Received 9/15/2012
Document 2142717

# Notice of Completion Report
# COGCC Spill/Release Tracking #2221630
# PDC Energy Puckett 242-36 Well Pad
# Garfield County Colorado

Prepared For:

PDC Energy
120 Railroad Avenue, Suite D
Parachute, Colorado 81635
Phone: 970-285-9606

Prepared By:

HRL Compliance Solutions, Inc.
2385 F ½ Road
Grand Junction, Colorado 81505
Phone: 970-243-3271

Prepared September, 2012

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## Introduction

The purpose of this Notice of Completion report is to provide detailed information and analysis of a frac water release at the PDC Energy Puckett 242-36 well pad. This report will provide the documentation necessary to demonstrate a comprehensive and diligent investigation of the impacted soil and adjacent environment. All information was obtained in accordance with all appropriate county, state, and federal rules and regulations.

The subject release occurred December 12, 2011 (COGCC Spill/Release Tracking #2221630). Frac tanks being utilized for fracing operations resulted in the release of flow back water and produced water onto the pad surface. The source of the release were leaking frac tank manifolds and piping. Weather conditions were the likely cause of the leaking equipment. The compromised manifolds and pipes were repaired and an earthen berm was installed at the entrance to the pad to contain all released fluids to the well pad. Confirmation samples were collected in July 2012 and analyzed for COGCC Table 910.1 parameters. Information in this report includes, but is not limited to; initial investigation, site characterization, and laboratory analytical.

### Impacted Soil Investigation and Activities

The extent of the impacts could not be determined at the time of the release due to frac equipment staged over the majority of the spill area. Refer to Figure 2 for a photograph of the spill area. The site characterization was conducted in April 2012 to delineate the area of impact. A series of soil borings were advanced into the impacted area and field screen data were collected from each boring. A PID and PetroFlag™ hydrocarbon test unit were utilized for field screening activities. Soil samples were collected and submitted to an accredited analytical laboratory to confirm field screen results. Data collected during site characterization confirmed that the area of impact was approximately 300 square feet with a depth of approximately one and a half (1.5) feet for a total of approximately sixteen (16) cubic yards of hydrocarbon impacted soil. Refer to Table 1 for baseline site characterization analytical results.

**Table 1: Baseline Site Characterization Analytical Data**

| Sample ID | DRO | GRO | Benzene | Ethylbenzene | Toluene | Xylenes |
|---|---|---|---|---|---|---|
| Impacted Area | 2,000 | ND | ND | ND | ND | ND |

Note: all data in mg/kg
**highlight indicates elevated reading

It was determined, due to the size and location of the impacted area that the site would be allowed to naturally attenuate over time. Water was applied to the impacted area periodically by PDC Energy.

A site assessment was conducted on July 18, 2012 to monitor the status of the impacted area. Soil borings were advanced into the impacted area and field screen data was collected. Field screen results were below COGCC Table 910.1 allowable standards for soil. See Table 2 for field screen results.

**Table 2: Confirmation Field Screen Data**

| Sample ID | PID (ppm) | PetroFlag (ppm) |
|---|---|---|
| Impacted Area | 1.8 | 22 |

A confirmation sample was collected and analyzed for COGCC Table 910.1 parameters.

- The confirmation sample was collected for compliance with COGCC Rule 910 and COGCC Table 910.1, as well as verification of field screen results;
- A Trimble GPS unit was utilized to satisfy requirements as outlined in COGCC Rule 215 for collecting GPS locations for the confirmation sample location from the impacted area;
- Field screening techniques, visual inspection, and sampling procedures were followed in accordance with PDC Energy protocol.

Analytical data provided in Table 3 (attached) provides results for the confirmation sampling performed within the impacted area. Refer to Appendix A for raw analytical data.

The confirmation sampling determined that natural attenuation had reduced the hydrocarbon impacts to below COGCC Table 910.1 allowable standards. Refer to Figure 1 for a GIS map of the impacted area as well as confirmation and background sample locations. Refer to Figure 2 for photographs of the impacted area.

**Background Sampling**

Three (3) background samples were collected from the, undisturbed hillside adjacent to the well pad. All background samples were analyzed for arsenic. An additional analysis was conducted at one sample location for inorganic parameters of COGCC Table 910.1 (SAR, EC, pH). Refer to Table 4 for background sampling results.

**Exceptions to the COGCC Table 910.1**

The exceedances with the COGCC Table 910.1 are within the confines of constituents listed for metals (arsenic). Refer to Appendix C for the Sundry Notice for consideration of background arsenic concentrations in the immediate area of the release.

**Analytical Data Management**

See Appendix A for confirmation sample analytical data and Appendix B for background analytical data.

Figures

Figure 1: GIS Map of Spill Area and Sample Locations

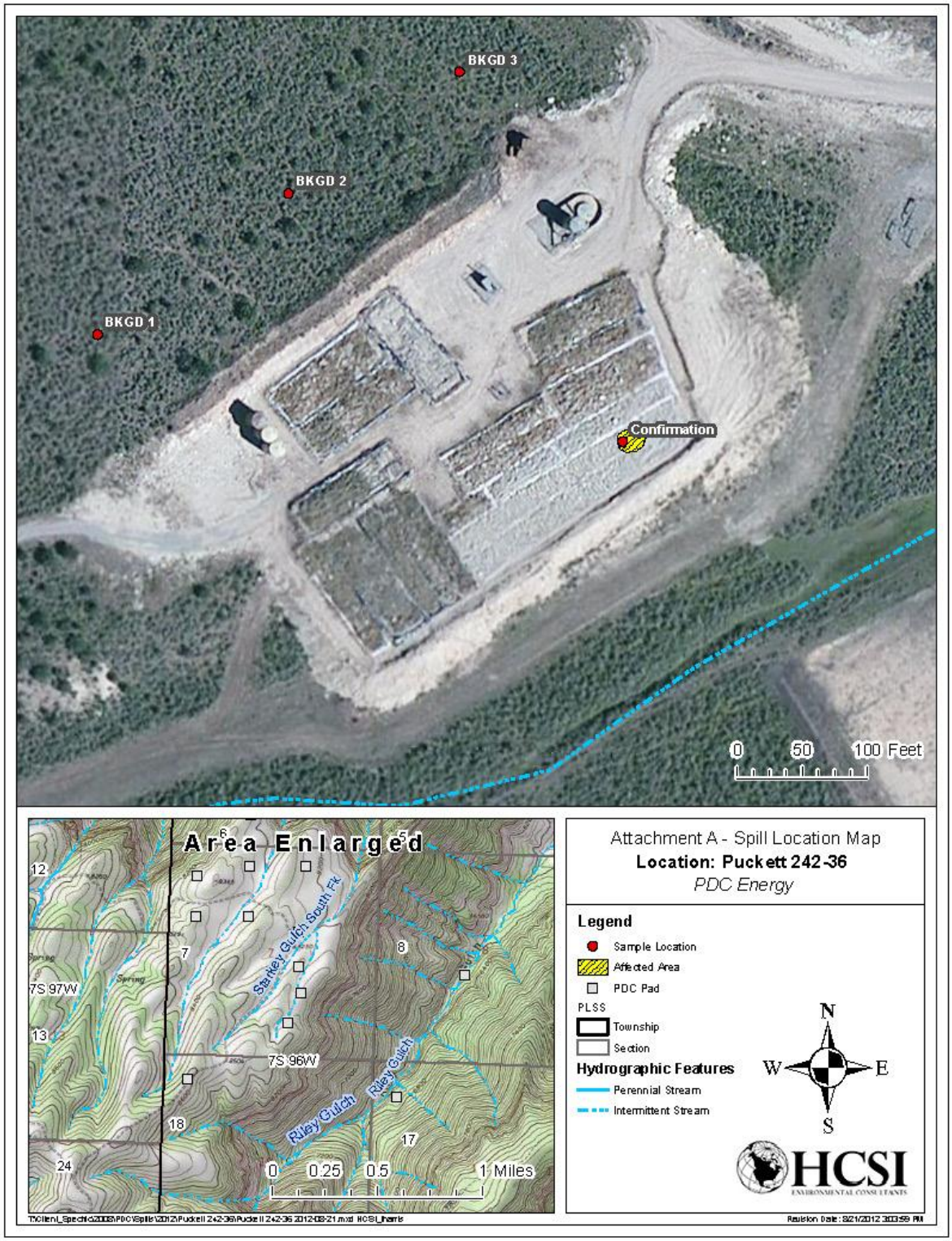

**Figure 2: Photographs of Spill Area**


Photograph of Spill Area During Initial Release


Photograph of Spill Area During Site Characterization

Tables

## Table 3: Confirmation Sample Analytical Results

| Spill Area | Confirmation |
|---|---|
| TEPH (DRO) | 25 |
| TVPH (GRO) | ND |
| BENZENE | ND |
| TOLUENE | ND |
| ETHYLBENZENE | ND |
| XYLENE TOTAL | ND |
| ACENAPHTHENE | ND |
| ACENAPHTHYLENE | ND |
| ANTHRACENE | ND |
| BENZO(A)ANTRHACENE | ND |
| BENZO(A)PYRENE | ND |
| BENZO(B)FLUORANTHENE | ND |
| BENZO(G,H,I)PERYLENE | ND |
| BENZO(K)FLUORANTHENE | ND |
| CHRYSENE | ND |
| DIBENZO(A,H)ANTHRANCENE | ND |
| FLUORANTHENE | ND |
| FLUORENE | ND |
| INDENO(1,2,3-CD)PYRENE | ND |
| NAPHTHALENE | ND |
| PYRENE | ND |
| MERCURY | 0.044 |
| ARSENIC | 6.0 |
| BARIUM | 240 |
| CADMIUM | 0.45 |
| CHROMIUM | 61 |
| CHROMIUM (III) | 61 |
| CHROMIUM (IV) | ND |
| COPPER | 30 |
| LEAD | 19 |
| NICKEL | 35 |
| SELENIUM | 0.90 |
| SILVER | ND |
| ZINC | 77 |
| Sodium Absorption Ratio (unitless) | 0.8 |
| Electric Conductivity (mmho/cm) | 0.20 |
| pH (unitless) | 7.61 |

Note: all results in mg/kg, unless noted
**highlighted indicates elevated reading

**Table 4: Background Sample Analytical Results**

| Sample ID | Arsenic (mg/kg) | Sodium Absorption Ratio (unitless) | Electric Conductivity (mmho/cm) | pH (unitless) |
|---|---|---|---|---|
| Background 1 | 5.4 | 0.6 | 0.09 | 7.32 |
| Background 2 | 7.0 | | | |
| Background 3 | 5.8 | | | |

**highlighted indicated elevated readings

Appendices

Appendix A: Confirmation Sample Analytical Data

26-Jul-2012

Herman Lucero
HRL Compliance Solutions
2385 F 1/2 Road
Grand Junction, CO 81505

Re: **PDC 242-36 - Confirmation 11-316 7/18/12** Work Order: **1207548**

Dear Herman,

ALS Environmental received 1 sample on 19-Jul-2012 09:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 25.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

# ALS Group USA, Corp

Date: 26-Jul-12

**Client:** HRL Compliance Solutions
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12
**Work Order:** **1207548**

## Work Order Sample Summary

| Lab Samp ID | Client Sample ID | Matrix | Tag Number | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| 1207548-01 | Confirmation | Soil | | 7/18/2012 12:30 | 7/19/2012 09:15 | ☐ |

# ALS Group USA, Corp

*Date: 26-Jul-12*

**Client:** HRL Compliance Solutions
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12
**Work Order:** 1207548

## Case Narrative

Batch 42433 MS/MSD data for Hexavalent Chromium is not related to this project's samples. No data requires qualification.

Batch 42450 MS/MSD data for Mercury is not related to this project's samples. No data requires qualification.

Batch 42467 MS/MSD data for DRO is not related to this project's samples. No data requires qualification.

Batch R107471data for duplicate pH is not related to this project's samples. No data requires qualification.

Batch 42466 MS/MSD data for PAHs is not related to this project's samples. No data requires qualification.

Batch 42430 MS/MSD data for Volatiles is not related to this project's samples. No data requires qualification.

Batch R107564 LCS recovery for GRO was above control limits, but all samples in this quality control batch were ND for GRO. No data requires qualification.

Batch 42474 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

# ALS Group USA, Corp

Date: 26-Jul-12

**Client:** HRL Compliance Solutions
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12
**WorkOrder:** **1207548**

## QUALIFIERS, ACRONYMS, UNITS

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL |

| Acronym | Description |
|---|---|
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitation Limit |
| RPD | Relative Percent Difference |
| SD | Serial Dilution |
| TDL | Target Detection Limit |

| Units Reported | Description |
|---|---|
| % of sample | Percent of Sample |
| µg/Kg-dry | Micrograms per Kilogram Dry Weight |
| as noted | |
| mg/Kg-dry | Milligrams per Kilogram Dry Weight |
| s.u. | Standard Units |

# ALS Group USA, Corp

**Date:** *26-Jul-12*

**Client:** HRL Compliance Solutions
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12 **Work Order:** 1207548
**Sample ID:** Confirmation **Lab ID:** 1207548-01
**Collection Date:** 7/18/2012 12:30 PM **Matrix:** SOIL

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **DIESEL RANGE ORGANICS BY GC-FID** | | | **SW8015M** | | Prep Date: **7/23/2012** | Analyst: **CW** |
| **DRO (C10-C28)** | **25** | | **4.9** | **mg/Kg-dry** | 1 | 7/23/2012 08:25 PM |
| *Surr: 4-Terphenyl-d14* | *76.5* | | *39-115* | *%REC* | 1 | 7/23/2012 08:25 PM |
| **GASOLINE RANGE ORGANICS BY GC-FID** | | | **SW8015** | | | Analyst: **CW** |
| GRO (C6-C10) | ND | | 3.0 | mg/Kg-dry | 50 | 7/21/2012 12:54 PM |
| *Surr: Toluene-d8* | *91.8* | | *50-150* | *%REC* | 50 | 7/21/2012 12:54 PM |
| **MERCURY BY CVAA** | | | **SW7471** | | Prep Date: **7/20/2012** | Analyst: **RH** |
| **Mercury** | **0.044** | | **0.020** | **mg/Kg-dry** | 1 | 7/23/2012 05:04 PM |
| **METALS BY ICP-MS** | | | **SW6020A** | | Prep Date: **7/23/2012** | Analyst: **ML** |
| **Arsenic** | **6.0** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Barium** | **240** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Cadmium** | **0.45** | | **0.33** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Chromium** | **61** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Copper** | **30** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Lead** | **19** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Nickel** | **35** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **Selenium** | **0.90** | | **0.82** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| Silver | ND | | 0.82 | mg/Kg-dry | 2 | 7/24/2012 03:49 AM |
| **Zinc** | **77** | | **1.6** | **mg/Kg-dry** | 2 | 7/24/2012 03:49 AM |
| **SUBCONTRACTED ANALYSES** | | | **SUBCONTRACT** | | | Analyst: **A&LGL** |
| **Subcontracted Analyses** | **Rcvd 7/25/12** | | | **as noted** | 1 | 7/25/2012 |
| **SEMI-VOLATILE ORGANIC COMPOUNDS** | | | **SW8270** | | Prep Date: **7/23/2012** | Analyst: **RM** |
| Acenaphthene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Anthracene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Benzo(a)anthracene | ND | | 24 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Benzo(a)pyrene | ND | | 24 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Benzo(b)fluoranthene | ND | | 24 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Benzo(g,h,i)perylene | ND | | 35 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Benzo(k)fluoranthene | ND | | 35 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Chrysene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Dibenzo(a,h)anthracene | ND | | 21 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Fluoranthene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Fluorene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Indeno(1,2,3-cd)pyrene | ND | | 24 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Naphthalene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| Pyrene | ND | | 18 | µg/Kg-dry | 1 | 7/24/2012 01:41 PM |
| *Surr: 2-Fluorobiphenyl* | *73.6* | | *12-100* | *%REC* | 1 | 7/24/2012 01:41 PM |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

**Date:** *26-Jul-12*

**Client:** HRL Compliance Solutions
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12 **Work Order:** 1207548
**Sample ID:** Confirmation **Lab ID:** 1207548-01
**Collection Date:** 7/18/2012 12:30 PM **Matrix:** SOIL

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| *Surr: 4-Terphenyl-d14* | *73.4* | | *25-137* | *%REC* | 1 | 7/24/2012 01:41 PM |
| *Surr: Nitrobenzene-d5* | *77.0* | | *37-107* | *%REC* | 1 | 7/24/2012 01:41 PM |
| **VOLATILE ORGANIC COMPOUNDS** | | | **SW8260** | | Prep Date: **7/19/2012** | Analyst: **AK** |
| Benzene | ND | | 51 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| Ethylbenzene | ND | | 51 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| m,p-Xylene | ND | | 100 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| o-Xylene | ND | | 51 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| Toluene | ND | | 51 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| Xylenes, Total | ND | | 150 | µg/Kg-dry | 1 | 7/24/2012 06:16 AM |
| *Surr: 1,2-Dichloroethane-d4* | *85.0* | | *70-130* | *%REC* | 1 | 7/24/2012 06:16 AM |
| *Surr: 4-Bromofluorobenzene* | *104* | | *70-130* | *%REC* | 1 | 7/24/2012 06:16 AM |
| *Surr: Dibromofluoromethane* | *90.2* | | *70-130* | *%REC* | 1 | 7/24/2012 06:16 AM |
| *Surr: Toluene-d8* | *98.6* | | *70-130* | *%REC* | 1 | 7/24/2012 06:16 AM |
| **CHROMIUM, TRIVALENT** | | | **CALCULATION** | | | Analyst: **JJG** |
| **Chromium, Trivalent** | **61** | | | **mg/kg-dry** | 1 | 7/26/2012 07:26 AM |
| **CHROMIUM, HEXAVALENT** | | | **SW7196A** | | Prep Date: **7/19/2012** | Analyst: **MB** |
| Chromium, Hexavalent | ND | | 0.60 | mg/Kg-dry | 1 | 7/20/2012 01:00 PM |
| **MOISTURE** | | | **A2540 G** | | | Analyst: **CG** |
| **Moisture** | **17** | | **0.050** | **% of sample** | 1 | 7/19/2012 03:02 PM |
| **PH** | | | **SW9045D** | | | Analyst: **EE** |
| **pH** | **7.61** | | | **s.u.** | 1 | 7/19/2012 11:20 AM |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Report Number:** F12205-0165
**Acount Number:** 91000

# A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Drive • Fort Wayne, Indiana 46808-4413 • Phone 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com

***QUALITY ANALYSES FOR INFORMED DECISIONS***

**TO:** ALS LABORATORY GROUP
3352 128TH AVE
HOLLAND, MI 49424-9263

**RE:** 1207548-01C

**DATE RECEIVED:** 07/23/2012
**DATE REPORTED:** 07/25/2012
**PAGE:** 1
**P.O. NUMBER:** 20-1207548

**ATTN:** ANN PRESTON

## REPORT OF ANALYSIS

| LAB NO. | SAMPLE ID | ANALYSIS | RESULT | UNIT | METHOD |
|---|---|---|---|---|---|
| 68728 | CONFIRMATION | Sat'd Paste Extraction with DIW | | | USDA Handbook 60 |
| | | Conductivity (ECe) | 0.20 | mmho/cm | USDA Handbook 60 |
| | | Calcium (Sat'd Paste) | 26 | ppm | USDA Handbook 60 |
| | | Magnesium (Sat'd Paste) | 6 | ppm | USDA Handbook 60 |
| | | Sodium (Sat'd Paste) | 17 | ppm | USDA Handbook 60 |
| | | Sodium Adsorption Ratio (SAR) | 0.8 | - | USDA Handbook 60 |

# QC BATCH REPORT

Batch ID: **42467** Instrument ID **GC8** Method: **SW8015M**

**MBLK** Sample ID: **DBLKS1-42467-42467** Units: **mg/Kg** Analysis Date: **7/23/2012 04:52 PM**

Client ID: Run ID: **GC8_120723B** SeqNo: **2034398** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO (C10-C28) | ND | 4.2 | | | | | | | | |
| *Surr: 4-Terphenyl-d14* | *1.257* | 0 | *1.667* | 0 | *75.4* | *39-115* | 0 | | | |

**LCS** Sample ID: **DLCSS1-42467-42467** Units: **mg/Kg** Analysis Date: **7/23/2012 05:19 PM**

Client ID: Run ID: **GC8_120723B** SeqNo: **2034399** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO (C10-C28) | 130.7 | 4.2 | 166.7 | 0 | 78.4 | 60-130 | 0 | | | |
| *Surr: 4-Terphenyl-d14* | *1.284* | 0 | *1.667* | 0 | *77* | *39-115* | 0 | | | |

**MS** Sample ID: **1207547-01B MS** Units: **mg/Kg** Analysis Date: **7/23/2012 05:45 PM**

Client ID: Run ID: **GC8_120723B** SeqNo: **2034400** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO (C10-C28) | 254.6 | 8.0 | 321.1 | 22.8 | 72.2 | 60-130 | 0 | | | |
| *Surr: 4-Terphenyl-d14* | *2.32* | 0 | *3.211* | 0 | *72.3* | *39-115* | 0 | | | |

**MSD** Sample ID: **1207547-01B MSD** Units: **mg/Kg** Analysis Date: **7/23/2012 06:12 PM**

Client ID: Run ID: **GC8_120723B** SeqNo: **2034401** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| DRO (C10-C28) | 211.6 | 8.2 | 327.2 | 22.8 | 57.7 | 60-130 | 254.6 | 18.4 | 30 | S |
| *Surr: 4-Terphenyl-d14* | *1.887* | 0 | *3.272* | 0 | *57.7* | *39-115* | 2.32 | *20.6* | *30* | |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **R107564** Instrument ID **GC9** Method: **SW8015**

**MBLK** Sample ID: **MBLK-R107564-R107564** Units: **µg/L** Analysis Date: **7/20/2012 10:01 PM**
Client ID: Run ID: **GC9_120720B** SeqNo: **2032743** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C10) | ND | 200 | | | | | | | | |
| *Surr: Toluene-d8* | *96.79* | 0 | *100* | 0 | *96.8* | *70-130* | 0 | | | |

**LCS** Sample ID: **LCS-R107564-R107564** Units: **µg/L** Analysis Date: **7/20/2012 09:36 PM**
Client ID: Run ID: **GC9_120720B** SeqNo: **2032742** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C10) | 10160 | 200 | 10000 | 0 | 102 | 70-130 | 0 | | | |
| *Surr: Toluene-d8* | *88.59* | 0 | *100* | 0 | *88.6* | *70-130* | 0 | | | |

**MS** Sample ID: **1207572-07A MS** Units: **µg/Kg** Analysis Date: **7/21/2012 03:56 AM**
Client ID: Run ID: **GC9_120720B** SeqNo: **2032760** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C10) | 9552 | 50 | 10000 | 0 | 95.5 | 70-130 | 0 | | | |
| *Surr: Toluene-d8* | *99.87* | 0 | *100* | 0 | *99.9* | *50-150* | 0 | | | |

**MSD** Sample ID: **1207572-07A MSD** Units: **µg/Kg** Analysis Date: **7/21/2012 04:21 AM**
Client ID: Run ID: **GC9_120720B** SeqNo: **2032761** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| GRO (C6-C10) | 8777 | 50 | 10000 | 0 | 87.8 | 70-130 | 9552 | 8.46 | 30 | |
| *Surr: Toluene-d8* | *95.3* | 0 | *100* | 0 | *95.3* | *50-150* | 99.87 | *4.68* | *30* | |

**The following samples were analyzed in this batch:** 1207548-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42450** Instrument ID **HG1** Method: **SW7471**

**MBLK** Sample ID: **MBLK-42450-42450** Units: **mg/Kg** Analysis Date: **7/23/2012 04:01 PM**
Client ID: Run ID: **HG1_120723B** SeqNo: **2034115** Prep Date: **7/20/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.005333 | 0.020 | | | | | | | | J |

**LCS** Sample ID: **LCS-42450-42450** Units: **mg/Kg** Analysis Date: **7/23/2012 04:03 PM**
Client ID: Run ID: **HG1_120723B** SeqNo: **2034117** Prep Date: **7/20/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.1733 | 0.020 | 0.1665 | 0 | 104 | 80-120 | 0 | | | |

**MS** Sample ID: **1207530-10BMS** Units: **mg/Kg** Analysis Date: **7/23/2012 04:55 PM**
Client ID: Run ID: **HG1_120723B** SeqNo: **2034146** Prep Date: **7/20/2012** DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.6444 | 0.17 | 0.1435 | 0.6089 | 24.8 | 75-125 | 0 | | | SO |

**MSD** Sample ID: **1207530-10BMSD** Units: **mg/Kg** Analysis Date: **7/23/2012 04:57 PM**
Client ID: Run ID: **HG1_120723B** SeqNo: **2034147** Prep Date: **7/20/2012** DF: **10**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Mercury | 0.5983 | 0.17 | 0.1423 | 0.6089 | -7.42 | 75-125 | 0.6444 | 7.42 | 35 | SO |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42474** Instrument ID **ICPMS1** Method: **SW6020A**

**MBLK** Sample ID: **MBLK-42474-42474** Units: **mg/Kg** Analysis Date: **7/23/2012 11:52 PM**
Client ID: Run ID: **ICPMS1_120723A** SeqNo: **2033942** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 0.03864 | 0.25 | | | | | | | | J |
| Barium | ND | 0.25 | | | | | | | | |
| Cadmium | ND | 0.10 | | | | | | | | |
| Chromium | 0.0554 | 0.25 | | | | | | | | J |
| Copper | 0.01108 | 0.25 | | | | | | | | J |
| Lead | ND | 0.25 | | | | | | | | |
| Nickel | ND | 0.25 | | | | | | | | |
| Silver | 0.001764 | 0.25 | | | | | | | | J |
| Zinc | ND | 0.50 | | | | | | | | |

**MBLK** Sample ID: **MBLK-42474-42474** Units: **mg/Kg** Analysis Date: **7/24/2012 08:07 PM**
Client ID: Run ID: **ICPMS1_120724A** SeqNo: **2035466** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | ND | 0.25 | | | | | | | | |

**LCS** Sample ID: **LCS-42474-42474** Units: **mg/Kg** Analysis Date: **7/24/2012 12:05 AM**
Client ID: Run ID: **ICPMS1_120723A** SeqNo: **2033944** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4.736 | 0.25 | 5 | 0 | 94.7 | 80-120 | 0 | | | |
| Barium | 4.694 | 0.25 | 5 | 0 | 93.9 | 80-120 | 0 | | | |
| Cadmium | 4.9 | 0.10 | 5 | 0 | 98 | 80-120 | 0 | | | |
| Chromium | 4.656 | 0.25 | 5 | 0 | 93.1 | 80-120 | 0 | | | |
| Copper | 4.656 | 0.25 | 5 | 0 | 93.1 | 80-120 | 0 | | | |
| Lead | 4.908 | 0.25 | 5 | 0 | 98.2 | 80-120 | 0 | | | |
| Nickel | 4.643 | 0.25 | 5 | 0 | 92.9 | 80-120 | 0 | | | |
| Selenium | 4.364 | 0.25 | 5 | 0 | 87.3 | 80-120 | 0 | | | |
| Silver | 4.729 | 0.25 | 5 | 0 | 94.6 | 80-120 | 0 | | | |
| Zinc | 4.416 | 0.50 | 5 | 0 | 88.3 | 80-120 | 0 | | | |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42474** Instrument ID **ICPMS1** Method: **SW6020A**

**MS** Sample ID: **1207579-11BMS** Units: **mg/Kg** Analysis Date: **7/24/2012 05:28 AM**
Client ID: Run ID: **ICPMS1_120723A** SeqNo: **2033991** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 7.666 | 0.34 | 6.766 | 1.008 | 98.4 | 75-125 | 0 | | | |
| Barium | 10.27 | 0.34 | 6.766 | 3.957 | 93.3 | 75-125 | 0 | | | |
| Cadmium | 6.612 | 0.14 | 6.766 | 0.02586 | 97.3 | 75-125 | 0 | | | |
| Chromium | 10.94 | 0.34 | 6.766 | 3.973 | 103 | 75-125 | 0 | | | |
| Copper | 9.723 | 0.34 | 6.766 | 4.588 | 75.9 | 75-125 | 0 | | | |
| Lead | 8.552 | 0.34 | 6.766 | 1.587 | 103 | 75-125 | 0 | | | |
| Nickel | 9.783 | 0.34 | 6.766 | 3.769 | 88.9 | 75-125 | 0 | | | |
| Silver | 6.039 | 0.34 | 6.766 | 0.007914 | 89.1 | 75-125 | 0 | | | |
| Zinc | 12.73 | 0.68 | 6.766 | 5.984 | 99.8 | 75-125 | 0 | | | |

**MS** Sample ID: **1207579-11BMS** Units: **mg/Kg** Analysis Date: **7/24/2012 08:50 PM**
Client ID: Run ID: **ICPMS1_120724A** SeqNo: **2035479** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 5.813 | 0.34 | 6.766 | 0.2588 | 82.1 | 75-125 | 0 | | | |

**MSD** Sample ID: **1207579-11BMSD** Units: **mg/Kg** Analysis Date: **7/24/2012 05:34 AM**
Client ID: Run ID: **ICPMS1_120723A** SeqNo: **2033992** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 8.292 | 0.39 | 7.728 | 1.008 | 94.3 | 75-125 | 7.666 | 7.85 | 25 | |
| Barium | 12.42 | 0.39 | 7.728 | 3.957 | 109 | 75-125 | 10.27 | 18.9 | 25 | |
| Cadmium | 7.296 | 0.15 | 7.728 | 0.02586 | 94.1 | 75-125 | 6.612 | 9.84 | 25 | |
| Chromium | 12.16 | 0.39 | 7.728 | 3.973 | 106 | 75-125 | 10.94 | 10.6 | 25 | |
| Copper | 10.78 | 0.39 | 7.728 | 4.588 | 80.1 | 75-125 | 9.723 | 10.3 | 25 | |
| Lead | 9.575 | 0.39 | 7.728 | 1.587 | 103 | 75-125 | 8.552 | 11.3 | 25 | |
| Nickel | 11.58 | 0.39 | 7.728 | 3.769 | 101 | 75-125 | 9.783 | 16.9 | 25 | |
| Silver | 6.76 | 0.39 | 7.728 | 0.007914 | 87.4 | 75-125 | 6.039 | 11.3 | 25 | |
| Zinc | 13.93 | 0.77 | 7.728 | 5.984 | 103 | 75-125 | 12.73 | 8.95 | 25 | |

**MSD** Sample ID: **1207579-11BMSD** Units: **mg/Kg** Analysis Date: **7/24/2012 08:56 PM**
Client ID: Run ID: **ICPMS1_120724A** SeqNo: **2035480** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Selenium | 6.523 | 0.39 | 7.728 | 0.2588 | 81.1 | 75-125 | 5.813 | 11.5 | 25 | |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42466** Instrument ID **SVMS5** Method: **SW8270**

**MBLK** Sample ID: **SBLKS1-42466-42466** Units: **µg/Kg** Analysis Date: **7/24/2012 08:51 PM**
Client ID: Run ID: **SVMS5_120724A** SeqNo: **2035824** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | ND | 30 | | | | | | | | |
| Anthracene | ND | 30 | | | | | | | | |
| Benzo(a)anthracene | ND | 30 | | | | | | | | |
| Benzo(a)pyrene | ND | 30 | | | | | | | | |
| Benzo(b)fluoranthene | ND | 30 | | | | | | | | |
| Benzo(g,h,i)perylene | ND | 30 | | | | | | | | |
| Benzo(k)fluoranthene | ND | 30 | | | | | | | | |
| Chrysene | ND | 30 | | | | | | | | |
| Dibenzo(a,h)anthracene | ND | 30 | | | | | | | | |
| Fluoranthene | ND | 30 | | | | | | | | |
| Fluorene | ND | 30 | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | ND | 30 | | | | | | | | |
| Naphthalene | ND | 30 | | | | | | | | |
| Pyrene | ND | 30 | | | | | | | | |
| *Surr: 2-Fluorobiphenyl* | *1304* | 0 | *1667* | 0 | *78.3* | *12-100* | 0 | | | |
| *Surr: 4-Terphenyl-d14* | *1865* | 0 | *1667* | 0 | *112* | *25-137* | 0 | | | |
| *Surr: Nitrobenzene-d5* | *1278* | 0 | *1667* | 0 | *76.7* | *37-107* | 0 | | | |

**LCS** Sample ID: **SLCSS1-42466-42466** Units: **µg/Kg** Analysis Date: **7/24/2012 06:44 PM**
Client ID: Run ID: **SVMS5_120724A** SeqNo: **2035806** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 615.7 | 30 | 666.7 | 0 | 92.3 | 45-110 | 0 | | | |
| Anthracene | 655 | 30 | 666.7 | 0 | 98.2 | 55-105 | 0 | | | |
| Benzo(a)anthracene | 670.3 | 30 | 666.7 | 0 | 101 | 50-110 | 0 | | | |
| Benzo(a)pyrene | 644.7 | 30 | 666.7 | 0 | 96.7 | 50-110 | 0 | | | |
| Benzo(b)fluoranthene | 617.7 | 30 | 666.7 | 0 | 92.6 | 45-115 | 0 | | | |
| Benzo(g,h,i)perylene | 718.7 | 30 | 666.7 | 0 | 108 | 40-125 | 0 | | | |
| Benzo(k)fluoranthene | 751 | 30 | 666.7 | 0 | 113 | 45-115 | 0 | | | |
| Chrysene | 713.3 | 30 | 666.7 | 0 | 107 | 55-110 | 0 | | | |
| Dibenzo(a,h)anthracene | 745 | 30 | 666.7 | 0 | 112 | 40-125 | 0 | | | |
| Fluoranthene | 744.3 | 30 | 666.7 | 0 | 112 | 55-115 | 0 | | | |
| Fluorene | 651 | 30 | 666.7 | 0 | 97.6 | 50-110 | 0 | | | |
| Indeno(1,2,3-cd)pyrene | 738 | 30 | 666.7 | 0 | 111 | 40-120 | 0 | | | |
| Naphthalene | 608.7 | 30 | 666.7 | 0 | 91.3 | 40-105 | 0 | | | |
| Pyrene | 737.3 | 30 | 666.7 | 0 | 111 | 45-125 | 0 | | | |
| *Surr: 2-Fluorobiphenyl* | *1380* | 0 | *1667* | 0 | *82.8* | *12-100* | 0 | | | |
| *Surr: 4-Terphenyl-d14* | *1876* | 0 | *1667* | 0 | *113* | *25-137* | 0 | | | |
| *Surr: Nitrobenzene-d5* | *1339* | 0 | *1667* | 0 | *80.3* | *37-107* | 0 | | | |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42466** Instrument ID **SVMS5** Method: **SW8270**

**MS** Sample ID: **1207475-03B MS** Units: **µg/Kg** Analysis Date: **7/24/2012 07:16 PM**
Client ID: Run ID: **SVMS5_120724A** SeqNo: **2035807** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 941.6 | 57 | 1267 | 0 | 74.3 | 45-110 | 0 | | | |
| Anthracene | 1186 | 57 | 1267 | 17.03 | 92.3 | 55-105 | 0 | | | |
| Benzo(a)anthracene | 1208 | 57 | 1267 | 125.1 | 85.5 | 50-110 | 0 | | | |
| Benzo(a)pyrene | 1174 | 57 | 1267 | 162.1 | 79.9 | 50-110 | 0 | | | |
| Benzo(b)fluoranthene | 1118 | 57 | 1267 | 189.3 | 73.3 | 45-115 | 0 | | | |
| Benzo(g,h,i)perylene | 1265 | 57 | 1267 | 121.5 | 90.2 | 40-125 | 0 | | | |
| Benzo(k)fluoranthene | 1336 | 57 | 1267 | 111.7 | 96.6 | 45-115 | 0 | | | |
| Chrysene | 1264 | 57 | 1267 | 153.9 | 87.6 | 55-110 | 0 | | | |
| Dibenzo(a,h)anthracene | 1282 | 57 | 1267 | 31.44 | 98.7 | 40-125 | 0 | | | |
| Fluoranthene | 1331 | 57 | 1267 | 345.8 | 77.8 | 55-115 | 0 | | | |
| Fluorene | 1049 | 57 | 1267 | 0 | 82.8 | 50-110 | 0 | | | |
| Indeno(1,2,3-cd)pyrene | 1281 | 57 | 1267 | 92.02 | 93.8 | 40-120 | 0 | | | |
| Naphthalene | 916.9 | 57 | 1267 | 0 | 72.3 | 40-105 | 0 | | | |
| Pyrene | 1326 | 57 | 1267 | 275.1 | 82.9 | 45-125 | 0 | | | |
| *Surr: 2-Fluorobiphenyl* | *2099* | 0 | *3168* | 0 | *66.2* | *12-100* | 0 | | | |
| *Surr: 4-Terphenyl-d14* | *3442* | 0 | *3168* | 0 | *109* | *25-137* | 0 | | | |
| *Surr: Nitrobenzene-d5* | *2030* | 0 | *3168* | 0 | *64.1* | *37-107* | 0 | | | |

**MSD** Sample ID: **1207475-03B MSD** Units: **µg/Kg** Analysis Date: **7/24/2012 07:47 PM**
Client ID: Run ID: **SVMS5_120724A** SeqNo: **2035808** Prep Date: **7/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Acenaphthene | 1079 | 59 | 1322 | 0 | 81.6 | 45-110 | 941.6 | 13.6 | 30 | |
| Anthracene | 1454 | 59 | 1322 | 17.03 | 109 | 55-105 | 1186 | 20.3 | 30 | S |
| Benzo(a)anthracene | 1759 | 59 | 1322 | 125.1 | 124 | 50-110 | 1208 | 37.1 | 30 | SR |
| Benzo(a)pyrene | 1606 | 59 | 1322 | 162.1 | 109 | 50-110 | 1174 | 31.1 | 30 | R |
| Benzo(b)fluoranthene | 1596 | 59 | 1322 | 189.3 | 106 | 45-115 | 1118 | 35.2 | 30 | R |
| Benzo(g,h,i)perylene | 1585 | 59 | 1322 | 121.5 | 111 | 40-125 | 1265 | 22.5 | 30 | |
| Benzo(k)fluoranthene | 1674 | 59 | 1322 | 111.7 | 118 | 45-115 | 1336 | 22.4 | 30 | S |
| Chrysene | 1854 | 59 | 1322 | 153.9 | 129 | 55-110 | 1264 | 37.9 | 30 | SR |
| Dibenzo(a,h)anthracene | 1426 | 59 | 1322 | 31.44 | 106 | 40-125 | 1282 | 10.7 | 30 | |
| Fluoranthene | 2823 | 59 | 1322 | 345.8 | 187 | 55-115 | 1331 | 71.8 | 30 | SR |
| Fluorene | 1203 | 59 | 1322 | 0 | 91 | 50-110 | 1049 | 13.7 | 30 | |
| Indeno(1,2,3-cd)pyrene | 1577 | 59 | 1322 | 92.02 | 112 | 40-120 | 1281 | 20.7 | 30 | |
| Naphthalene | 990.6 | 59 | 1322 | 0 | 74.9 | 40-105 | 916.9 | 7.73 | 30 | |
| Pyrene | 2450 | 59 | 1322 | 275.1 | 165 | 45-125 | 1326 | 59.6 | 30 | SR |
| *Surr: 2-Fluorobiphenyl* | *2320* | 0 | *3304* | 0 | *70.2* | *12-100* | 2099 | *10* | *40* | |
| *Surr: 4-Terphenyl-d14* | *3378* | 0 | *3304* | 0 | *102* | *25-137* | 3442 | *1.87* | *40* | |
| *Surr: Nitrobenzene-d5* | *2179* | 0 | *3304* | 0 | *66* | *37-107* | 2030 | *7.13* | *40* | |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42430** Instrument ID **VMS7** Method: **SW8260**

**MBLK** Sample ID: **MBLK-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 10:33 AM**
Client ID: Run ID: **VMS7_120722A** SeqNo: **2032457** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 30 | | | | | | | | |
| Ethylbenzene | ND | 30 | | | | | | | | |
| m,p-Xylene | ND | 60 | | | | | | | | |
| o-Xylene | ND | 30 | | | | | | | | |
| Toluene | ND | 30 | | | | | | | | |
| Xylenes, Total | ND | 90 | | | | | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *895.5* | 0 | *1000* | 0 | *89.6* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *1018* | 0 | *1000* | 0 | *102* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *966* | 0 | *1000* | 0 | *96.6* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *1032* | 0 | *1000* | 0 | *103* | *70-130* | 0 | | | |

**MBLK** Sample ID: **MBLK-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 05:19 PM**
Client ID: Run ID: **VMS9_120722B** SeqNo: **2032554** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 30 | | | | | | | | |
| Ethylbenzene | ND | 30 | | | | | | | | |
| m,p-Xylene | ND | 60 | | | | | | | | |
| o-Xylene | ND | 30 | | | | | | | | |
| Toluene | ND | 30 | | | | | | | | |
| Xylenes, Total | ND | 90 | | | | | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *954* | 0 | *1000* | 0 | *95.4* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *860.5* | 0 | *1000* | 0 | *86* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *956.5* | 0 | *1000* | 0 | *95.6* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *935.5* | 0 | *1000* | 0 | *93.6* | *70-130* | 0 | | | |

**MBLK** Sample ID: **MBLK-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 12:16 PM**
Client ID: Run ID: **VMS5_120722A** SeqNo: **2033068** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 30 | | | | | | | | |
| Ethylbenzene | ND | 30 | | | | | | | | |
| m,p-Xylene | ND | 60 | | | | | | | | |
| o-Xylene | ND | 30 | | | | | | | | |
| Toluene | ND | 30 | | | | | | | | |
| Xylenes, Total | ND | 90 | | | | | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *954.5* | 0 | *1000* | 0 | *95.4* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *967.5* | 0 | *1000* | 0 | *96.8* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *1010* | 0 | *1000* | 0 | *101* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *1144* | 0 | *1000* | 0 | *114* | *70-130* | 0 | | | |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42430** Instrument ID **VMS7** Method: **SW8260**

**MBLK** Sample ID: **MBLK-42430-42430** Units: **µg/Kg** Analysis Date: **7/23/2012 11:58 PM**
Client ID: Run ID: **VMS7_120723B** SeqNo: **2034562** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | ND | 30 | | | | | | | | |
| Ethylbenzene | ND | 30 | | | | | | | | |
| m,p-Xylene | ND | 60 | | | | | | | | |
| o-Xylene | ND | 30 | | | | | | | | |
| Toluene | ND | 30 | | | | | | | | |
| Xylenes, Total | ND | 90 | | | | | | | | |
| *Surr: 1,2-Dichloroethane-d4* | *861* | 0 | *1000* | 0 | *86.1* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *989* | 0 | *1000* | 0 | *98.9* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *937* | 0 | *1000* | 0 | *93.7* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *1009* | 0 | *1000* | 0 | *101* | *70-130* | 0 | | | |

**LCS** Sample ID: **LCS-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 09:17 AM**
Client ID: Run ID: **VMS7_120722A** SeqNo: **2032453** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1154 | 30 | 1000 | 0 | 115 | 75-125 | 0 | | | |
| Ethylbenzene | 1169 | 30 | 1000 | 0 | 117 | 75-125 | 0 | | | |
| m,p-Xylene | 2314 | 60 | 2000 | 0 | 116 | 80-125 | 0 | | | |
| o-Xylene | 1130 | 30 | 1000 | 0 | 113 | 75-125 | 0 | | | |
| Toluene | 1136 | 30 | 1000 | 0 | 114 | 70-125 | 0 | | | |
| Xylenes, Total | 3444 | 90 | 3000 | 0 | 115 | 75-125 | 0 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *894.5* | 0 | *1000* | 0 | *89.4* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *1030* | 0 | *1000* | 0 | *103* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *1006* | 0 | *1000* | 0 | *101* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *1034* | 0 | *1000* | 0 | *103* | *70-130* | 0 | | | |

**LCS** Sample ID: **LCS-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 04:03 PM**
Client ID: Run ID: **VMS9_120722B** SeqNo: **2032553** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 924 | 30 | 1000 | 0 | 92.4 | 75-125 | 0 | | | |
| Ethylbenzene | 1012 | 30 | 1000 | 0 | 101 | 75-125 | 0 | | | |
| m,p-Xylene | 2041 | 60 | 2000 | 0 | 102 | 80-125 | 0 | | | |
| o-Xylene | 1004 | 30 | 1000 | 0 | 100 | 75-125 | 0 | | | |
| Toluene | 975 | 30 | 1000 | 0 | 97.5 | 70-125 | 0 | | | |
| Xylenes, Total | 3044 | 90 | 3000 | 0 | 101 | 75-125 | 0 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *925.5* | 0 | *1000* | 0 | *92.6* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *957.5* | 0 | *1000* | 0 | *95.8* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *997* | 0 | *1000* | 0 | *99.7* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *992.5* | 0 | *1000* | 0 | *99.2* | *70-130* | 0 | | | |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42430** Instrument ID **VMS7** Method: **SW8260**

**LCS** Sample ID: **LCS-42430-42430** Units: **µg/Kg** Analysis Date: **7/22/2012 11:03 AM**
Client ID: Run ID: **VMS5_120722A** SeqNo: **2033067** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 981 | 30 | 1000 | 0 | 98.1 | 75-125 | 0 | | | |
| Ethylbenzene | 957 | 30 | 1000 | 0 | 95.7 | 75-125 | 0 | | | |
| m,p-Xylene | 1942 | 60 | 2000 | 0 | 97.1 | 80-125 | 0 | | | |
| o-Xylene | 959.5 | 30 | 1000 | 0 | 96 | 75-125 | 0 | | | |
| Toluene | 912.5 | 30 | 1000 | 0 | 91.2 | 70-125 | 0 | | | |
| Xylenes, Total | 2902 | 90 | 3000 | 0 | 96.7 | 75-125 | 0 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *986* | 0 | *1000* | 0 | *98.6* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *935.5* | 0 | *1000* | 0 | *93.6* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *935.5* | 0 | *1000* | 0 | *93.6* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *971* | 0 | *1000* | 0 | *97.1* | *70-130* | 0 | | | |

**LCS** Sample ID: **LCS-42430-42430** Units: **µg/Kg** Analysis Date: **7/23/2012 10:43 PM**
Client ID: Run ID: **VMS7_120723B** SeqNo: **2034561** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1220 | 30 | 1000 | 0 | 122 | 75-125 | 0 | | | |
| Ethylbenzene | 1206 | 30 | 1000 | 0 | 121 | 75-125 | 0 | | | |
| m,p-Xylene | 2394 | 60 | 2000 | 0 | 120 | 80-125 | 0 | | | |
| o-Xylene | 1184 | 30 | 1000 | 0 | 118 | 75-125 | 0 | | | |
| Toluene | 1178 | 30 | 1000 | 0 | 118 | 70-125 | 0 | | | |
| Xylenes, Total | 3578 | 90 | 3000 | 0 | 119 | 75-125 | 0 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *842.5* | 0 | *1000* | 0 | *84.2* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *1020* | 0 | *1000* | 0 | *102* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *945.5* | 0 | *1000* | 0 | *94.6* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *997* | 0 | *1000* | 0 | *99.7* | *70-130* | 0 | | | |

**MS** Sample ID: **1207521-11B MS** Units: **µg/Kg** Analysis Date: **7/22/2012 08:27 PM**
Client ID: Run ID: **VMS5_120722A** SeqNo: **2033081** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 2279 | 68 | 2279 | 0 | 100 | 75-125 | 0 | | | |
| Ethylbenzene | 2151 | 68 | 2279 | 0 | 94.4 | 75-125 | 0 | | | |
| m,p-Xylene | 4325 | 140 | 4557 | 0 | 94.9 | 80-125 | 0 | | | |
| o-Xylene | 2088 | 68 | 2279 | 0 | 91.6 | 75-125 | 0 | | | |
| Toluene | 2611 | 68 | 2279 | 0 | 115 | 70-125 | 0 | | | |
| Xylenes, Total | 6413 | 210 | 6836 | 0 | 93.8 | 75-125 | 0 | | | |
| *Surr: 1,2-Dichloroethane-d4* | *1997* | 0 | *2279* | 0 | *87.6* | *70-130* | 0 | | | |
| *Surr: 4-Bromofluorobenzene* | *2019* | 0 | *2279* | 0 | *88.6* | *70-130* | 0 | | | |
| *Surr: Dibromofluoromethane* | *2467* | 0 | *2279* | 0 | *108* | *70-130* | 0 | | | |
| *Surr: Toluene-d8* | *2209* | 0 | *2279* | 0 | *97* | *70-130* | 0 | | | |

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42430** Instrument ID **VMS7** Method: **SW8260**

**MSD** Sample ID: **1207521-11B MSD** Units: **µg/Kg** Analysis Date: **7/22/2012 08:52 PM**
Client ID: Run ID: **VMS5_120722A** SeqNo: **2033082** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Benzene | 1891 | 68 | 2279 | 0 | 83 | 75-125 | 2279 | 18.6 | 30 | |
| Ethylbenzene | 2219 | 68 | 2279 | 0 | 97.4 | 75-125 | 2151 | 3.13 | 30 | |
| m,p-Xylene | 4442 | 140 | 4557 | 0 | 97.5 | 80-125 | 4325 | 2.68 | 30 | |
| o-Xylene | 2213 | 68 | 2279 | 0 | 97.1 | 75-125 | 2088 | 5.77 | 30 | |
| Toluene | 2143 | 68 | 2279 | 0 | 94 | 70-125 | 2611 | 19.7 | 30 | |
| Xylenes, Total | 6655 | 210 | 6836 | 0 | 97.4 | 75-125 | 6413 | 3.7 | 30 | |
| *Surr: 1,2-Dichloroethane-d4* | *1612* | 0 | *2279* | 0 | *70.8* | *70-130* | 1997 | *21.3* | *30* | |
| *Surr: 4-Bromofluorobenzene* | *2323* | 0 | *2279* | 0 | *102* | *70-130* | 2019 | *14* | *30* | |
| *Surr: Dibromofluoromethane* | *2116* | 0 | *2279* | 0 | *92.8* | *70-130* | 2467 | *15.3* | *30* | |
| *Surr: Toluene-d8* | *2197* | 0 | *2279* | 0 | *96.4* | *70-130* | 2209 | *0.569* | *30* | |

**The following samples were analyzed in this batch:** 1207548-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **42433** Instrument ID **WETCHEM** Method: **SW7196A**

**MBLK** Sample ID: **MBLK-42433-42433** Units: **mg/Kg** Analysis Date: **7/20/2012 01:00 PM**
Client ID: Run ID: **WETCHEM_120720I** SeqNo: **2031935** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | ND | 0.50 | | | | | | | | |

**LCS** Sample ID: **LCS-42433-42433** Units: **mg/Kg** Analysis Date: **7/20/2012 01:00 PM**
Client ID: Run ID: **WETCHEM_120720I** SeqNo: **2031934** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 1.968 | 0.50 | 2 | 0 | 98.4 | 75-110 | 0 | | | |

**MS** Sample ID: **1207417-03A MS** Units: **mg/Kg** Analysis Date: **7/20/2012 01:00 PM**
Client ID: Run ID: **WETCHEM_120720I** SeqNo: **2031920** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 5.864 | 0.50 | 2 | 1.857 | 200 | 60-130 | 0 | | | S |

**MSD** Sample ID: **1207417-03A MSD** Units: **mg/Kg** Analysis Date: **7/20/2012 01:00 PM**
Client ID: Run ID: **WETCHEM_120720I** SeqNo: **2031921** Prep Date: **7/19/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Chromium, Hexavalent | 6.293 | 0.50 | 2.008 | 1.857 | 221 | 60-130 | 5.864 | 7.06 | 30 | S |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **R107471** Instrument ID **WETCHEM** Method: **A4500-H B**

**LCS** Sample ID: **WLCSW1-120719-R107471** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030976** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 4.63 | 0 | 4.4 | 0 | 105 | 90-110 | 0 | | | |

**LCS** Sample ID: **WLCSW1-120719-R107471** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030982** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 4.63 | 0 | 4.4 | 0 | 105 | 90-110 | 0 | | | |

**LCS** Sample ID: **WLCSW1-120719-R107471** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030985** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 4.63 | 0 | 4.4 | 0 | 105 | 90-110 | 0 | | | |

**DUP** Sample ID: **1207538-01A DUP** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030978** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.32 | 0 | 0 | 0 | 0 | 0-0 | 8.32 | 0 | 20 | H |

**DUP** Sample ID: **1207549-01A DUP** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030984** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 13.07 | 0 | 0 | 0 | 0 | 0-0 | 13.06 | 0.0765 | 20 | |

**DUP** Sample ID: **1207535-01A DUP** Units: **s.u.** Analysis Date: **7/19/2012 11:20 AM**
Client ID: Run ID: **WETCHEM_120719M** SeqNo: **2030987** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 7.51 | 0 | 0 | 0 | 0 | 0-0 | 7.51 | 0 | 20 | |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1207548
**Project:** PDC 242-36 - Confirmation 11-316 7/18/12

# QC BATCH REPORT

Batch ID: **R107496** Instrument ID **MOIST** Method: **A2540 G**

**MBLK** Sample ID: **WBLKS1-R107496** Units: **% of sample** Analysis Date: **7/19/2012 03:02 PM**
Client ID: Run ID: **MOIST_120719D** SeqNo: **2031562** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | ND | 0.050 | | | | | | | | |

**LCS** Sample ID: **LCS-R107496** Units: **% of sample** Analysis Date: **7/19/2012 03:02 PM**
Client ID: Run ID: **MOIST_120719D** SeqNo: **2031561** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 100 | 0.050 | 100 | 0 | 100 | 99.5-100.5 | 0 | | | |

**DUP** Sample ID: **1207518-20BDUP** Units: **% of sample** Analysis Date: **7/19/2012 03:02 PM**
Client ID: Run ID: **MOIST_120719D** SeqNo: **2031543** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 4.05 | 0.050 | 0 | 0 | 0 | 0-0 | 4.64 | 13.6 | 20 | |

**DUP** Sample ID: **1207520-01ADUP** Units: **% of sample** Analysis Date: **7/19/2012 03:02 PM**
Client ID: Run ID: **MOIST_120719D** SeqNo: **2031545** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 5.58 | 0.050 | 0 | 0 | 0 | 0-0 | 5.42 | 2.91 | 20 | |

**The following samples were analyzed in this batch:** 1207548-01B

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

# ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

# Chain-of-Custody

Form 202r8

WORKORDER # 1207548

PAGE 1 of 1

DISPOSAL (By Lab) or Return to Client

| | | | |
|---|---|---|---|
| PROJECT NAME | PDC 242-36 - Confirmation | SAMPLER | Casey Richardson |
| PROJECT No. | Job #11-316 | SITE ID | |
| | | EDD FORMAT | |
| | | PURCHASE ORDER | |
| COMPANY NAME | HCSI | BILL TO COMPANY | PDC Energy |
| SEND REPORT TO | Herman Lucero | INVOICE ATTN TO | Ed Winters |
| ADDRESS | 2385 F 1/2 Road | ADDRESS | 120 Railroad Ave. Suite D |
| CITY / STATE / ZIP | Grand Junction, CO. 81505 | CITY / STATE / ZIP | Parachute, CO 81635 |
| PHONE | 970-243-3271 | PHONE | 970-285-9606 |
| FAX | 970-243-3280 | FAX | |
| E-MAIL | hlucero@hrlcomp.com<br>crichardson@hrlcomp.com | E-MAIL | ewinters@petd.com |

DATE 7/18/2012

TURNAROUND Standard

| Lab ID | Field ID | Matrix | Sample Date | Sample Time | # Bottles | Pres. | QC | DRO | GRO | BTEX | TOTAL METALS - TABEL 910-1 | SEMI VOLS - PAH | SAR | EC | pH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Confirmation | Soil | 7/18/2012 | 1230 | 3 | 4 C | | x | x | x | x | x | x | x | x |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |

*Time Zone (Circle): EST CST (MST) PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

**For metals or anions, please detail analytes below.**

Comments: 3.0 c

| QC PACKAGE (check below) | |
|---|---|
| x | LEVEL II (Standard QC) |
| | LEVEL III (Std QC + forms) |
| | LEVEL IV (Std QC + forms + raw data) |
| | |

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

| | SIGNATURE | PRINTED NAME | DATE | TIME |
|---|---|---|---|---|
| RELINQUISHED BY | | Casey Richardson | 7/18/2012 | 1730 |
| RECEIVED BY | | Diane F Shaw | 7/19/12 | 0915 |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |

ALS Environmental

**Subcontractor:**
A & L Great Lakes Agricultural La
3505 Conestoga Dr
Ft. Wayne, IN 46808
TEL: (260) 483-4759
FAX: (260) 483-5274
Acct #: 91000

Salesperson **Bruce Schlatter**

# CHAIN-OF-CUSTODY RECORD



Date: 20-Jul-12
COC ID: 3763
Due D 25-Jul-12

| Customer Information | | Project Information | | Parameter/Method Request for Analysis |
|---|---|---|---|---|
| Purchase Order | | Project Name | 1207548 | A Subcontracted Analyses (SUBCONTRACT) SAR-EC |
| Work Order | | Project Number | | B |
| Company Name | ALS Group USA, Corp | Bill To Company | ALS Group USA, Corp | C |
| Send Report To | Ann Preston | Inv Attn | Accounts Payable | D |
| Address | 3352 128th Avenue | Address | 3352 128th Avenue | E |
| | | | | F |
| City/State/Zip | Holland, Michigan 49424-9263 | City/State/Zip | Holland, Michigan 49424-9263 | G |
| Phone | (616) 399-6070 | Phone | (616) 399-6070 | H |
| Fax | (616) 399-6185 | Fax | (616) 399-6185 | I |
| eMail Address | ann.preston@alsglobal.com | eMail CC | | J |

| ALS Sample ID | Client Sample ID | Matrix | Collection Date 24hr | Bottle | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1207548-01C | Confirmation | Soil | 18/Jul/2012 12:30 | (1) MISC | X | | | | | | | | | |

**Comments:**
Please analyze for SAR-EC. Email results to Ann Preston.

| Relinquished by: | Date/Time | Received by: | Date/Time | Cooler IDs | Report/QC Level |
|---|---|---|---|---|---|
| | 7/20/12 | FedEx | | | Std |
| Relinquished by: | Date/Time | Received by: | Date/Time | | |

ALS Group USA, Corp

## Sample Receipt Checklist

Client Name: **HRL** Date/Time Received: **19-Jul-12 09:15**

Work Order: **1207548** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 19-Jul-12 (Date) Reviewed by: Ann Preston (eSignature) 20-Jul-12 (Date)

Matrices: Soil
Carrier name: FedEx

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 3.0 c | | |
| Cooler(s)/Kit(s): | | | |
| Date/Time sample(s) sent to storage: | 7/19/2012 1:13:37 PM | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted by: | - | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

ALS Environmental
3352 128th Avenue
Holland, Michigan 49424
Tel. +1 616 399 6070
Fax. +1 616 399 6185

CUSTODY SEAL
Date: 7-15-11 Time:
Name:
Company:

FedEx Express NET US

Form ID No. 0200

FedEx Retrieval Copy

1 From
Date 07/15/11
Sender's Name [redacted] Phone 616 243 3727
Company [redacted]
Address [redacted] Dept/Floor/Suite/Room
City [redacted] State [redacted] ZIP [redacted]

2 Your Internal Billing Reference

3 To
Recipient's Name [redacted] Phone [redacted]
Company [redacted]
Address [redacted] Dept/Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.
Address
Use this line for the HOLD location address or for continuation of your shipping address.
City [redacted] State [redacted] ZIP [redacted]

01 HOLD Weekday
FedEx location address REQUIRED. NOT available for FedEx First Overnight

31 HOLD Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

4 Express Package Service * To most locations.
NOTE: Service and/or fees have changed. Please select carefully.
Packages up to 150 lbs.
For packages over 150 lbs., use the new FedEx Express Freight US Airbill

Next Business Day
06 FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
01 X FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
05 FedEx Standard Overnight
Next business afternoon. Saturday Delivery NOT available.

2nd Business Day
49 NEW FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available.
03 FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
20 FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500
06 FedEx Envelope* 02 FedEx Pak* 03 FedEx Box 04 FedEx Tube 01 X Other

6 Special Handling and Delivery Signature Options
03 SATURDAY DELIVERY
X No Signature Required
10 Direct Signature
34 Indirect Signature
Does this shipment contain dangerous goods?
One box must be checked.
X No 04 Yes As per attached Shipper's Declaration
Yes Shipper's Declaration not required 06 Dry Ice Dry Ice, 9, UN 1845
Cargo Aircraft Only

7 Payment Bill to:
Enter FedEx Acct. No. or Credit Card No. below.
Obtain recip. Acct. No.
1 Sender Acct. No. in Section 1 will be billed. 2 X Recipient 3 Third Party 4 Credit Card 5 Cash/Check

Total Packages 1
Total Weight 100 lbs
Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

612

8001 2141 8657

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Appendix B: Background Sample Analytical Data

26-Apr-2012

Herman Lucero
HRL Compliance Solutions
744 Horizon Ct. Suite 140
Grand Junction, CO 81506

Re: **PDC Puckett 242-36 Background 11-316-6 4/18/12** Work Order: **1204568**

Dear Herman,

ALS Environmental received 3 samples on 19-Apr-2012 10:35 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

QC sample results for this data met laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 17.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Ann Preston

Electronically approved by: Ann Preston

Ann Preston
Project Manager

Certificate No: MN331938

# ALS Group USA, Corp

Date: 26-Apr-12

**Client:** HRL Compliance Solutions
**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12
**Work Order:** **1204568**

## Work Order Sample Summary

| Lab Samp ID | Client Sample ID | Matrix | Tag Number | Collection Date | Date Received | Hold |
|---|---|---|---|---|---|---|
| 1204568-01 | Background 1 | Soil | | 4/18/2012 13:25 | 4/19/2012 10:35 | ☐ |
| 1204568-02 | Background 2 | Soil | | 4/18/2012 13:30 | 4/19/2012 10:35 | ☐ |
| 1204568-03 | Background 3 | Soil | | 4/18/2012 13:35 | 4/19/2012 10:35 | ☐ |

# ALS Group USA, Corp

*Date: 26-Apr-12*

**Client:** HRL Compliance Solutions
**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12
**Work Order:** 1204568

## Case Narrative

Batch R103797 Duplicate data for % Moisture  is not related to this project's samples.

# ALS Group USA, Corp

Date: 26-Apr-12

**Client:** HRL Compliance Solutions
**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12
**WorkOrder:** **1204568**

## QUALIFIERS, ACRONYMS, UNITS

| Qualifier | Description |
|---|---|
| * | Value exceeds Regulatory Limit |
| a | Not accredited |
| B | Analyte detected in the associated Method Blank above the Reporting Limit |
| E | Value above quantitation range |
| H | Analyzed outside of Holding Time |
| J | Analyte detected below quantitation limit |
| n | Not offered for accreditation |
| ND | Not Detected at the Reporting Limit |
| O | Sample amount is > 4 times amount spiked |
| P | Dual Column results percent difference > 40% |
| R | RPD above laboratory control limit |
| S | Spike Recovery outside laboratory control limits |
| U | Analyzed but not detected above the MDL |

| Acronym | Description |
|---|---|
| DUP | Method Duplicate |
| LCS | Laboratory Control Sample |
| LCSD | Laboratory Control Sample Duplicate |
| MBLK | Method Blank |
| MDL | Method Detection Limit |
| MQL | Method Quantitation Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| PDS | Post Digestion Spike |
| PQL | Practical Quantitation Limit |
| RPD | Relative Percent Difference |
| SD | Serial Dilution |
| TDL | Target Detection Limit |

| Units Reported | Description |
|---|---|
| % of sample | Percent of Sample |
| as noted | |
| mg/Kg-dry | Milligrams per Kilogram Dry Weight |
| s.u. | Standard Units |

# ALS Group USA, Corp

**Date:** *26-Apr-12*

**Client:** HRL Compliance Solutions

**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12 **Work Order:** 1204568

**Sample ID:** Background 1 **Lab ID:** 1204568-01

**Collection Date:** 4/18/2012 01:25 PM **Matrix:** SOIL

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **METALS BY ICP-MS** | | | **SW6020A** | | Prep Date: **4/23/2012** | Analyst: **ML** |
| **Arsenic** | **5.4** | | **0.81** | **mg/Kg-dry** | 2 | 4/23/2012 11:28 PM |
| **SUBCONTRACTED ANALYSES** | | | **SUBCONTRACT** | | | Analyst: **A&LGL** |
| **Subcontracted Analyses** | **Rcvd 4/24/12** | | | **as noted** | 1 | 4/24/2012 |
| **MOISTURE** | | | **A2540 G** | | | Analyst: **CG** |
| **Moisture** | **24** | | **0.050** | **% of sample** | 1 | 4/19/2012 02:09 PM |
| **PH** | | | **SW9045D** | | | Analyst: **CG** |
| **pH** | **7.32** | | | **s.u.** | 1 | 4/19/2012 08:25 AM |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

**Date:** *26-Apr-12*

**Client:** HRL Compliance Solutions

**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12 **Work Order:** 1204568

**Sample ID:** Background 2 **Lab ID:** 1204568-02

**Collection Date:** 4/18/2012 01:30 PM **Matrix:** SOIL

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **METALS BY ICP-MS** | | | **SW6020A** | | Prep Date: **4/23/2012** | Analyst: **ML** |
| **Arsenic** | **7.0** | | **1.2** | **mg/Kg-dry** | 2 | 4/23/2012 11:34 PM |
| **MOISTURE** | | | **A2540 G** | | | Analyst: **CG** |
| **Moisture** | **45** | | **0.050** | **% of sample** | 1 | 4/19/2012 02:09 PM |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group USA, Corp

**Date:** *26-Apr-12*

**Client:** HRL Compliance Solutions

**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12 **Work Order:** 1204568

**Sample ID:** Background 3 **Lab ID:** 1204568-03

**Collection Date:** 4/18/2012 01:35 PM **Matrix:** SOIL

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---|---|---|---|---|---|
| **METALS BY ICP-MS** | | | **SW6020A** | | Prep Date: **4/23/2012** | Analyst: **ML** |
| **Arsenic** | **5.8** | | **0.85** | **mg/Kg-dry** | 2 | 4/23/2012 11:52 PM |
| **MOISTURE** | | | **A2540 G** | | | Analyst: **CG** |
| **Moisture** | **26** | | **0.050** | **% of sample** | 1 | 4/19/2012 02:09 PM |

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

**Report Number:** F12111-0218
**Acount Number:** 91000

# A & L GREAT LAKES LABORATORIES, INC.

3505 Conestoga Drive • Fort Wayne, Indiana 46808-4413 • Phone 260-483-4759 • Fax 260-483-5274
www.algreatlakes.com • lab@algreatlakes.com

***QUALITY ANALYSES FOR INFORMED DECISIONS***

**TO:** ALS LABORATORY GROUP
3352 128TH AVE
HOLLAND, MI 49424-9263

**RE:** 1204568

**DATE RECEIVED:** 04/20/2012
**DATE REPORTED:** 04/24/2012
**PAGE:** 1
**P.O. NUMBER:** 20-1204568

**ATTN:** ANN PRESTON

## REPORT OF ANALYSIS

| LAB NO. | SAMPLE ID | ANALYSIS | RESULT | UNIT | METHOD |
|---|---|---|---|---|---|
| 49973 | BACKGR1 | Sat'd Paste Extraction with DIW | 1 | | USDA Handbook 60 |
| | | Conductivity (ECe) | 0.09 | mmho/cm | USDA Handbook 60 |
| | | Calcium (Sat'd Paste) | 10 | ppm | USDA Handbook 60 |
| | | Magnesium (Sat'd Paste) | 4 | ppm | USDA Handbook 60 |
| | | Sodium (Sat'd Paste) | 9 | ppm | USDA Handbook 60 |
| | | Sodium Adsorption Ratio (SAR) | 0.6 | - | USDA Handbook 60 |

# QC BATCH REPORT

Batch ID: **40601** Instrument ID **ICPMS1** Method: **SW6020A**

**MBLK** Sample ID: **MBLK-40601-40601** Units: **mg/Kg** Analysis Date: **4/23/2012 07:25 PM**

Client ID: Run ID: **ICPMS1_120423A** SeqNo: **1955350** Prep Date: **4/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | ND | 0.25 | | | | | | | | |

**LCS** Sample ID: **LCS-40601-40601** Units: **mg/Kg** Analysis Date: **4/23/2012 09:09 PM**

Client ID: Run ID: **ICPMS1_120423A** SeqNo: **1955364** Prep Date: **4/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4.602 | 0.25 | 5 | 0 | 92 | 80-120 | 0 | | | |

**LCSD** Sample ID: **LCSD-40601-40601** Units: **mg/Kg** Analysis Date: **4/23/2012 09:15 PM**

Client ID: Run ID: **ICPMS1_120423A** SeqNo: **1955365** Prep Date: **4/23/2012** DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 4.523 | 0.25 | 5 | 0 | 90.5 | 80-120 | 4.602 | 1.72 | 20 | |

**MS** Sample ID: **1204505-04AMS** Units: **mg/Kg** Analysis Date: **4/23/2012 09:51 PM**

Client ID: Run ID: **ICPMS1_120423A** SeqNo: **1955371** Prep Date: **4/23/2012** DF: **4**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 15.67 | 1.3 | 6.684 | 9.867 | 86.7 | 80-120 | 0 | | | |

**MSD** Sample ID: **1204505-04AMSD** Units: **mg/Kg** Analysis Date: **4/23/2012 09:57 PM**

Client ID: Run ID: **ICPMS1_120423A** SeqNo: **1955372** Prep Date: **4/23/2012** DF: **4**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 14.68 | 1.2 | 5.945 | 9.867 | 81 | 80-120 | 15.67 | 6.46 | 25 | |

**The following samples were analyzed in this batch:** 1204568-01A 1204568-02A 1204568-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1204568
**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12

# QC BATCH REPORT

Batch ID: **R103758** Instrument ID **WETCHEM** Method: **SW9045D**

**LCS** Sample ID: **LCS-R103758-R103758** Units: **s.u.** Analysis Date: **4/19/2012 08:25 AM**
Client ID: Run ID: **WETCHEM_120419M** SeqNo: **1952439** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 4.33 | 0 | 4.4 | 0 | 98.4 | 90-110 | 0 | | | |

**DUP** Sample ID: **1204579-09ADUP** Units: **s.u.** Analysis Date: **4/19/2012 08:25 AM**
Client ID: Run ID: **WETCHEM_120419M** SeqNo: **1952460** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.32 | 0 | 0 | 0 | 0 | 0-0 | 8.32 | 0 | 20 | |

**DUP** Sample ID: **1204562-01B DUP** Units: **s.u.** Analysis Date: **4/19/2012 08:25 AM**
Client ID: Run ID: **WETCHEM_120419M** SeqNo: **1952498** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | 8.09 | 0 | 0 | 0 | 0 | 0-0 | 8.09 | 0 | 20 | |

**The following samples were analyzed in this batch:** 1204568-01A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** HRL Compliance Solutions
**Work Order:** 1204568
**Project:** PDC Puckett 242-36 Background 11-316-6 4/18/12

# QC BATCH REPORT

Batch ID: **R103797** Instrument ID **MOIST** Method: **A2540 G**

**MBLK** Sample ID: **WBLKS1-R103797** Units: **% of sample** Analysis Date: **4/19/2012 02:09 PM**
Client ID: Run ID: **MOIST_120419B** SeqNo: **1953519** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | ND | 0.050 | | | | | | | | |

**LCS** Sample ID: **LCS-R103797** Units: **% of sample** Analysis Date: **4/19/2012 02:09 PM**
Client ID: Run ID: **MOIST_120419B** SeqNo: **1953498** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 99.99 | 0.050 | 100 | 0 | 100 | 99.5-100.5 | 0 | | | |

**DUP** Sample ID: **1204542-01ADUP** Units: **% of sample** Analysis Date: **4/19/2012 02:09 PM**
Client ID: Run ID: **MOIST_120419B** SeqNo: **1953455** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 4.22 | 0.050 | 0 | 0 | 0 | 0-0 | 5.53 | 26.9 | 20 | R |

**DUP** Sample ID: **1204572-02ADUP** Units: **% of sample** Analysis Date: **4/19/2012 02:09 PM**
Client ID: Run ID: **MOIST_120419B** SeqNo: **1953480** Prep Date: DF: **1**

| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| Moisture | 2.86 | 0.050 | 0 | 0 | 0 | 0-0 | 2.86 | 0 | 20 | |

**The following samples were analyzed in this batch:** 1204568-01A 1204568-02A 1204568-03A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

# ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

# Chain-of-Custody

Form 202r8

WORKORDER # 1204568

PAGE 1 of 1

DISPOSAL By Lab or Return to Client

| | | | |
|---|---|---|---|
| PROJECT NAME | PDC Puckett 242-36 Background | SAMPLER | Casey Richardson |
| PROJECT No. | 11-316-6 | SITE ID | |
| | | EDD FORMAT | |
| | | PURCHASE ORDER | |
| COMPANY NAME | HRL Compliance Solutions, Inc. | BILL TO COMPANY | PDC Energy |
| SEND REPORT TO | Herman Lucero | INVOICE ATTN TO | Ed Winters |
| ADDRESS | 744 Horizon Ct. Suite 140 | ADDRESS | 120 Railroad Ave. Suite D |
| CITY / STATE / ZIP | Grand Junction, CO. 81506 | CITY / STATE / ZIP | Parachute, CO 81635 |
| PHONE | 970-243-3271 | PHONE | 970-285-9606 |
| FAX | 970-243-3280 | FAX | |
| E-MAIL | hlucero@hrlcomp.com | E-MAIL | ewinters@petd.com |

DATE 4/18/2012

TURNAROUND Standard

| Lab ID | Field ID | Matrix | Sample Date | Sample Time | # Bottles | Pres. | QC | SAR | EC | pH | Arsenic |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Background 1 | Soil | 4/18/2012 | 1325 | 2 | 4 C | | x | x | x | x |
| 2 | Background 2 | Soil | 4/18/2012 | 1330 | 1 | 4 C | | | | | x |
| 3 | Background 3 | Soil | 4/18/2012 | 1335 | 1 | 4 C | | | | | x |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

**For metals or anions, please detail analytes below.**

**Comments:** 5.0°C

| QC PACKAGE (check below) | |
|---|---|
| x | LEVEL II (Standard QC) |
| | LEVEL III (Std QC + forms) |
| | LEVEL IV (Std QC + forms + raw data) |
| | |

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

| | SIGNATURE | PRINTED NAME | DATE | TIME |
|---|---|---|---|---|
| RELINQUISHED BY | | Casey Richardson | 4/18/2012 | 1730 |
| RECEIVED BY | | KEITH WIERENGA | 4/19/12 | 1035 |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |

# ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

# Chain-of-Custody

Form 202r8

WORKORDER # 1204568

| | | | | | | |
|---|---|---|---|---|---|---|
| | | SAMPLER | Casey Richardson | DATE | 4/18/2012 | PAGE 1 of 1 |
| PROJECT NAME | PDC Puckett 242-36 Background | SITE ID | | TURNAROUND | Standard | DISPOSAL By Lab or Return to Client |
| PROJECT No. | 11-316-6 | EDD FORMAT | | | | |
| | | PURCHASE ORDER | | | | |
| COMPANY NAME | HRL Compliance Solutions, Inc. | BILL TO COMPANY | PDC Energy | | | |
| SEND REPORT TO | Herman Lucero | INVOICE ATTN TO | Ed Winters | | | |
| ADDRESS | 744 Horizon Ct. Suite 140 | ADDRESS | 120 Railroad Ave. Suite D | | | |
| CITY / STATE / ZIP | Grand Junction, CO. 81506 | CITY / STATE / ZIP | Parachute, CO 81635 | | | |
| PHONE | 970-243-3271 | PHONE | 970-285-9606 | | | |
| FAX | 970-243-3280 | FAX | | | | |
| E-MAIL | hlucero@hrlcomp.com | E-MAIL | ewinters@petd.com | | | |

| Lab ID | Field ID | Matrix | Sample Date | Sample Time | # Bottles | Pres. | QC | SAR | EC | pH | Arsenic |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | Background 1 | Soil | 4/18/2012 | 1325 | 2 | 4 C | | x | x | x | x |
| 02 | Background 2 | Soil | 4/18/2012 | 1330 | 1 | 4 C | | | | | x |
| 03 | Background 3 | Soil | 4/18/2012 | 1335 | 1 | 4 C | | | | | x |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

**For metals or anions, please detail analytes below.**

| Comments: | QC PACKAGE (check below) | |
|---|---|---|
| | x | LEVEL II (Standard QC) |
| | | LEVEL III (Std QC + forms) |
| | | LEVEL IV (Std QC + forms + raw data) |
| | | |

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

| | SIGNATURE | PRINTED NAME | DATE | TIME |
|---|---|---|---|---|
| RELINQUISHED BY | | Casey Richardson | 4/18/2012 | 1730 |
| RECEIVED BY | | | | |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |
| RELINQUISHED BY | | | | |
| RECEIVED BY | | | | |

ALS Environmental

**Subcontractor:**
A & L Great Lakes Agricultural La
3505 Conestoga Dr
Ft. Wayne, IN 46808
TEL: (260) 483-4759
FAX: (260) 483-5274
Acct #: 91000

Salesperson **Debbie Fazio**

# CHAIN-OF-CUSTODY RECORD



Date: 19-Apr-12
COC ID: 3575
Due D 25-Apr-12

| Customer Information | | Project Information | | Parameter/Method Request for Analysis | |
|---|---|---|---|---|---|
| Purchase Order | | Project Name | 1204568 | A | Subcontracted Analyses (SUBCONTRACT) SAR-EC |
| Work Order | | Project Number | | B | |
| Company Name | ALS Group USA, Corp | Bill To Company | ALS Group USA, Corp | C | |
| Send Report To | Ann Preston | Inv Attn | Accounts Payable | D | |
| Address | 3352 128th Avenue | Address | 3352 128th Avenue | E | |
| | | | | F | |
| City/State/Zip | Holland, Michigan 49424-9263 | City/State/Zip | Holland, Michigan 49424-9263 | G | |
| Phone | (616) 399-6070 | Phone | (616) 399-6070 | H | |
| Fax | (616) 399-6185 | Fax | (616) 399-6185 | I | |
| eMail Address | ann.preston@alsglobal.com | eMail CC | | J | |

| ALS Sample ID | Client Sample ID | Matrix | Collection Date 24hr | Bottle | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1204568-01B | Background 1 | Soil | 18/Apr/2012 13:25 | (1) MISC | X | | | | | | | | | |

**Comments:**
Please analyze for SAR-EC. Email results to Ann Preston.

| Relinquished by: | Date/Time | Received by: | Date/Time | Cooler IDs | Report/QC Level |
|---|---|---|---|---|---|
| [signature] | 4/19/12 | [signature] | | | Std |
| Relinquished by: | Date/Time | Received by: | Date/Time | | |

ALS Group USA, Corp

## Sample Receipt Checklist

Client Name: **HRL** Date/Time Received: **19-Apr-12 10:35**

Work Order: **1204568** Received by: **KRW**

Checklist completed by Keith Wierenga eSignature 19-Apr-12 Date Reviewed by: Ann Preston eSignature 19-Apr-12 Date

Matrices: Soil
Carrier name: FedEx

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? | Yes ☑ | No ☐ | |
| Container/Temp Blank temperature in compliance? | Yes ☑ | No ☐ | |
| Temperature(s)/Thermometer(s): | 5.0 C | | |
| Cooler(s)/Kit(s): | | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted? | Yes ☐ | No ☐ | N/A ☑ |
| pH adjusted by: | | | |

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx Express **NEW Package US Airbill**

FedEx Tracking Number 8987 5943 7570

0200 Form ID No.

**FedEx Retrieval Copy**

**1 From**

Date 6/2/12

Sender's Name [redacted] Phone 770 [illegible]

Company [illegible]

Address [illegible] Dept./Floor/Suite/Room

City [illegible] State [illegible] ZIP 81506

**2 Your Internal Billing Reference**

**3 To**

Recipient's Name [illegible] Phone 616 [illegible]

Company [illegible]

Address We cannot deliver to P.O. boxes or P.O. ZIP codes. [illegible]

Address Use this line for the HOLD location. [illegible]

City [illegible]

CUSTODY SEAL
DATE [illegible]
SIGNATURE [illegible]

8987 5943 7570

**4 Express Package Service** * To most locations.

NOTE: Service order has changed. Please select carefully.

*Packages up to 150 lbs.*
*For packages over 150 lbs., use the new FedEx Express Freight US Airbill.*

**Next Business Day**

06 ☐ FedEx First Overnight
Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

01 ☒ FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

05 ☐ FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.

**2 or 3 Business Days**

49 ☐ NEW FedEx 2Day A.M.
Second business morning.* Saturday Delivery NOT available.

03 ☐ FedEx 2Day
Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

20 ☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

**5 Packaging** * Declared value limit $500.

06 ☐ FedEx Envelope* 02 ☐ FedEx Pak* 03 ☐ FedEx Box 04 ☐ FedEx Tube 01 ☒ Other

**6 Special Handling and Delivery Signature Options**

03 ☐ **SATURDAY DELIVERY**

No Signature Required 10 ☐ Direct Signature 30 ☐ Indirect Signature

[illegible] 612

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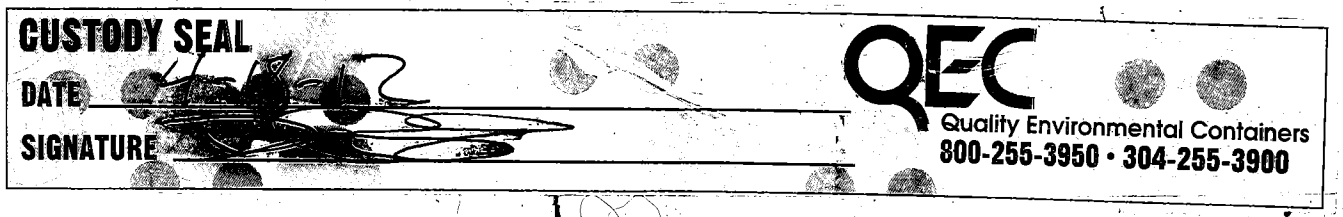
fedex.com 1.800.GoFedEx 1.800.463.3339


CUSTODY SEAL
DATE
SIGNATURE
QEC
Quality Environmental Containers
800-255-3950 • 304-255-3900

2.2°C

Appendix C: Sundry Form 4

FORM 4 Rev 12/05

# State of Colorado
# Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax:(303)894-2109

| DE | ET | OE | ES |
|---|---|---|---|
| | | | |

## SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry Information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form.) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

1. OGCC Operator Number: 69175
2. Name of Operator: PDC Energy
3. Address: 120 Railroad Ave. STE D
   City: Parachute State: CO Zip: 81635
4. Contact Name: Ed Winters
   Phone: 970-285-9606
   Fax: 970-285-9619
5. API Number 05- 045-11046 OGCC Facility ID Number 324334
6. Well/Facility Name: Puckett 7. Well/Facility Number 242-6
8. Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW, Sec. 36, T6S, R97W, 6th PM
9. County: Garfield 10. Field Name: Grand Valley
11. Federal, Indian or State Lease Number:

Complete the Attachment Checklist

| | OP | OGCC |
|---|---|---|
| Survey Plat | | |
| Directional Survey | | |
| Surface Eqpmt Diagram | | |
| Technical Info Page | x | |
| Other | x | |

## General Notice

☐ **CHANGE OF LOCATION:** **Attach New Survey Plat** (a change of surface qtr/qtr is substantive and requires a new permit)

| | FNL/FSL | | FEL/FWL | |
|---|---|---|---|---|
| Change of **Surface** Footage **from** Exterior Section Lines: | | | | |
| Change of **Surface** Footage **to** Exterior Section Lines: | | | | |
| Change of **Bottomhole** Footage **from** Exterior Section Lines: | | | | |
| Change of **Bottomhole** Footage **to** Exterior Section Lines: | | | | |

**attach directional survey**

Bottomhole location Qtr/Qtr, Sec, Twp, Rng, Mer

Latitude ____ Distance to nearest property line ____ Distance to nearest bldg, public rd, utility or RR ____

Longitude ____ Distance to nearest lease line ____ Is location in a High Density Area (rule 603b)? Yes/No ____

Ground Elevation ____ Distance to nearest well same formation ____ Surface owner consultation date: ____

**GPS DATA:**

Date of Measurement ____ PDOP Reading ____ Instrument Operator's Name ____

☐ **CHANGE SPACING UNIT**

| Formation | Formation Code | Spacing order number | Unit Acreage | Unit configuration |
|---|---|---|---|---|
| | | | | |

☐ **Remove from surface bond**
Signed surface use agreement attached

☐ **CHANGE OF OPERATOR (prior to drilling):**
Effective Date: ____
Plugging Bond: ☐ Blanket ☐ Individual

☐ **CHANGE WELL NAME** **NUMBER**
From: ____ ____
To: ____ ____
Effective Date: ____

☐ **ABANDONED LOCATION:**
Was location ever built? ☐ Yes ☐ No
Is site ready for Inspection? ☐ Yes ☐ No
Date Ready for Inspection: ____

☐ **NOTICE OF CONTINUED SHUT IN STATUS**
Date well shut in or temporarily abandoned: ____
Has Production Equipment been removed from site? ☐ Yes ☐ No
MIT required if shut in longer than two years. Date of last MIT ____

☐ **SPUD DATE:** ____

☐ **REQUEST FOR CONFIDENTIAL STATUS** (6 mos from date casing set)

☐ **SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK** *submit cbl and cement job summaries

| Method used | Cementing tool setting/perf depth | Cement volume | Cement top | Cement bottom | Date |
|---|---|---|---|---|---|
| | | | | | |

☐ **RECLAMATION:** Attach technical page describing final reclamation procedures per Rule 1004.
Final reclamation will commence on approximately ____ ☐ Final reclamation is completed and site is ready for inspection.

## Technical Engineering/Environmental Notice

☐ Notice of Intent
Approximate Start Date: ____

☐ Report of Work Done
Date Work Completed: ____

**Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)**

☐ Intent to Recomplete (submit form 2)
☐ Change Drilling Plans
☐ Gross Interval Changed?
☐ Casing/Cementing Program Change
☐ Request to Vent or Flare
☐ Repair Well
☐ Rule 502 variance requested
☐ x Other: Closure/Arsenic
☐ E&P Waste Disposal
☐ Beneficial Reuse of E&P Waste
☐ Status Update/Change of Remediation Plans for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Edward T. Winters
Digitally signed by Edward T. Winters
DN: cn=Edward T. Winters, o=PDC Energy, Inc., ou=EHS - Piceance, email=edward.winters@pdce.com, c=US
Date: 2012.10.08 08:46:15 -06'00'

Date: ____ Email: ____

Print Name: Edward Winters Title: Environmental Field Coordinator

COGCC Approved: ____ Title ____ Date: ____

CONDITIONS OF APPROVAL, IF ANY:

FORM 4 Rev 12/05

# TECHNICAL INFORMATION PAGE

FOR OGCC USE ONLY

1. OGCC Operator Number: 69175 API Number: 05-045-11046
2. Name of Operator: PDC Energy OGCC Facility ID # 324334
3. Well/Facility Name: Puckett Well/Facility Number: 242-36
4. Location (QtrQtr, Sec, Twp, Rng, Meridian):

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

This COGCC Form 4 is being submitted as request to consider background concentration levels for arsenic at the PDC Puckett 242-36 well pad. This request is relative to a flow back water release (COGCC spill/release tracking # 2221630) at the subject facility in accordance with footnote 1 tot he COGCC Table 910-1.

The request is based on analytical results below (see attached analytical reports)

One sample was collected from a location within the impacted area at a depth of approximately two (2) feet to ascertain the arsenic concentrations of the facility.

Confirmation Sample: 6.0

Three (3) background samples were collected from the up gradient, undisturbed hillside adjacent to the well pad. The samples were ana lyzed for arsenic. One sample was also analyzed for inorganic constituents (SAR, EC, pH) of the COGCC Table 910-1. Samples collected at one and a half (1.5) feet.

Background 1: 5.4 mg/kg
Background 2: 7.0 mg/kg
Background 3: 5.8 mg/kg

Average: 6.06 mg/kg

PDC Energy is requesting this approval in order to proceed with closure activities at the Puckett 242-36 well pad.