reason for change:

External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPB
No default component

Method of calculating data point averages: Current update equal to cal data
Print calibration update report

All levels are normal data points.

1 GRO




| | |
|---|---|
| Expected retention time: | 2 minutes |
| Search window: | 0 minutes |
| No retention time reference component | |
| Group number: | 3 |
| GRO | |
| High alarm limit: | 0 |
| Low alarm limit: | 0 |
| Component constant: | 530 |

Single peak quantification by area

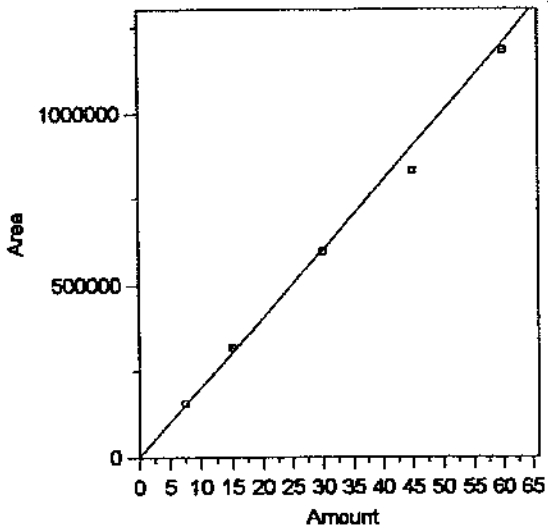
$Y = 15960.25 X + 0$

Average CF fit with equal weighting, forced to origin

| | |
|---|---|
| Coefficient of determination: | 0.9812068 |
| Average error: | 8.284% |
| Average CF: | 15960.25 |
| RSD: | 10.347% |

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 21.4 | 392315 | 18332.48 | 14.863 | Manual | 4/20/2011 4:17:20 PM |
| 2 | 53 | 957511 | 18066.25 | 13.195 | Manual | 4/20/2011 4:17:28 PM |
| 3 | 107 | 1723709 | 16109.43 | 0.935 | Manual | 4/20/2011 4:17:34 PM |
| 4 | 536 | 8297846 | 15481.06 | -3.002 | Manual | 4/20/2011 4:17:41 PM |
| 5 | 1072 | 1.611335E+07 | 15031.11 | -5.822 | Manual | 4/20/2011 4:17:45 PM |
| 6 | 2680 | 3.833289E+07 | 14303.32 | -10.382 | Manual | 4/20/2011 4:17:52 PM |
| 7 | 5360 | 7.717393E+07 | 14398.12 | -9.788 | Manual | 4/20/2011 4:18:01 PM |

2 SURR-TFT-F




| | |
|---|---|
| Expected retention time: | 3.843 minutes |
| Search window: | 0.035 minutes |
| No retention time reference component | |
| Group number: | 1 |
| SURR-TFT-F | |
| High alarm limit: | 0 |
| Low alarm limit: | 0 |
| Component constant: | 30 |

Single peak quantification by area

Y = 20104.43 X + 0

Average CF fit with equal weighting, forced to origin

| | |
|---|---|
| Coefficient of determination: | 0.990984 |
| Average error: | 4.254% |
| Average CF: | 20104.43 |
| RSD: | 5.567% |

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 7.5 | 158219.3 | 21095.91 | 4.932 | Y:\Active\CP53\53105B.0044.END | 4/20/2011 4:14:51 PM |
| 2 | 15 | 318767.8 | 21251.19 | 5.704 | Y:\Active\CP53\53105B.0045.END | 4/20/2011 4:14:54 PM |
| 3 | 30 | 597895.8 | 19929.86 | -0.868 | Y:\Active\CP53\53105B.0046.END | 4/20/2011 4:14:57 PM |
| 4 | 45 | 832875.6 | 18508.35 | -7.939 | Y:\Active\CP53\53105B.0047.END | 4/20/2011 4:15:00 PM |
| 5 | 60 | 1184212 | 19736.87 | -1.828 | Y:\Active\CP53\53105B.0048.END | 4/20/2011 4:15:04 PM |
| 6 | (-1) | (0) | -- | -- | C:\Dept25\54144B.0012.raw | 6/20/2005 4:19:15 PM |
| 7 | (-1) | (0) | -- | -- | C:\Dept25\54144B.0014.raw | 6/20/2005 4:19:19 PM |

# 7E
# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories
Contract:
Lab Code: Case No.: SAS No.: SDG No.:
Instrument: 10995F Detector: FID Init. Calib Date(s): 04/16/11 04/16/11
GC Column (1) : J&W DB-VRX ID: 75 (mm) Date Analyzed: 04/16/11
Lab File ID: 53105B.0054.RAW Time Analyzed: 16:59
Lab Standard ID: GICVXCW Initial Calibration: ALK53105
Method: ALASKA

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT | NOM AMOUNT | %D | Limits |
|---|---|---|---|---|---|---|---|
| GRO | | 2.52 | 6.50 | 953.92 | 1100.00 | -13.3 | -25 to +25 |

Average of %D: 13.3

ANE89 0023

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 10995F  Detector: FID  Init. Calib Date(s): 04/16/11  04/16/11

GC Column (1) : J&W DB-VRX  ID: 75 (mm)  Date Analyzed: 06/02/11

Lab File ID: 53152B.0042.RAW  Time Analyzed: 12:29

Lab Standard ID: WGCCXXV  Initial Calibration: ALK53105

Method: ALASKA

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT | NOM AMOUNT | %D | Limits |
|---|---|---|---|---|---|---|---|
| Trifluorotoluene-F | 3.85 | 3.81 | 3.88 | 23.49 | 30.00 | -21.7 | -43 to +46 |
| GRO | | 2.52 | 6.50 | 577.14 | 536 | 7.7 | -25 to +25 |

Average of %D: 14.7

AKE89 0029

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 10995F  Detector: FID  Init. Calib Date(s): 06/02/11  06/03/11

GC Column (1): J&W DB-VRX  ID: 75 (mm)  Date Analyzed: 06/02/11

Lab File ID: 53153B.0017.RAW  Time Analyzed: 21:23

Lab Standard ID: WGCCXXX  Initial Calibration: ALK53105

Method: ALASKA

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT | NOM AMOUNT | %D | Limits |
|---|---|---|---|---|---|---|---|
| Trifluorotoluene-F | 3.84 | 3.81 | 3.88 | 23.15 | 30.00 | -22.8 | -43 to +46 |
| GRO | | 2.52 | 6.50 | 556.97 | 536.00 | 3.9 | -25 to +25 |

Average of %D: 13.4

AKE89 0030

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: 10995F  Detector: FID  Init. Calib Date(s): 06/02/11  06/03/11

GC Column (1) : J&W DB-VRX  ID: 75 (mm)  Date Analyzed: 06/03/11

Lab File ID: 53153B.0025.RAW  Time Analyzed: 0:58

Lab Standard ID: WGCCXXY  Initial Calibration: ALK53105

Method: ALASKA

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALC AMOUNT | NOM AMOUNT | %D | Limits |
|---|---|---|---|---|---|---|---|
| Trifluorotoluene-F | 3.84 | 3.81 | 3.88 | 22.09 | 30.00 | -26.4 | -43 to +46 |
| GRO | | 2.52 | 6.50 | 520.24 | 536.00 | -2.9 | -25 to +25 |

Average of %D: 14.7

AK289 8531



FORM VII

# 8D
# ANALYTICAL SEQUENCE

Sequence: 53105B  Lab Name: Lancaster laboratories  Contract:

Lab Code:  Case No.:  SAS No:  SDG No.:

GC Column: JW DB-VRX  ID: 75

Instrument: 10995F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File | TFTF |
|---|---|---|---|---|---|---|
| 001 | AA | GRO MAR | 04/16/2011 | 11:38:00 | GX53105 | 3.84 |
| 002 | AA | IBLK | 04/16/2011 | 12:04:29 | TPH53105 | 3.84 |
| 003 | WGRO1AA | WGRO11125I | 04/16/2011 | 12:31:31 | ALK53105 | 3.84 |
| 004 | WGRO2AA | WGRO21125H | 04/16/2011 | 12:58:16 | ALK53105 | 3.84 |
| 005 | WGRO3AA | WGRO31125H | 04/16/2011 | 13:25:07 | ALK53105 | 3.84 |
| 006 | WGRO4AA | WGRO41125H | 04/16/2011 | 13:51:49 | ALK53105 | 3.84 |
| 007 | WGRO5AA | WGRO51125H | 04/16/2011 | 14:18:29 | ALK53105 | 3.84 |
| 008 | WGRO6AA | WGRO61125H | 04/16/2011 | 14:45:33 | ALK53105 | 3.84 |
| 009 | WGRO7AA | WGRO71125G | 04/16/2011 | 15:12:22 | ALK53105 | 3.84 |
| 010 | AA | IBLK | 04/16/2011 | 15:39:20 | TPH53105 | 3.84 |
| 011 | AA | IBLK | 04/16/2011 | 16:06:14 | TPH53105 | 3.84 |
| 012 | AA | IBLK | 04/16/2011 | 16:32:58 | TPH53105 | 3.84 |
| 013 | GICVXCW | GICVX1125J | 04/16/2011 | 16:59:44 | ALK53105 | 3.85 |
| 014 | GMDLXFO | GMDLXI125K | 04/16/2011 | 17:26:24 | ALK53105 | 3.84 |

| | ICAL Dates | | ICAL RT | QC Limits |
|---|---|---|---|---|
| ALK53105 | 04/16/2011 - 04/16/2011 | TFTF = Trifluorotoluene-F | 3.84 | (3.81 - 3.88 Minutes) |
| GX53105 | 04/16/2011 - 04/16/2011 | TFTF = Trifluorotoluene-F | 3.84 | (3.81 - 3.87 Minutes) |
| TPH53105 | 04/16/2011 - 04/16/2011 | TFTF = Trifluorotoluene-F | 3.84 | (3.81 - 3.87 Minutes) |

AXE09 0232

# 8D
# ANALYTICAL SEQUENCE

Sequence: 53152B | Lab Name: Lancaster laboratories | Contract:

Lab Code: | Case No.: | SAS No: | SDG No.:

GC Column: JW DB-VRX | ID: 75

Instrument: 10995F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File | TFTF |
|---|---|---|---|---|---|---|
| 001 | AA | GRO MARKER | 06/01/2011 | 17:37:04 | ALK53105 | 3.86 |
| 002 | WCCPXEM | WCCPX1125DG | 06/01/2011 | 18:03:41 | ALK53105 | 3.84 |
| 003 | WGCCXXP | WGCCX1125CO | 06/01/2011 | 18:30:31 | ALK53105 | 3.85 |
| 004 | BLKFC | BLANKA | 06/01/2011 | 18:57:18 | ALK53105 | 3.85 |
| 005 | LCSDZ | LCSA | 06/01/2011 | 19:24:29 | ALK53105 | 3.85 |
| 006 | LCSDEH | LCSDA | 06/01/2011 | 19:51:14 | ALK53105 | 3.85 |
| 007 | LCSE0 | LCSB | 06/01/2011 | 20:18:15 | ALK53105 | 3.85 |
| 008 | LCSDEI | LCSDB | 06/01/2011 | 20:44:46 | ALK53105 | 3.84 |
| 009 | SEWT1 | 6297834 | 06/01/2011 | 21:11:42 | ALK53105 | 3.84 |
| 010 | LOATB | 6297852 | 06/01/2011 | 21:38:29 | ALK53105 | 3.85 |
| 011 | SHA09 | 6297820 | 06/01/2011 | 22:05:10 | ALK53105 | 3.85 |
| 012 | SHA10 | 6297821 | 06/01/2011 | 22:31:51 | ALK53105 | 3.84 |
| 013 | SHA07 | 6297822 | 06/01/2011 | 22:58:30 | ALK53105 | 3.84 |
| 014 | SHA02 | 6297823 | 06/01/2011 | 23:25:08 | ALK53105 | 3.85 |
| 015 | SHA08 | 6297824 | 06/01/2011 | 23:51:49 | ALK53105 | 3.85 |
| 016 | SHA01 | 6297825 | 06/02/2011 | 00:18:48 | ALK53105 | 3.84 |
| 017 | SHAFD | 6297826 | 06/02/2011 | 00:45:21 | ALK53105 | 3.85 |
| 018 | SEW15 | 6297828 | 06/02/2011 | 01:12:20 | ALK53105 | 3.84 |
| 019 | WCCPXEN | WCCPX1125DG | 06/02/2011 | 01:39:06 | ALK53105 | 3.85 |
| 020 | WGCCXXO | WGCCX1125CO | 06/02/2011 | 02:05:52 | ALK53105 | 3.85 |
| 021 | SEW17 | 6297831 | 06/02/2011 | 02:32:59 | ALK53105 | 3.84 |
| 022 | SEWPR | 6297832 | 06/02/2011 | 02:59:34 | ALK53105 | 3.84 |
| 023 | SEWPO | 6297833 | 06/02/2011 | 03:26:19 | ALK53105 | 3.84 |
| 024 | LOA01 | 6297849 | 06/02/2011 | 03:53:16 | ALK53105 | 3.85 |
| 025 | SEW11 | 6297829 | 06/02/2011 | 04:19:56 | ALK53105 | 3.85 |
| 026 | SEWFD | 6297830 | 06/02/2011 | 04:46:31 | ALK53105 | 3.85 |
| 027 | LOA02 | 6297850 | 06/02/2011 | 05:13:33 | ALK53105 | 3.85 |
| 028 | LOAFD | 6297851 | 06/02/2011 | 05:40:23 | ALK53105 | 3.84 |
| 029 | WGCCXXM | WGCCX1125CO | 06/02/2011 | 06:07:26 | ALK53105 | 3.84 |
| 030 | IBLK | IBLK | 06/02/2011 | 06:34:07 | ALK53105 | 3.84 |
| 031 | WCCPXER | WCCPX1125DH | 06/02/2011 | 07:00:52 | ALK53105 | 3.84 |
| 032 | BLKFF | BLANKB | 06/02/2011 | 07:27:48 | ALK53105 | 3.84 |
| 033 | SSB01 | 6303288 | 06/02/2011 | 07:54:19 | ALK53105 | 3.84 |

| | ICAL Dates | | ICAL RT | QC Limits |
|---|---|---|---|---|
| ALK53105 | 04/16/2011 - 04/16/2011 | TFTF = Trifluorotoluene-F | 3.84 | (3.81 - 3.88 Minutes) |

AXE89 8833

# 8D
# ANALYTICAL SEQUENCE

Sequence: 53152B  Lab Name: Lancaster laboratories  Contract:

Lab Code:  Case No.:  SAS No:  SDG No.:

GC Column: JW DB-VRX  ID: 75

Instrument: 10995F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File | TFTF |
|---|---|---|---|---|---|---|
| 034 | 13101 | 6303289 | 06/02/2011 | 08:21:05 | ALK53105 | 3.84 |
| 035 | 13O01 | 6303290 | 06/02/2011 | 08:48:05 | ALK53105 | 3.85 |
| 036 | 76101 | 6303291 | 06/02/2011 | 09:14:50 | ALK53105 | 3.84 |
| 037 | NES01 | 6303292 | 06/02/2011 | 09:41:31 | [8021]53133 | |
| 038 | AA | IBLK | 06/02/2011 | 10:42:44 | ALK53105 | 3.85 |
| 039 | SHA08 | 6297824 | 06/02/2011 | 11:09:32 | ALK53105 | 3.84 |
| 040 | SEW11 | 6297829 | 06/02/2011 | 11:36:20 | ALK53105 | 3.84 |
| 041 | LOA01 | 6297849 | 06/02/2011 | 12:03:01 | ALK53105 | 3.85 |
| 042 | WGCCXXV | WGCCX1125CO | 06/02/2011 | 12:29:42 | ALK53105 | 3.85 |

ICAL Dates  ICAL RT  QC Limits

ALK53105  04/16/2011 - 04/16/2011  TFTF = Trifluorotoluene-F  3.84  (3.81 - 3.88 Minutes)

# 8D
# ANALYTICAL SEQUENCE

Sequence: 53153B  Lab Name: Lancaster laboratories  Contract:

Lab Code:  Case No.:  SAS No:  SDG No.:

GC Column: JW DB-VRX  ID: 75

Instrument: 10995F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File | TFTF |
|---|---|---|---|---|---|---|
| 001 | AA | GRO MARKER | 06/02/2011 | 14:15:34 | ALK53105 | 3.84 |
| 002 | WCCPXEU | WCCPX1125DH | 06/02/2011 | 14:42:16 | ALK53105 | 3.85 |
| 003 | BLKF1 | BLANKA | 06/02/2011 | 15:09:18 | ALK53105 | 3.84 |
| 004 | LCSE4 | LCSA | 06/02/2011 | 15:36:07 | ALK53105 | 3.85 |
| 005 | LCSE5 | LCSB | 06/02/2011 | 16:02:49 | ALK53105 | 3.85 |
| 006 | FTA01 | 6297938 | 06/02/2011 | 16:29:42 | ALK53105 | 3.84 |
| 007 | FTA01MS | 6297939 | 06/02/2011 | 16:56:30 | ALK53105 | 3.85 |
| 008 | FTA01MSD | 6297940 | 06/02/2011 | 17:22:59 | ALK53105 | 3.84 |
| 009 | FTA01MS | 6297939 | 06/02/2011 | 17:49:22 | ALK53105 | 3.84 |
| 010 | FTA01MSD | 6297940 | 06/02/2011 | 18:16:02 | ALK53105 | 3.85 |
| 011 | CJTB1 | 6301432 | 06/02/2011 | 18:42:45 | ALK53105 | 3.85 |
| 012 | GAATB | 6299144 | 06/02/2011 | 19:09:34 | ALK53105 | 3.85 |
| 013 | FTATB | 6297944 | 06/02/2011 | 19:36:21 | ALK53105 | 3.84 |
| 014 | CJMW5 | 6301430 | 06/02/2011 | 20:03:15 | ALK53105 | 3.84 |
| 015 | FTEBA | 6297949 | 06/02/2011 | 20:30:04 | ALK53105 | 3.84 |
| 016 | WCCPXEV | WCCPX1125DH | 06/02/2011 | 20:56:40 | ALK53105 | 3.85 |
| 017 | WGCCXXX | WGCCX1125CO | 06/02/2011 | 21:23:27 | ALK53105 | 3.84 |
| 018 | FTTBA | 6297950 | 06/02/2011 | 21:50:47 | ALK53105 | 3.85 |
| 019 | FTA02 | 6297942 | 06/02/2011 | 22:17:40 | ALK53105 | 3.84 |
| 020 | FTAEB | 6297943 | 06/02/2011 | 22:44:15 | ALK53105 | 3.84 |
| 021 | GAAM8 | 6299141 | 06/02/2011 | 23:10:56 | ALK53105 | 3.84 |
| 022 | GAAD1 | 6299142 | 06/02/2011 | 23:37:29 | ALK53105 | 3.84 |
| 023 | GAAM9 | 6299143 | 06/03/2011 | 00:04:11 | ALK53105 | 3.84 |
| 024 | CJDU1 | 6301431 | 06/03/2011 | 00:31:19 | ALK53105 | 3.85 |
| 025 | WGCCXXY | WGCCX1125CO | 06/03/2011 | 00:58:02 | ALK53105 | 3.84 |

| | ICAL Dates | | ICAL RT | QC Limits |
|---|---|---|---|---|
| ALK53105 | 04/16/2011 - 04/16/2011 | TFTF = Trifluorotoluene-F | 3.84 | (3.81 - 3.88 Minutes) |

# Sample Data

Lancaster Laboratories

**LOQ/MDL Summary**
**Volatiles by GC**

**SDG: AKE89**

**Fraction: Volatiles by GC-GRO**

| 01438: TPH-GRO AK water C6-C10<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| TPH-GRO AK water C6-C10 | 10 | 100 | ug/l |

AKE89 0037

# Lancaster Laboratories-Range Data Summary

**Sample Name:** 6301430 CJMW5 Sample ID: AA **Batchnumber:** 11153A53A
Sample Amount: 1. Total Volume: 1. ml Analyst: 1991 SDG:AKE89 State: AK
Analyses: 01440

Injection Summary

Injected on : 6/2/2011 20:03:15
Instrument : CP53--10995F
Result file : 53153B.0014.RAW
Calibration files : ALK53105.cal
Method files : ALK53105.MET
Setting : ALK53105

Surrogate Recoveries

SURR-TFT-F 68.7% (60-120) Conc.: 20.612612
SURR-1C3FB

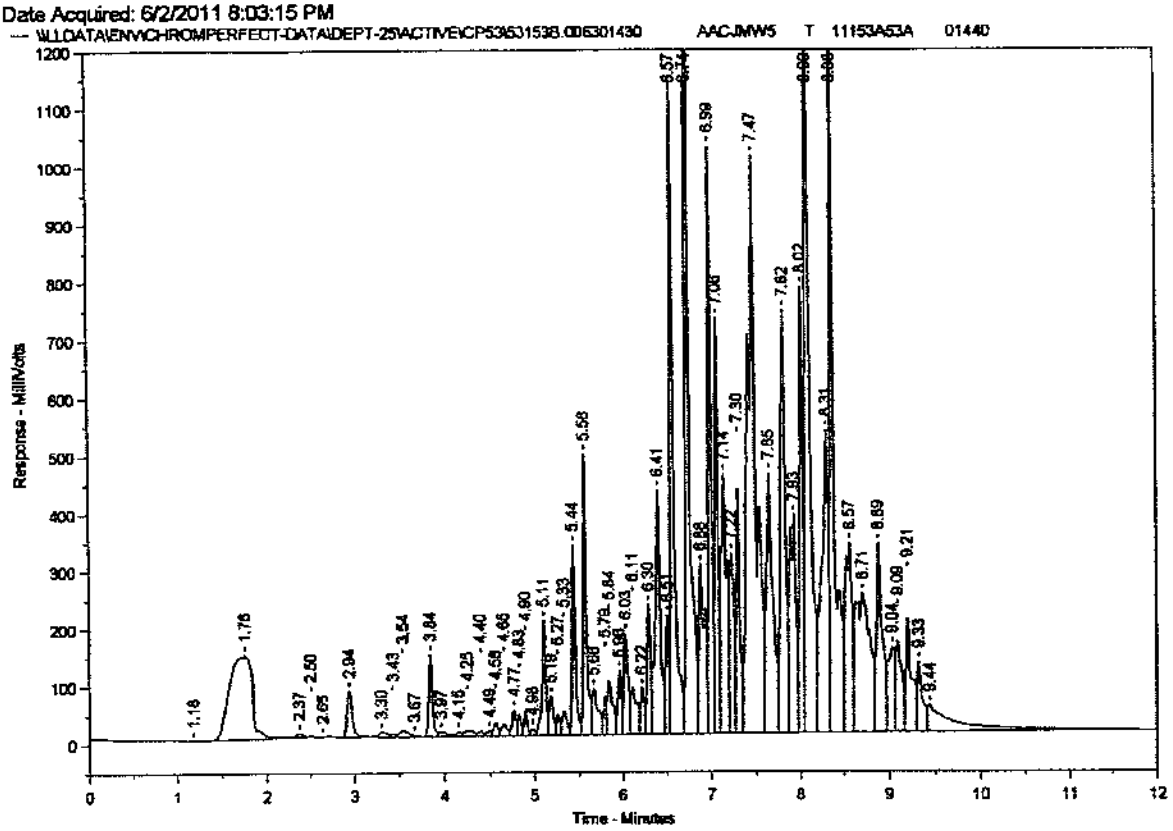
| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| SURR-TFT-F | 3.84 (3.81 - 3.88) | 414405 | 20.6126 | | | | ppb |
| SURR-1C3FB | 5.11 (5.08 - 5.15) | 563133 | 28.2668 | | | | ppb |
| GRO | 2.52 - 6.50 | 9548232 | 537.0109 | 100 | 10 | | ppb |

Comments: _____

Reviewed by: Carrie E Miller Verified by: MDDDDDI
Carrie Miller
Date: JUN 03 2011 Date: 6-3-11

AKE89 8938

6301430 AACJMW5 T 11153A53A 01440
CP53 FID 10995F 531538.0014.RAW
Date Acquired: 6/2/2011 8:03:15 PM




**6301430 AACJMW5 T 11153A53A 01440**
**Date Acquired: 6/2/2011 8:03:15 PM**
**Raw File: 53153B.0014.RAW**
**Analyst:**
**Dilution Factor: 1**
**Instrument: CP53 10995F**
**Units: ug/L**
**Method File: ALK53105.MET**
**Column: 30 M DB-VRX x 0.45mm x 2.55 um**

**Threshold: 3**

**Peak Table using calibration : ALK53105.cal- Version 17**
**Number of Compounds: 3**

| Component Name | Ret. Time | Exp. Ret Time | Amount ug/L | Peak Area (A)* | Peak Height (H) |
|---|---|---|---|---|---|
| SURR-TFT-F | 3.84 | 3.84 | 20.61 | 414405 | 143587.4 |
| SURR-1C3F8 | 5.11 | 5.11 | 28.27 | 563133 | 201024.8 |

| RT Start | RT Stop | Unadj GRO | Total Surr. | Adj. GRO |
|---|---|---|---|---|
| 2.52 | 6.5 | 9548232 | 977538 | 8570694 |

Surrogate Percent Recovery: 68.70871

Total GRO Area: 8570694.00
Total GRO Concentration: 537.00 ug/L

File: \\LLDATA\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP53\53153B.0014.RAW

# Lancaster Laboratories-Range Data Summary

**Sample Name:** 6301431 CJDU1 Sample ID: AA **Batchnumber:** 11153A53A
Sample Amount: 1. Total Volume: 1. ml Analyst: 1991 SDG:AKE89 State: AK
Analyses: 01440

Injection Summary

Injected on : 6/3/2011 00:31:19
Instrument : CP53–10995F
Result file : 53153B.0024.RAW
Calibration files : ALK53105.cal
Method files : ALK53105.MET
Setting : ALK53105

Surrogate Recoveries

SURR-TFT-F 72.4% (60-120) Conc.: 21.713469
SURR-1C3FB

| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| SURR-TFT-F | 3.85 (3.81 - 3.88) | 436537 | 21.7135 | | | | ppb |
| SURR-1C3FB | 5.11 (5.08 - 5.15) | 578859 | 29.0562 | | | | ppb |
| GRO | 2.52 - 6.50 | 9950828 | 559.8641 | 100 | 10 | | ppb |

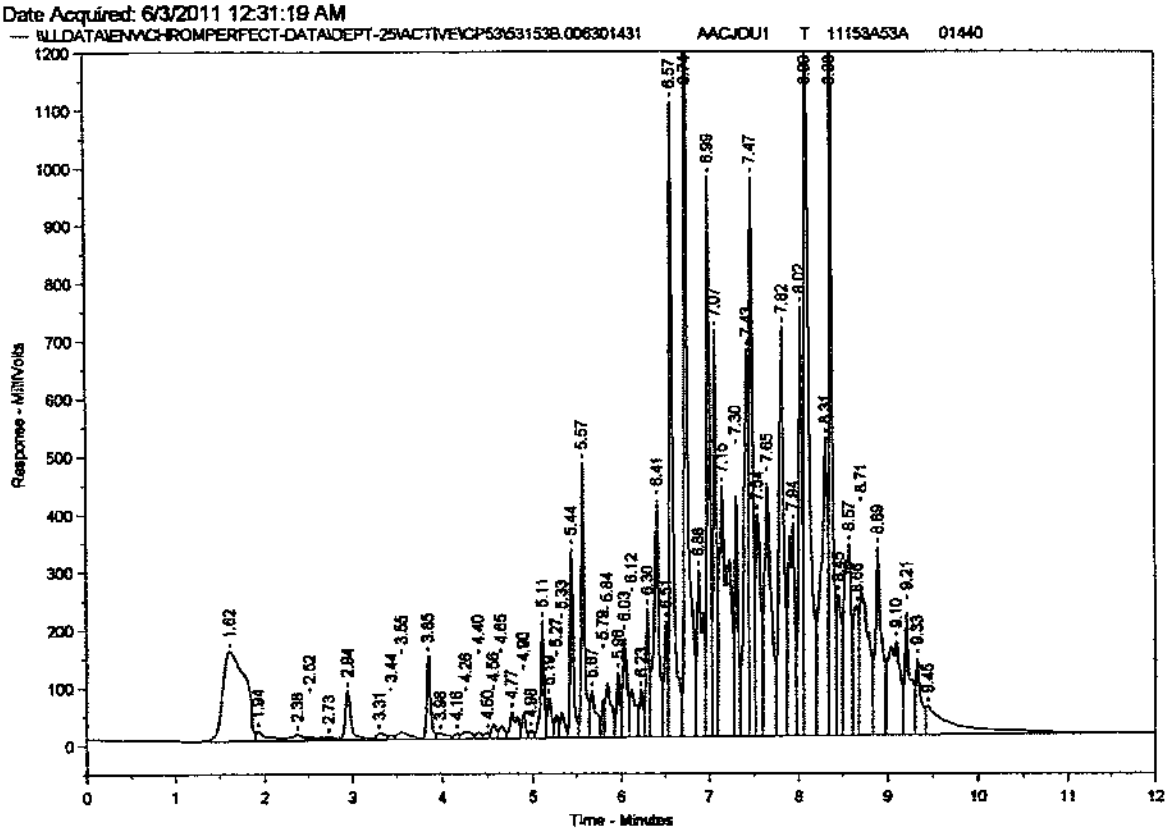
Comments: _____

Reviewed by: Carrie E Miller Carrie Miller Verified by: MDJ001

Date: JUN 03 2011 Date: 6-3-11

AKE89 0046

6301431 AACJDU1 T 11153A53A 01440
CP53 FID 10995F 53153B.0024.RAW
Date Acquired: 6/3/2011 12:31:19 AM




**6301431 AACJDU1 T 11153A53A 01440**
**Date Acquired: 6/3/2011 12:31:19 AM**
**Instrument: CP53 10995F**
**Raw File: 53153B.0024.RAW**
**Units: ug/L**
**Analyst:**
**Method File: ALK53105.MET**
**Dilution Factor: 1**
**Column: 30 M DB-VRX x 0.45mm x 2.55 um**

**Threshold: 3**

**Peak Table using calibration : ALK53105.cal- Version 17**
**Number of Compounds: 3**

| Component Name | Ret. Time | Exp. Ret Time | Amount ug/L | Peak Area (A)* | Peak Height (H) |
|---|---|---|---|---|---|
| SURR-TFT-F | 3.85 | 3.84 | 21.71 | 436537 | 145418.4 |
| SURR-1C3FB | 5.11 | 5.11 | 29.06 | 578859 | 203952.9 |

| RT Start | RT Stop | Unadj GRO | Total Surr. | Adj. GRO |
|---|---|---|---|---|
| 2.52 | 6.5 | 9950828 | 1015396 | 8935432 |

Surrogate Percent Recovery: 72.37823

Total GRO Area: 8935432.00
Total GRO Concentration: 559.86 ug/L

File: \\LLDATA\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP53\53153B.0024.RAW

# Lancaster Laboratories Range Data Summary

**Sample Name:** 6301432 CJTB1 **Sample ID:** AA **Batchnumber:** 11153A53A
Sample Amount: 1. Total Volume: 1. ml Analyst: 1991 SDG:AKE89 State: AK
Analyses: 01440

Injection Summary

Injected on : 6/2/2011 18:42:45
Instrument : CP53--10995F
Result file : 53153B.0011.RAW
Calibration files : ALK53105.cal
Method files : ALK53105.MET
Setting : ALK53105

Surrogate Recoveries

SURR-TFT-F 68.1% (60-120) Conc.: 20.423792
SURR-1C3FB

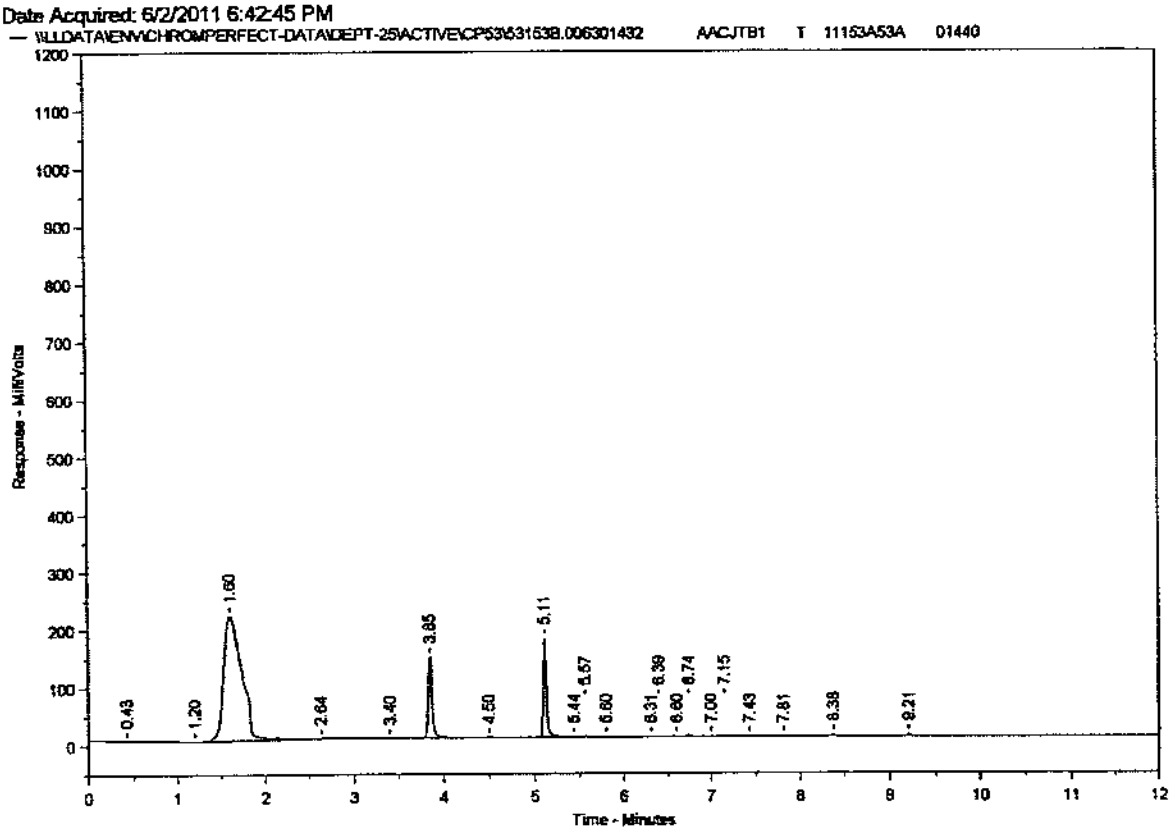
| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| ☐ SURR-TFT-F | 3.85 (3.81 - 3.88) | 410609 | 20.4238 | | | | ppb |
| ☐ SURR-1C3FB | 5.11 (5.08 - 5.15) | 414277 | 20.7949 | | | | ppb |
| ☐ GRO | 2.52 - 6.50 | 874393 | 3.1019 | <100 | <10 | | ppb |

Comments: _____

Reviewed by: Carrie E Miller (Carrie Miller) Verified by: MD 00001
Date: JUN 03 2011 Date: 6-3-11

AKE89 0042

6301432 AACJTB1 T 11153A53A 01440
CP53 FID 10995F 531538.0011.RAW
Date Acquired: 6/2/2011 6:42:45 PM




**6301432 AACJTB1 T 11153A53A 01440**
**Date Acquired: 6/2/2011 6:42:45 PM** **Instrument: CP53 10995F**
**Raw File: 53153B.0011.RAW** **Units: ug/L**
**Analyst:** **Method File: ALK53105.MET**
**Dilution Factor: 1** **Column: 30 M DB-VRX x 0.45mm x 2.55 um**

**Threshold: 3**

**Peak Table using calibration : ALK53105.cal- Version 17**
**Number of Compounds: 3**

| Component Name | Ret. Time | Exp. Ret Time | Amount ug/L | Peak Area (A)* | Peak Height (H) |
|---|---|---|---|---|---|
| SURR-TFT-F | 3.85 | 3.84 | 20.42 | 410609 | 141599.7 |
| SURR-1C3FB | 5.11 | 5.11 | 20.79 | 414277 | 172558.3 |

| RT Start | RT Stop | Unadj GRO | Total Surr. | Adj. GRO |
|---|---|---|---|---|
| 2.52 | 6.5 | 874393 | 824886 | 49507 |

Surrogate Percent Recovery: 68.07931

Total GRO Area: 49506.88
Total GRO Concentration: 3.10 ug/L

File: \\LLDATA\ENVICHROMPERFECT-DATA\DEPT-25\ACTIVE\CP53\53153B.0011.RAW

# Raw QC Data

# Lancaster Laboratories-Range Data Summary

**Sample Name:** BLANKA BLKFI **Sample ID:** AA **Batchnumber:** 11153A53A
Sample Amount: 1. Total Volume: 1. ml Analyst: 1991 SDG: State:
Analyses: 01440 02102

Injection Summary

Injected on : 6/2/2011 15:09:18
Instrument : CP53--10995F
Result file : 53153B.0003.RAW
Calibration files : ALK53105.cal
Method files : ALK53105.MET
Setting : ALK53105

Surrogate Recoveries

SURR-TFT-F 68.6% (60-120) Conc.: 20.57885
SURR-1C3FB

| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| ☐ SURR-TFT-F | 3.84 (3.81 - 3.88) | 413726 | 20.5789 | | | | ppb |
| ☐ SURR-1C3FB | 5.11 (5.08 - 5.15) | 417529 | 20.9581 | | | | ppb |
| ☐ GRO | 2.52 - 6.50 | 839862 | 0.5392 | <100 | <10 | | ppb |

Comments: _____

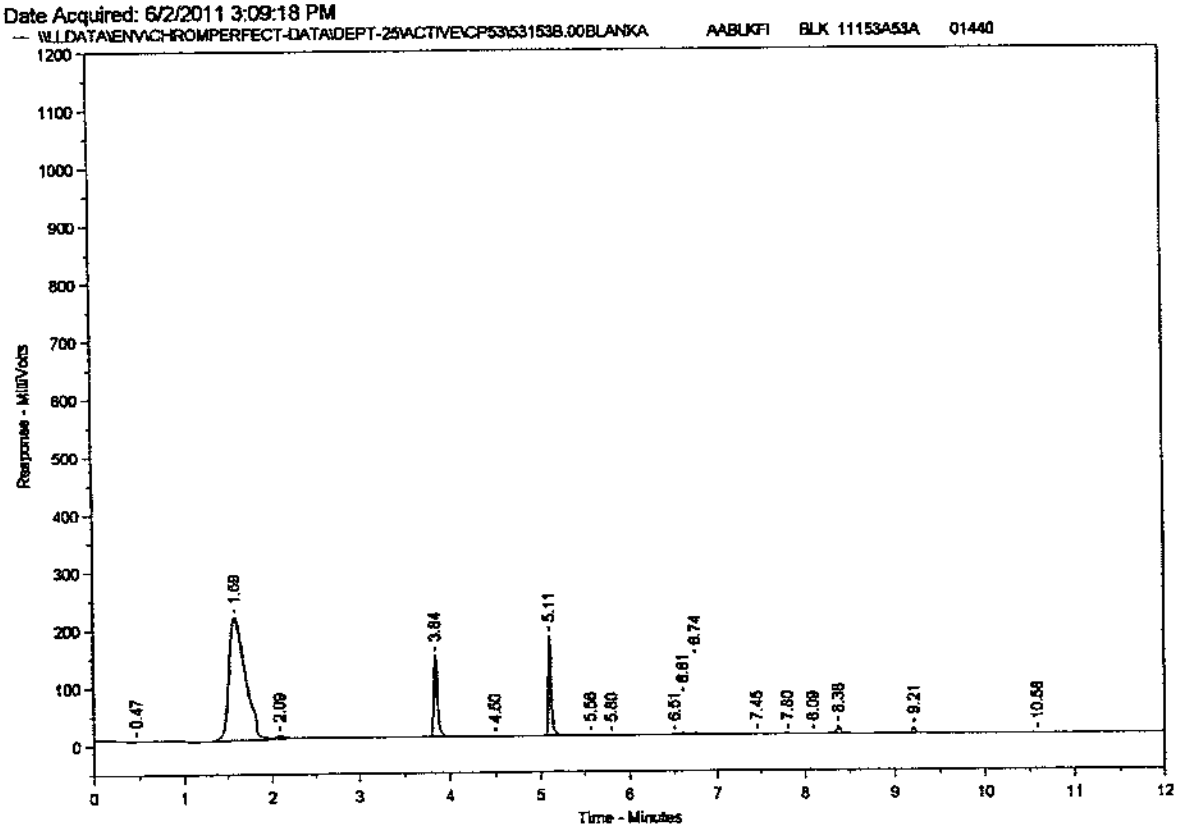
Reviewed by: cem1991
Date: 6/3/11

Verified by: Carrie E Miller Carrie Miller MDD0001
Date: JUN 03 2011 6-3-11

(3) cem1991 6-3-11

AKE89 0045

BLANKA AABLKFI BLK 11153A53A 01440
CP53 FID 10995F 53153B.0003.RAW
Date Acquired: 6/2/2011 3:09:18 PM




**BLANKA AABLKFI BLK 11153A53A 01440**
**Date Acquired: 6/2/2011 3:09:18 PM**
**Raw File: 53153B.0003.RAW**
**Analyst:**
**Dilution Factor: 1**
**Instrument: CP53 10995F**
**Units: ug/L**
**Method File: ALK53105.MET**
**Column: 30 M DB-VRX x 0.45mm x 2.55 um**

**Threshold: 3**

**Peak Table using calibration : ALK53105.cal- Version 17**
**Number of Compounds: 3**

| Component Name | Ret. Time | Exp. Ret Time | Amount ug/L | Peak Area (A)* | Peak Height (H) |
|---|---|---|---|---|---|
| SURR-TFT-F | 3.84 | 3.84 | 20.58 | 413726 | 142423.2 |
| SURR-1C3FB | 5.11 | 5.11 | 20.96 | 417529 | 174302.2 |

| RT Start | RT Stop | Unadj GRO | Total Surr. | Adj. GRO |
|---|---|---|---|---|
| 2.52 | 6.5 | 839862 | 831255 | 8606 |

Surrogate Percent Recovery: 68.59617

Total GRO Area: 8606.31
Total GRO Concentration: 0.54 ug/L

File: \\LLDATA\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP53\53153B.0003.RAW

# CO2 by Headspace Data

# Case Narrative
# Conformance/Non-Conformance Summary

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## EPH/Miscellaneous GC

**Fraction: CO2 by Headspace**

CO2 by Headspace

| Sample # | Client ID | Matrix Liquid | Solid | Comments |
|---|---|---|---|---|
| 6301430 | MW-4-052611 Grab Water Sample | X | | |

See QC Reference List for Associated Batch QC Samples

## SAMPLE PREPARATION:

No problems were encountered with the preparation of the samples.

## ANALYSIS:

There were no dilutions performed for analyses associated with samples in this SDG.

No problems were encountered with the analysis of the samples.

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

All QC is within specification.

## DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

Narrative Reviewed and Approved 6/28/11 (Date) by

Elizabeth A. Smith
Specialist

AKE89 0849

Lancaster Laboratories

## CONFORMANCE/NON-CONFORMANCE SUMMARY

**SDG: AKE89**

| | Indicate Yes, No, N/A |
|---|---|
| 1. Chromatograms labeled / Compounds identified (Field Samples & Method Blanks) | YES |
| 2. Retention times for chromatograms provided | YES |
| 3. Standards summary meet criteria | YES |
| 4. Calibration - Initial calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis. | YES |
| 5. Blank contamination<br>If yes, list compounds and concentrations in each blank: N/A | NO |
| 6. Surrogate recoveries meet criteria<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: N/A<br>If not met, were the calculations checked and the results qualified as "estimated"? N/A | YES |
| 7. Matrix Spike / Matrix Spike Duplicate recoveries meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | N/A |
| 8. Laboratory Control Sample / Laboratory Control Sample Duplicate meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | YES |
| 9. Retention time summaries for primary and confirmation analyses meet criteria | N/A |
| 10. Were samples run on dissimilar columns? | N/A |
| 11. Extraction holding time met<br>If not met, list number of days exceeded for each sample: N/A | YES |
| 12. Analysis holding time met<br>If not met, list number of days exceeded for each sample: N/A | YES |

Additional Comments:

**Summary reviewed and approved by:**

Elizabeth A. Smith
Specialist

**Dan Beaudinan, Manager Data Deliverables**

6/28/11
**Date**

AKE89 0858

# Quality Control and Calibration Summary Forms

Lancaster Laboratories

# Quality Control Reference List
## EPH/Miscellaneous GC

**CLIENT: ChevronTexaco**
**SDG: AKE89**

**Fraction: CO2 by Headspace**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| CO2 by Headspace | 111520033A | PBLK33152 | 06/02/2011 16:06:00 |
| | | LCS33152 | 06/02/2011 16:16:00 |
| | | 6301430 | 06/02/2011 17:19:00 |

AKE89 8852

Lancaster Laboratories

**Quality Control Summary**
**Metbod Blank**
**EPH/Miscellaneous GC**
**SDG: AKE89**
**Matrix: LIQUID**

**Fraction: CO2 by Headspace**

| 111520033 / PBLK33152<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| CO2 by Headspace | 06/02/11 | N.D. | ug/l | 4000 | 12000 |

AKE89 2053

Lancaster Laboratories

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: AKE89**
**Matrix: LIQUID**

## EPH/Miscellaneous GC
**Fraction: CO2 by Headspace**

| LCS: LCS33152 | Batch: **111520033A** (Sample number(s): 6301430 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added ug/l** | **LCS Conc ug/l** | **LCSD Conc ug/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| CO2 by Headspace | 36000 | 34000 | | 94 | | 67-124 | | |

AKE89 0854

6D

# INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H3145A Calibration File: 1C20144

GC Column (1) : CTR1COLUMN ID: 1 (mm) Update File:

Date(s) Analyzed: 5/24/2011 5/24/2011

| COMPOUND | RT OF STANDARDS | | | | | MIDPOINT | RT WINDOW | |
|---|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | RT | FROM | TO |
| CARBON DIOXIDE | 1.36 | 1.37 | 1.38 | 1.36 | 1.34 | 1.37 | 1.27 | 1.47 |

AKE89 0055

6E

# INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H3145A Calibration File: 1C20144

GC Column (1) : CTR1COLUMN ID: 1 (mm) Date(s) Analyzed: 5/24/2011 5/24/2011

| COMPOUND | CALIBRATION FACTORS | | | | | | %RSD |
|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | MEAN | |
| CARBON DIOXIDE | 3.98E-01 | 4.36E-01 | 4.29E-01 | 4.84E-01 | 4.79E-01 | 4.46E-01 | 8.1 |

Average % RSD: 8.1

File Name: Y:\CP20\1C20144.CAL
Version: 6

Creator:
Description:
Reason for change:

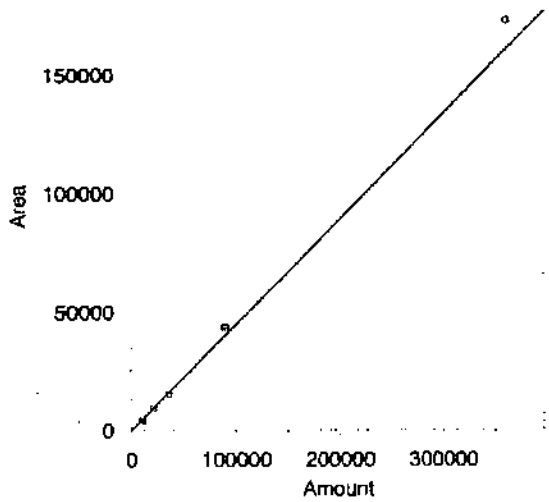
External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPB
No default component

Em 1343 5/24/11 √ Exch 14 5/31/11

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.

1 CARBON DIOXIDE




Expected retention time (frozen): 1.37 minutes
Search window: 0.1 minutes
No retention time reference component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

$Y = 0.4455497 X + 0$

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9918959
Average error: 6.514%
Average CF: 0.4455497
RSD: 8.101%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 10800 | 4303.074 | 0.3984328 | -10.575 | \\Aslan-chromperf\Active-data\CP20\1C20144.0003.BND | 5/24/2011 3:43:19 PM |
| 2 | 21600 | 9425 | 0.4363426 | -2.066 | \\Aslan-chromperf\Active-data\CP20\1C20144.0004.BND | 5/24/2011 3:53:48 PM |
| 3 | 36000 | 15455.46 | 0.4293183 | -3.643 | \\Aslan-chromperf\Active-data\CP20\1C20144.0005.BND | 5/24/2011 4:04:58 PM |
| 4 | 90000 | 43573.96 | 0.4841551 | 8.665 | \\Aslan-chromperf\Active-data\CP20\1C20144.0006.BND | 5/24/2011 4:15:29 PM |
| 5 | 360000 | 172619.8 | 0.4794994 | 7.620 | \\Aslan-chromperf\Active-data\CP20\1C20144.0007.BND | 5/24/2011 4:26:03 PM |

6D

# INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H3145A Calibration File: 2C20144

GC Column (1) : CTR1COLUMN ID: 1 (mm) Update File: 2CC20144.0003.RAW

Date(s) Analyzed: 6/2/2011 6/2/2011

| COMPOUND | RT OF STANDARDS LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | MIDPOINT RT | RT WINDOW FROM | TO |
|---|---|---|---|---|---|---|---|---|
| CARBON DIOXIDE | | | 1.37 | | | 1.37 | 1.27 | 1.47 |

ARE39 0058

# 6E

## INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H3145A  Calibration File: 2C20144

GC Column (1): CTR1COLUMN ID: 1 (mm)  Date(s) Analyzed: 6/2/2011  6/2/2011

| COMPOUND | CALIBRATION FACTORS | | | | | | |
|---|---|---|---|---|---|---|---|
| | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | MEAN | %RSD |
| CARBON DIOXIDE | 3.98E-01 | 4.36E-01 | 4.29E-01 | 4.84E-01 | 4.79E-01 | 4.46E-01 | 8.1 |

Average % RSD: 8.1

AXE89 8859



FORM VI-2

File Name: Y:\CP20\2C20144.CAL
Version: 1

updated ICAL name to be different from ICAL in dept. 24

Creator:
Description:
Reason for change:

External standard calibration
Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPB
No default component

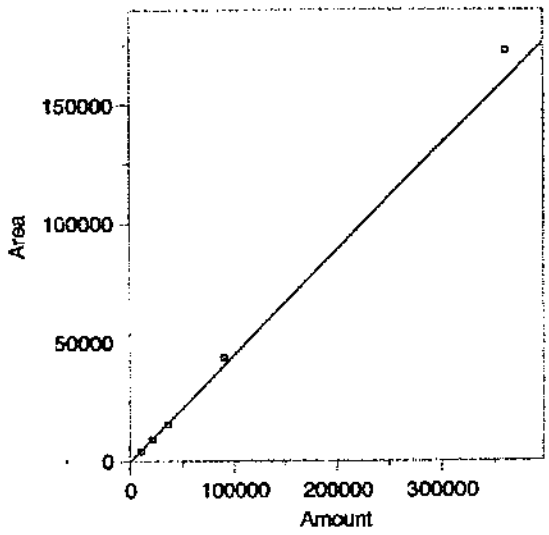
√ Tw 6/3/14 6-3-11

EM 2343 6/3/11

Method of calculating data point averages: Equal weight for all updates
No calibration update report

All levels are normal data points.

1 CARBON DIOXIDE




Expected retention time (frozen): 1.37 minutes
Search window: 0.1 minutes
No retention time reference component
Group number: 0

High alarm limit: 0
Low alarm limit: 0
Component constant: 0

Single peak quantification by area

$Y = 0.4455497 X + 0$

Average CF fit with equal weighting, forced to origin
Coefficient of determination: 0.9918959
Average error: 6.514%
Average CF: 0.4455497
RSD: 8.101%

| Level | Amount | Response | Cal Factor | Error, % | Source | Date and time |
|---|---|---|---|---|---|---|
| 1 | 10800 | 4303.074 | 0.3984328 | -10.575 | \\Uslan-chromperf\Active-data\CP20\1C20144.0005.BND | 5/24/2011 3:43:19 PM |
| 2 | 21600 | 9425 | 0.4363426 | -2.066 | \\Uslan-chromperf\Active-data\CP20\1C20144.0004.BND | 5/24/2011 3:53:48 PM |
| 3 | 36000 | 15455.46 | 0.4293183 | -3.643 | \\Uslan-chromperf\Active-data\CP20\1C20144.0005.BND | 5/24/2011 4:04:58 PM |
| 4 | 90000 | 43573.96 | 0.4841551 | 8.665 | \\Uslan-chromperf\Active-data\CP20\1C20144.0006.BND | 5/24/2011 4:15:29 PM |
| 5 | 360000 | 172619.8 | 0.4794994 | 7.620 | \\Uslan-chromperf\Active-data\CP20\1C20144.0007.BND | 5/24/2011 4:26:03 PM |

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Instrument: H3145A Init. Calib Date(s): 05/24/11 05/24/11

GC Column (1) : CTR1COLUMN ID: 1 (mm) Date Analyzed: 05/24/11

Lab File ID: 1C20144.0010.RAW Time Analyzed: 17:19

Lab Standard ID: CO2CXPF Initial Calibration: 1C20144

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.36 | 1.27 | 1.47 | 37775.80 | 35008.00 | 7.9 |
| | | | | | Average of %D: | 7.9 |

AE269 8861

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H3145A  Init. Calib Date(s): 06/02/11  06/02/11

GC Column (1) : CTR1COLUMN  ID: 1 (mm)  Date Analyzed: 06/02/11

Lab File ID: 2CC20144.0003.RAW  Time Analyzed: 15:56

Lab Standard ID: CO2_3LG  Initial Calibration: 2C20144

| COMPOUND | RT | RT WINDOW FROM | RT WINDOW TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.37 | 1.27 | 1.47 | 35160.22 | 36000.00 | -2.3 |
| | | | | | Average of %D: | 2.3 |

AXE89 8862



FORM VII

7E

# CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories  Contract:

Lab Code:  Case No.:  SAS No.:  SDG No.:

Instrument: H3145A  Init. Calib Date(s): 06/02/11  06/02/11

GC Column (1) : CTR1COLUMN  ID: 1 (mm)  Date Analyzed: 06/02/11

Lab File ID: 2CC20144.0012.RAW  Time Analyzed: 17:30

Lab Standard ID: CO2_3LH  Initial Calibration: 2C20144

| COMPOUND | RT | RT WINDOW FROM | TO | CALC AMOUNT (ug/l) | NOM AMOUNT (ug/l) | %D |
|---|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.37 | 1.27 | 1.47 | 34869.15 | 36000.00 | -3.1 |
| | | | | | Average of %D: | 3.1 |

AXE99 8853



FORM VII

# 8D
# ANALYTICAL SEQUENCE

Sequence: 1C20144 Lab Name: Lancaster laboratories Contract:

Lab Code: Case No.: SAS No: SDG No.:

GC Column: CTR1COLUMN ID: 1

Instrument: H3145A

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File |
|---|---|---|---|---|---|
| 001 | | CONDITIONER | 05/24/2011 | 15:21:26 | 1C20144 |
| 002 | | CONDITIONER | 05/24/2011 | 15:31:14 | 1C20144 |
| 003 | CO2_1AA | CO2_11132B | 05/24/2011 | 15:41:12 | 1C20144 |
| 004 | CO2_2AA | CO2_21132B | 05/24/2011 | 15:51:40 | 1C20144 |
| 005 | CO2_3AA | CO2_31132K | 05/24/2011 | 16:02:56 | 1C20144 |
| 006 | CO2_4AA | CO2_41132M | 05/24/2011 | 16:13:28 | 1C20144 |
| 007 | CO2_5AA | CO2_51132B | 05/24/2011 | 16:23:58 | 1C20144 |
| 008 | AA | IBLK | 05/24/2011 | 16:35:32 | 1C20144 |
| 009 | CO2MXBQ | CO2MX1132B | 05/24/2011 | 17:09:02 | 1C20144 |
| 010 | CO2CXPF | CO2CX1132B | 05/24/2011 | 17:19:14 | 1C20144 |

# 8D
# ANALYTICAL SEQUENCE

Sequence: 2CC20144 Lab Name: Lancaster laboratories Contract:

Lab Code: Case No.: SAS No: SDG No.:

GC Column: CTR1COLUMN ID: 1

Instrument: H3145A

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

| | Sample Code No. | Lab Sample ID | Date Analyzed | Time Analyzed | Calibration File |
|---|---|---|---|---|---|
| 001 | | CONDITIONER | 06/02/2011 | 15:36:16 | 2C20144 |
| 002 | | CONDITIONER | 06/02/2011 | 15:46:24 | 2C20144 |
| 003 | CO2_3LG | CO2_31132L | 06/02/2011 | 15:56:19 | 2C20144 |
| 004 | PBLK33152 | BLANKA | 06/02/2011 | 16:06:24 | 2C20144 |
| 005 | LCS33152 | LCSA | 06/02/2011 | 16:16:56 | 2C20144 |
| 006 | 6GW05 | 6296060 | 06/02/2011 | 16:27:23 | 2C20144 |
| 007 | 6GW05MS | 6296060 | 06/02/2011 | 16:37:50 | 2C20144 |
| 008 | 6GW05MSD | 6296060 | 06/02/2011 | 16:48:19 | 2C20144 |
| 009 | 3AW05 | 6296061 | 06/02/2011 | 16:58:44 | 2C20144 |
| 010 | 4RR05 | 6296062 | 06/02/2011 | 17:09:16 | 2C20144 |
| 011 | CJMW5 | 6301430 | 06/02/2011 | 17:19:42 | 2C20144 |
| 012 | CO2_3LH | CO2_31132L | 06/02/2011 | 17:30:14 | 2C20144 |

# Sample Data

Lancaster Laboratories

**LOQ/MDL Summary**
**EPH/Miscellaneous GC**

**SDG: AKE89**

**Fraction: CO2 by Headspace**

| 08097: CO2 by Headspace<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| CO2 by Headspace | 4,000 | 12,000 | ug/l |

AKE89 0067

# Lancaster Laboratories-Single Component Data Summary

**Sample Name:** 6301430 CJMW5 Sample ID: AA **Batchnumber:** 111520033A
Sample Amount: 5 ML Total Volume: 5 ml Analyst: 2343 SDG: AKE89 State: AK
Analyses: 08097

Analysis Report (A)

Injected on : JUN 02, 2011 17:19:42
Instrument : CP20--H3145A
Result file : 2CC20144.0011.RAW
Calibration file : 2C20144.CAL
Method file : CO2.MET

| Peak name | Min | R.T. | Max | Area | Amount |
|---|---|---|---|---|---|
| CARBON DIOXIDE | 1.27 | 1.36 | 1.47 | 39657 | 89007.568360 |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %Difference | Comments |
|---|---|---|---|---|---|---|---|
| CARBON DIOXIDE | A | 89007.568360 | 12000 | 4000 | | | |

Units: ug/l

Tracy A. Cole

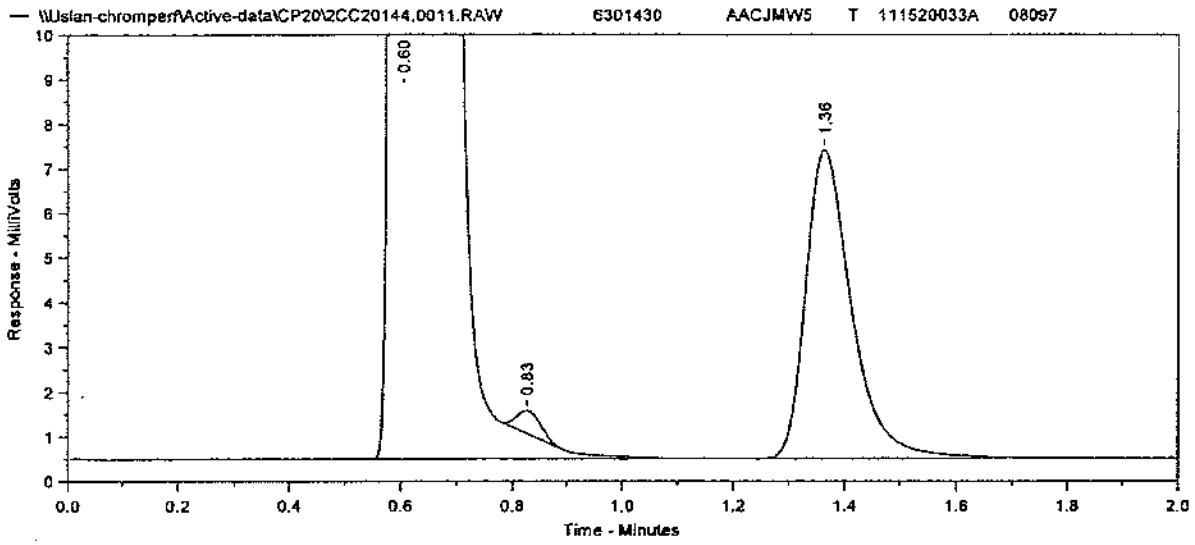
Reviewed by: EM 7/13/11
Date: 6/2/11

Verified by: JUN 03 2011
Date:
Tracy A. Cole
Senior Specialist

AKE89 8868

* Recovery outside QC Limits

Printed on: 6/2/2011 17:50:05




Sample Name = **6301430** **AACJMW5** **T** **111520033A** **08097**

Instrument = CP20
Detector = H3145A

**Raw File Name = \\Uslan-chromperf\Active-data\CP20\2CC20144.0011.RAW**
Method File Name = \\USLAN-CHROMPERF\ACTIVE-DATA\CP20\CO2.MET
Calibration File Name = Y:\CP20\2C20144.CAL
Run Time = 2
Amount Injected = 1
Peak Width = 0.05
Operator = 2343

Time Injected = 6/2/2011 5:19:42 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: CTR 1 COLUMN; 6' X 1/4" X .210 STAINLESS STEEL

| | Ret. Time | Amount | Amt % | Area |
|---|---|---|---|---|
| CARBON DIOXIDE | 1.36 | 89007.57 | 100.000 | 39657 |

AREES 8869

# Raw QC Data

# Lancaster Laboratories-Single Component Data Summary

**Sample Name:** BLANKA 6/2/11 PBLK33152 **Sample ID:** AA **Batchnumber:** 111520033A
Sample Amount: 5 ML Total Volume: 5 ml Analyst: 2343 SDG: State:
Analyses: 08097

Analysis Report (A)

| | |
|---|---|
| Injected on | : JUN 02, 2011 16:06:24 |
| Instrument | : CP20--H3145A |
| Result file | : 2CC20144.0004.RAW |
| Calibration file | : 2C20144.CAL |
| Method file | : CO2.MET |

**Summary Report**

| Compound Name | Column | Amount Found | LOQ | MDL | Qualifiers | %Difference | Comments |
|---|---|---|---|---|---|---|---|
| CARBON DIOXIDE | | | <12000 | <4000 | | | |

Units: ug/l

Reviewed by: EM 13613
Date: 6/2/11

Verified by: Tracy A. Cole
Date: JUN 03 2011

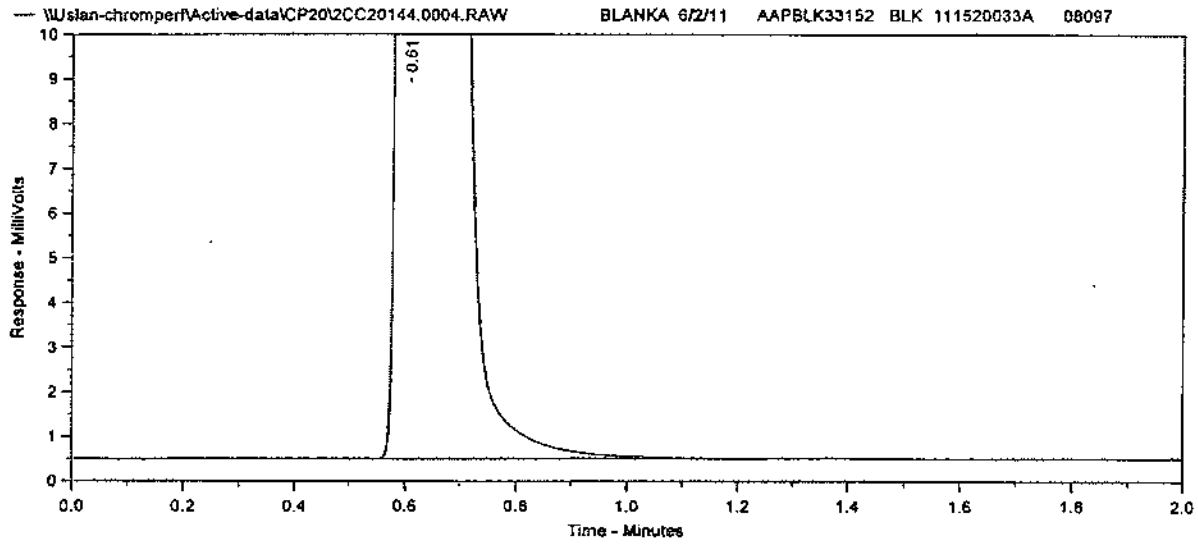
Tracy A. Cole
Senior Specialist

AXE69 6871

* Recovery outside QC Limits

Printed on: 6/2/2011 17:48:18

Chrom Perfect Chromatogram Report




Sample Name = **BLANKA 6/2/11 AAPBLK33152 BLK 111520033A 08097**

Instrument = CP20
Detector = H3145A

Raw File Name = **\\Uslan-chromperf\Active-data\CP20\2CC20144.0004.RAW**
Method File Name = \\USLAN-CHROMPERF\ACTIVE-DATA\CP20\CO2.MET
Calibration File Name = Y:\CP20\2C20144.CAL
Run Time = 2
Amount Injected = 1
Peak Width = 0.05
Operator = 2343

Time injected = 6/2/2011 4:06:24 PM
Dilution Factor = 5
Peak Threshold = 0

Incubate 5 minutes at 35C; 40C for .1 minute; 40C/min to 80C; Hold 1 min
Column: CTR 1 COLUMN; 6' X 1/4" X .210 STAINLESS STEEL

| Ret. Time | Amount | Amt % | Area |
|---|---|---|---|

AAE33 8672

# Extraction/Distillation/Digestion Logs

**Organic Extraction Batchlog** Assigned to: 2343 Elizabeth Marin

Reviewed by: DMC 6/2/11 Start Date: 6/2/11 Start time: 1530

**111520033A**

Tech 1: EM 6/2/11 Tech 2: _____

| Dept: 32 | Prep Analysis: 00000 | | | | CO2 by Headspace | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| QC | Sample Code | Amt mL | SS/IS Sol. | Amt (mL) | MS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments |
| 6296060MSD | 6GW05MSD | 5 | | | MS99173B | 0.1 | 5 | | | 65H | |
| 6296060MS | 6GW05MS | ↓ | | | MS99173B | ↓ | ↓ | | | ↓ | |
| BLANKA | PBLK33152 | ↓ | | | | ↓ | ↓ | | | ↓ | |
| LCSA | LCS33152 | ↓ | | | MS99173B | 0.1 | ↓ | | | | |

Spike Solutions: MS99173B Witness: _____ CO2 SPIKE

| Sample # | Sample Code | Amt mL | SS/IS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments | Analyses | Due Date | Prio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 6296060 | 6GW05 | 5 | | | 5 | | NA | 65H | | 08097 | 06/03/2011 | P |
| 2 6296061 | 3AW05 | ↓ | | | ↓ | | ↓ | ↓ | | 08097 | 06/03/2011 | P |
| 3 6296062 | 4RR05 | ↓ | | | ↓ | | ↓ | ↓ | | 08097 | 06/03/2011 | P |
| 4 6301430 | CJMW5 | ↓ | | | ↓ | | ↓ | ↓ | | 08097 | 06/08/2011 | P |

| Rack ID: | | Work Station | |
|---|---|---|---|
| Internal Standard | | Balance # | |

| S-bath ID | C | S-bath ID | C | N-Evap | C | M-vap | C | 111520033A |
|---|---|---|---|---|---|---|---|---|

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume



*B10111520033A*

# TPH-DRO by GC Data

# Case Narrative
# Conformance/Non-Conformance Summary

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## EPH/Miscellaneous GC

**Fraction: TPH-DRO by GC**

TPH-DRO AK water C10-C25

| Sample # | Client ID | Matrix Liquid | Matrix Solid | Comments |
|---|---|---|---|---|
| 6301430 | MW-4-052611 Grab Water Sample | X | | DF25 |
| 6301431 | DUP-1-052611 Grab Water Sample | X | | DF50; Field Duplicate Sample |

See QC Reference List for Associated Batch QC Samples

## SAMPLE PREPARATION:

No problems were encountered with the preparation of the samples.

## ANALYSIS:

Dilutions are listed in the table above.

Due to software limitations, form 7's (check standard summary), or form 6s (Initial Calibration and Retention Time Summaries) and the form 8's cannot be automatically generated. Raw data/Chrom Perfect Sequence files containing this information are in the Quality Control and Calibration Summary Forms section of this data package.

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

All QC is within specification.

## DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

**Abbreviation Key**

| | |
|---|---|
| UNSPK = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| MS = Matrix Spike | MDL = Method Detection Limit |
| MSD = Matrix Spike Duplicate | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | E= out of calibration range |
| LCS = Lab Control Sample | |
| LCSD = Lab Control Sample Duplicate | * = Out of Specification |

Narrative Reviewed and Approved 6/28/11 (Date) by

Elizabeth A. Smith
Specialist

AKE89 0077

Lancaster Laboratories

## CONFORMANCE/NON-CONFORMANCE SUMMARY

**SDG: AKE89**

| | Indicate Yes, No, N/A |
|---|---|
| 1. Chromatograms labeled / Compounds identified (Field Samples & Method Blanks) | YES |
| 2. Retention times for chromatograms provided | YES |
| 3. Standards summary meet criteria | YES |
| 4. Calibration - Initial calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis. | YES |
| 5. Blank contamination<br>If yes, list compounds and concentrations in each blank: N/A | NO |
| 6. Surrogate recoveries meet criteria<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: N/A<br>If not met, were the calculations checked and the results qualified as "estimated"? N/A | YES |
| 7. Matrix Spike / Matrix Spike Duplicate recoveries meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | N/A |
| 8. Laboratory Control Sample / Laboratory Control Sample Duplicate meet criteria.<br>If not met, list those compounds and the recoveries that fall outside the acceptable range: | YES |
| 9. Retention time summaries for primary and confirmation analyses meet criteria | N/A |
| 10. Were samples run on dissimilar columns? | N/A |
| 11. Extraction holding time met<br>If not met, list number of days exceeded for each sample: N/A | YES |
| 12. Analysis holding time met<br>If not met, list number of days exceeded for each sample: N/A | YES |

Additional Comments:

**Summary reviewed and approved by:**

Elizabeth A. Smith
Specialist

**Dana Kauffman, Manager Data Deliverables**

6/28/11
**Date**

AKE89 8878

# Quality Control and Calibration Summary Forms

Lancaster Laboratories

# Quality Control Reference List
## EPH/Miscellaneous GC

**CLIENT: ChevronTexaco**
**SDG: AKE89**

**Fraction: TPH-DRO by GC**

| Analysis | Batch Number | Sample Number | Analysis Date |
|---|---|---|---|
| TPH-DRO AK water C10-C25 | 111520013A | PBLK13152 | 06/02/2011 18:43:00 |
| | | LCS13152 | 06/02/2011 19:11:00 |
| | | LCSD13152 | 06/02/2011 19:38:00 |
| | | 6301430 | 06/03/2011 22:10:00 |
| | | 6301431 | 06/03/2011 22:37:00 |

AKE89 0000

Lancaster Laboratories

**Quality Control Summary**
**Method Blank**
**EPH/Miscellaneous GC**
**SDG: AKE89**
**Matrix: LIQUID**

**Fraction: TPH-DRO by GC**

| 111520013 / PBLK13152<br>Analyte | Analysis Date | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|
| TPH-DRO AK water C10-C25 | 06/02/11 | N.D. | mg/l | 0.050 | 0.25 |

AKE89 9691

Lancaster Laboratories

**Quality Control Summary**
**Surrogates**
**EPH/Miscellaneous GC**
**SDG: AKE89**
**Matrix: LIQUID**

**Fraction: TPH-DRO by GC**

| 111520013A | Orthoterphenyl | |
|---|---|---|
| | Spike Added | 11.9 mg/l |
| Sample | % Recovery | Limits |
| 6301430 | 107 | 50 - 150 |
| 6301431 | 101 | 50 - 150 |
| LCS13152 | 109 | 60 - 120 |
| LCSD13152 | 110 | 60 - 120 |
| PBLK13152 | 102 | 60 - 120 |

AKE89 0082

Lancaster Laboratories

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate(LCSD)**

**SDG: AKE89**
**Matrix: LIQUID**

## EPH/Miscellaneous GC
**Fraction: TPH-DRO by GC**

| LCS: LCS13152<br>LCSD: LCSD13152 | Batch: **111520013A** (Sample number(s): 6301430-6301431 ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Analyte** | **Spike Added mg/l** | **LCS Conc mg/l** | **LCSD Conc mg/l** | **LCS %Rec** | **LCSD %Rec** | **%Rec Limits** | **%RPD** | **%RPD Limits** |
| TPH-DRO AK water C10-C25 | .8 | .82 | .84 | 102 | 105 | 75-125 | 2 | 20 |

AKE89 8893

Calibration File Name: **C:\CPWIN\DATA1\AKDL047A.CAL** Version = 3
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 0
Reference peak area reject threshold = 0
Amount units = PPM
4 components with 5 levels each

LLW0007
2/17/11

**1 DRO RF C10-<C25**
Retention time = 0.001 min., Search window = 0.000 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 20482.11
No retention time reference component
Single peak quantification by area

USL01 L047.03-13R
L047.21R MDL
L047.23R ICV

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 100.000 | 2097613.0 | 20976.13 | Manual | 2/17/2011 11:49: |
| 2 | 400.000 | 7984342.0 | 19960.86 | Manual | 2/17/2011 11:49: |
| 3 | 800.000 | 16525130.0 | 20656.41 | Manual | 2/17/2011 11:49: |
| 4 | 1600.000 | 32450590.0 | 20281.62 | Manual | 2/17/2011 11:49: |
| 5 | 3200.000 | 65713620.0 | 20535.51 | Manual | 2/17/2011 11:49: |

√ MDL/LOQ 2/17/11

Calibration formula: Y = 20482.11 X
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 1.41%
Average CF = 20482.1100 with RSD = 1.87%

**2 C10**
Retention time = 2.840 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 0
No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 1.000 | 0.0 | 0 | Manual | 2/17/2011 11:49: |
| 2 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 3 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 4 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 5 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |

Calibration formula: No data points to graph
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 100.00%
Average CF = 0.0000 with RSD = 0.00%

**3 o-Terphenyl SURR**
Retention time = 10.130 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 23783.08

AKDL047 0004

No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 2.000 | 48477.0 | 24238.5 | Manual | 2/17/2011 11:49: |
| 2 | 8.000 | 191265.0 | 23908.13 | Manual | 2/17/2011 11:49: |
| 3 | 16.000 | 377747.0 | 23609.19 | Manual | 2/17/2011 11:49: |
| 4 | 20.000 | 475463.0 | 23773.15 | Manual | 2/17/2011 11:49: |
| 5 | 40.000 | 935457.0 | 23386.43 | Manual | 2/17/2011 11:49: |

Calibration formula: Y = 23783.08 X
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 0.9994, Average error = 0.98%
Average CF = 23783.0800 with RSD = 1.35%

**4 C25**
Retention time = 12.360 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 0
No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 1.000 | 0.0 | 0 | Manual | 2/17/2011 11:49: |
| 2 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 3 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 4 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 5 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |

Calibration formula: No data points to graph
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 100.00%
Average CF = 0.0000 with RSD = 0.00%

Calibration File Name: **C:\CPWIN\DATA1\AKDL047B.CAL** Version = 1
External standard calibration
No injection volume correction
No sample weight correction
Area reject threshold = 0
Reference peak area reject threshold = 0
Amount units = PPM
4 components with 5 levels each

LWLW XP 5/6/11

**1 DRO RF C10-<C25**
Retention time = 0.001 min., Search window = 0.000 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 20482.11
No retention time reference component
Single peak quantification by area

used L124.038

✓ TMC/TLG 5-6-11

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 100.000 | 2097613.0 | 20976.13 | Manual | 2/17/2011 11:49: |
| 2 | 400.000 | 7984342.0 | 19960.86 | Manual | 2/17/2011 11:49: |
| 3 | 800.000 | 16525130.0 | 20656.41 | Manual | 2/17/2011 11:49: |
| 4 | 1600.000 | 32450590.0 | 20281.62 | Manual | 2/17/2011 11:49: |
| 5 | 3200.000 | 65713620.0 | 20535.51 | Manual | 2/17/2011 11:49: |

Calibration formula: Y = 20482.11 X
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 0.9999, Average error = 1.41%
Average CF = 20482.1100 with RSD = 1.87%

**2 C10**
Retention time = 2.800 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 0
No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 1.000 | 0.0 | 0 | Manual | 2/17/2011 11:49: |
| 2 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 3 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 4 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 5 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |

Calibration formula: No data points to graph
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 100.00%
Average CF = 0.0000 with RSD = 0.00%

**3 o-Terphenyl SURR**
Retention time = 10.090 min., Search window = 0.050 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 23783.08

AKE89 8865

No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 2.000 | 48477.0 | 24238.5 | Manual | 2/17/2011 11:49: |
| 2 | 8.000 | 191265.0 | 23908.13 | Manual | 2/17/2011 11:49: |
| 3 | 16.000 | 377747.0 | 23609.19 | Manual | 2/17/2011 11:49: |
| 4 | 20.000 | 475463.0 | 23773.15 | Manual | 2/17/2011 11:49: |
| 5 | 40.000 | 935457.0 | 23386.43 | Manual | 2/17/2011 11:49: |

Calibration formula: Y = 23783.08 X
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 0.9994, Average error = 0.98%
Average CF = 23783.0800 with RSD = 1.35%

**4 C25**
Retention time = 12.330 min., Search window = 0.100 min.
Low alarm amount = 0, High alarm amount = 0
Group number = 0, Component constant = 0
No retention time reference component
Single peak quantification by area

| Level | Amount | Area | Area/Amt | Source | Date and time |
|---|---|---|---|---|---|
| 1 | 1.000 | 0.0 | 0 | Manual | 2/17/2011 11:49: |
| 2 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 3 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 4 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |
| 5 | -1.000 | 0 | | Manual | 2/17/2011 11:49: |

Calibration formula: No data points to graph
Fit type = Avg CF with equal weighting, forced to origin
Coefficient of determination = 1.0000, Average error = 100.00%
Average CF = 0.0000 with RSD = 0.00%

AKE89 6867

Sample ID: AKCDX1132A BCAKCDXBC CCAL 114699999
Instrument ID:CP24--H5386A Injected on: 2/17/2011 6:04:40 AM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 28 | 2.835 | C10 | . | 35954 | .021 | 17489 |
| 148 | 10.132 | o-Terphenyl SURR | 14.849 | 353155 | .022 | 198072 |
| 174 | 12.35 | C25 | . | 2194 | .036 | 632 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.740 | 12.260 | 14.849 | 100.000 | 10944430.0 | 46.761 |
| 2 | 10.080 | 10.180 | 14.849 | 100.000 | 353155.1 | 1.509 |

Total slice amount= 29.698
Total slice amount %= 200.0
Total slice area= 11297590.0
Total slice area %= 48.3

********** RESULTS TABLE **********

C10 - <C25 DRO AMT = 517.0989

% Level 2 DRO Difference = 29.27474

% Level 3 DRO Difference = -35.36263

% Level 4 DRO Difference = -67.68131

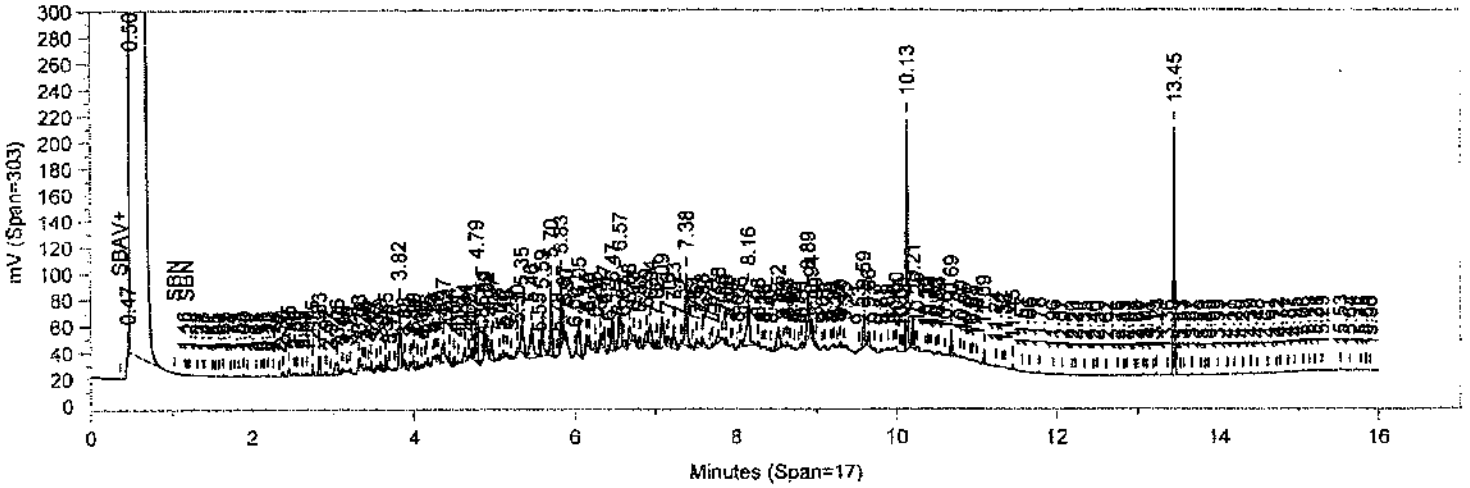
$\frac{517.0989}{500} - 1 \times 100 = 3.4\%$ D

ELLWORD 2/17/11

FILES:
Area File: C:\CPWIN\DATA1\L047.23A
Method File: C:\CPWIN\DATA1\AKDLSTD.MET
Calibration File: C:\CPWIN\DATA1\AKDL047A.CAL
Format File: C:\CPWIN\DATA1\AKDLSTD.FMT
Area file created on: 2/17/2011 11:57:14 AM
File reported on: 2/17/2011 at 11:57:16 AM

AKE89 8888

AK 102/103 SURROGATE
AKCDX1132A BCAKCDXBC CCAL 114699999
C:\CPWIN\DATA1\L047.23R




Sample Name:AKCDX1132A BCAKCDXBC CCAL 114699999A

Instrument ID:CP24--H5386A Injected on: 2/17/2011 6:04:40 AM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 30 | 2.835 | C10 | . | 21819 | .021 | 15304 |
| 150 | 10.132 | o-Terphenyl SURR | 10.6634 | 253609 | .022 | 178302 |
| 177 | 12.35 | C25 | . | 1029 | .036 | 440 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 10.080 | 10.180 | 10.663 | 100.000 | 253609.5 | 1.774 |

Total slice amount= 10.663 Total slice area= 253609.5
Total slice amount %= 100.0 Total slice area %= 1.8

o-Terphenyl Level 2 % Difference = 6.634426 %

o-Terphenyl Level 3 % Difference = -46.68279 %

o-Terphenyl Level 4 % Difference = -73.34139 %

FILES:
Area File: C:\CPWIN\DATA1\L047.23A
Method File: C:\CPWIN\DATA1\REAKDLST.MET
Calibration File: C:\CPWIN\DATA1\AKDL047A.CAL
Format File: C:\CPWIN\DATA1\REAKDLST.FMT
Area file created on: 2/17/2011 11:57:28 AM
File reported on: 2/17/2011 at 11:57:29 AM

AKES9 0089

AK 102/103

Sample ID: AKFL21132A SDAKFL2SD CCAL 1115299999
Instrument ID:CP24--H5386A Injected on: 6/2/2011 6:16:16 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 30 | 2.774 | C10 | | 75421 | .022 | 42255 |
| 137 | 10.056 | o-Terphenyl SURR | 13.672 | 325162 | .023 | 173117 |
| 161 | 12.313 | C25 | | 7192 | .026 | 2953 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 13.672 | 100.000 | 8471254.0 | 39.476 |
| 2 | 10.040 | 10.140 | 13.672 | 100.000 | 467338.7 | 2.178 |

Total slice amount= 27.344 Total slice area= 8938593.0
Total slice amount %= 200.0 Total slice area %= 41.7

********** RESULTS TABLE **********

C10 - <C25 DRO AMT = 390.7759

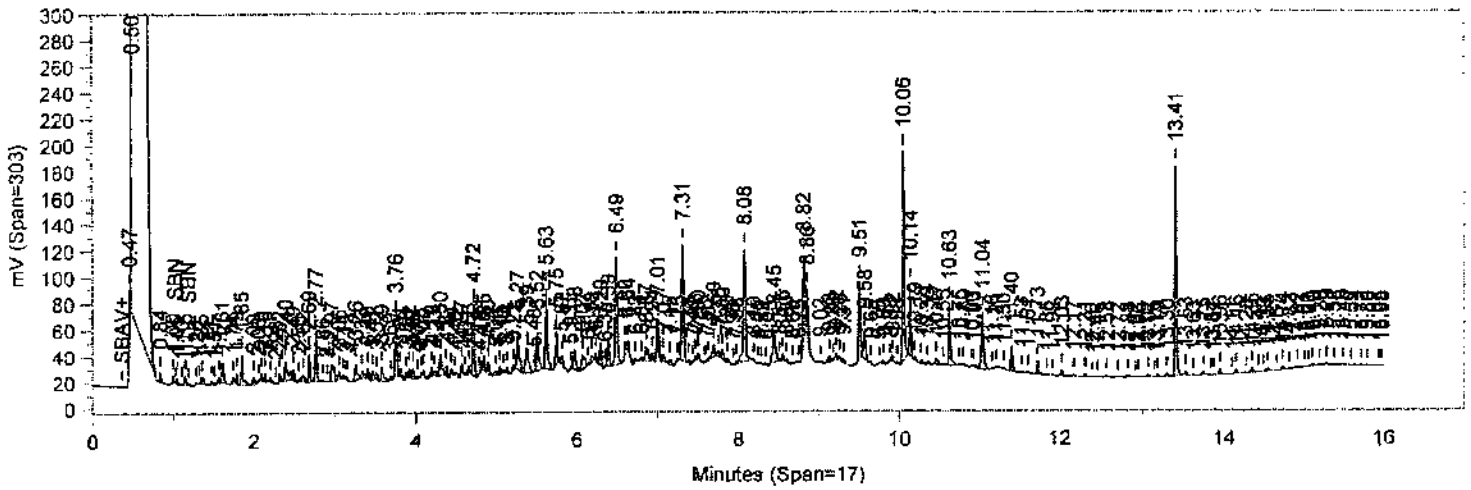
% Level 2 DRO Difference = -2.306014

% Level 3 DRO Difference = -51.153

% Level 4 DRO Difference = -75.5765

FILES:
Area File: C:\CPWIN\DATA1\L152.41A
Method File: C:\CPWIN\DATA1\AKDLSTD.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSTD.FMT
Area file created on: 6/2/2011 6:32:24 PM
File reported on: 6/2/2011 at 6:32:26 PM

AK 102/103 SURROGATE
AKFL21132A SDAKFL2SD CCAL 1115299999
C:\CPWIN\DATA1\L152.41R




Sample Name:AKFL21132A SDAKFL2SD CCAL 1115299999A

Instrument ID:CP24--H5386A Injected on: 6/2/2011 6:16:16 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 30 | 2.774 | C10 | . | 58545 | .022 | 39656 |
| 138 | 10.056 | o-Terphenyl SURR | 10.0851 | 239855 | .023 | 158835 |
| 162 | 12.313 | C25 | . | 4298 | .026 | 2460 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 10.040 | 10.140 | 10.085 | 100.000 | 318419.4 | 2.161 |

Total slice amount= 10.085 Total slice area= 318419.4
Total slice amount %= 100.0 Total slice area %= 2.2

o-Terphenyl Level 2 % Difference = 0.8509874 %

o-Terphenyl Level 3 % Difference = -49.5745 %

o-Terphenyl Level 4 % Difference = -74.78725 %

FILES:
Area File: C:\CPWIN\DATA1\L152.41A
Method File: C:\CPWIN\DATA1\REAKDLST.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDLST.FMT
Area file created on: 6/2/2011 6:32:38 PM
File reported on: 6/2/2011 at 6:32:39 PM

AK289 3891

AK 102/103

Sample ID: AKFL31132A SIAKFL3SI CCAL 1115299999
Instrument ID:CP24--H5386A Injected on: 6/2/2011 11:17:25 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 31 | 2.773 | C10 | . | 158136 | .022 | 89283 |
| 143 | 10.057 | o-Terphenyl SURR | 28.9906 | 689485 | .023 | 373150 |
| 166 | 12.309 | C25 | . | 16031 | .023 | 7015 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 28.991 | 100.000 | 17679990.0 | 56.055 |
| 2 | 10.040 | 10.140 | 28.991 | 100.000 | 982861.3 | 3.116 |

Total slice amount= 57.981 Total slice area= 18662850.0
Total slice amount %= 200.0 Total slice area %= 59.2

********** RESULTS TABLE **********

C10 - <C25 DRO AMT = 815.2053

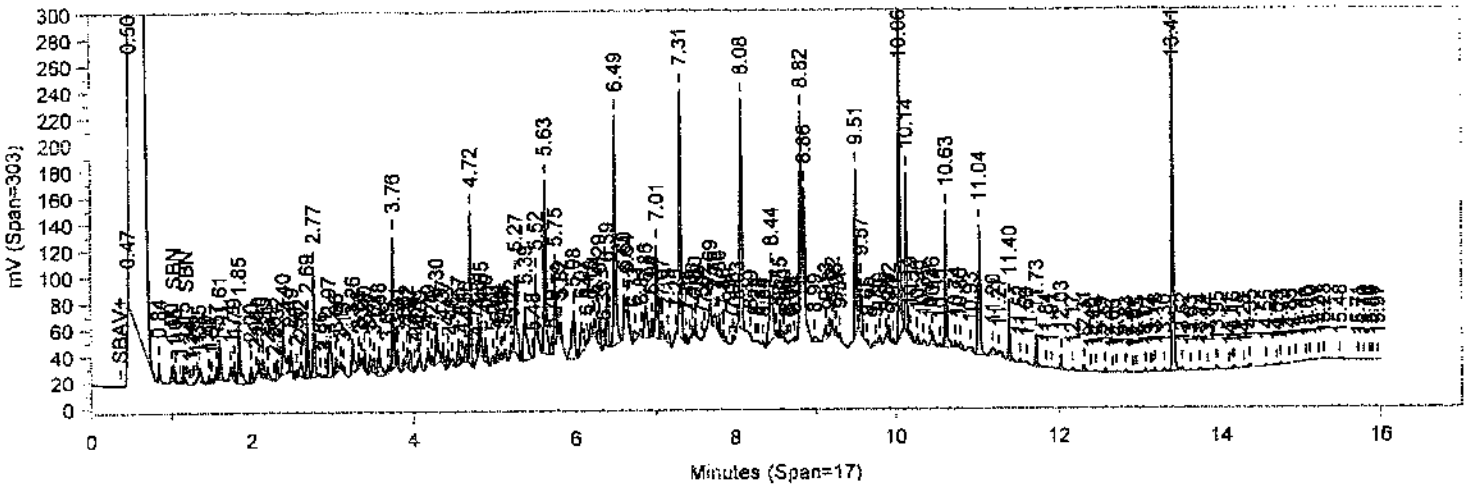
% Level 2 DRO Difference = 103.8013

% Level 3 DRO Difference = 1.900661

% Level 4 DRO Difference = -49.04967

FILES:
Area File: C:\CPWIN\DATA1\L152.52A
Method File: C:\CPWIN\DATA1\AKDLSTD.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSTD.FMT
Area file created on: 6/2/2011 11:33:34 PM
File reported on: 6/2/2011 at 11:33:35 PM

AK 102/103 SURROGATE
AKFL31132A SIAKFL3SI CCAL 1115299999
C:\CPWIN\DATA1\L152.52R




Sample Name:AKFL31132A SIAKFL3SI CCAL 1115299999A

Instrument ID:CP24--H5386A Injected on: 6/2/2011 11:17:25 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 31 | 2.773 | C10 | . | 122986 | .022 | 83878 |
| 143 | 10.057 | o-Terphenyl SURR | 21.4381 | 509864 | .023 | 344062 |
| 166 | 12.309 | C25 | . | 8850 | .023 | 5819 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 10.040 | 10.140 | 21.438 | 100.000 | 679985.1 | 3.681 |

Total slice amount= 21.438 Total slice area= 679985.1
Total slice amount %= 100.0 Total slice area %= 3.7

o-Terphenyl Level 2 % Difference = 114.3811 %

o-Terphenyl Level 3 % Difference = 7.190549 %

o-Terphenyl Level 4 % Difference = -46.40472 %

FILES:
Area File: C:\CPWIN\DATA1\L152.52A
Method File: C:\CPWIN\DATA1\REAKDLST.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDLST.FMT
Area file created on: 6/2/2011 11:33:46 PM
File reported on: 6/2/2011 at 11:33:48 PM

Sample ID: AKFL21132A SEAKFL2SE CCAL 1115399999
Instrument ID:CP24--H5386A Injected on: 6/3/2011 9:42:46 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 33 | 2.77 | C10 | . | 81771 | .023 | 44719 |
| 142 | 10.052 | o-Terphenyl SURR | 14.8361 | 352848 | .023 | 187687 |
| 167 | 12.308 | C25 | . | 7896 | .023 | 3622 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 14.836 | 100.000 | 9114715.0 | 41.215 |
| 2 | 10.040 | 10.140 | 14.836 | 100.000 | 511151.8 | 2.311 |

Total slice amount= 29.672 Total slice area= 9625867.0
Total slice amount %= 200.0 Total slice area %= 43.5

********** RESULTS TABLE **********

C10 - <C25 DRO AMT = 420.0526

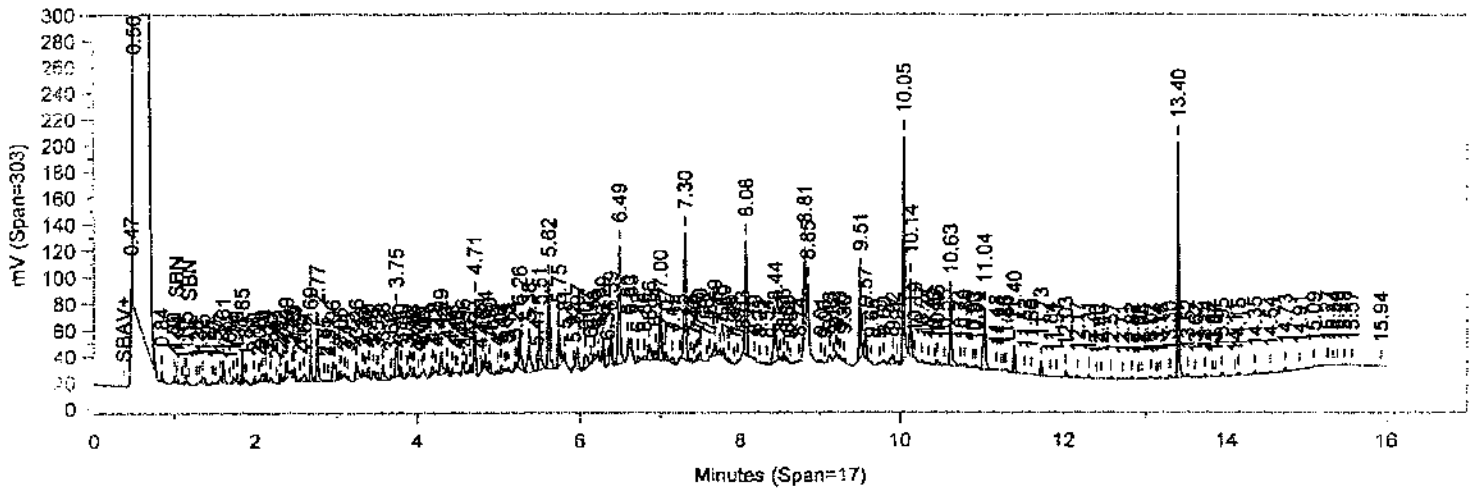
% Level 2 DRO Difference = 5.013144

% Level 3 DRO Difference = -47.49343

% Level 4 DRO Difference = -73.74672

FILES:
Area File: C:\CPWIN\DATA1\L152.81A
Method File: C:\CPWIN\DATA1\AKDLSTD.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSTD.FMT
Area file created on: 6/3/2011 9:58:54 PM
File reported on: 6/3/2011 at 9:58:57 PM

AK 102/103 SURROGATE
AKFL21132A SEAKFL2SE CCAL 1115399999
C:\CPWIN\DATA1\L152.81R




Sample Name:AKFL21132A SEAKFL2SE CCAL 1115399999A

Instrument ID:CP24--H5386A Injected on: 6/3/2011 9:42:46 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 33 | 2.77 | C10 | . | 63423 | .023 | 42018 |
| 143 | 10.052 | o-Terphenyl SURR | 10.7893 | 256602 | .023 | 172229 |
| 169 | 12.308 | C25 | . | 4733 | .023 | 3093 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 10.040 | 10.140 | 10.789 | 100.000 | 340711.1 | 2.290 |

Total slice amount= 10.789 Total slice area= 340711.1
Total slice amount %= 100.0 Total slice area %= 2.3

o-Terphenyl Level 2 % Difference = 7.892847 %

o-Terphenyl Level 3 % Difference = -46.05358 %

o-Terphenyl Level 4 % Difference = -73.02679 %

FILES:
Area File: C:\CPWIN\DATA1\L152.81A
Method File: C:\CPWIN\DATA1\REAKDLST.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDLST.FMT
Area file created on: 6/3/2011 9:59:08 PM
File reported on: 6/3/2011 at 9:59:10 PM

AKE89 8895

AK 102/103

Sample ID: AKFL31132A SJAKFL3SJ CCAL 1115399999
Instrument ID:CP24--H5386A Injected on: 6/3/2011 11:04:41 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 31 | 2.769 | C10 | . | 184939 | .023 | 93230 |
| 138 | 10.054 | o-Terphenyl SURR | 29.8238 | 709303 | .023 | 392943 |
| 165 | 12.306 | C25 | . | 18112 | .023 | 7234 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 29.824 | 100.000 | 18829220.0 | 57.591 |
| 2 | 10.040 | 10.140 | 29.824 | 100.000 | 1020538.0 | 3.121 |

Total slice amount= 59.648 Total slice area= 19849760.0
Total slice amount %= 200.0 Total slice area %= 60.7

********** RESULTS TABLE **********

C10 - <C25 DRO AMT = 869.475

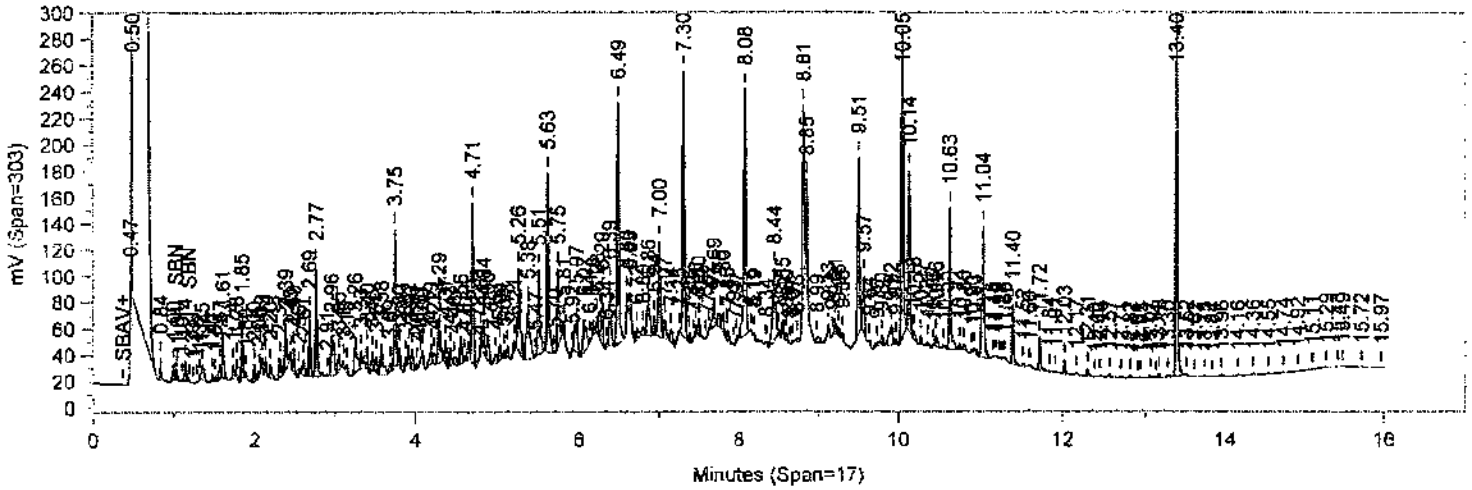
% Level 2 DRO Difference = 117.3687

% Level 3 DRO Difference = 8.684373

% Level 4 DRO Difference = -45.65781

FILES:
Area File: C:\CPWIN\DATA1\L152.84A
Method File: C:\CPWIN\DATA1\AKDLSTD.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSTD.FMT
Area file created on: 6/3/2011 11:20:48 PM
File reported on: 6/3/2011 at 11:20:51 PM

AK 102/103 SURROGATE
AKFL31132A SJAKFL3SJ CCAL 1115399999
C:\CPWIN\DATA1\L152.84R




Sample Name:AKFL31132A SJAKFL3SJ CCAL 1115399999A

Instrument ID:CP24--H5386A Injected on: 6/3/2011 11:04:41 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 32 | 2.769 | C10 | . | 137699 | .023 | 87948 |
| 139 | 10.054 | o-Terphenyl SURR | 22.4633 | 534247 | .023 | 361048 |
| 166 | 12.306 | C25 | . | 8430 | .023 | 5626 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 10.040 | 10.140 | 22.463 | 100.000 | 712925.4 | 3.812 |

Total slice amount= 22.463 Total slice area= 712925.4
Total slice amount %= 100.0 Total slice area %= 3.8

o-Terphenyl Level 2 % Difference = 124.633 %

o-Terphenyl Level 3 % Difference = 12.31651 %

o-Terphenyl Level 4 % Difference = -43.84174 %

FILES:
Area File: C:\CPWIN\DATA1\L152.84A
Method File: C:\CPWIN\DATA1\REAKDLST.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDLST.FMT
Area file created on: 6/3/2011 11:21:02 PM
File reported on: 6/3/2011 at 11:21:04 PM

AKE09 0092

# Lancaster Laboratories

## CHROM PERFECT SEQUENCE FILE

Sequence File: \\cp24\C-Drive\CPWIN\DATA1\L047.seq

Chromatography Directory: \\cp24\C-Drive\CPWIN\DATA1

Method Directory: \\cp24\C-Drive\CPWIN\DATA1

Number of Entries: 30

| | Samplename | Code | ID | FileName | Method | Samp Amt | DF | Int Std | C | Batch Number | Analysis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CONDITIONER | MISC | AA | L047.01R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 2 | CONDITIONER | MISC | AA | L047.02R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 3 | AKRTX1032D | CCAL | LN | L047.03R | AKRTL.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 4 | AKSS11032B | ICAL | AA | L047.04R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 5 | AKSS21032B | ICAL | AA | L047.05R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 6 | AKSS31032B | ICAL | AA | L047.06R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 7 | AKSS41032B | ICAL | AA | L047.07R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 8 | AKSS51032B | ICAL | AA | L047.08R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 9 | 1FUL11132A | ICAL | AA | L047.09R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 10 | 1FUL21132A | ICAL | AA | L047.10R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 11 | 1FUL31132B | ICAL | AA | L047.11R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 12 | 1FUL41132A | ICAL | AA | L047.12R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 13 | 1FUL51132A | ICAL | AA | L047.13R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 14 | MECL2 | MISC | AA | L047.14R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 15 | AKSW11032B | ICAL | AA | L047.15R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 16 | AKSW21032B | ICAL | AA | L047.16R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 17 | AKSW31032B | ICAL | AA | L047.17R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 18 | AKSW41032B | ICAL | AA | L047.18R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 19 | AKSW51032B | ICAL | AA | L047.19R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 20 | MECL2 | MISC | AA | L047.20R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 21 | 1MDLX1132A | CCAL | IL | L047.21R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 22 | AKMDX1132A | CCAL | CA | L047.22R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 23 | AKCDX1132A | CCAL | BC | L047.23R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 24 | AKCRX1132A | CCAL | BD | L047.24R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 25 | AKRTX1032D | CCAL | LO | L047.25R | AKRTL.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 26 | MS1104732C | CCAL | AN | L047.26R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 27 | MS1102132C | CCAL | AO | L047.27R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 28 | MS1103332A | CCAL | AP | L047.28R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 29 | SS1101932B | CCAL | AL | L047.29R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 114699999 | |
| 30 | MS1104732A | CCAL | AO | L047.30R | TNLCK.MET | 1 | 1 | 1 | 0 | 114699999 | |

AEDB9 8898

Set-up by: Matthew Williams Date: 2/17/11

2/17/11

# Lancaster Laboratories

## CHROM PERFECT SEQUENCE FILE

Sequence File: \\cp24\C-Drive\CPWIN\DATA1\L124.seq
Chromatography Directory: \\cp24\C-Drive\CPWIN\DATA1
Method Directory: \\cp24\C-Drive\CPWIN\DATA1
Number of Entries: 33

| | Samplename | Code | ID | FileName | Method | Samp Amt | DF | Int Std | C | Batch Number | Analysis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CONDITIONER | MISC | AA | L124.01R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 2 | CONDITIONER | MISC | AA | L124.02R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 3 | AKRTX1132A | CCAL | NE | L124.03R | AKRTL.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 4 | AKFL41032D | CCAL | QH | L124.04R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 5 | BLANKA 5/4/11 | BLK | AA | L124.05R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111230025A | 01741 |
| 6 | LCSA 5/4/11 | LCS | AA | L124.06R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111230025A | 01741 |
| 7 | LCSDA 5/4/11 | LCSD | AA | L124.07R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111230025A | 01741 |
| 8 | 6272432 | T | AA | L124.08R | AKDLSUM.MET | 1044 | 1 | 1 | 0 | 111230025A | 01741 |
| 9 | 6272434 | T | AA | L124.09R | AKDLSUM.MET | 1027 | 1 | 1 | 0 | 111230025A | 01741 |
| 10 | 6272435 | T | AA | L124.10R | AKDLSUM.MET | 1018 | 1 | 1 | 0 | 111230025A | 01741 |
| 11 | 6272436 | T | AA | L124.11R | AKDLSUM.MET | 1026 | 1 | 1 | 0 | 111230025A | 01741 |
| 12 | 6272437 | T | AA | L124.12R | AKDLSUM.MET | 1021 | 1 | 1 | 0 | 111230025A | 01741 |
| 13 | 6272443 | T | AA | L124.13R | AKDLSUM.MET | 903 | 1 | 1 | 0 | 111230025A | 01741 |
| 14 | 6272444 | T | AA | L124.14R | AKDLSUM.MET | 1027 | 1 | 1 | 0 | 111230025A | 01741 |
| 15 | 6272445 | T | AA | L124.15R | AKDLSUM.MET | 1030 | 1 | 1 | 0 | 111230025A | 01741 |
| 16 | 6272433 | T | AA | L124.16R | AKDLSUM.MET | 1035 | 1 | 1 | 0 | 111230025A | 01741 |
| 17 | AKFL21032D | CCAL | RV | L124.17R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 18 | AKCK21132A | CCAL | OM | L124.18R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 19 | BLANKA 5/4/11 | BLK | AA | L124.19R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 20 | LCSA 5/4/11 | LCS | AA | L124.20R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 21 | LCSDA 5/4/11 | LCSD | AA | L124.21R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 22 | 6274142 | T | AA | L124.22R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 23 | 6274142MS | MS | AA | L124.23R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 24 | 6274142MSD | MSD | AA | L124.24R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 25 | 6274143 | T | AA | L124.25R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 26 | 6274144 | T | AA | L124.26R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 27 | 6274145 | T | AA | L124.27R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 28 | 6274146 | T | AA | L124.28R | AKRLSUM.MET | 25.1 | 1 | 1 | 0 | 111240006A | 01738 |
| 29 | 6274147 | T | AA | L124.29R | AKRLSUM.MET | 25.1 | 1 | 1 | 0 | 111240006A | 01738 |
| 30 | 6274148 | T | AA | L124.30R | AKRLSUM.MET | 25 | 1 | 1 | 0 | 111240006A | 01738 |
| 31 | MECL2 | MISC | AA | L124.31R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 32 | AKCK31132A | CCAL | NU | L124.32R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1112399999 | |
| 33 | AKRTX1132A | CCAL | NF | L124.33R | AKRTL.MET | 1 | 1 | 1 | 0 | 1112399999 | |

AKDGS 8099

Set-up by: Martha Williams Date: 5/5/11

5/5/11

# Lancaster Laboratories

## CHROM PERFECT SEQUENCE FILE

Sequence File: \\cp24\C-Drive\CPWIN\DATA1\L152.seq
Chromatography Directory: \\cp24\C-Drive\CPWIN\DATA1
Method Directory: \\cp24\C-Drive\CPWIN\DATA1
Number of Entries: 85

| | Samplename | Code | ID | FileName | Method | Samp Amt | DF | Int Std | C | Batch Number | Analysis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CONDITIONER | MISC | AA | L152.01R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 2 | CONDITIONER | MISC | AA | L152.02R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 3 | CONDITIONER | MISC | AA | L152.03R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 4 | WISC11132A | ICAL | AA | L152.04R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 5 | WISC21132A | ICAL | AA | L152.05R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 6 | WISC31132A | ICAL | AA | L152.06R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 7 | WISC41132A | ICAL | AA | L152.07R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 8 | WISC51132A | ICAL | AA | L152.08R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 9 | MECL2 | MISC | AA | L152.09R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 10 | TPH_41132F | CCAL | NY | L152.10R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 11 | WISC41132A | CCAL | GP | L152.11R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 12 | BLANKA 5/23/11 | BLK | AA | L152.12R | WILSUM.MET | 1000 | 1 | 1 | 0 | 111430013A | 07554 |
| 13 | LCSA 5/23/11 | LCS | AA | L152.13R | WILSUM.MET | 1000 | 1 | 1 | 0 | 111430013A | 07554 |
| 14 | 6293915 | T | AA | L152.14R | WILSUM.MET | 806 | 1 | 1 | 0 | 111430013A | 07554 |
| 15 | MECL2 | MISC | AA | L152.15R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 16 | LCSDA 5/23/11 | LCSD | AA | L152.16R | WILSUM.MET | 1000 | 1 | 1 | 0 | 111430013A | 07554 |
| 17 | WISC31132A | CCAL | IO | L152.17R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 18 | FLA_21132A | CCAL | VQ | L152.18R | FLALSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 19 | 6291357S OF50 | T | AC | L152.19R | FLALSUM.MET | 25.4 | 50 | 1 | 0 | 111390029A | 02100 |
| 20 | 6291357MSS DF50 | MS | AC | L152.20R | FLALSUM.MET | 25 | 50 | 1 | 0 | 111390029A | 02100 |
| 21 | 6291357MSDS DF50 | MSD | AC | L152.21R | FLALSUM.MET | 25.5 | 50 | 1 | 0 | 111390029A | 02100 |
| 22 | 6291358S | T | AB | L152.22R | FLALSUM.MET | 25.4 | 1 | 1 | 0 | 111390029A | 02100 |
| 23 | FLA_31132A | CCAL | RY | L152.23R | FLALSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 24 | AKRTX1132A | CCAL | NN | L152.24R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 25 | AKCK31132A | CCAL | NX | L152.25R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 26 | 6297624DF2 | T | AB | L152.26R | AKRLSUM.MET | 1042 | 2 | 1 | 0 | 111460032A | 02923 |
| 27 | AKCK41132A | CCAL | MG | L152.27R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 28 | AKRTX1132A | CCAL | NO | L152.28R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 29 | CONDITIONER | MISC | AA | L152.29R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 30 | FLA_41132A | CCAL | UG | L152.30R | FLALSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 31 | 6291357S DF50 | T | AC | L152.31R | FLALSUM.MET | 25.4 | 50 | 1 | 0 | 111390029A | 02100 |
| 32 | 6291357MSS DF50 | MS | AC | L152.32R | FLALSUM.MET | 25 | 50 | 1 | 0 | 111390029A | 02100 |
| 33 | 6291357MSDS DF50 | MSD | AC | L152.33R | FLALSUM.MET | 25.5 | 50 | 1 | 0 | 111390029A | 02100 |
| 34 | 6291358S | T | AB | L152.34R | FLALSUM.MET | 25.4 | 1 | 1 | 0 | 111390029A | 02100 |
| 35 | FLA_21132A | CCAL | VR | L152.35R | FLALSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 36 | FLA_21132A | CCAL | VR | L152.36R | FLALSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 37 | AKRTX1132A | CCAL | NP | L152.37R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 38 | AKCK21132A | CCAL | OO | L152.38R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 39 | 6297824DF5 | T | AC | L152.39R | AKRLSUM.MET | 1042 | 5 | 1 | 0 | 111460032A | 02923 |
| 40 | AKCK31132A | CCAL | NY | L152.40R | AKRLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 41 | AKFL21132A | CCAL | SD | L152.41R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 42 | BLANKA 6/2/11 | BLK | AA | L152.42R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111520013A | 01741 |
| 43 | LCSA 6/2/11 | LCS | AA | L152.43R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111520013A | 01741 |
| 44 | LCSDA 6/2/11 | LCSD | AA | L152.44R | AKDLSUM.MET | 1000 | 1 | 1 | 0 | 111520013A | 01741 |
| 45 | 6297068R | T | AA | L152.45R | AKDLSUM.MET | 993 | 1 | 1 | 0 | 111520013A | 01741 |
| 46 | 6299141 | T | AA | L152.46R | AKDLSUM.MET | 968 | 1 | 1 | 0 | 111520013A | 01741 |
| 47 | 6299142 | T | AA | L152.47R | AKDLSUM.MET | 975 | 1 | 1 | 0 | 111520013A | 01741 |
| 48 | 6299143 | T | AA | L152.48R | AKDLSUM.MET | 987 | 1 | 1 | 0 | 111520013A | 01741 |
| 49 | 6299151 | T | AA | L152.49R | AKDLSUM.MET | 1004 | 1 | 1 | 0 | 111520013A | 01741 |
| 50 | 6299152 | T | AA | L152.50R | AKDLSUM.MET | 657 | 1 | 1 | 0 | 111520013A | 01741 |

# Lancaster Laboratories

## CHROM PERFECT SEQUENCE FILE

Sequence File: \\cp24\C-Drive\CPWIN\DATA1\L152.seq
Chromatography Directory: \\cp24\C-Drive\CPWIN\DATA1
Method Directory: \\cp24\C-Drive\CPWIN\DATA1
Number of Entries: 85

| | Samplename | Code | ID | FileName | Method | Samp Amt | DF | Int Std | C | Batch Number | Analysis |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 6299153 | T | AA | L152.51R | AKDLSUM.MET | 996 | 1 | 1 | 0 | 111520013A | 01741 |
| 52 | AKFL31132A | CCAL | SI | L152.52R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 53 | 6299156 | T | AA | L152.53R | AKDLSUM.MET | 1047 | 1 | 1 | 0 | 111520013A | 01741 |
| 54 | 6301430 | T | AA | L152.54R | AKDLSUM.MET | 1011 | 1 | 1 | 0 | 111520013A | 01741 |
| 55 | 6301431 | T | AA | L152.55R | AKDLSUM.MET | 1024 | 1 | 1 | 0 | 111520013A | 01741 |
| 56 | 6299154 | T | AA | L152.56R | AKDLSUM.MET | 1005 | 1 | 1 | 0 | 111520013A | 01741 |
| 57 | MECL2 | MISC | AA | L152.57R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 58 | 6299155 | T | AA | L152.58R | AKDLSUM.MET | 1001 | 1 | 1 | 0 | 111520013A | 01741 |
| 59 | MECL2 | MISC | AA | L152.59R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 60 | 6299157 | T | AA | L152.60R | AKDLSUM.MET | 988 | 1 | 1 | 0 | 111520013A | 01741 |
| 61 | MECL2 | MISC | AA | L152.61R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 62 | MECL2 | MISC | AA | L152.62R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 63 | AKFL41132A | CCAL | QO | L152.63R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 64 | AKRTX1132A | CCAL | NQ | L152.64R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 65 | TPH_41132F | CCAL | NZ | L152.65R | TNLCK.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 66 | TNIC41132A | CCAL | IT | L152.66R | TNLCK.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 67 | BLANKA 5/27/11 | BLK | AA | L152.67R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111460031A | 02784 |
| 68 | LCSA 5/27/11 | LCS | AA | L152.68R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111460031A | 02784 |
| 69 | LCSDA 5/27/11 | LCSD | AA | L152.69R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111460031A | 02784 |
| 70 | 6297963 | T | AA | L152.70R | TNLSUM.MET | 1036 | 1 | 1 | 0 | 111460031A | 02784 |
| 71 | 6299103 | T | AA | L152.71R | TNLSUM.MET | 1037 | 1 | 1 | 0 | 111460031A | 02784 |
| 72 | BLANKA 6/1/11 | BLK | AA | L152.72R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111520006A | 02784 |
| 73 | LCSA 6/1/11 | LCS | AA | L152.73R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111520006A | 02784 |
| 74 | LCSDA 6/1/11 | LCSD | AA | L152.74R | TNLSUM.MET | 1000 | 1 | 1 | 0 | 111520006A | 02784 |
| 75 | 6297970 | T | AA | L152.75R | TNLSUM.MET | 1036 | 1 | 1 | 0 | 111520006A | 02784 |
| 76 | 6300755 | T | AA | L152.76R | TNLSUM.MET | 1027 | 1 | 1 | 0 | 111520006A | 02784 |
| 77 | TNIC31132A | CCAL | KE | L152.77R | TNLCK.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 78 | TPH_31132F | CCAL | HX | L152.78R | TNLCK.MET | 1 | 1 | 1 | 0 | 1115299999 | |
| 79 | CONDITIONER | MISC | AA | L152.79R | WILSTD.MET | 1 | 1 | 1 | 0 | 1115199999 | |
| 80 | AKRTX1132A | CCAL | NR | L152.80R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115399999 | |
| 81 | AKFL21132A | CCAL | SE | L152.81R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115399999 | |
| 82 | 6301430DF25 | T | AB | L152.82R | AKDLSUM.MET | 1011 | 25 | 1 | 0 | 111520013A | 01741 |
| 83 | 6301431DF50 | T | AB | L152.83R | AKDLSUM.MET | 1024 | 50 | 1 | 0 | 111520013A | 01741 |
| 84 | AKFL31132A | CCAL | SJ | L152.84R | AKDLSTD.MET | 1 | 1 | 1 | 0 | 1115399999 | |
| 85 | AKRTX1132A | CCAL | NS | L152.85R | AKRTL.MET | 1 | 1 | 1 | 0 | 1115399999 | |

6/28/11

AKE09 6181

Set-up by: Heather L Williams Date: 6/6/11

6/6/11

# Sample Data

Lancaster Laboratories

**LOQ/MDL Summary**
**EPH/Miscellaneous GC**

**SDG: AKE89**

**Fraction: TPH-DRO by GC**

| 01741: TPH-DRO AK water C10-C25<br>Analyte Name | Default<br>MDL | Default<br>LOQ | Units |
|---|---|---|---|
| TPH-DRO AK water C10-C25 | 0.050 | 0.25 | mg/l |

AKE89 0103

# Lancaster Laboratories-Range Data Summary

**Sample Name:** 6301430DF25 CJMW5 Sample ID: AB **Batchnumber:** 111520013A
Sample Amount: 1011. Total Volume: 25. ml Analyst: 2027 SDG: AKE89 State: AK
Analyses: 01741

Injection Summary

Injected on : 6/3/2011 22:10:05
Instrument : CP24--H5386A
Result file : L152.82R
Calibration files : AKDL047B.CAL
Method files : AKDLSUM.MET REAKDL.MET
Setting : AKDL047B

Surrogate Recoveries

O-TERPHENYL SURR 106.5% (50-150) Conc.: 12.646

| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| ☐ C10-<C25 DRO | 2.70 - 12.23 | 15351820 | 18.5195 | 6.182 | 1.2364 | | ppm |
| ☐ o-Terphenyl SURR | 10.05 (10.04 - 10.14) | 12163 | 12.6460 | | | | ppb |

Comments: _____

Reviewed by: CMW5P Verified by: Tracy A. Cole
Date: 6/6/11 Date: JUN 06 2011

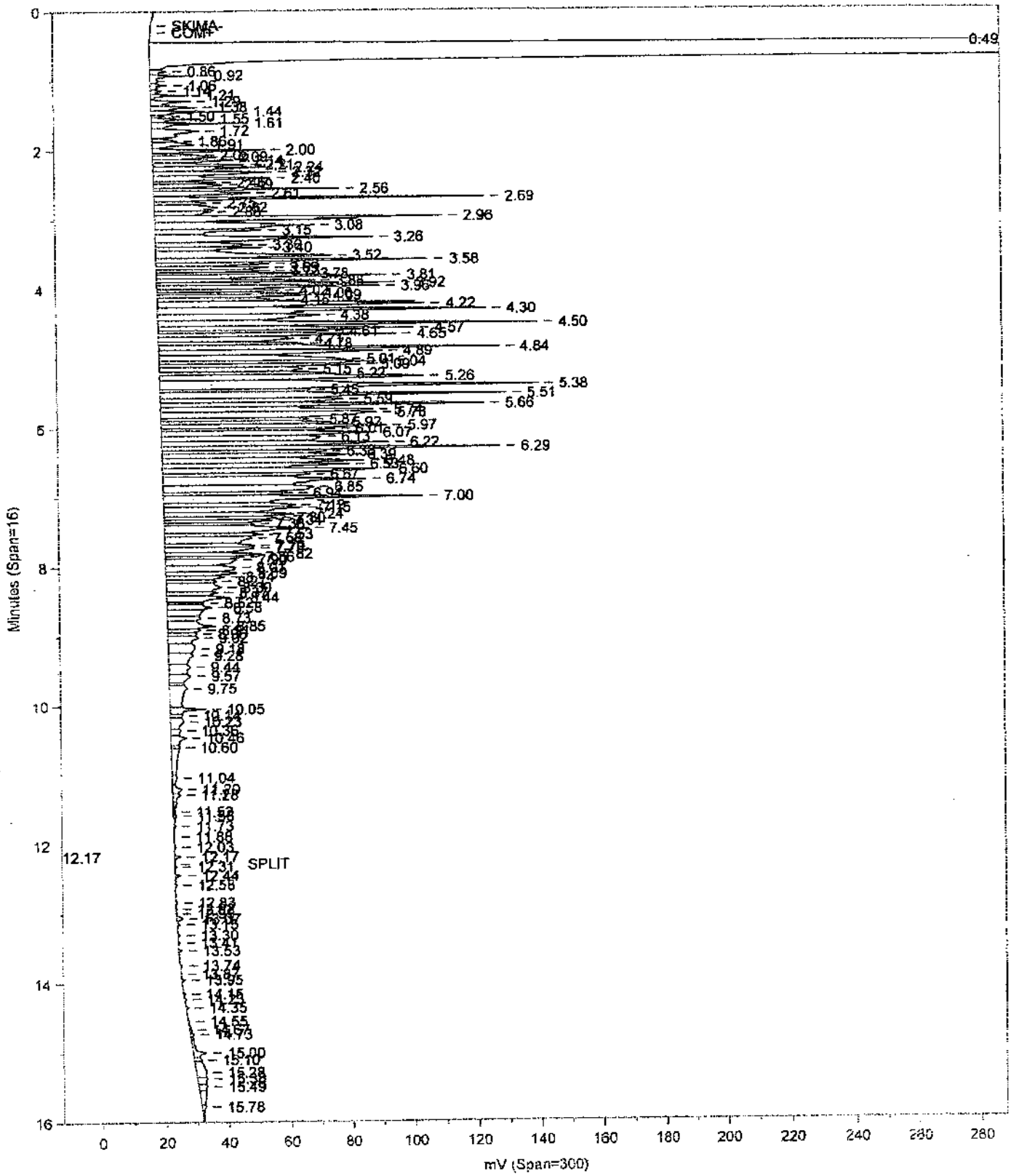
Tracy A. Cole
Senior Specialist

AKE89 6164

AK 102/103

6301430DF25 ABCJMW5 T 111520013A 01741

C:\CPWIN\DATA1\L152.82R




Instrument ID:CP24--H5386A
Injected on: 6/3/2011 10:10:04 PM
Volume Inj. per Column: 1
GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1011
Dilution Factor: 25

C:\CPWIN\DATA1\L152.82R
Printed on 6/3/2011 10:26:15 PM

Sample ID: 6301430DF25 ABCJMW5 T 111520013A 01741
Instrument ID:CP24--H5386A Injected on: 6/3/2011 10:10:04 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1011 Dilution Factor: 25
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPB | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 30 | 2.819 | C10 | . | 97767 | .073 | 20384 |
| 127 | 10.05 | o-Terphenyl SURR | 36.0518 | 34674 | .023 | 11561 |
| 143 | 12.312 | C25 | . | 1663 | .035 | 656 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 36.448 | 100.000 | 15351820.0 | 51.889 |
| 2 | 10.040 | 10.140 | 36.448 | 100.000 | 45930.4 | 0.155 |

Total slice amount= 72.897 Total slice area= 15397750.0
Total slice amount %= 200.0 Total slice area %= 52.0

********** RESULTS TABLE **********

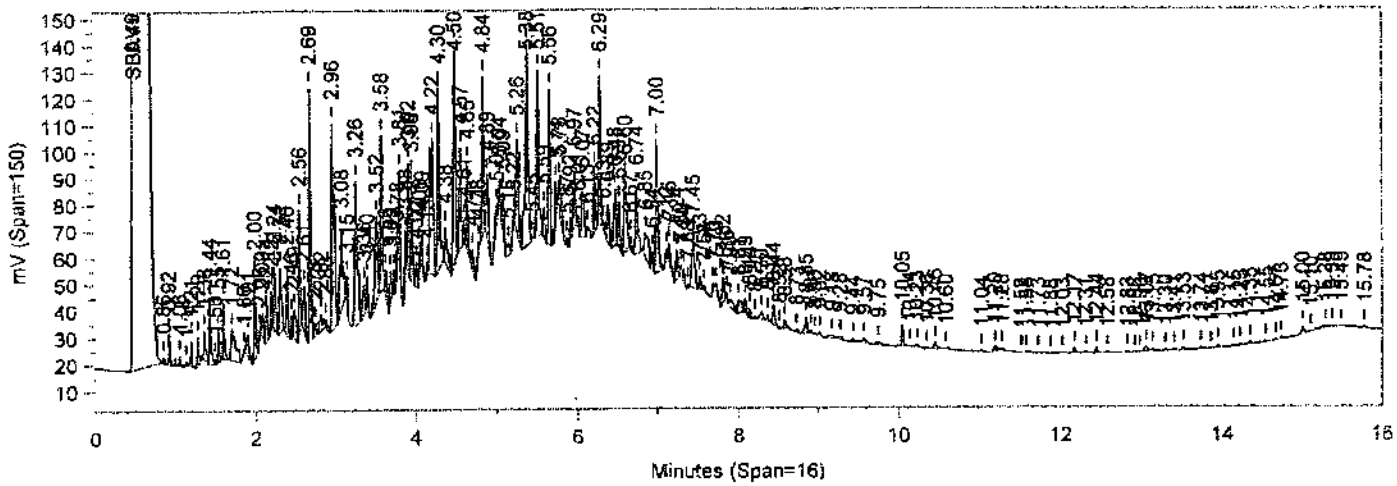
C10-<C25 DRO AREA = 1.535182E+07
C10-<C25 AMT = 18.47876

FILES:
Area File: C:\CPWIN\DATA1\L152.82A
Method File: C:\CPWIN\DATA1\AKDLSUM.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSUM.FMT
Area file created on: 6/3/2011 10:26:12 PM
File reported on: 6/3/2011 at 10:26:14 PM

AK 102/103

6301430DF25 ABCJMW5 T 111520013A 01741

C:\CPWIN\DATA1\L152.82R




Sample Name:6301430DF25 ABCJMW5 T 111520013A 01741A

Instrument ID:CP24--H5386A
Injected on: 6/3/2011 10:10:04 PM
Volume Inj. per Column: 1
GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1011
Dilution Factor: 25
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 30 | 2.819 | C10 | . | 18938 | .073 | 6567 |
| 127 | 10.05 | o-Terphenyl SURR | .0126463 | 12163 | .023 | 7778 |
| 142 | 12.312 | C25 | . | 1405 | .035 | 608 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|

Total slice amount= 0.000
Total slice amount %= 0.0
Total slice area= 0.0
Total slice area %= 0.0

O-TERPHENYL % RECOVERY = 106.5449 %

FILES:
Area File: C:\CPWIN\DATA1\L152.82A
Method File: C:\CPWIN\DATA1\REAKDL.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDL.FMT
Area file created on: 6/3/2011 10:26:26 PM
File reported on: 6/3/2011 at 10:26:27 PM

AKE09 6167

# Lancaster Laboratories-Range Data Summary

**Sample Name:** 6301431DF50 CJDU1 Sample ID: AB **Batchnumber:** 111520013A
Sample Amount: 1024. Total Volume: 50. ml Analyst: 2027 SDG:AKE89 State: AK
Analyses: 01741

Injection Summary

Injected on : 6/3/2011 22:37:25
Instrument : CP24--H5386A
Result file : L152.83R
Calibration files : AKDL047B.CAL
Method files : AKDLSUM.MET REAKDL.MET
Setting : AKDL047B

Surrogate Recoveries

O-TERPHENYL SURR 101.5% (50-150) Conc.: 11.892

| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| ☐ C10-<C25 DRO | 2.70 - 12.23 | 9980843 | 23.7799 | 12.207 | 2.4414 | | ppm |
| ☐ o-Terphenyl SURR | 10.05 (10.04 - 10.14) | 5792 | 11.8920 | | | | ppb |

Comments: _____

Tracy A. Cole

Reviewed by: _____ Verified by: _____
Date: 6/6/11 Date: JUN 0 6 2011

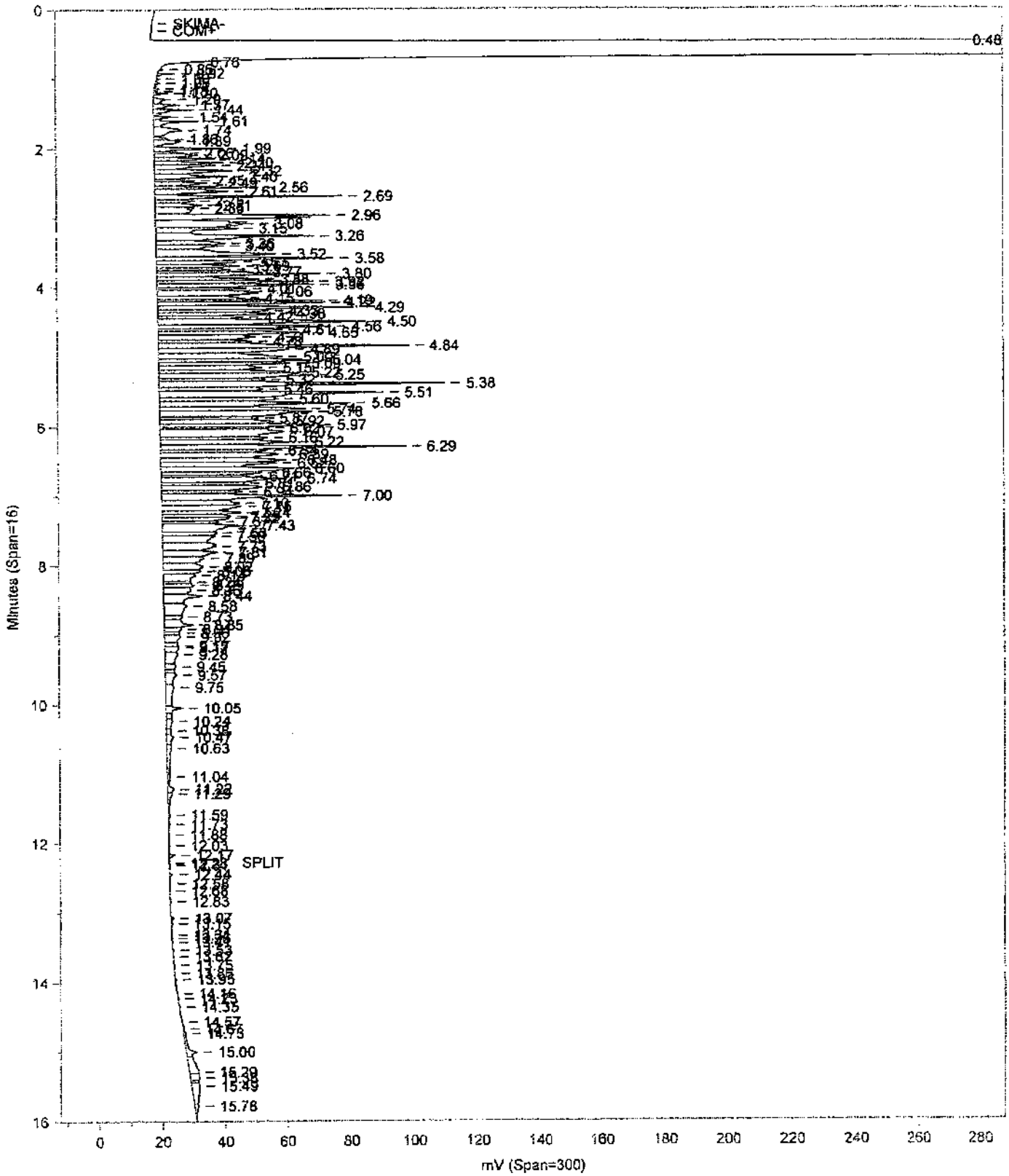
Tracy A. Cole
Senior Specialist

AKE89: 8183

AK 102/103

6301431DF50 ABCJDU1 T 111520013A 01741

C:\CPWIN\DATA1\L152.83R




Instrument ID:CP24--H5386A Injected on: 6/3/2011 10:37:24 PM

Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C

Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN

Sample Amount: 1024 Dilution Factor: 50

Sample ID: 6301431DF50 ABCJDU1 T 111520013A 01741
Instrument ID:CP24--H5386A Injected on: 6/3/2011 10:37:24 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1024 Dilution Factor: 50
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPB | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 32 | 2.815 | C10 | . | 42871 | .03 | 14917 |
| 132 | 10.051 | o-Terphenyl SURR | 35.8623 | 17468 | .024 | 5303 |
| 146 | 12.313 | C25 | . | 1075 | .037 | 407 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 36.723 | 100.000 | 9980845.0 | 89.560 |
| 2 | 10.040 | 10.140 | 36.723 | 100.000 | 17467.7 | 0.157 |

Total slice amount= 73.446 Total slice area= 9998313.0
Total slice amount %= 200.0 Total slice area %= 89.7

********** RESULTS TABLE **********

C10-<C25 DRO AREA = 9980845
C10-<C25 AMT = 23.75209

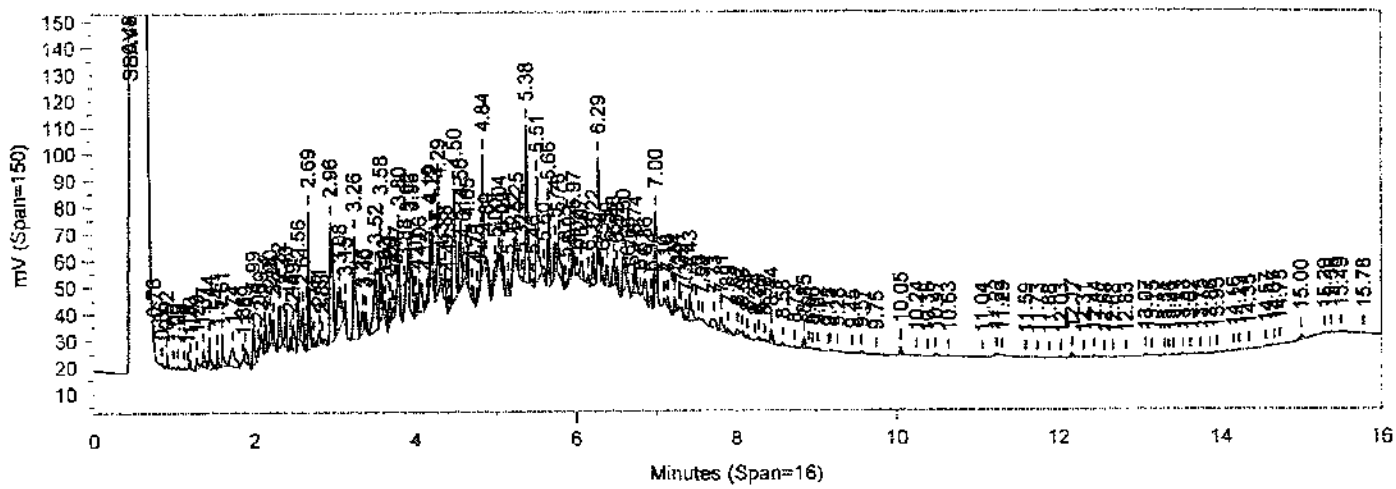
FILES:
Area File: C:\CPWIN\DATA1\L152.83A
Method File: C:\CPWIN\DATA1\AKDLSUM.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSUM.FMT
Area file created on: 6/3/2011 10:53:32 PM
File reported on: 6/3/2011 at 10:53:34 PM

AKE089 0110

AK 102/103

6301431DF50 ABCJDU1 T 111520013A 01741

C:\CPWIN\DATA1\L152.83R




Sample Name:6301431DF50 ABCJDU1 T 111520013A 01741A

Instrument ID:CP24--H5386A
Injected on: 6/3/2011 10:37:24 PM
Volume Inj. per Column: 1
GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1024
Dilution Factor: 50
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 32 | 2.815 | C10 | . | 9151 | .03 | 5342 |
| 132 | 10.051 | o-Terphenyl SURR | .0118916 | 5792 | .024 | 3466 |
| 145 | 12.313 | C25 | . | 934 | .037 | 375 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|

Total slice amount= 0.000
Total slice amount %= 0.0
Total slice area= 0.0
Total slice area %= 0.0

O-TERPHENYL % RECOVERY = 101.4753 %

FILES:
Area File: C:\CPWIN\DATA1\L152.83A
Method File: C:\CPWIN\DATA1\REAKDL.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDL.FMT
Area file created on: 6/3/2011 10:53:46 PM
File reported on: 6/3/2011 at 10:53:48 PM

# Raw QC Data

# Lancaster Laboratories Range Data Summary

**Sample Name:** BLANKA 6/2/11 PBLK13152 Sample ID: AA **Batchnumber:** 111520013A
Sample Amount: 1000. Total Volume: 1. ml Analyst: 2027 SDG: State:
Analyses: 01741

Injection Summary

Injected on : 6/2/2011 18:43:38
Instrument : CP24--H5386A
Result file : L152.42R
Calibration files : AKDL047B.CAL
Method files : AKDLSUM.MET REAKDL.MET
Setting : AKDL047B

Surrogate Recoveries

O-TERPHENYL SURR 101.6% (50-150) Conc.: 12.195

| Range | Retention Times | Area | Amount | LOQ | MDL | Flags | Units |
|---|---|---|---|---|---|---|---|
| ☐ C10-<C25 DRO | 2.70 - 12.23 | 843835 | 0.0270 | <0.25 | <0.05 | | ppm |
| ☐ o-Terphenyl SURR | 10.06 (10.04 - 10.14) | 290043 | 12.1950 | | | | ppb |

Comments: _____

Tracy A. Cole

Reviewed by: [illegible] Verified by: JUN 06 2011
Date: 6/3/11 Date:

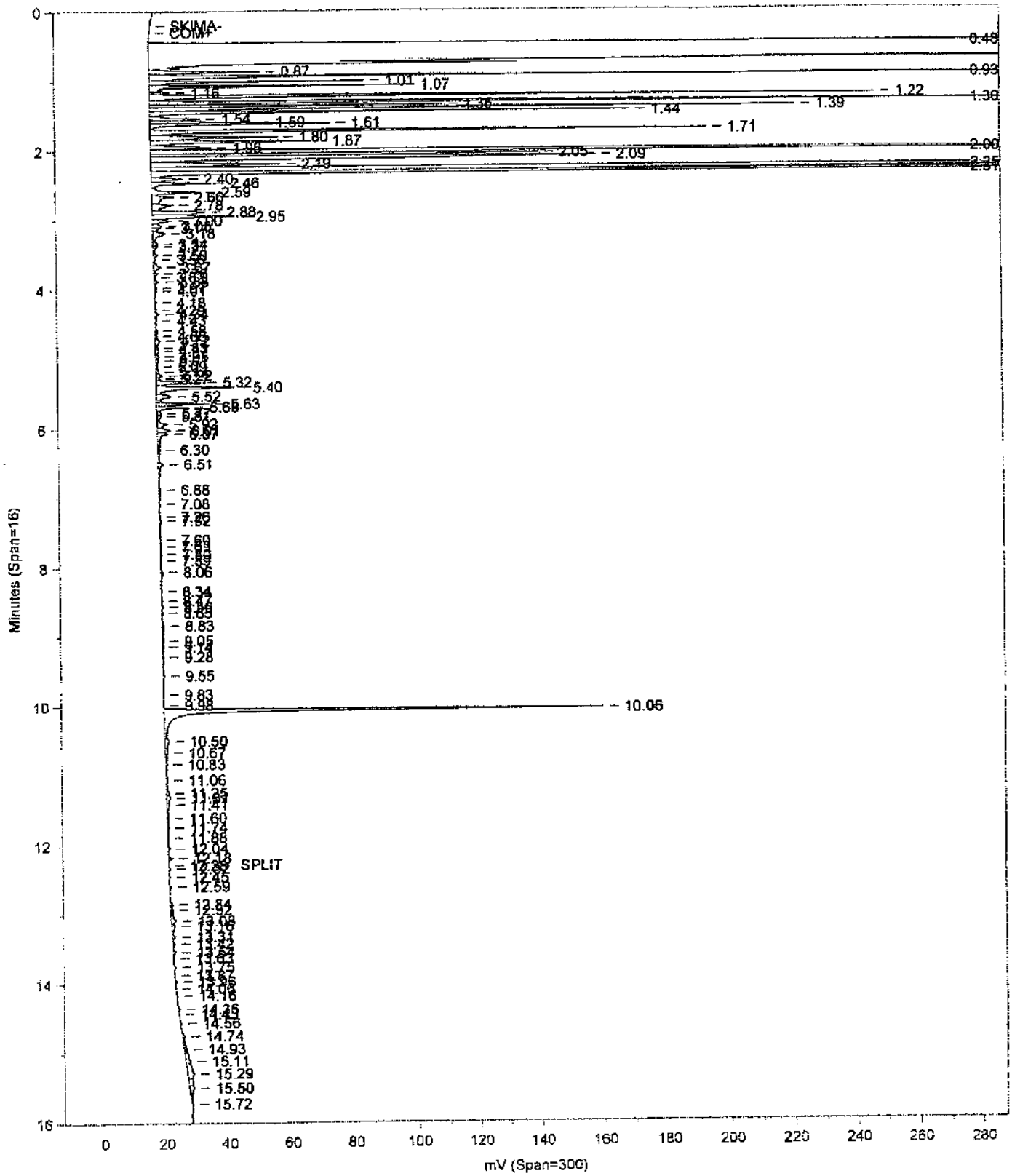
Tracy A. Cole
Senior Specialist

ASE89 0113

AK 102/103

BLANKA 6/2/11 AAPBLK13152 BLK 111520013A 01741

C:\CPWIN\DATA1\L152.42R




Instrument ID:CP24--H5386A
Injected on: 6/2/2011 6:43:37 PM

Volume Inj. per Column: 1
GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C

Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN

Sample Amount: 1000
Dilution Factor: 1

Sample ID: BLANKA 6/2/11 AAPBLK13152 BLK 111520013A 01741
Instrument ID:CP24--H5386A Injected on: 6/2/2011 6:43:37 PM
Volume Inj. per Column: 1 GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1000 Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPB | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 29 | 2.778 | C10 | . | 21841 | .039 | 7002 |
| 93 | 10.057 | o-Terphenyl SURR | 12.5612 | 298743 | .026 | 140651 |
| 107 | 12.324 | C25 | . | 1444 | .037 | 608 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|
| 1 | 2.700 | 12.230 | 12.561 | 100.000 | 843834.8 | 4.142 |
| 2 | 10.040 | 10.140 | 12.561 | 100.000 | 298743.1 | 1.466 |

Total slice amount= 25.122 Total slice area= 1142578.0
Total slice amount %= 200.0 Total slice area %= 5.6

********** RESULTS TABLE **********

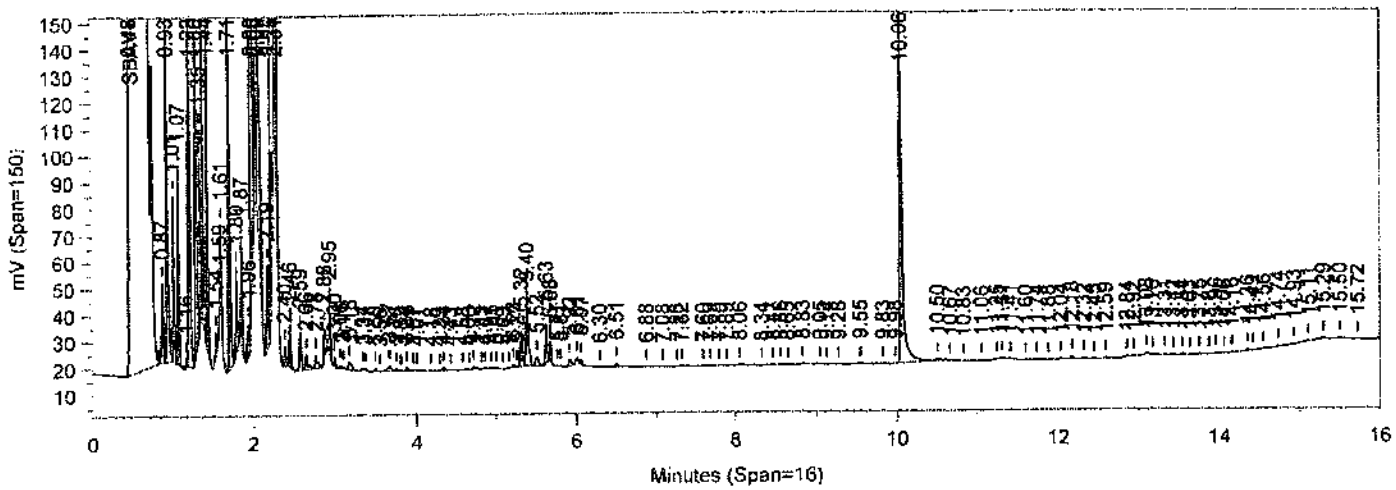
C10-<C25 DRO AREA = 843834.8
C10-<C25 AMT = 2.661307E-02

FILES:
Area File: C:\CPWIN\DATA1\L152.42A
Method File: C:\CPWIN\DATA1\AKDLSUM.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\AKDLSUM.FMT
Area file created on: 6/2/2011 6:59:46 PM
File reported on: 6/2/2011 at 6:59:47 PM

AK 102/103

BLANKA 6/2/11 AAPBLK13152 BLK 111520013A 01741

C:\CPWIN\DATA1\L152.42R




Sample Name:BLANKA 6/2/11 AAPBLK13152 BLK 111520013A 01741A

Instrument ID:CP24–H5386A
Injected on: 6/2/2011 6:43:37 PM
Volume Inj. per Column: 1
GC Column: ZB-5 30M x 0.32mm x 0.25um INJ 300C: DET 320C
Oven Parameters: 50C 1MIN; 15C/MIN TO 180C; 30C/MIN TO 340C; HOLD 1MIN
Sample Amount: 1000
Dilution Factor: 1
Analyst: 2027

| Peak # | Ret Time (min) | Peak Name | Amount PPM | Peak Area | Peak Width (min) | Peak Height |
|---|---|---|---|---|---|---|
| 29 | 2.778 | C10 | . | 10230 | .039 | 5076 |
| 93 | 10.057 | o-Terphenyl SURR | .0121953 | 290043 | .026 | 140568 |
| 106 | 12.324 | C25 | . | 1300 | .037 | 591 |

| Slice | Start Time | Stop Time | Slice Amount | Amount % | Slice Area | Area % |
|---|---|---|---|---|---|---|

Total slice amount= 0.000
Total slice amount %= 0.0
Total slice area= 0.0
Total slice area %= 0.0

O-TERPHENYL % RECOVERY = 101.6279 %

FILES:
Area File: C:\CPWIN\DATA1\L152.42A
Method File: C:\CPWIN\DATA1\REAKDL.MET
Calibration File: C:\CPWIN\DATA1\AKDL047B.CAL
Format File: C:\CPWIN\DATA1\REAKDL.FMT
Area file created on: 6/2/2011 6:59:58 PM
File reported on: 6/2/2011 at 7:00:01 PM

AKE89 8116

# Extraction/Distillation/Digestion Logs

**Organic Extraction Batchlog** Assigned to: 1785 Sherry Morrow Reviewed by: [illegible] Start Date: 6/2/11 Start time: 300 PM

**111520013A**

Tech 1: Slm 1785 Tech 2:

Dept: 32 Prep Analysis: 11184 AK DRO Waters Extraction TPH-DRO AK water C10-C25

| QC | Sample Code | Amt (mL) | SS/IS Sol. | Amt (mL) | MS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BLANKA | PBLK13152 | 1000 | ~~SS1113732A~~ + SS1114732A | 1.0 | | | 1.0 | 2 | 7 | N/A | DI H20 |
| LCSA | LCS13152 | 1000 | ~~SS1113732A~~ + SS1114732A | 1.0 | MS1113632B | 1.0 | 1.0 | 2 | | N/A | DI H20 |
| LCSDA | LCSD13152 | 1000 | ~~SS1113732A~~ + SS1114732A | 1.0 | MS1113632B | 1.0 | 1.0 | 2 | | N/A | DI H20 |

| Solvent Used | Lot No. |
|---|---|
| 1:1 HCl | A026-10 |
| Methylene Chloride | 111867 |
| Sodium Sulfate | 11153A |

Spike Solutions: Witness: N/A

MS1113632B DRO WATER SPIKE

~~SS1113732A~~ + SS1114732A ~~SS1113732A~~ DRO WATER SURROGATE

| Sample # | | Sample Code | Amt (mL) | SS/IS Sol. | Amt (mL) | FV (mL) | pH | pH | BC | Comments | Analyses | Due Date | Prio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6297068 R | ERWS1 | 993 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | 7 | 29B | CLOUDY LIGHT GRAY | 01741 | 06/02/2011 | P |
| 2 | 6299141 | GAAM8 | 968 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | ↓ | 01741 | 06/06/2011 | P |
| 3 | 6299142 | GAAD1 | 975 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | ↓ | 01741 | 06/06/2011 | P |
| 4 | 6299143 | GAAM9 | 987 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY LIGHT BROWN | 01741 | 06/06/2011 | P |
| 5 | 6299151 | 5AD4D | 1004 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY | 01741 | 06/06/2011 | P |
| 6 | 6299152 | 5AD4S | 857 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY TAN | 01741 | 06/06/2011 | P |
| 7 | 6299153 | 5AD3D | 996 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | BROWN / LIGHT SEDIMENT | 01741 | 06/06/2011 | P |
| 8 | 6299154 | 5AD3S | 1005 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY TAN | 01741 | 06/06/2011 | P |
| 9 | 6299155 | 5AD5D | 1001 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | BROWN / LIGHT SEDIMENT | 01741 | 06/06/2011 | P |
| 10 | 6299156 | 5AD5S | 1047 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLEAR | 01741 | 06/06/2011 | P |
| 11 | 6299157 | 5ADU2 | 988 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | BROWN / LIGHT SEDIMENT | 01741 | 06/06/2011 | P |
| 12 | 6301430 | CJMW5 | 1011 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY | 01741 | 06/08/2011 | P |
| 13 | 6301431 | CJDU1 | 1024 | ~~SS1113732A~~ + SS1114732A | 1.0 | 1.0 | 2 | | 29A | CLOUDY | 01741 | 06/08/2011 | P |

Slm 1785 6/2/11

| Rack ID: | | Work Station | H20 5 |
|---|---|---|---|
| Internal Standard | | Balance # | — |

DF = Dilution Factor FV = Final Volume

| S-bath ID | 11 | 88 | C | S-bath ID | | C | N-Evap | C | M-vap | C | 111520013A |
|---|---|---|---|---|---|---|---|---|---|---|---|

Documented temps are NIST corrected.

# Instrumental Wet Chemistry Data

# Case Narrative
# Conformance/Nonconformance
# Summary

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## Instrumental Water Quality

| Sample # | Matrix Liquid | Solid | Comments |
|---|---|---|---|
| 6301430 | X | | |

## ANALYSIS:

Dilutions are listed in the table below:

| Samples | Nitrate Nitrogen | Nitrite Nitrogen | Sulfate |
|---|---|---|---|
| 6301430 | | | DF5 |
| LCS | DF10 | DF5 | |

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

## DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

**Abbreviation Key**

| | |
|---|---|
| U = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| R = Matrix Spike (MS) | MDL = Method Detection Limit |
| M = Matrix Spike Duplicate (MSD) | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | NA = Not Applicable |
| HS = High Spike | ME = Method |
| LS = Low Spike | CO = Colorimetric |
| SS = Soluble Spike | G = Gravimetric |
| IS = Insoluble Spike | IR = Infrared Spectrophotometry |
| ISD = Insoluble Spike Duplicate | MTR = Meter |
| PDS = Post Digestion Spike | OD = Oven Dried |
| * = Out of Specification | TI = Titration |
| V = Visual | TOC = Total Organic Carbon |
| AK = Alpkem | IC = Ion Chromatography |
| TC = Total Carbon | RA = Rapid Analyzer |

Narrative Reviewed and Approved by:

Dana Kauffman
Manager of Data Deliverables

Date 6/22/17

AKE89 8121

# Quality Control and Calibration Summary Forms

Lancaster Laboratories

# Quality Control Reference List
## Instrumental Water Quality

**CLIENT: ChevronTexaco**
**SDG: AKE89**

| Analyte | Batch Number | Sample Number |
|---|---|---|
| Nitrate Nitrogen | 11152106102A | 6301430 |
| | | Blank |
| | | LCS |
| Nitrite Nitrogen | 11148105101A | 6301430 |
| | | Blank |
| | | LCS |
| Sulfate | 11152196901A | Blank |
| | | LCS/LCSD |
| Sulfate | 11152196901C | 6301430 |

Lancaster Laboratories

**Quality Control Summary**
**Method Blank**
**Instrumental Water Quality**
**SDG: AKE89**
**Matrix: LIQUID**

| Analyte | Analysis Date | Method | Batch Number | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|---|
| Nitrate Nitrogen | 06/01/11 | AK | 11152106102 | N.D. | mg/l | 0.040 | 0.10 |
| Nitrite Nitrogen | 05/28/11 | AK | 11148105101 | N.D. | mg/l | 0.015 | 0.050 |
| Sulfate | 06/02/11 | IC | 11152196901 | N.D. | mg/l | 0.30 | 1.0 |

AKE89 0124

Comments: The blank is acceptable when the result is less than the limit of quantitation.

Lancaster Laboratories

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate (LCSD)**
**Instrumental Water Quality**
**SDG: AKE89**
**Matrix: LIQUID**

| Batch # | Analyte | Analysis Date | ME | True LCS/LCSD Value | LCS Results | LCSD Results | Units | Acceptance Range | % RPD Results | % RPD Acceptance </= |
|---|---|---|---|---|---|---|---|---|---|---|
| 11152106102 | Nitrate Nitrogen | 06/01/11 | AK | 21 | 22.2 | NA | mg/l | 18.8 - 23.2 | NA | NA |
| 11148105101 | Nitrite Nitrogen | 05/28/11 | AK | 1.92 | 2.0 | NA | mg/l | 1.719 - 2.12 | NA | NA |
| 11152196901 | Sulfate | 06/02/11 | IC | 7.5 | 8.1 | 8.1 | mg/l | 6.7125 - 8.28 | 1 | 20 |

Lancaster Laboratories

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/NO2

SDG: AKE89

Instrument ID: 09106
Calibration Date: 05/28/2011

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | AUTO CAL6 | CC |
|---|---|---|---|---|---|---|---|
| Nitrite-N | 2.2425 | 1.9003 | 1.1204 | 0.7066 | 0.4928 | 0.4218 | 0.9996 |

Acceptance Range:
ICV/CCV: +/- 10%
ICB/CCB: < MDL

Concentration units: mg/L

Batch Numbers: 11148105101A
Run Start Dates: 05/28/2011
Run Names: 1114801C02

| | Nitrite-N | | |
|---|---|---|---|
| Sample | True | Result | %Rec |
| ICV | 0.6 | 0.60113 | 100 |
| ICB | 0 | ND | NA |
| CCV2 | 0.6 | 0.59619 | 99 |
| CCB 1 | 0 | ND | NA |
| CCV2 | 0.6 | 0.62450 | 104 |
| CCB 5 | 0 | ND | NA |
| CCV2 | 0.6 | 0.62395 | 104 |
| CCB 6 | 0 | ND | NA |

AKE89 0126

* = Out of Specifications

Lancaster Laboratories

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/NO3

SDG: AKE89

Instrument ID: 09106
Calibration Date: 06/02/2011

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | AUTO CAL6 | CC |
|---|---|---|---|---|---|---|---|
| Nitrate-N | 3.9274 | 3.0885 | 1.2856 | 0.8103 | 0.5094 | 0.4182 | 0.9998 |

Acceptance Range:
ICV/CCV: +/- 10%
ICB/CCB: < MDL

Concentration units: mg/L

Batch Numbers: 11153106101A, 11153106101B
Run Start Dates: 06/02/2011
Run Names: 1115302C02

| | Nitrate-N | | |
|---|---|---|---|
| Sample | True | Result | %Rec |
| ICV | 2.5 | 2.56886 | 103 |
| ICB | 0 | ND | NA |
| CCV2 | 2.5 | 2.58526 | 103 |
| CCB 1 | 0 | ND | NA |

* = Out of Specifications

Lancaster Laboratories

Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/Anion Scan

SDG: AKE89

Instrument ID: 17694
Calibration Date: 05/11/2011

| Analysis | AUTO CAL1 | AUTO CAL2 | AUTO CAL3 | AUTO CAL4 | AUTO CAL5 | $R^2$ | CC |
|---|---|---|---|---|---|---|---|
| Sulfate | 0.096547 | 0.191227 | 0.463002 | 0.936085 | 1.426662 | 0.9998 | 0.9999 |

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < MDL

Concentration units: mg/L

Batch Numbers: 11152196901A, 11152196901C
Run Start Dates: 06/01/2011
Run Names: 1115201D09

| | Sulfate | | |
|---|---|---|---|
| Sample | True | Result | %Rec |
| ICV | 7.5 | 7.4580 | 99 |
| ICB | 0 | ND | NA |
| CCV2 | 7.5 | 7.9866 | 106 |
| CCB | 0 | ND | NA |
| CCV2 | 7.5 | 8.0540 | 107 |
| CCB | 0 | ND | NA |
| CCV2 | 7.5 | 8.0915 | 108 |
| CCB | 0 | ND | NA |
| CCV2 | 7.5 | 8.2479 | 110 |
| CCB | 0 | ND | NA |

* = Out of Specifications

Lancaster Laboratories

**LOQ/MDL Summary**
**Instrumental Water Quality**

**SDG: AKE89**

| Parameter | Default MDL | Default LOQ | Units |
|---|---|---|---|
| Nitrate Nitrogen | 0.040 | 0.10 | mg/l |
| Nitrite Nitrogen | 0.015 | 0.050 | mg/l |
| Sulfate | 0.30 | 1.0 | mg/l |

AKE89 8129

# Wet Chemistry Data

# Case Narrative Conformance/ Non-Conformance Summary

Lancaster Laboratories

**CLIENT: ChevronTexaco**
**SDG: AKE89**

## Miscellaneous Wet Chemistry

| Sample # | Matrix Liquid | Solid | Comments |
|---|---|---|---|
| 6301430 | X | | |

## ANALYSIS:

There were no dilutions performed for analyses associated with samples in this SDG.

## QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

## DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

**Abbreviation Key**

| | |
|---|---|
| U = Unspiked (for MS/MSD) | LOQ = Limit of Quantitation |
| R = Matrix Spike (MS) | MDL = Method Detection Limit |
| M = Matrix Spike Duplicate (MSD) | ND = Not Detected |
| BKG = Background (for Duplicate) | J = Estimated Value |
| D = Duplicate (DUP) | NA = Not Applicable |
| HS = High Spike | ME = Method |
| LS = Low Spike | CO = Colorimetric |
| SS = Soluble Spike | G = Gravimetric |
| IS = Insoluble Spike | IR = Infrared Spectrophotometry |
| ISD = Insoluble Spike Duplicate | MTR = Meter |
| PDS = Post Digestion Spike | OD = Oven Dried |
| * = Out of Specification | TI = Titration |
| V = Visual | TOC = Total Organic Carbon |
| AK = Alpkem | IC = Ion Chromatography |
| TC = Total Carbon | RA = Rapid Analyzer |

Narrative Reviewed and Approved by:

Patricia Weirich for Date 6-16-11

Dana Kauffman
Manager of Data Deliverables

# QC Summary

Lancaster Laboratories

# Quality Control Reference List
## Miscellaneous Wet Chemistry

**CLIENT: ChevronTexaco**
**SDG: AKE89**

| Batch Number | Sample Number | Alkalinity to pH 4.5 | Alkalinity to pH 8.3 |
|---|---|---|---|
| 11153020201A | Blank | X | |
| | LCS | X | |
| 11153020201B | 6301430 | X | X |

Lancaster Laboratories

**Quality Control Summary**
**Method Blank**
**Miscellaneous Wet Chemistry**
**SDG: AKE89**
**Matrix: LIQUID**

| Analyte | Analysis Date | Method | Batch Number | Blank Results | Units | MDL | LOQ |
|---|---|---|---|---|---|---|---|
| Alkalinity to pH 4.5 | 06/02/11 | TI | 11153020201 | N.D. | mg/l as CaCO3 | 0.46 | 2.0 |

AKE89 8135

Comments: The blank is acceptable when the result is less than the limit of quantitation.

Lancaster Laboratories

**Quality Control Summary**
**Laboratory Control Standard (LCS)**
**Laboratory Control Standard Duplicate (LCSD)**
**Miscellaneous Wet Chemistry**
**SDG: AKE89**
**Matrix: LIQUID**

| Batch # | Analyte | Analysis Date | ME | True LCS/LCSD Value | LCS Results | LCSD Results | Units | Acceptance Range | % RPD Results | % RPD Acceptance <= |
|---|---|---|---|---|---|---|---|---|---|---|
| 11153020201 | Alkalinity to pH 4.5 | 06/02/11 | TI | 188 | 186 | NA | mg/l as CaCO3 | 183.3 - 194.56 | NA | NA |

Lancaster Laboratories

**LOQ/MDL Summary**
**Miscellaneous Wet Chemistry**

**SDG: AKE89**

| Parameter | Default MDL | Default LOQ | Units |
|---|---|---|---|
| Alkalinity to pH 4.5 | 0.46 | 2.0 | mg/l as CaCO3 |
| Alkalinity to pH 8.3 | 0.46 | 2.0 | mg/l as CaCO3 |

AKE89 0137

ATTACHMENT C

SITE PHOTOS

**1.** View of MW-4 and ozone injection system looking west.

**2.** Damaged solar panel.

**3.** New solar panel.

Appendix A

SITE PHOTOGRAPHS
FORMER DELTA WESTERN/CHEVRON BULK TERMINAL 8-2307
9203 CESSNA DRIVE
*Juneau, Alaska*

ATTACHMENT D

STANDARD OPERATION PROCEDURES
FOR GROUNDWATER MONITORING AND SAMPLING

CONESTOGA-ROVERS & ASSOCIATES

# STANDARD FIELD PROCEDURES FOR GROUNDWATER MONITORING AND SAMPLING

This document presents standard field methods for groundwater monitoring, purging and sampling, and well development. These procedures are designed to comply with Federal, State and local regulatory guidelines. Conestoga-Rovers & Associates' specific field procedures are summarized below.

## Groundwater Monitoring

Prior to performing monitoring activities, the historical monitoring and analytical data of each monitoring well shall be reviewed to determine if any of the wells are likely to contain separate phase hydrocarbons (SPH) and to determine the order in which the wells will be monitored (i.e. cleanest to dirtiest). Groundwater monitoring should not be performed when the potential exists for surface water to enter the well (i.e. flooding during a rainstorm).

Prior to monitoring, each well shall be opened and the well cap removed to allow water levels to stabilize and equilibrate. The condition of the well box and well cap shall be observed and recommended repairs noted. Any surface water that may have entered and flooded the well box should be evacuated prior to removing the well cap. In wells with no history of SPH, the static water level and total well depth shall be measured to the nearest 0.01 foot with an electronic water level meter. Wells with the highest contaminant concentrations shall be monitored last. In wells with a history of SPH, the SPH level/thickness and static water level shall be measured to the nearest 0.01 foot using an electronic interface probe. The water level meter and/or interface probe shall be thoroughly cleaned and decontaminated at the beginning of the monitoring event and between each well. Monitoring equipment shall be washed using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water.

## Groundwater Sampling

### Purge Sampling

Prior to groundwater purging and sampling, the historical analytical data of each monitoring well shall be reviewed to determine the order in which the wells should be purged and sampled (i.e. cleanest to dirtiest). No purging or groundwater sampling shall be performed on wells with a measurable thickness of SPH or floating SPH globules. If a sheen is observed, the well should be purged and a groundwater sample collected only if no SPH is present. Wells shall be purged either by hand using a disposal or PVC bailer or by using an aboveground pump (e.g. peristaltic or Wattera™) or down-hole pump (e.g. Grundfos™ or DC Purger pump).

Groundwater wells shall be purged approximately three to ten well-casing volumes (depending on the regulatory agency requirements) or until a minimum of three groundwater parameters have stabilized for three consecutive readings. Temperature, dissolved oxygen (DO), pH, conductivity, and oxidation-reduction potential (ORP) shall be measured and recorded. The total volume of groundwater removed shall be recorded along with any other notable physical characteristic such as color and odor. If required, turbidity shall also be measured prior to collection of each groundwater sample.

Groundwater samples shall be collected after the well has been purged and allowed to recharge to 80% of the pre-purging static water level, or if the well is slow to recharge, after waiting a minimum of 2 hours. Groundwater samples shall be collected using clean disposable bailers or

pumps (if an operating remediation system exists on site and the project manager approves of its use for sampling) and shall be decanted into clean containers supplied by the analytical laboratory. New nitrile gloves and disposable tubing or bailers shall be used for sampling each well. If a PVC bailer or down-hole pump is used for groundwater purging, it shall be decontaminated before purging each well by using soapy water consisting of Liqui-nox™ or Alconox™ followed by one rinse of clean tap water and then two rinses of distilled water. If a submersible pump with non-dedicated discharge tubing is used for groundwater purging, both the inside and outside of pump and discharge tubing shall be decontaminated as described above.

**No Purge Sampling**
Groundwater samples shall be collected using clean disposable bailers (PVC or Teflon) and decanted into clean containers supplied by the analytical laboratory. New nitrile gloves shall be used for sampling each well.

**HydraSleeve Sampling**
HydraSleeve sampling devices shall be deployed a minimum of 24 hours prior to sampling to allow for equilibration and stabilization.

For wells without a previously deployed HydraSleeve sampling device, the groundwater monitoring SOP shall be followed to determine water column length. For wells with a previously deployed HydraSleeve sampling device, the depth to groundwater shall be measured prior to HydraSleeve removal. The depth to well bottom shall be measured prior to new HydraSleeve deployment.

The top of the HydraSleeve sampling device shall be set no more than 3 feet below static groundwater level. If the length of the water column does not allow for this, a top weight bottom set will be employed. Groundwater samples collected using clean disposable HydraSleeve sampling devices will be decanted into clean containers supplied by the analytical laboratory. New nitrile gloves and HydraSleeve sampling devices will be used for sampling each well.

Following sampling, a new HydraSleeve sampling device shall be deployed for the next sampling event if applicable.

## Sample Handling

Except for samples that will be tested in the field, or that require special handling or preservation, samples shall be stored in coolers chilled to 4° C for shipment to the analytical laboratory. Samples shall be labeled, placed in protective foam sleeves or bubble wrap as needed, stored on crushed ice at or below 4° C, and submitted under chain-of-custody (COC) to the laboratory. The laboratory shall be notified of the sample shipment schedule and arrival time. Samples shall be shipped to the laboratory within a time frame to allow for extraction and analysis to be performed within the standard sample holding times.

Sample labels shall be filled out using indelible ink and must contain the site name; field identification number; the date, time, and location of sample collection; notation of the type of sample; identification of preservatives used; remarks; and the signature of the sampler. Field identification must be sufficient to allow easy cross-reference with the field datasheet.

All samples submitted to the laboratory shall be accompanied by a COC record to ensure adequate documentation. One copy of the COC shall be kept in the QA/QC file and another copy shall be retained in the project file. Information on the COC shall consist of the project name and

number; project location; sample numbers; sampler/recorder's signature; date and time of collection of each sample; sample type; analyses requested; name of person receiving the sample; and date of receipt of sample.

Laboratory-supplied trip blanks shall accompany the samples and be analyzed to check for cross-contamination, if requested by the project manager.

## Well Development

Wells shall be developed using a combination of groundwater surging and extraction. A surge block shall be used to swab the well and agitate the groundwater in order to dislodge any fine sediment from the sand pack. After approximately ten minutes of swabbing the well, groundwater shall be extracted from the well using a bailer, pump and/or reverse air-lifting through a pipe to remove the sediments from the well. Alternating surging and extraction shall continue until the sediment volume in the groundwater (i.e. turbidity) is negligible, which typically requires extraction of approximately ten well-casing volumes of groundwater. Preliminary well development usually is performed during well installation prior to placing the sanitary surface seal to ensure sand pack stabilization. Well development that is performed after surface seal installation, should occur 72 hours after seal installation to ensure that the cement has had adequate time to set.

## Waste Handling and Disposal

Groundwater extracted during development and sampling shall be stored onsite in sealed U.S. DOT H17 55-gallon drums. Each drum shall be labeled with the contents, date of generation, generator identification and consultant contact. If hydrocarbon concentrations in the purged groundwater are below ADEC cleanup levels or the site is in a remote area (pending ADEC approval) groundwater will be discharged to the ground surface, at least 100 feet from the nearest surface water body.

# ATTACHMENT E

# ADEC LABORATORY DATA REVIEW CHECKLIST AND MEMORANDUM

# Laboratory Data Review Checklist

Completed by: J Cloud

Title: Project Chemist Date: November 14, 2011

CS Report Name: Annual 2011 Groundwater Monitoring and Sampling Report Report Date: 6/7/11

Consultant Firm: Conestoga-Rovers & Associates

Laboratory Name: Lancaster Laboratories Laboratory Report Number: 1249125

ADEC File Number: 1513.26.046 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      X Yes □ No □NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      □Yes □ No X NA (Please explain.) Comments:

      Samples not transferred

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      X Yes □ No □NA (Please explain.) Comments:

   b. Correct analyses requested?
      X Yes □ No □NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      X Yes □ No □NA (Please explain.) Comments:

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
X Yes □ No □NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
X Yes □ No □NA (Please explain.) Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
□Yes □ No X NA (Please explain.) Comments:

No discrepancies

e. Data quality or usability affected? (Please explain.)
Comments:

None

4. Case Narrative
a. Present and understandable?
X Yes □ No □NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
X Yes □ No □NA (Please explain.) Comments:

c. Were all corrective actions documented?
□Yes □ No X NA (Please explain.) Comments:

No corrective actions

d. What is the effect on data quality/usability according to the case narrative?
Comments:

None

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
X Yes □ No □NA (Please explain.) Comments:

b. All applicable holding times met?
□Yes X No □NA (Please explain.) Comments:

Nitrate was analyzed outside of the 48 hour hold time.

c. All soils reported on a dry weight basis?
□Yes □ No X NA (Please explain.) Comments:

No soils

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
X Yes □ No □NA (Please explain.) Comments:

e. Data quality or usability affected?
Comments:

The nitrate result for sample MW-4 should be considered estimated.

6. QC Samples
a. Method Blank
i. One method blank reported per matrix, analysis and 20 samples?
X Yes □ No □NA (Please explain.) Comments:

ii. All method blank results less than PQL?
X Yes □ No □NA (Please explain.) Comments:

iii. If above PQL, what samples are affected?
Comments:

No affected samples

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
□Yes □ No X NA (Please explain.) Comments:

No affected samples

v. Data quality or usability affected? (Please explain.)
Comments:

None

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

X Yes □ No □NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

X Yes □ No □NA (Please explain.) Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

□Yes X No □NA (Please explain.) Comments:

The method 300.0 MS had a high sulfate recovery and was performed on a non-project sample.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

X Yes □ No □NA (Please explain.) Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

□Yes □ No X NA (Please explain.) Comments:

No affected samples

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The sample results would not have been impacted, no qualification of the data was deemed necessary.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

X Yes □ No □NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

X Yes □ No □NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

□Yes □ No X NA (Please explain.) Comments:

No failed surrogates

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

None

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

X Yes □ No □NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

X Yes □ No □NA (Please explain.) Comments:

iii. All results less than PQL?

X Yes □ No □NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected? (Please explain.)

Comments:

None

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
X Yes □ No □NA (Please explain.) Comments:

ii. Submitted blind to lab?
X Yes □ No □NA (Please explain.) Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where $R_1$ = Sample Concentration
$R_2$ = Field Duplicate Concentration

X Yes □ No □NA (Please explain.) Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

None

f. Decontamination or Equipment Blank (If not used explain why).

□Yes □ No X NA (Please explain.) Comments:

Not collected

i. All results less than PQL?

□Yes □ No X NA (Please explain.) Comments:

Not collected

ii. If above PQL, what samples are affected?

Comments:

Not collected

iii. Data quality or usability affected? (Please explain.)

Comments:

Not collected

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
    a. Defined and appropriate?
        X Yes □ No □NA (Please explain.) Comments:

CONESTOGA-ROVERS & ASSOCIATES

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# MEMORANDUM

TO: ADEC

REF. NO.: 622237

FROM: Jeffrey Cloud

DATE: November 14, 2011

CC: John Riggi

**Send via E-Mail and U.S. Mail**

**RE: QA/QC Review**
**ChevronTexaco Site # 8-2307**
**Job #1249125**
**May 2011**

INTRODUCTION

Groundwater samples were submitted to Lancaster Laboratories, located in Lancaster, Pennsylvania. Samples were analyzed for the methods requested on the Chain of Custody.

A full Level III data package was received from Lancaster Laboratories. The final results and supporting quality assurance/quality control (QA/QC) data were reviewed. Evaluation of the data was based on information obtained from the Chain of Custody forms, finished report forms, blank data, and spike recoveries.

QA/QC REVIEW

All samples were prepared and/or analyzed within the required holding times with one exception. Nitrate was analyzed outside of the 48 hour hold time. The nitrate result for sample MW-4 should be considered estimated. All samples were properly preserved and cooled after collection.

All appropriate samples and blanks were spiked with surrogate compounds prior to sample preparation and/or analysis in accordance with the organic methods. All surrogate spike recoveries met the associated method criteria indicating adequate analytical efficiency.

Method blanks were prepared and analyzed with the samples for all parameters. All blank results were non-detect for the analytes of interest.

Laboratory control samples (LCS) were analyzed for all parameters. LCS for methods AK102 and 300.0 were analyzed in duplicate. All recoveries were within required control limits showing adequate analytical accuracy and precision.

Matrix spikes (MS) were prepared and analyzed in duplicate for methods AK101, 8015, 353.2, 300.0 and SM 2320 B. MS for methods AK101 and 8015 were analyzed in duplicate. All recoveries were within required control limits showing adequate analytical accuracy and precision with one exception. The method 300.0

MS had a high sulfate recovery and was performed on a non-project sample. The sample results would not have been impacted, no qualification of the data was deemed necessary.

Trip blanks were collected and analyzed with the investigative samples for all volatile parameters. All trip blank results were non-detect for the compounds of interest.

A field duplicate was collected and submitted blind to the laboratory. The sample ID was MW-4 and its duplicate was DUP-1. A comparison of the results showed good analytical and sampling precision.

CONCLUSION

Based on the QA/QC review, the data submitted were judged to be acceptable for use with the qualification noted.