



**Legend**

- Sample Location
- Existing Road
- Existing Pad Limit of Disturbance

**PA 23-12**  
**Arsenic Background Sample Location Map**  
**T7S R95W, Section 12**



**November 22, 2011**



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Karolina Blaney  
Williams  
1058 County Road 215  
Parachute, CO 81635

## Report Summary

Thursday December 01, 2011

Report Number: L548177

Samples Received: 11/22/11

Client Project:

Description: PA 23-12

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

T. Alan Harvill , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,  
TX - T104704245, OK-9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Karolina Blaney  
Williams  
1058 County Road 215  
Parachute, CO 81635

December 01, 2011

Date Received : November 22, 2011  
Description : PA 23-12  
Sample ID : PA 23-12-B-1  
Collected By :  
Collection Date : 11/21/11 08:25

ESC Sample # : L548177-02

Site ID :

Project # :

| Parameter | Result | Det. Limit | Units | Method | Date     | Dil. |
|-----------|--------|------------|-------|--------|----------|------|
| Arsenic   | 6.2    | 1.0        | mg/kg | 6010B  | 11/28/11 | 1    |

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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Williams  
1058 County Road 215  
Parachute, CO 81635

December 01, 2011

Date Received : November 22, 2011  
Description : PA 23-12  
Sample ID : PA 23-12-B-2  
Collected By :  
Collection Date : 11/21/11 08:30

ESC Sample # : L548177-03  
Site ID :  
Project # :

| Parameter | Result | Det. Limit | Units | Method | Date     | Dil. |
|-----------|--------|------------|-------|--------|----------|------|
| Arsenic   | 4.8    | 1.0        | mg/kg | 6010B  | 11/28/11 | 1    |

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Det. Limit - Practical Quantitation Limit(PQL)  
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Parachute, CO 81635

December 01, 2011

Date Received : November 22, 2011  
Description : PA 23-12  
Sample ID : PA 23-12-B-3  
Collected By :  
Collection Date : 11/21/11 08:35

ESC Sample # : L548177-04  
Site ID :  
Project # :

| Parameter | Result | Det. Limit | Units | Method | Date     | Dil. |
|-----------|--------|------------|-------|--------|----------|------|
| Arsenic   | 6.9    | 1.0        | mg/kg | 6010B  | 11/28/11 | 1    |

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December 01, 2011

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1058 County Road 215  
Parachute, CO 81635

Date Received : November 22, 2011  
Description : PA 23-12  
Sample ID : PA 23-12-B-4  
Collected By :  
Collection Date : 11/21/11 08:40

ESC Sample # : L548177-05

Site ID :

Project # :

| Parameter | Result | Det. Limit | Units | Method | Date     | Dil. |
|-----------|--------|------------|-------|--------|----------|------|
| Arsenic   | 6.8    | 1.0        | mg/kg | 6010B  | 11/28/11 | 1    |

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Det. Limit - Practical Quantitation Limit(PQL)

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Williams  
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December 01, 2011

Date Received : November 22, 2011  
Description : PA 23-12  
Sample ID : PA 23-12-B-5  
Collected By :  
Collection Date : 11/21/11 08:45

ESC Sample # : L548177-06  
Site ID :  
Project # :

| Parameter | Result | Det. Limit | Units | Method | Date     | Dil. |
|-----------|--------|------------|-------|--------|----------|------|
| Arsenic   | 5.3    | 1.0        | mg/kg | 6010B  | 11/28/11 | 1    |

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December 01, 2011

Date Received : November 22, 2011  
 Description : PA 23-12  
 Sample ID : PA 23-12  
 Collected By :  
 Collection Date : 11/21/11 09:05

ESC Sample # : L548177-07  
 Site ID :  
 Project # :

| Parameter                         | Result | Det. Limit | Units  | Method    | Date     | Dil. |
|-----------------------------------|--------|------------|--------|-----------|----------|------|
| Benzene                           | BDL    | 0.0025     | mg/kg  | 8021/8015 | 11/23/11 | 5    |
| Toluene                           | BDL    | 0.025      | mg/kg  | 8021/8015 | 11/23/11 | 5    |
| Ethylbenzene                      | BDL    | 0.0025     | mg/kg  | 8021/8015 | 11/23/11 | 5    |
| Total Xylene                      | BDL    | 0.0075     | mg/kg  | 8021/8015 | 11/23/11 | 5    |
| TPH (GC/FID) Low Fraction         | BDL    | 0.50       | mg/kg  | GRO       | 11/23/11 | 5    |
| Surrogate Recovery-%              |        |            |        |           |          |      |
| a,a,a-Trifluorotoluene(FID)       | 95.7   |            | % Rec. | 8021/8015 | 11/23/11 | 5    |
| a,a,a-Trifluorotoluene(PID)       | 97.0   |            | % Rec. | 8021/8015 | 11/23/11 | 5    |
| TPH (GC/FID) High Fraction        | BDL    | 4.0        | mg/kg  | 3546/DRO  | 11/24/11 | 1    |
| Surrogate recovery(%)             |        |            |        |           |          |      |
| o-Terphenyl                       | 65.0   |            | % Rec. | 3546/DRO  | 11/24/11 | 1    |
| Polynuclear Aromatic Hydrocarbons |        |            |        |           |          |      |
| Anthracene                        | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Acenaphthene                      | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Benzo(a)anthracene                | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Benzo(a)pyrene                    | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Benzo(b)fluoranthene              | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Benzo(k)fluoranthene              | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Chrysene                          | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Dibenz(a,h)anthracene             | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Fluoranthene                      | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Fluorene                          | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Indeno(1,2,3-cd)pyrene            | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Naphthalene                       | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Pyrene                            | BDL    | 0.0060     | mg/kg  | 8270C-SIM | 11/28/11 | 1    |
| Surrogate Recovery                |        |            |        |           |          |      |
| Nitrobenzene-d5                   | 73.4   |            | % Rec. | 8270C-SIM | 11/28/11 | 1    |
| 2-Fluorobiphenyl                  | 69.4   |            | % Rec. | 8270C-SIM | 11/28/11 | 1    |
| p-Terphenyl-d14                   | 77.3   |            | % Rec. | 8270C-SIM | 11/28/11 | 1    |

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Attachment A  
List of Analytes with QC Qualifiers

| Sample Number | Work Group | Sample Type | Analyte              | Run ID   | Qualifier |
|---------------|------------|-------------|----------------------|----------|-----------|
| L548177-01    | WG567168   | SAMP        | pH                   | R1946632 | T8        |
|               | WG567457   | SAMP        | Specific Conductance | R1947976 | T4        |

Attachment B  
Explanation of QC Qualifier Codes

| Qualifier | Meaning   |
|-----------|---|
| T4        | (ESC) - Additional method/sample information: QNS - Quantity Not Sufficient                                 |
| T8        | (ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration. |

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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L548177

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December 01, 2011

| Analyte                     | Result  | Laboratory Blank |       | Limit  | Batch    | Date Analyzed  |
|-----------------------------|---------|------------------|-------|--------|----------|----------------|
|                             |         | Units            | % Rec |        |          |                |
| Mercury                     | < .02   | mg/kg            |       |        | WG566983 | 11/23/11 11:11 |
| Benzene                     | < .0005 | mg/kg            |       |        | WG567106 | 11/23/11 15:02 |
| Ethylbenzene                | < .0005 | mg/kg            |       |        | WG567106 | 11/23/11 15:02 |
| Toluene                     | < .005  | mg/kg            |       |        | WG567106 | 11/23/11 15:02 |
| TPH (GC/FID) Low Fraction   | < .1    | mg/kg            |       |        | WG567106 | 11/23/11 15:02 |
| Total Xylene                | < .0015 | mg/kg            |       |        | WG567106 | 11/23/11 15:02 |
| a,a,a-Trifluorotoluene(FID) |         | % Rec.           | 100.2 | 59-128 | WG567106 | 11/23/11 15:02 |
| a,a,a-Trifluorotoluene(PID) |         | % Rec.           | 101.2 | 54-144 | WG567106 | 11/23/11 15:02 |
| TPH (GC/FID) High Fraction  | < 4     | ppm              |       |        | WG567051 | 11/24/11 01:20 |
| o-Terphenyl                 |         | % Rec.           | 76.37 | 50-150 | WG567051 | 11/24/11 01:20 |
| pH                          | 3.50    | su               |       |        | WG567168 | 11/26/11 09:26 |
| Arsenic                     | < 1     | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Barium                      | < .25   | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Cadmium                     | < .25   | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Chromium                    | < .5    | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Copper                      | < 1     | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Lead                        | < .25   | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Nickel                      | < 1     | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Selenium                    | < 1     | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Silver                      | < .5    | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Zinc                        | < 1.5   | mg/kg            |       |        | WG567075 | 11/26/11 16:55 |
| Specific Conductance        | 2.30    | umhos/cm         |       |        | WG567457 | 11/28/11 21:44 |
| Arsenic                     | < 1     | mg/kg            |       |        | WG567372 | 11/28/11 10:38 |
| Acenaphthene                | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Anthracene                  | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Benzo(a)anthracene          | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Benzo(a)pyrene              | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Benzo(b)fluoranthene        | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Benzo(k)fluoranthene        | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Chrysene                    | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Dibenz(a,h)anthracene       | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Fluoranthene                | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Fluorene                    | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Indeno(1,2,3-cd)pyrene      | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Naphthalene                 | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| Pyrene                      | < .006  | mg/kg            |       |        | WG567393 | 11/28/11 14:06 |
| 2-Fluorobiphenyl            |         | % Rec.           | 84.28 | 34-129 | WG567393 | 11/28/11 14:06 |
| Nitrobenzene-d5             |         | % Rec.           | 94.18 | 14-141 | WG567393 | 11/28/11 14:06 |
| p-Terphenyl-d14             |         | % Rec.           | 105.2 | 25-139 | WG567393 | 11/28/11 14:06 |
| Chromium, Hexavalent        | < 2     | mg/kg            |       |        | WG567333 | 11/29/11 11:33 |

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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| Analyte              | Units    | Duplicate |           | RPD   | Limit | Ref Samp   | Batch    |
|----------------------|----------|-----------|-----------|-------|-------|------------|----------|
|                      |          | Result    | Duplicate |       |       |            |          |
| Mercury              | mg/kg    | 0         | 0         | 0     | 20    | L548178-01 | WG566983 |
| ORP                  | mV       | 67.0      | 62.0      | 7.75  | 20    | L548178-01 | WG566972 |
| pH                   | su       | 12.0      | 12.0      | 2.47* | 1     | L548006-01 | WG567168 |
| pH                   | su       | 8.70      | 8.70      | 0.115 | 1     | L548284-07 | WG567168 |
| Arsenic              | mg/kg    | 5.00      | 4.50      | 9.52  | 20    | L548178-01 | WG567075 |
| Barium               | mg/kg    | 160.      | 170.      | 2.99  | 20    | L548178-01 | WG567075 |
| Cadmium              | mg/kg    | 0         | 0         | 0     | 20    | L548178-01 | WG567075 |
| Chromium             | mg/kg    | 17.0      | 18.0      | 3.97  | 20    | L548178-01 | WG567075 |
| Copper               | mg/kg    | 12.0      | 12.0      | 1.65  | 20    | L548178-01 | WG567075 |
| Lead                 | mg/kg    | 10.0      | 10.0      | 2.96  | 20    | L548178-01 | WG567075 |
| Nickel               | mg/kg    | 13.0      | 14.0      | 5.88  | 20    | L548178-01 | WG567075 |
| Selenium             | mg/kg    | 2.50      | 1.40      | 56.8* | 20    | L548178-01 | WG567075 |
| Silver               | mg/kg    | 0         | 0         | 0     | 20    | L548178-01 | WG567075 |
| Zinc                 | mg/kg    | 36.0      | 38.0      | 4.85  | 20    | L548178-01 | WG567075 |
| Specific Conductance | umhos/cm | 3500      | 3900      | 10.8  | 20    | L548142-01 | WG567457 |
| Specific Conductance | umhos/cm | 1400      | 1300      | 7.41  | 20    | L548320-04 | WG567457 |
| Arsenic              | mg/kg    | 9.50      | 9.30      | 2.34  | 20    | L548356-01 | WG567372 |
| Chromium,Hexavalent  | mg/kg    | 0         | 0         | 0     | 20    | L548399-01 | WG567333 |
| Chromium,Hexavalent  | mg/kg    | 0         | 0         | 0     | 20    | L548040-01 | WG567333 |

| Analyte                     | Units | Laboratory Control Sample |        | % Rec | Limit       | Batch    |
|-----------------------------|-------|---------------------------|--------|-------|-------------|----------|
|                             |       | Known Val                 | Result |       |             |          |
| Mercury                     | mg/kg | 3.77                      | 3.62   | 96.0  | 71.6-128    | WG566983 |
| ORP                         | mV    | 229                       | 220.   | 96.1  | 95.6-104.37 | WG566972 |
| Benzene                     | mg/kg | .05                       | 0.0504 | 101.  | 76-113      | WG567106 |
| Ethylbenzene                | mg/kg | .05                       | 0.0543 | 109.  | 78-115      | WG567106 |
| Toluene                     | mg/kg | .05                       | 0.0543 | 109.  | 76-114      | WG567106 |
| Total Xylene                | mg/kg | .15                       | 0.161  | 107.  | 81-118      | WG567106 |
| a,a,a-Trifluorotoluene(PID) |       |                           |        | 98.55 | 54-144      | WG567106 |
| TPH (GC/FID) Low Fraction   | mg/kg | 5.5                       | 6.22   | 113.  | 67-135      | WG567106 |
| a,a,a-Trifluorotoluene(FID) |       |                           |        | 102.9 | 59-128      | WG567106 |
| TPH (GC/FID) High Fraction  | ppm   | 60                        | 42.6   | 71.0  | 50-150      | WG567051 |
| o-Terphenyl                 |       |                           |        | 76.34 | 50-150      | WG567051 |
| pH                          | su    | 7.98                      | 8.00   | 100.  | 98-101      | WG567168 |
| Arsenic                     | mg/kg | 92.6                      | 89.6   | 96.8  | 82.9-117    | WG567075 |
| Barium                      | mg/kg | 169                       | 169.   | 100.  | 82.8-117    | WG567075 |
| Cadmium                     | mg/kg | 61.8                      | 58.1   | 94.0  | 83.3-117    | WG567075 |

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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| Analyte                | Units    | Laboratory Control Sample |        | % Rec | Limit    | Batch    |
|------------------------|----------|---------------------------|--------|-------|----------|----------|
|                        |          | Known Val                 | Result |       |          |          |
| Chromium               | mg/kg    | 71.3                      | 70.5   | 98.9  | 81.8-118 | WG567075 |
| Copper                 | mg/kg    | 81.2                      | 80.7   | 99.4  | 83.9-116 | WG567075 |
| Lead                   | mg/kg    | 92.4                      | 91.4   | 98.9  | 83.3-117 | WG567075 |
| Nickel                 | mg/kg    | 59.1                      | 55.8   | 94.4  | 83.8-116 | WG567075 |
| Selenium               | mg/kg    | 89.5                      | 90.1   | 101.  | 79-121   | WG567075 |
| Silver                 | mg/kg    | 34.4                      | 34.8   | 101.  | 66.3-134 | WG567075 |
| Zinc                   | mg/kg    | 141                       | 138.   | 97.9  | 80.9-119 | WG567075 |
| Specific Conductance   | umhos/cm | 427                       | 430.   | 101.  | 85-115   | WG567457 |
| Arsenic                | mg/kg    | 92.6                      | 91.9   | 99.2  | 82.9-117 | WG567372 |
| Acenaphthene           | mg/kg    | .033                      | 0.0288 | 87.2  | 52-108   | WG567393 |
| Anthracene             | mg/kg    | .033                      | 0.0306 | 92.6  | 58-120   | WG567393 |
| Benzo(a)anthracene     | mg/kg    | .033                      | 0.0302 | 91.4  | 54-110   | WG567393 |
| Benzo(a)pyrene         | mg/kg    | .033                      | 0.0302 | 91.6  | 56-118   | WG567393 |
| Benzo(b)fluoranthene   | mg/kg    | .033                      | 0.0316 | 95.9  | 55-114   | WG567393 |
| Benzo(k)fluoranthene   | mg/kg    | .033                      | 0.0296 | 89.8  | 55-122   | WG567393 |
| Chrysene               | mg/kg    | .033                      | 0.0296 | 89.6  | 57-118   | WG567393 |
| Dibenz(a,h)anthracene  | mg/kg    | .033                      | 0.0248 | 75.3  | 53-122   | WG567393 |
| Fluoranthene           | mg/kg    | .033                      | 0.0307 | 93.0  | 58-118   | WG567393 |
| Fluorene               | mg/kg    | .033                      | 0.0295 | 89.4  | 54-109   | WG567393 |
| Indeno(1,2,3-cd)pyrene | mg/kg    | .033                      | 0.0253 | 76.7  | 51-125   | WG567393 |
| Naphthalene            | mg/kg    | .033                      | 0.0272 | 82.5  | 45-105   | WG567393 |
| Pyrene                 | mg/kg    | .033                      | 0.0295 | 89.2  | 53-121   | WG567393 |
| 2-Fluorobiphenyl       |          |                           |        | 87.25 | 34-129   | WG567393 |
| Nitrobenzene-d5        |          |                           |        | 89.08 | 14-141   | WG567393 |
| p-Terphenyl-d14        |          |                           |        | 99.66 | 25-139   | WG567393 |
| Chromium,Hexavalent    | mg/kg    | 203                       | 158.   | 77.8  | 50-150   | WG567333 |

| Analyte                     | Units  | Laboratory Control Sample Duplicate |        |       | Limit       | RPD  | Limit | Batch    |
|-----------------------------|--------|-------------------------------------|--------|-------|-------------|------|-------|----------|
|                             |        | Result                              | Ref    | %Rec  |             |      |       |          |
| ORP                         | mV     | 230.                                | 220.   | 100.  | 95.6-104.37 | 4.44 | 20    | WG566972 |
| Benzene                     | mg/kg  | 0.0443                              | 0.0504 | 89.0  | 76-113      | 12.9 | 20    | WG567106 |
| Ethylbenzene                | mg/kg  | 0.0477                              | 0.0543 | 95.0  | 78-115      | 12.9 | 20    | WG567106 |
| Toluene                     | mg/kg  | 0.0475                              | 0.0543 | 95.0  | 76-114      | 13.5 | 20    | WG567106 |
| Total Xylene                | mg/kg  | 0.141                               | 0.161  | 94.0  | 81-118      | 13.2 | 20    | WG567106 |
| a,a,a-Trifluorotoluene(PID) |        |                                     |        | 100.6 | 54-144      |      |       | WG567106 |
| TPH (GC/FID) Low Fraction   | mg/kg  | 5.92                                | 6.22   | 108.  | 67-135      | 4.96 | 20    | WG567106 |
| a,a,a-Trifluorotoluene(FID) |        |                                     |        | 100.5 | 59-128      |      |       | WG567106 |
| TPH (GC/FID) High Fraction  | ppm    | 44.1                                | 42.6   | 73.0  | 50-150      | 3.36 | 25    | WG567051 |
| o-Terphenyl                 |        |                                     |        | 79.51 | 50-150      |      |       | WG567051 |
| pH                          | su     | 8.00                                | 8.00   | 100.  | 98-101      | 0    | 20    | WG567168 |
| Specific Conductance        | umhos/ | 430.                                | 430.   | 101.  | 85-115      | 0    | 20    | WG567457 |

\* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

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 1058 County Road 215  
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Quality Assurance Report  
 Level II

L548177

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 (615) 758-5858  
 1-800-767-5859  
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

December 01, 2011

| Analyte                | Units | Laboratory Control |        | Sample Duplicate |  | Limit  | RPD  | Limit | Batch    |
|------------------------|-------|--------------------|--------|------------------|--|--------|------|-------|----------|
|                        |       | Result             | Ref    | %Rec             |  |        |      |       |          |
| Acenaphthene           | mg/kg | 0.0270             | 0.0288 | 82.0             |  | 52-108 | 6.19 | 22    | WG567393 |
| Anthracene             | mg/kg | 0.0284             | 0.0306 | 86.0             |  | 58-120 | 7.26 | 20    | WG567393 |
| Benzo(a)anthracene     | mg/kg | 0.0288             | 0.0302 | 87.0             |  | 54-110 | 4.82 | 22    | WG567393 |
| Benzo(a)pyrene         | mg/kg | 0.0285             | 0.0302 | 86.0             |  | 56-118 | 5.75 | 21    | WG567393 |
| Benzo(b)fluoranthene   | mg/kg | 0.0296             | 0.0316 | 90.0             |  | 55-114 | 6.49 | 20    | WG567393 |
| Benzo(k)fluoranthene   | mg/kg | 0.0282             | 0.0296 | 86.0             |  | 55-122 | 4.89 | 25    | WG567393 |
| Chrysene               | mg/kg | 0.0278             | 0.0296 | 84.0             |  | 57-118 | 6.21 | 20    | WG567393 |
| Dibenz(a,h)anthracene  | mg/kg | 0.0227             | 0.0248 | 69.0             |  | 53-122 | 9.24 | 20    | WG567393 |
| Fluoranthene           | mg/kg | 0.0287             | 0.0307 | 87.0             |  | 58-118 | 6.58 | 20    | WG567393 |
| Fluorene               | mg/kg | 0.0278             | 0.0295 | 84.0             |  | 54-109 | 5.92 | 20    | WG567393 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.0235             | 0.0253 | 71.0             |  | 51-125 | 7.39 | 21    | WG567393 |
| Naphthalene            | mg/kg | 0.0251             | 0.0272 | 76.0             |  | 45-105 | 8.10 | 24    | WG567393 |
| Pyrene                 | mg/kg | 0.0279             | 0.0295 | 85.0             |  | 53-121 | 5.24 | 20    | WG567393 |
| 2-Fluorobiphenyl       |       |                    |        | 82.36            |  | 34-129 |      |       | WG567393 |
| Nitrobenzene-d5        |       |                    |        | 88.72            |  | 14-141 |      |       | WG567393 |
| p-Terphenyl-d14        |       |                    |        | 110.1            |  | 25-139 |      |       | WG567393 |
| Chromium,Hexavalent    | mg/kg | 160.               | 158.   | 79.0             |  | 50-150 | 1.26 | 20    | WG567333 |

| Analyte                     | Units | Matrix Spike |         |      |        | Limit  | Ref Samp   | Batch    |
|-----------------------------|-------|--------------|---------|------|--------|--------|------------|----------|
|                             |       | MS Res       | Ref Res | TV   | % Rec  |        |            |          |
| Mercury                     | mg/kg | 0.261        | 0       | .25  | 104.   | 70-130 | L548178-01 | WG566983 |
| Benzene                     | mg/kg | 0.230        | 0       | .05  | 92.1   | 32-137 | L548121-01 | WG567106 |
| Ethylbenzene                | mg/kg | 0.250        | 0       | .05  | 100.   | 10-150 | L548121-01 | WG567106 |
| Toluene                     | mg/kg | 0.251        | 0       | .05  | 100.   | 20-142 | L548121-01 | WG567106 |
| Total Xylene                | mg/kg | 0.743        | 0       | .15  | 99.0   | 16-141 | L548121-01 | WG567106 |
| a,a,a-Trifluorotoluene(PID) |       |              |         |      | 101.3  | 54-144 |            | WG567106 |
| TPH (GC/FID) Low Fraction   | mg/kg | 26.7         | 0       | 5.5  | 97.0   | 55-109 | L548121-01 | WG567106 |
| a,a,a-Trifluorotoluene(FID) |       |              |         |      | 102.9  | 59-128 |            | WG567106 |
| TPH (GC/FID) High Fraction  | ppm   | 39.2         | 12.0    | 60   | 45.2*  | 50-150 | L548178-05 | WG567051 |
| o-Terphenyl                 |       |              |         |      | 40.68* | 50-150 |            | WG567051 |
| Arsenic                     | mg/kg | 53.0         | 4.50    | 50   | 97.0   | 75-125 | L548178-01 | WG567075 |
| Barium                      | mg/kg | 214.         | 170.    | 50   | 88.0   | 75-125 | L548178-01 | WG567075 |
| Cadmium                     | mg/kg | 48.9         | 0       | 50   | 97.8   | 75-125 | L548178-01 | WG567075 |
| Chromium                    | mg/kg | 66.2         | 18.0    | 50   | 96.4   | 75-125 | L548178-01 | WG567075 |
| Copper                      | mg/kg | 65.2         | 12.0    | 50   | 106.   | 75-125 | L548178-01 | WG567075 |
| Lead                        | mg/kg | 58.3         | 10.0    | 50   | 96.6   | 75-125 | L548178-01 | WG567075 |
| Nickel                      | mg/kg | 58.8         | 14.0    | 50   | 89.6   | 75-125 | L548178-01 | WG567075 |
| Selenium                    | mg/kg | 48.2         | 1.40    | 50   | 93.6   | 75-125 | L548178-01 | WG567075 |
| Silver                      | mg/kg | 50.7         | 0       | 50   | 101.   | 75-125 | L548178-01 | WG567075 |
| Zinc                        | mg/kg | 82.8         | 38.0    | 50   | 89.6   | 75-125 | L548178-01 | WG567075 |
| Arsenic                     | mg/kg | 57.2         | 9.30    | 50   | 95.8   | 75-125 | L548356-01 | WG567372 |
| Acenaphthene                | mg/kg | 0.0243       | 0       | .033 | 73.7   | 43-133 | L548177-07 | WG567393 |
| Anthracene                  | mg/kg | 0.0250       | 0       | .033 | 75.8   | 38-153 | L548177-07 | WG567393 |
| Benzo(a)anthracene          | mg/kg | 0.0249       | 0       | .033 | 75.4   | 31-142 | L548177-07 | WG567393 |
| Benzo(a)pyrene              | mg/kg | 0.0245       | 0       | .033 | 74.1   | 26-152 | L548177-07 | WG567393 |

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

December 01, 2011

| Analyte                | Units | MS Res | Matrix Spike |      | % Rec | Limit  | Ref Samp   | Batch    |
|------------------------|-------|--------|--------------|------|-------|--------|------------|----------|
|                        |       |        | Ref Res      | TV   |       |        |            |          |
| Benzo(b)fluoranthene   | mg/kg | 0.0257 | 0            | .033 | 78.0  | 10-188 | L548177-07 | WG567393 |
| Benzo(k)fluoranthene   | mg/kg | 0.0241 | 0            | .033 | 73.2  | 22-163 | L548177-07 | WG567393 |
| Chrysene               | mg/kg | 0.0241 | 0            | .033 | 73.0  | 26-146 | L548177-07 | WG567393 |
| Dibenz(a,h)anthracene  | mg/kg | 0.0187 | 0            | .033 | 56.6  | 10-160 | L548177-07 | WG567393 |
| Fluoranthene           | mg/kg | 0.0250 | 0            | .033 | 75.8  | 23-160 | L548177-07 | WG567393 |
| Fluorene               | mg/kg | 0.0246 | 0            | .033 | 74.5  | 44-143 | L548177-07 | WG567393 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.0188 | 0            | .033 | 57.0  | 10-157 | L548177-07 | WG567393 |
| Naphthalene            | mg/kg | 0.0227 | 0            | .033 | 68.9  | 22-156 | L548177-07 | WG567393 |
| Pyrene                 | mg/kg | 0.0241 | 0            | .033 | 73.1  | 12-170 | L548177-07 | WG567393 |
| 2-Fluorobiphenyl       |       |        |              |      | 72.31 | 34-129 |            | WG567393 |
| Nitrobenzene-d5        |       |        |              |      | 76.73 | 14-141 |            | WG567393 |
| p-Terphenyl-d14        |       |        |              |      | 84.49 | 25-139 |            | WG567393 |
| Chromium,Hexavalent    | mg/kg | 14.8   | 0            | 20   | 74.0  | 50-150 | L548178-01 | WG567333 |

| Analyte                     | Units | MSD    | Matrix Spike Duplicate |        | Limit  | RPD   | Limit | Ref Samp   | Batch    |
|-----------------------------|-------|--------|------------------------|--------|--------|-------|-------|------------|----------|
|                             |       |        | Ref                    | %Rec   |        |       |       |            |          |
| Mercury                     | mg/kg | 0.242  | 0.261                  | 96.8   | 70-130 | 7.55  | 20    | L548178-01 | WG566983 |
| Benzene                     | mg/kg | 0.205  | 0.230                  | 82.0   | 32-137 | 11.7  | 39    | L548121-01 | WG567106 |
| Ethylbenzene                | mg/kg | 0.217  | 0.250                  | 86.8   | 10-150 | 14.1  | 44    | L548121-01 | WG567106 |
| Toluene                     | mg/kg | 0.219  | 0.251                  | 87.5   | 20-142 | 13.9  | 42    | L548121-01 | WG567106 |
| Total Xylene                | mg/kg | 0.643  | 0.743                  | 85.7   | 16-141 | 14.4  | 46    | L548121-01 | WG567106 |
| a,a,a-Trifluorotoluene(PID) |       |        |                        | 99.61  | 54-144 |       |       |            | WG567106 |
| TPH (GC/FID) Low Fraction   | mg/kg | 25.8   | 26.7                   | 93.8   | 55-109 | 3.35  | 20    | L548121-01 | WG567106 |
| a,a,a-Trifluorotoluene(FID) |       |        |                        | 102.8  | 59-128 |       |       |            | WG567106 |
| TPH (GC/FID) High Fraction  | ppm   | 46.2   | 39.2                   | 57.0   | 50-150 | 16.6  | 25    | L548178-05 | WG567051 |
| o-Terphenyl                 |       |        |                        | 46.18* | 50-150 |       |       |            | WG567051 |
| Arsenic                     | mg/kg | 52.6   | 53.0                   | 96.2   | 75-125 | 0.758 | 20    | L548178-01 | WG567075 |
| Barium                      | mg/kg | 216.   | 214.                   | 92.0   | 75-125 | 0.930 | 20    | L548178-01 | WG567075 |
| Cadmium                     | mg/kg | 48.0   | 48.9                   | 96.0   | 75-125 | 1.86  | 20    | L548178-01 | WG567075 |
| Chromium                    | mg/kg | 65.8   | 66.2                   | 95.6   | 75-125 | 0.606 | 20    | L548178-01 | WG567075 |
| Copper                      | mg/kg | 64.3   | 65.2                   | 105.   | 75-125 | 1.39  | 20    | L548178-01 | WG567075 |
| Lead                        | mg/kg | 58.3   | 58.3                   | 96.6   | 75-125 | 0     | 20    | L548178-01 | WG567075 |
| Nickel                      | mg/kg | 57.3   | 58.8                   | 86.6   | 75-125 | 2.58  | 20    | L548178-01 | WG567075 |
| Selenium                    | mg/kg | 48.6   | 48.2                   | 94.4   | 75-125 | 0.826 | 20    | L548178-01 | WG567075 |
| Silver                      | mg/kg | 49.9   | 50.7                   | 99.8   | 75-125 | 1.59  | 20    | L548178-01 | WG567075 |
| Zinc                        | mg/kg | 84.1   | 82.8                   | 92.2   | 75-125 | 1.56  | 20    | L548178-01 | WG567075 |
| Arsenic                     | mg/kg | 53.9   | 57.2                   | 89.2   | 75-125 | 5.94  | 20    | L548356-01 | WG567372 |
| Acenaphthene                | mg/kg | 0.0264 | 0.0243                 | 79.9   | 43-133 | 8.03  | 26    | L548177-07 | WG567393 |
| Anthracene                  | mg/kg | 0.0272 | 0.0250                 | 82.4   | 38-153 | 8.30  | 27    | L548177-07 | WG567393 |
| Benzo(a)anthracene          | mg/kg | 0.0263 | 0.0249                 | 79.8   | 31-142 | 5.66  | 31    | L548177-07 | WG567393 |
| Benzo(a)pyrene              | mg/kg | 0.0263 | 0.0245                 | 79.8   | 26-152 | 7.44  | 32    | L548177-07 | WG567393 |
| Benzo(b)fluoranthene        | mg/kg | 0.0273 | 0.0257                 | 82.8   | 10-188 | 5.93  | 33    | L548177-07 | WG567393 |
| Benzo(k)fluoranthene        | mg/kg | 0.0254 | 0.0241                 | 77.1   | 22-163 | 5.23  | 29    | L548177-07 | WG567393 |
| Chrysene                    | mg/kg | 0.0255 | 0.0241                 | 77.4   | 26-146 | 5.82  | 30    | L548177-07 | WG567393 |
| Dibenz(a,h)anthracene       | mg/kg | 0.0177 | 0.0187                 | 53.7   | 10-160 | 5.27  | 39    | L548177-07 | WG567393 |
| Fluoranthene                | mg/kg | 0.0283 | 0.0250                 | 85.8   | 23-160 | 12.4  | 22    | L548177-07 | WG567393 |

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| Analyte                | Units | MSD    | Matrix Spike Duplicate |       | Limit  | RPD  | Limit | Ref Samp   | Batch    |
|------------------------|-------|--------|------------------------|-------|--------|------|-------|------------|----------|
|                        |       |        | Ref                    | %Rec  |        |      |       |            |          |
| Fluorene               | mg/kg | 0.0258 | 0.0246                 | 78.1  | 44-143 | 4.74 | 23    | L548177-07 | WG567393 |
| Indeno(1,2,3-cd)pyrene | mg/kg | 0.0184 | 0.0188                 | 55.7  | 10-157 | 2.30 | 40    | L548177-07 | WG567393 |
| Naphthalene            | mg/kg | 0.0245 | 0.0227                 | 74.3  | 22-156 | 7.64 | 27    | L548177-07 | WG567393 |
| Pyrene                 | mg/kg | 0.0257 | 0.0241                 | 77.8  | 12-170 | 6.24 | 24    | L548177-07 | WG567393 |
| 2-Fluorobiphenyl       |       |        |                        | 74.59 | 34-129 |      |       |            | WG567393 |
| Nitrobenzene-d5        |       |        |                        | 86.08 | 14-141 |      |       |            | WG567393 |
| p-Terphenyl-d14        |       |        |                        | 84.84 | 25-139 |      |       |            | WG567393 |
| Chromium,Hexavalent    | mg/kg | 13.3   | 14.8                   | 66.5  | 50-150 | 10.7 | 20    | L548178-01 | WG567333 |

Batch number /Run number / Sample number cross reference

WG566983: R1942955: L548177-01  
 WG566972: R1943213: L548177-01  
 WG567106: R1943712: L548177-07  
 WG567051: R1943993: L548177-07  
 WG567168: R1946632: L548177-01  
 WG567075: R1946652: L548177-01  
 WG567457: R1947976: L548177-01  
 WG567372: R1948133: L548177-02 03 04 05 06  
 WG567393: R1948172: L548177-07  
 WG567333: R1948352: L548177-01  
 WG567448: R1949812: L548177-01

\* \* Calculations are performed prior to rounding of reported values.  
 \* Performance of this Analyte is outside of established criteria.  
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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December 01, 2011

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



29-Sep-2014

Mark Mumby  
HRL Compliance Solutions, Inc  
2385 F 1/2 Road  
Grand Junction, CO 81505

Re: **WPX PA 23-12 Cuttings 9.23.14**

Work Order: **14091158**

Dear Mark,

ALS Environmental received 1 sample on 24-Sep-2014 09:30 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.

Sample results are compliant with NELAP standard requirements and QC results achieved 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 24.

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

Sincerely,

A handwritten signature in cursive script that reads "Ann Preston".

Electronically approved by: Ann Preston

Ann Preston  
Project Manager



Certificate No: MN 532786

### Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental ALS

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

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**Client:** HRL Compliance Solutions, Inc  
**Project:** WPX PA 23-12 Cuttings 9.23.14  
**Work Order:** 14091158

**Work Order Sample Summary**

---

| <u>Lab Samp ID</u> | <u>Client Sample ID</u> | <u>Matrix</u> | <u>Tag Number</u> | <u>Collection Date</u> | <u>Date Received</u> | <u>Hold</u>              |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 14091158-01        | Cuttings                | Soil          |                   | 9/23/2014 15:20        | 9/24/2014 09:30      | <input type="checkbox"/> |

---

**Client:** HRL Compliance Solutions, Inc  
**Project:** WPX PA 23-12 Cuttings 9.23.14  
**Work Order:** 14091158

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**Case Narrative**

Batch 63233 MS/MSD data for Hexavalent Chromium is not related to this project's samples. No data requires qualification.

Batch 63139 MS/MSD data for Metals is not related to this project's samples. No data requires qualification.

| <u>Qualifier</u> | <u>Description</u>  |
|------------------|---|
| *                | 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 is present at an estimated concentration between the MDL and Report 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   |

| <u>Acronym</u> | <u>Description</u>                  |
|----------------|-------------------------------------|
| DUP            | Method Duplicate                    |
| LCS            | Laboratory Control Sample           |
| LCSD           | Laboratory Control Sample Duplicate |
| LOD            | Limit of Detection (see MDL)        |
| LOQ            | Limit of Quantitation (see PQL)     |
| MBLK           | Method Blank                        |
| MDL            | Method Detection Limit              |
| MS             | Matrix Spike                        |
| MSD            | Matrix Spike Duplicate              |
| PQL            | Practical Quantitation Limit        |
| RPD            | Relative Percent Difference         |
| TDL            | Target Detection Limit              |
| TNTC           | Too Numerous To Count               |
| A              | APHA Standard Methods               |
| D              | ASTM                                |
| E              | EPA                                 |
| SW             | SW-846 Update III                   |

| <u>Units Reported</u> | <u>Description</u>                         |
|-----------------------|--|
| % of sample           | Percent of Sample                          |
| µg/Kg-dry             | Micrograms per Kilogram Dry Weight         |
| mg/Kg-dry             | Milligrams per Kilogram Dry Weight         |
| mg/L                  | Milligrams per Liter                       |
| mmhos/cm @25°C        | Millimhos-Centimeter at 25 Degrees Celcius |
| none                  |  |
| s.u.                  | Standard Units                             |

**ALS Group USA, Corp**

Date: 29-Sep-14

**Client:** HRL Compliance Solutions, Inc  
**Project:** WPX PA 23-12 Cuttings 9.23.14  
**Sample ID:** Cuttings  
**Collection Date:** 9/23/2014 03:20 PM

**Work Order:** 14091158  
**Lab ID:** 14091158-01  
**Matrix:** SOIL

| Analyses                                 | Result       | Qual | Report Limit           | Units            | Dilution Factor                 | Date Analyzed       |
|--|--------------|------|------------------------|------------------|---------------------------------|---------------------|
| <b>DIESEL RANGE ORGANICS BY GC-FID</b>   |              |      | <b>SW8015M</b>         |                  | Prep: SW3541 / 9/24/14          | Analyst: <b>IT</b>  |
| <b>DRO (C10-C28)</b>                     | <b>40</b>    |      | <b>5.0</b>             | <b>mg/Kg-dry</b> | 1                               | 9/24/2014 06:27 PM  |
| <i>Surr: 4-Terphenyl-d14</i>             | 99.7         |      | 39-133                 | %REC             | 1                               | 9/24/2014 06:27 PM  |
| <b>GASOLINE RANGE ORGANICS BY GC-FID</b> |              |      | <b>SW8015</b>          |                  | Prep: SW5035 / 9/24/14          | Analyst: <b>IT</b>  |
| <b>GRO (C6-C10)</b>                      | ND           |      | 3.0                    | mg/Kg-dry        | 1                               | 9/24/2014 02:19 PM  |
| <i>Surr: Toluene-d8</i>                  | 112          |      | 50-150                 | %REC             | 1                               | 9/24/2014 02:19 PM  |
| <b>MERCURY BY CVA</b>                    |              |      | <b>SW7471</b>          |                  | Prep: SW7471 / 9/25/14          | Analyst: <b>LR</b>  |
| <b>Mercury</b>                           | <b>0.035</b> |      | <b>0.016</b>           | <b>mg/Kg-dry</b> | 1                               | 9/25/2014 06:44 PM  |
| <b>SOLUBLE CATIONS FOR SAR</b>           |              |      | <b>SW846 6010C</b>     |                  | Prep: USDA Method 20B / 9/26/14 | Analyst: <b>JEC</b> |
| <b>Calcium</b>                           | <b>96</b>    |      | <b>5.0</b>             | <b>mg/L</b>      | 10                              | 9/26/2014 10:44 AM  |
| <b>Magnesium</b>                         | <b>25</b>    |      | <b>2.0</b>             | <b>mg/L</b>      | 10                              | 9/26/2014 10:44 AM  |
| <b>Sodium</b>                            | <b>640</b>   |      | <b>2.0</b>             | <b>mg/L</b>      | 10                              | 9/26/2014 10:44 AM  |
| <b>METALS BY ICP-MS</b>                  |              |      | <b>SW6020A</b>         |                  | Prep: SW3050B / 9/24/14         | Analyst: <b>ML</b>  |
| <b>Arsenic</b>                           | <b>6.1</b>   |      | <b>2.2</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| <b>Barium</b>                            | <b>4,500</b> |      | <b>22</b>              | <b>mg/Kg-dry</b> | 50                              | 9/25/2014 01:32 PM  |
| Cadmium                                  | ND           |      | 0.86                   | mg/Kg-dry        | 5                               | 9/24/2014 05:47 PM  |
| <b>Chromium</b>                          | <b>18</b>    |      | <b>2.2</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| <b>Copper</b>                            | <b>18</b>    |      | <b>2.2</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| <b>Lead</b>                              | <b>13</b>    |      | <b>2.2</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| <b>Nickel</b>                            | <b>20</b>    |      | <b>2.2</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| Selenium                                 | ND           |      | 2.2                    | mg/Kg-dry        | 5                               | 9/24/2014 05:47 PM  |
| Silver                                   | ND           |      | 2.2                    | mg/Kg-dry        | 5                               | 9/24/2014 05:47 PM  |
| <b>Zinc</b>                              | <b>52</b>    |      | <b>4.3</b>             | <b>mg/Kg-dry</b> | 5                               | 9/24/2014 05:47 PM  |
| <b>SODIUM ADSORPTION RATIO</b>           |              |      | <b>USDA H60 METHOD</b> |                  | Prep: USDA Method 20B / 9/26/14 | Analyst: <b>JEC</b> |
| <b>Sodium Adsorption Ratio</b>           | <b>15</b>    |      | <b>0.010</b>           | <b>none</b>      | 1                               | 9/26/2014           |
| <b>SEMI-VOLATILE ORGANIC COMPOUNDS</b>   |              |      | <b>SW846 8270D</b>     |                  | Prep: SW3541 / 9/24/14          | Analyst: <b>RM</b>  |
| Acenaphthene                             | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Acenaphthylene                           | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Anthracene                               | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Benzo(a)anthracene                       | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Benzo(a)pyrene                           | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Benzo(b)fluoranthene                     | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Benzo(g,h,i)perylene                     | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Benzo(k)fluoranthene                     | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |
| Chrysene                                 | ND           |      | 8.0                    | µg/Kg-dry        | 1                               | 9/25/2014 11:32 AM  |

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

# ALS Group USA, Corp

Date: 29-Sep-14

**Client:** HRL Compliance Solutions, Inc  
**Project:** WPX PA 23-12 Cuttings 9.23.14  
**Sample ID:** Cuttings  
**Collection Date:** 9/23/2014 03:20 PM

**Work Order:** 14091158  
**Lab ID:** 14091158-01  
**Matrix:** SOIL

| Analyses                             | Result     | Qual | Report Limit           | Units                           | Dilution Factor | Date Analyzed       |
|--------------------------------------|------------|------|------------------------|---------------------------------|-----------------|---------------------|
| Dibenzo(a,h)anthracene               | ND         |      | 8.0                    | µg/Kg-dry                       | 1               | 9/25/2014 11:32 AM  |
| Fluoranthene                         | ND         |      | 8.0                    | µg/Kg-dry                       | 1               | 9/25/2014 11:32 AM  |
| Fluorene                             | ND         |      | 8.0                    | µg/Kg-dry                       | 1               | 9/25/2014 11:32 AM  |
| Indeno(1,2,3-cd)pyrene               | ND         |      | 8.0                    | µg/Kg-dry                       | 1               | 9/25/2014 11:32 AM  |
| Naphthalene                          | ND         |      | 8.0                    | µg/Kg-dry                       | 1               | 9/25/2014 11:32 AM  |
| <b>Pyrene</b>                        | <b>15</b>  |      | <b>8.0</b>             | <b>µg/Kg-dry</b>                | 1               | 9/25/2014 11:32 AM  |
| Surr: 2-Fluorobiphenyl               | 48.1       |      | 12-100                 | %REC                            | 1               | 9/25/2014 11:32 AM  |
| Surr: 4-Terphenyl-d14                | 90.1       |      | 25-137                 | %REC                            | 1               | 9/25/2014 11:32 AM  |
| Surr: Nitrobenzene-d5                | 41.0       |      | 37-107                 | %REC                            | 1               | 9/25/2014 11:32 AM  |
| <b>VOLATILE ORGANIC COMPOUNDS</b>    |            |      | <b>SW8260B</b>         | Prep: SW5035 / 9/24/14          |                 | Analyst: <b>BG</b>  |
| Benzene                              | ND         |      | 36                     | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| Ethylbenzene                         | ND         |      | 36                     | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| m,p-Xylene                           | ND         |      | 73                     | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| o-Xylene                             | ND         |      | 36                     | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| Toluene                              | ND         |      | 36                     | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| Xylenes, Total                       | ND         |      | 110                    | µg/Kg-dry                       | 1               | 9/24/2014 06:03 PM  |
| Surr: 1,2-Dichloroethane-d4          | 101        |      | 70-130                 | %REC                            | 1               | 9/24/2014 06:03 PM  |
| Surr: 4-Bromofluorobenzene           | 101        |      | 70-130                 | %REC                            | 1               | 9/24/2014 06:03 PM  |
| Surr: Dibromofluoromethane           | 99.4       |      | 70-130                 | %REC                            | 1               | 9/24/2014 06:03 PM  |
| Surr: Toluene-d8                     | 97.8       |      | 70-130                 | %REC                            | 1               | 9/24/2014 06:03 PM  |
| <b>ELECTRICAL CONDUCTIVITY (SAR)</b> |            |      | <b>USDA H60 METHOD</b> | Prep: USDA Method 20B / 9/26/14 |                 | Analyst: <b>JB</b>  |
| Electrical Conductivity @ Saturation | <b>3.8</b> |      | <b>0.050</b>           | <b>mmhos/cm @25</b>             | 10              | 9/29/2014 09:50 AM  |
| <b>CHROMIUM, TRIVALENT</b>           |            |      | <b>CALCULATION</b>     |                                 |                 | Analyst: <b>JJG</b> |
| Chromium, Trivalent                  | <b>18</b>  |      | <b>0.61</b>            | <b>mg/Kg-dry</b>                | 1               | 9/26/2014 07:46 AM  |
| <b>CHROMIUM, HEXAVALENT</b>          |            |      | <b>SW7196A</b>         | Prep: SW3060A / 9/24/14         |                 | Analyst: <b>MB</b>  |
| Chromium, Hexavalent                 | ND         |      | 0.60                   | mg/Kg-dry                       | 1               | 9/25/2014 03:30 PM  |
| <b>MOISTURE</b>                      |            |      | <b>A2540 G</b>         |                                 |                 | Analyst: <b>RLM</b> |
| Moisture                             | <b>18</b>  |      | <b>0.050</b>           | <b>% of sample</b>              | 1               | 9/24/2014 12:50 PM  |
| <b>PH</b>                            |            |      | <b>SW9045D</b>         | Prep: EXTRACT / 9/24/14         |                 | Analyst: <b>STP</b> |
| pH                                   | <b>8.5</b> |      |                        | <b>s.u.</b>                     | 1               | 9/24/2014 02:40 PM  |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

**QC BATCH REPORT**

Batch ID: **63132** Instrument ID **GC8** Method: **SW8015M**

| MBLK                         |        | Sample ID: <b>DBLKS1-63132-63132</b> |         |                       |      | Units: <b>mg/Kg</b>         |               | Analysis Date: <b>9/24/2014 04:10 PM</b> |           |      |
|------------------------------|--------|--------------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                   |        | Run ID: <b>GC8_140924A</b>           |         | SeqNo: <b>2951554</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                      | Result | PQL                                  | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| DRO (C10-C28)                | ND     | 4.2                                  |         |                       |      |                             |               |  |           |      |
| <i>Surr: 4-Terphenyl-d14</i> | 1.645  | 0                                    | 1.667   | 0                     | 98.7 | 39-133                      | 0             |  |           |      |

| LCS                          |        | Sample ID: <b>DLCSS1-63132-63132</b> |         |                       |      | Units: <b>mg/Kg</b>         |               | Analysis Date: <b>9/24/2014 04:37 PM</b> |           |      |
|------------------------------|--------|--------------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                   |        | Run ID: <b>GC8_140924A</b>           |         | SeqNo: <b>2951556</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                      | Result | PQL                                  | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| DRO (C10-C28)                | 164.5  | 4.2                                  | 166.7   | 0                     | 98.7 | 61-109                      | 0             |  |           |      |
| <i>Surr: 4-Terphenyl-d14</i> | 1.197  | 0                                    | 1.667   | 0                     | 71.8 | 39-133                      | 0             |  |           |      |

| MS                           |        | Sample ID: <b>1409922-04B MS</b> |         |                       |      | Units: <b>mg/Kg</b>         |               | Analysis Date: <b>9/24/2014 05:05 PM</b> |           |      |
|------------------------------|--------|----------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                   |        | Run ID: <b>GC8_140924A</b>       |         | SeqNo: <b>2951557</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                      | Result | PQL                              | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| DRO (C10-C28)                | 329.8  | 8.0                              | 321.1   | 0                     | 103  | 48-110                      | 0             |  |           |      |
| <i>Surr: 4-Terphenyl-d14</i> | 2.641  | 0                                | 3.211   | 0                     | 82.3 | 39-133                      | 0             |  |           |      |

| MSD                          |        | Sample ID: <b>1409922-04B MSD</b> |         |                       |      | Units: <b>mg/Kg</b>         |               | Analysis Date: <b>9/24/2014 05:32 PM</b> |           |      |
|------------------------------|--------|-----------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                   |        | Run ID: <b>GC8_140924A</b>        |         | SeqNo: <b>2951559</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                      | Result | PQL                               | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| DRO (C10-C28)                | 308.5  | 7.8                               | 313     | 0                     | 98.6 | 48-110                      | 329.8         | 6.65                                     | 30        |      |
| <i>Surr: 4-Terphenyl-d14</i> | 2.302  | 0                                 | 3.13    | 0                     | 73.6 | 39-133                      | 2.641         | 13.7                                     | 30        |      |

The following samples were analyzed in this batch: | 14091158-01B |

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63138** Instrument ID **GC9** Method: **SW8015**

| MBLK                    |        | Sample ID: <b>MBLK-63138-63138</b> |         |               |      | Units: <b>µg/Kg</b>   |               | Analysis Date: <b>9/24/2014 01:02 PM</b> |           |              |  |
|-------------------------|--------|------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|--|
| Client ID:              |        | Run ID: <b>GC9_140924A</b>         |         |               |      | SeqNo: <b>2951646</b> |               | Prep Date: <b>9/24/2014</b>              |           | DF: <b>1</b> |  |
| Analyte                 | Result | PQL                                | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |  |
| GRO (C6-C10)            | ND     | 2,500                              |         |               |      |                       |               |  |           |              |  |
| <i>Surr: Toluene-d8</i> | 5865   | 0                                  | 5000    |               | 0    | 117                   | 50-150        | 0  |           |              |  |

| LCS                     |        | Sample ID: <b>LCS-63138-63138</b> |         |               |      | Units: <b>µg/Kg</b>   |               | Analysis Date: <b>9/24/2014 12:37 PM</b> |           |              |  |
|-------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|--|
| Client ID:              |        | Run ID: <b>GC9_140924A</b>        |         |               |      | SeqNo: <b>2951645</b> |               | Prep Date: <b>9/24/2014</b>              |           | DF: <b>1</b> |  |
| Analyte                 | Result | PQL                               | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |  |
| GRO (C6-C10)            | 537500 | 2,500                             | 500000  |               | 0    | 108                   | 70-130        | 0  |           |              |  |
| <i>Surr: Toluene-d8</i> | 4548   | 0                                 | 5000    |               | 0    | 91                    | 50-150        | 0  |           |              |  |

| MS                         |        | Sample ID: <b>14091158-01A MS</b> |         |               |      | Units: <b>µg/Kg</b>   |               | Analysis Date: <b>9/24/2014 04:05 PM</b> |           |              |  |
|----------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|--|
| Client ID: <b>Cuttings</b> |        | Run ID: <b>GC9_140924A</b>        |         |               |      | SeqNo: <b>2951652</b> |               | Prep Date: <b>9/24/2014</b>              |           | DF: <b>1</b> |  |
| Analyte                    | Result | PQL                               | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |  |
| GRO (C6-C10)               | 540900 | 2,500                             | 500000  |               | 0    | 108                   | 70-130        | 0  |           |              |  |
| <i>Surr: Toluene-d8</i>    | 5732   | 0                                 | 5000    |               | 0    | 115                   | 50-150        | 0  |           |              |  |

| MSD                        |        | Sample ID: <b>14091158-01A MSD</b> |         |               |      | Units: <b>µg/Kg</b>   |               | Analysis Date: <b>9/24/2014 04:30 PM</b> |           |              |  |
|----------------------------|--------|------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|--|
| Client ID: <b>Cuttings</b> |        | Run ID: <b>GC9_140924A</b>         |         |               |      | SeqNo: <b>2951653</b> |               | Prep Date: <b>9/24/2014</b>              |           | DF: <b>1</b> |  |
| Analyte                    | Result | PQL                                | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |  |
| GRO (C6-C10)               | 527100 | 2,500                              | 500000  |               | 0    | 105                   | 70-130        | 540900                                   | 2.57      | 30           |  |
| <i>Surr: Toluene-d8</i>    | 4701   | 0                                  | 5000    |               | 0    | 94                    | 50-150        | 5732                                     | 19.8      | 30           |  |

The following samples were analyzed in this batch: 14091158-01A

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63201** Instrument ID **HG1** Method: **SW7471**

|             |        |                                    |         |               |      |                       |               |  |           |              |
|-------------|--------|------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| <b>MBLK</b> |        | Sample ID: <b>MBLK-63201-63201</b> |         |               |      | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 06:21 PM</b> |           |              |
| Client ID:  |        | Run ID: <b>HG1_140925A</b>         |         |               |      | SeqNo: <b>2953317</b> |               | Prep Date: <b>9/25/2014</b>              |           | DF: <b>1</b> |
| Analyte     | Result | PQL                                | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |

Mercury ND 0.020

|            |        |                                   |         |               |      |                       |               |  |           |              |
|------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| <b>LCS</b> |        | Sample ID: <b>LCS-63201-63201</b> |         |               |      | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 06:23 PM</b> |           |              |
| Client ID: |        | Run ID: <b>HG1_140925A</b>        |         |               |      | SeqNo: <b>2953318</b> |               | Prep Date: <b>9/25/2014</b>              |           | DF: <b>1</b> |
| Analyte    | Result | PQL                               | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |

Mercury 0.1957 0.020 0.1665 0 118 80-120 0

|            |        |                                 |         |               |      |                       |               |  |           |              |
|------------|--------|---------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| <b>MS</b>  |        | Sample ID: <b>1409932-01CMS</b> |         |               |      | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 06:48 PM</b> |           |              |
| Client ID: |        | Run ID: <b>HG1_140925A</b>      |         |               |      | SeqNo: <b>2953351</b> |               | Prep Date: <b>9/25/2014</b>              |           | DF: <b>1</b> |
| Analyte    | Result | PQL                             | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |

Mercury 0.1283 0.012 0.1038 0.003361 120 75-125 0

|            |        |                                  |         |               |      |                       |               |  |           |              |
|------------|--------|----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| <b>MSD</b> |        | Sample ID: <b>1409932-01CMSD</b> |         |               |      | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 06:51 PM</b> |           |              |
| Client ID: |        | Run ID: <b>HG1_140925A</b>       |         |               |      | SeqNo: <b>2953352</b> |               | Prep Date: <b>9/25/2014</b>              |           | DF: <b>1</b> |
| Analyte    | Result | PQL                              | SPK Val | SPK Ref Value | %REC | Control Limit         | RPD Ref Value | %RPD                                     | RPD Limit | Qual         |

Mercury 0.126 0.012 0.1021 0.003361 120 75-125 0.1283 1.81 35

The following samples were analyzed in this batch: 14091158-01B

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

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63139** Instrument ID **ICPMS1** Method: **SW6020A**

| MBLK       |         | Sample ID: <b>MBLK-63139-63139</b> |         |               |                       | Units: <b>mg/Kg</b> |                             | Analysis Date: <b>9/24/2014 03:27 PM</b> |              |      |
|------------|---------|------------------------------------|---------|---------------|-----------------------|---------------------|-----------------------------|--|--------------|------|
| Client ID: |         | Run ID: <b>ICPMS1_140924A</b>      |         |               | SeqNo: <b>2951599</b> |                     | Prep Date: <b>9/24/2014</b> |  | DF: <b>1</b> |      |
| Analyte    | Result  | PQL                                | SPK Val | SPK Ref Value | %REC                  | Control Limit       | RPD Ref Value               | %RPD                                     | RPD Limit    | Qual |
| Arsenic    | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Barium     | 0.03231 | 0.25                               |         |               |                       |                     |                             |  |              | J    |
| Cadmium    | ND      | 0.10                               |         |               |                       |                     |                             |  |              |      |
| Chromium   | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Copper     | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Lead       | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Nickel     | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Selenium   | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Silver     | ND      | 0.25                               |         |               |                       |                     |                             |  |              |      |
| Zinc       | 0.184   | 0.50                               |         |               |                       |                     |                             |  |              | J    |

| LCS        |        | Sample ID: <b>LCS-63139-63139</b> |         |               |                       | Units: <b>mg/Kg</b> |                             | Analysis Date: <b>9/24/2014 03:33 PM</b> |              |      |
|------------|--------|-----------------------------------|---------|---------------|-----------------------|---------------------|-----------------------------|--|--------------|------|
| Client ID: |        | Run ID: <b>ICPMS1_140924A</b>     |         |               | SeqNo: <b>2951601</b> |                     | Prep Date: <b>9/24/2014</b> |  | DF: <b>1</b> |      |
| Analyte    | Result | PQL                               | SPK Val | SPK Ref Value | %REC                  | Control Limit       | RPD Ref Value               | %RPD                                     | RPD Limit    | Qual |
| Arsenic    | 4.272  | 0.25                              | 5       | 0             | 85.4                  | 80-120              | 0                           |  |              |      |
| Barium     | 4.694  | 0.25                              | 5       | 0             | 93.9                  | 80-120              | 0                           |  |              |      |
| Cadmium    | 4.67   | 0.10                              | 5       | 0             | 93.4                  | 80-120              | 0                           |  |              |      |
| Chromium   | 4.75   | 0.25                              | 5       | 0             | 95                    | 80-120              | 0                           |  |              |      |
| Copper     | 4.563  | 0.25                              | 5       | 0             | 91.3                  | 80-120              | 0                           |  |              |      |
| Lead       | 4.634  | 0.25                              | 5       | 0             | 92.7                  | 80-120              | 0                           |  |              |      |
| Nickel     | 4.648  | 0.25                              | 5       | 0             | 93                    | 80-120              | 0                           |  |              |      |
| Selenium   | 4.338  | 0.25                              | 5       | 0             | 86.8                  | 80-120              | 0                           |  |              |      |
| Silver     | 4.608  | 0.25                              | 5       | 0             | 92.2                  | 80-120              | 0                           |  |              |      |
| Zinc       | 4.725  | 0.50                              | 5       | 0             | 94.5                  | 80-120              | 0                           |  |              |      |

| MS         |        | Sample ID: <b>14091068-01AMS</b> |         |               |                       | Units: <b>mg/Kg</b> |                             | Analysis Date: <b>9/24/2014 04:15 PM</b> |              |      |
|------------|--------|----------------------------------|---------|---------------|-----------------------|---------------------|-----------------------------|--|--------------|------|
| Client ID: |        | Run ID: <b>ICPMS1_140924A</b>    |         |               | SeqNo: <b>2951615</b> |                     | Prep Date: <b>9/24/2014</b> |  | DF: <b>4</b> |      |
| Analyte    | Result | PQL                              | SPK Val | SPK Ref Value | %REC                  | Control Limit       | RPD Ref Value               | %RPD                                     | RPD Limit    | Qual |
| Arsenic    | 11.97  | 1.6                              | 8.183   | 4.426         | 92.1                  | 75-125              | 0                           |  |              |      |
| Barium     | 43.67  | 1.6                              | 8.183   | 31.3          | 151                   | 75-125              | 0                           |  |              | S    |
| Cadmium    | 8.966  | 0.65                             | 8.183   | 0.7157        | 101                   | 75-125              | 0                           |  |              |      |
| Chromium   | 70.28  | 1.6                              | 8.183   | 51.02         | 235                   | 75-125              | 0                           |  |              | SO   |
| Copper     | 42.23  | 1.6                              | 8.183   | 28.29         | 170                   | 75-125              | 0                           |  |              | S    |
| Lead       | 41.41  | 1.6                              | 8.183   | 28.04         | 163                   | 75-125              | 0                           |  |              | S    |
| Nickel     | 18.9   | 1.6                              | 8.183   | 9.99          | 109                   | 75-125              | 0                           |  |              |      |
| Selenium   | 8.416  | 1.6                              | 8.183   | 0.2492        | 99.8                  | 75-125              | 0                           |  |              |      |
| Silver     | 8.337  | 1.6                              | 8.183   | 0.6052        | 94.5                  | 75-125              | 0                           |  |              |      |
| Zinc       | 107.5  | 3.3                              | 8.183   | 91.24         | 199                   | 75-125              | 0                           |  |              | SO   |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63139**      Instrument ID **ICPMS1**      Method: **SW6020A**

| MSD        |        | Sample ID: 14091068-01AMSD |         |               |                | Units: mg/Kg  |                      | Analysis Date: 9/24/2014 04:21 PM |           |      |  |
|------------|--------|----------------------------|---------|---------------|----------------|---------------|----------------------|-----------------------------------|-----------|------|--|
| Client ID: |        | Run ID: ICPMS1_140924A     |         |               | SeqNo: 2951618 |               | Prep Date: 9/24/2014 |                                   | DF: 4     |      |  |
| Analyte    | Result | PQL                        | SPK Val | SPK Ref Value | %REC           | Control Limit | RPD Ref Value        | %RPD                              | RPD Limit | Qual |  |
| Arsenic    | 12.52  | 1.6                        | 8.17    | 4.426         | 99.1           | 75-125        | 11.97                | 4.54                              | 25        |      |  |
| Barium     | 42.12  | 1.6                        | 8.17    | 31.3          | 132            | 75-125        | 43.67                | 3.59                              | 25        | S    |  |
| Cadmium    | 8.693  | 0.65                       | 8.17    | 0.7157        | 97.6           | 75-125        | 8.966                | 3.09                              | 25        |      |  |
| Chromium   | 60.72  | 1.6                        | 8.17    | 51.02         | 119            | 75-125        | 70.28                | 14.6                              | 25        | O    |  |
| Copper     | 36.31  | 1.6                        | 8.17    | 28.29         | 98.2           | 75-125        | 42.23                | 15.1                              | 25        |      |  |
| Lead       | 37.19  | 1.6                        | 8.17    | 28.04         | 112            | 75-125        | 41.41                | 10.7                              | 25        |      |  |
| Nickel     | 19.51  | 1.6                        | 8.17    | 9.99          | 117            | 75-125        | 18.9                 | 3.17                              | 25        |      |  |
| Selenium   | 8.389  | 1.6                        | 8.17    | 0.2492        | 99.6           | 75-125        | 8.416                | 0.319                             | 25        |      |  |
| Silver     | 8.147  | 1.6                        | 8.17    | 0.6052        | 92.3           | 75-125        | 8.337                | 2.31                              | 25        |      |  |
| Zinc       | 113.7  | 3.3                        | 8.17    | 91.24         | 275            | 75-125        | 107.5                | 5.6                               | 25        | SO   |  |

The following samples were analyzed in this batch: | 14091158-01B |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63234**      Instrument ID **SAR**      Method: **USDA H60 Method**

| <b>DUP</b>              | Sample ID: <b>14091195-03BDUP</b> |       |         |                       | Units: <b>none</b> |                             | Analysis Date: <b>9/26/2014</b> |              |           |      |
|-------------------------|-----------------------------------|-------|---------|-----------------------|--------------------|-----------------------------|---------------------------------|--------------|-----------|------|
| Client ID:              | Run ID: <b>SAR_140926A</b>        |       |         | SeqNo: <b>2954259</b> |                    | Prep Date: <b>9/26/2014</b> |                                 | DF: <b>1</b> |           |      |
| Analyte                 | Result                            | PQL   | SPK Val | SPK Ref Value         | %REC               | Control Limit               | RPD Ref Value                   | %RPD         | RPD Limit | Qual |
| Sodium Adsorption Ratio | 0.1258                            | 0.010 | 0       | 0                     | 0                  |                             | 0.1383                          | 9.51         | 50        |      |

The following samples were analyzed in this batch:

|              |
|--------------|
| 14091158-01C |
|--------------|

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63130** Instrument ID **SVMS6** Method: **SW846 8270D**

| MBLK                          |        | Sample ID: <b>SBLKS1-63130-63130</b> |         |                       |      | Units: <b>µg/Kg</b>         |               | Analysis Date: <b>9/24/2014 05:07 PM</b> |           |      |
|-------------------------------|--------|--------------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                    |        | Run ID: <b>SVMS6_140924A</b>         |         | SeqNo: <b>2952315</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                       | Result | PQL                                  | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| Acenaphthene                  | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Acenaphthylene                | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Anthracene                    | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Benzo(a)anthracene            | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Benzo(a)pyrene                | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Benzo(b)fluoranthene          | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Benzo(g,h,i)perylene          | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Benzo(k)fluoranthene          | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Chrysene                      | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Dibenzo(a,h)anthracene        | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Fluoranthene                  | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Fluorene                      | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Indeno(1,2,3-cd)pyrene        | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Naphthalene                   | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| Pyrene                        | ND     | 6.7                                  |         |                       |      |                             |               |  |           |      |
| <i>Surr: 2-Fluorobiphenyl</i> | 1247   | 0                                    | 1667    | 0                     | 74.8 | 12-100                      | 0             |  |           |      |
| <i>Surr: 4-Terphenyl-d14</i>  | 1658   | 0                                    | 1667    | 0                     | 99.5 | 25-137                      | 0             |  |           |      |
| <i>Surr: Nitrobenzene-d5</i>  | 1221   | 0                                    | 1667    | 0                     | 73.2 | 37-107                      | 0             |  |           |      |

| LCS                           |        | Sample ID: <b>SLCSS1-63130-63130</b> |         |                       |      | Units: <b>µg/Kg</b>         |               | Analysis Date: <b>9/24/2014 05:27 PM</b> |           |      |
|-------------------------------|--------|--------------------------------------|---------|-----------------------|------|-----------------------------|---------------|--|-----------|------|
| Client ID:                    |        | Run ID: <b>SVMS6_140924A</b>         |         | SeqNo: <b>2952317</b> |      | Prep Date: <b>9/24/2014</b> |               | DF: <b>1</b>                             |           |      |
| Analyte                       | Result | PQL                                  | SPK Val | SPK Ref Value         | %REC | Control Limit               | RPD Ref Value | %RPD                                     | RPD Limit | Qual |
| Acenaphthene                  | 528.3  | 6.7                                  | 666.7   | 0                     | 79.2 | 45-110                      | 0             |  |           |      |
| Acenaphthylene                | 529.7  | 6.7                                  | 666.7   | 0                     | 79.4 | 45-105                      | 0             |  |           |      |
| Anthracene                    | 642.7  | 6.7                                  | 666.7   | 0                     | 96.4 | 55-105                      | 0             |  |           |      |
| Benzo(a)anthracene            | 627.3  | 6.7                                  | 666.7   | 0                     | 94.1 | 50-110                      | 0             |  |           |      |
| Benzo(a)pyrene                | 654.7  | 6.7                                  | 666.7   | 0                     | 98.2 | 50-110                      | 0             |  |           |      |
| Benzo(b)fluoranthene          | 593    | 6.7                                  | 666.7   | 0                     | 88.9 | 45-115                      | 0             |  |           |      |
| Benzo(g,h,i)perylene          | 774    | 6.7                                  | 666.7   | 0                     | 116  | 40-125                      | 0             |  |           |      |
| Benzo(k)fluoranthene          | 609    | 6.7                                  | 666.7   | 0                     | 91.3 | 45-115                      | 0             |  |           |      |
| Chrysene                      | 654.7  | 6.7                                  | 666.7   | 0                     | 98.2 | 55-110                      | 0             |  |           |      |
| Dibenzo(a,h)anthracene        | 737    | 6.7                                  | 666.7   | 0                     | 111  | 40-125                      | 0             |  |           |      |
| Fluoranthene                  | 760    | 6.7                                  | 666.7   | 0                     | 114  | 55-115                      | 0             |  |           |      |
| Fluorene                      | 619    | 6.7                                  | 666.7   | 0                     | 92.8 | 50-110                      | 0             |  |           |      |
| Indeno(1,2,3-cd)pyrene        | 701    | 6.7                                  | 666.7   | 0                     | 105  | 40-120                      | 0             |  |           |      |
| Naphthalene                   | 493.3  | 6.7                                  | 666.7   | 0                     | 74   | 40-105                      | 0             |  |           |      |
| Pyrene                        | 492.3  | 6.7                                  | 666.7   | 0                     | 73.8 | 45-125                      | 0             |  |           |      |
| <i>Surr: 2-Fluorobiphenyl</i> | 1100   | 0                                    | 1667    | 0                     | 66   | 12-100                      | 0             |  |           |      |
| <i>Surr: 4-Terphenyl-d14</i>  | 1307   | 0                                    | 1667    | 0                     | 78.4 | 25-137                      | 0             |  |           |      |
| <i>Surr: Nitrobenzene-d5</i>  | 1184   | 0                                    | 1667    | 0                     | 71.1 | 37-107                      | 0             |  |           |      |

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

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63130** Instrument ID **SVMS6** Method: **SW846 8270D**

| MS                     |        |                       |         | Sample ID: 1409932-01C MS |      |                      | Units: µg/Kg  |       | Analysis Date: 9/24/2014 09:31 PM |      |  |
|------------------------|--------|-----------------------|---------|---------------------------|------|----------------------|---------------|-------|-----------------------------------|------|--|
| Client ID:             |        | Run ID: SVMS6_140924A |         | SeqNo: 2952319            |      | Prep Date: 9/24/2014 |               | DF: 1 |                                   |      |  |
| Analyte                | Result | PQL                   | SPK Val | SPK Ref Value             | %REC | Control Limit        | RPD Ref Value | %RPD  | RPD Limit                         | Qual |  |
| Acenaphthene           | 1083   | 13                    | 1298    | 0                         | 83.4 | 45-110               | 0             |       |                                   |      |  |
| Acenaphthylene         | 1131   | 13                    | 1298    | 0                         | 87.1 | 45-105               | 0             |       |                                   |      |  |
| Anthracene             | 1248   | 13                    | 1298    | 0                         | 96.1 | 55-105               | 0             |       |                                   |      |  |
| Benzo(a)anthracene     | 1294   | 13                    | 1298    | 0                         | 99.7 | 50-110               | 0             |       |                                   |      |  |
| Benzo(a)pyrene         | 1344   | 13                    | 1298    | 0                         | 104  | 50-110               | 0             |       |                                   |      |  |
| Benzo(b)fluoranthene   | 1385   | 13                    | 1298    | 0                         | 107  | 45-115               | 0             |       |                                   |      |  |
| Benzo(g,h,i)perylene   | 1106   | 13                    | 1298    | 0                         | 85.2 | 40-125               | 0             |       |                                   |      |  |
| Benzo(k)fluoranthene   | 1320   | 13                    | 1298    | 0                         | 102  | 45-115               | 0             |       |                                   |      |  |
| Chrysene               | 1293   | 13                    | 1298    | 0                         | 99.5 | 55-110               | 0             |       |                                   |      |  |
| Dibenzo(a,h)anthracene | 1085   | 13                    | 1298    | 0                         | 83.5 | 40-125               | 0             |       |                                   |      |  |
| Fluoranthene           | 1270   | 13                    | 1298    | 0                         | 97.8 | 55-115               | 0             |       |                                   |      |  |
| Fluorene               | 1178   | 13                    | 1298    | 0                         | 90.7 | 50-110               | 0             |       |                                   |      |  |
| Indeno(1,2,3-cd)pyrene | 1045   | 13                    | 1298    | 33.25                     | 77.9 | 40-120               | 0             |       |                                   |      |  |
| Naphthalene            | 1054   | 13                    | 1298    | 0                         | 81.2 | 40-105               | 0             |       |                                   |      |  |
| Pyrene                 | 1310   | 13                    | 1298    | 0                         | 101  | 45-125               | 0             |       |                                   |      |  |
| Surr: 2-Fluorobiphenyl | 2661   | 0                     | 3246    | 0                         | 82   | 12-100               | 0             |       |                                   |      |  |
| Surr: 4-Terphenyl-d14  | 3437   | 0                     | 3246    | 0                         | 106  | 25-137               | 0             |       |                                   |      |  |
| Surr: Nitrobenzene-d5  | 2653   | 0                     | 3246    | 0                         | 81.7 | 37-107               | 0             |       |                                   |      |  |

| MSD                    |        |                       |         | Sample ID: 1409932-01C MSD |      |                      | Units: µg/Kg  |       | Analysis Date: 9/24/2014 09:52 PM |      |  |
|------------------------|--------|-----------------------|---------|----------------------------|------|----------------------|---------------|-------|-----------------------------------|------|--|
| Client ID:             |        | Run ID: SVMS6_140924A |         | SeqNo: 2952321             |      | Prep Date: 9/24/2014 |               | DF: 1 |                                   |      |  |
| Analyte                | Result | PQL                   | SPK Val | SPK Ref Value              | %REC | Control Limit        | RPD Ref Value | %RPD  | RPD Limit                         | Qual |  |
| Acenaphthene           | 1023   | 13                    | 1325    | 0                          | 77.2 | 45-110               | 1083          | 5.65  | 30                                |      |  |
| Acenaphthylene         | 1056   | 13                    | 1325    | 0                          | 79.7 | 45-105               | 1131          | 6.87  | 30                                |      |  |
| Anthracene             | 1243   | 13                    | 1325    | 0                          | 93.8 | 55-105               | 1248          | 0.415 | 30                                |      |  |
| Benzo(a)anthracene     | 1288   | 13                    | 1325    | 0                          | 97.2 | 50-110               | 1294          | 0.482 | 30                                |      |  |
| Benzo(a)pyrene         | 1333   | 13                    | 1325    | 0                          | 101  | 50-110               | 1344          | 0.834 | 30                                |      |  |
| Benzo(b)fluoranthene   | 1283   | 13                    | 1325    | 0                          | 96.8 | 45-115               | 1385          | 7.68  | 30                                |      |  |
| Benzo(g,h,i)perylene   | 1213   | 13                    | 1325    | 0                          | 91.5 | 40-125               | 1106          | 9.19  | 30                                |      |  |
| Benzo(k)fluoranthene   | 1254   | 13                    | 1325    | 0                          | 94.6 | 45-115               | 1320          | 5.18  | 30                                |      |  |
| Chrysene               | 1282   | 13                    | 1325    | 0                          | 96.8 | 55-110               | 1293          | 0.795 | 30                                |      |  |
| Dibenzo(a,h)anthracene | 1238   | 13                    | 1325    | 0                          | 93.4 | 40-125               | 1085          | 13.2  | 30                                |      |  |
| Fluoranthene           | 1343   | 13                    | 1325    | 0                          | 101  | 55-115               | 1270          | 5.57  | 30                                |      |  |
| Fluorene               | 1137   | 13                    | 1325    | 0                          | 85.8 | 50-110               | 1178          | 3.55  | 30                                |      |  |
| Indeno(1,2,3-cd)pyrene | 1172   | 13                    | 1325    | 33.25                      | 85.9 | 40-120               | 1045          | 11.4  | 30                                |      |  |
| Naphthalene            | 997.5  | 13                    | 1325    | 0                          | 75.3 | 40-105               | 1054          | 5.54  | 30                                |      |  |
| Pyrene                 | 1147   | 13                    | 1325    | 0                          | 86.6 | 45-125               | 1310          | 13.3  | 30                                |      |  |
| Surr: 2-Fluorobiphenyl | 2407   | 0                     | 3312    | 0                          | 72.7 | 12-100               | 2661          | 10    | 40                                |      |  |
| Surr: 4-Terphenyl-d14  | 2988   | 0                     | 3312    | 0                          | 90.2 | 25-137               | 3437          | 14    | 40                                |      |  |
| Surr: Nitrobenzene-d5  | 2443   | 0                     | 3312    | 0                          | 73.8 | 37-107               | 2653          | 8.23  | 40                                |      |  |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

## QC BATCH REPORT

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Batch ID: **63130**      Instrument ID **SVMS6**      Method: **SW846 8270D**

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**The following samples were analyzed in this batch:**

|              |
|--------------|
| 14091158-01B |
|--------------|

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63135** Instrument ID **VMS8** Method: **SW8260B**

| MBLK                               |        | Sample ID: <b>MBLK-63135-63135</b> |         |               | Units: <b>µg/Kg</b>   |               |                             | Analysis Date: <b>9/24/2014 02:48 PM</b> |              |      |
|------------------------------------|--------|------------------------------------|---------|---------------|-----------------------|---------------|-----------------------------|--|--------------|------|
| Client ID:                         |        | Run ID: <b>VMS8_140924A</b>        |         |               | SeqNo: <b>2951550</b> |               | Prep Date: <b>9/24/2014</b> |  | DF: <b>1</b> |      |
| 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                                 |         |               |                       |               |                             |  |              |      |
| <i>Surr: 1,2-Dichloroethane-d4</i> | 973    | 0                                  | 1000    | 0             | 97.3                  | 70-130        | 0                           |  |              |      |
| <i>Surr: 4-Bromofluorobenzene</i>  | 969    | 0                                  | 1000    | 0             | 96.9                  | 70-130        | 0                           |  |              |      |
| <i>Surr: Dibromofluoromethane</i>  | 971    | 0                                  | 1000    | 0             | 97.1                  | 70-130        | 0                           |  |              |      |
| <i>Surr: Toluene-d8</i>            | 968    | 0                                  | 1000    | 0             | 96.8                  | 70-130        | 0                           |  |              |      |

| LCS                                |        | Sample ID: <b>LCS-63135-63135</b> |         |               | Units: <b>µg/Kg</b>   |               |                             | Analysis Date: <b>9/24/2014 12:21 PM</b> |              |      |
|------------------------------------|--------|-----------------------------------|---------|---------------|-----------------------|---------------|-----------------------------|--|--------------|------|
| Client ID:                         |        | Run ID: <b>VMS8_140924A</b>       |         |               | SeqNo: <b>2951549</b> |               | Prep Date: <b>9/24/2014</b> |  | DF: <b>1</b> |      |
| Analyte                            | Result | PQL                               | SPK Val | SPK Ref Value | %REC                  | Control Limit | RPD Ref Value               | %RPD                                     | RPD Limit    | Qual |
| Benzene                            | 1028   | 30                                | 1000    | 0             | 103                   | 75-125        | 0                           |  |              |      |
| Ethylbenzene                       | 1004   | 30                                | 1000    | 0             | 100                   | 75-125        | 0                           |  |              |      |
| m,p-Xylene                         | 2014   | 60                                | 2000    | 0             | 101                   | 80-125        | 0                           |  |              |      |
| o-Xylene                           | 991.5  | 30                                | 1000    | 0             | 99.2                  | 75-125        | 0                           |  |              |      |
| Toluene                            | 1044   | 30                                | 1000    | 0             | 104                   | 70-125        | 0                           |  |              |      |
| Xylenes, Total                     | 3006   | 90                                | 3000    | 0             | 100                   | 75-125        | 0                           |  |              |      |
| <i>Surr: 1,2-Dichloroethane-d4</i> | 1017   | 0                                 | 1000    | 0             | 102                   | 70-130        | 0                           |  |              |      |
| <i>Surr: 4-Bromofluorobenzene</i>  | 1012   | 0                                 | 1000    | 0             | 101                   | 70-130        | 0                           |  |              |      |
| <i>Surr: Dibromofluoromethane</i>  | 1048   | 0                                 | 1000    | 0             | 105                   | 70-130        | 0                           |  |              |      |
| <i>Surr: Toluene-d8</i>            | 989.5  | 0                                 | 1000    | 0             | 99                    | 70-130        | 0                           |  |              |      |

| MS                                 |        | Sample ID: <b>14091084-09A MS</b> |         |               | Units: <b>µg/Kg</b>   |               |                             | Analysis Date: <b>9/25/2014 11:21 AM</b> |              |      |
|------------------------------------|--------|-----------------------------------|---------|---------------|-----------------------|---------------|-----------------------------|--|--------------|------|
| Client ID:                         |        | Run ID: <b>VMS5_140924C</b>       |         |               | SeqNo: <b>2952268</b> |               | Prep Date: <b>9/24/2014</b> |  | DF: <b>1</b> |      |
| Analyte                            | Result | PQL                               | SPK Val | SPK Ref Value | %REC                  | Control Limit | RPD Ref Value               | %RPD                                     | RPD Limit    | Qual |
| Benzene                            | 948    | 30                                | 1000    | 0             | 94.8                  | 75-125        | 0                           |  |              |      |
| Ethylbenzene                       | 976    | 30                                | 1000    | 0             | 97.6                  | 75-125        | 0                           |  |              |      |
| m,p-Xylene                         | 1941   | 60                                | 2000    | 0             | 97                    | 80-125        | 0                           |  |              |      |
| o-Xylene                           | 980    | 30                                | 1000    | 0             | 98                    | 75-125        | 0                           |  |              |      |
| Toluene                            | 942    | 30                                | 1000    | 0             | 94.2                  | 70-125        | 0                           |  |              |      |
| Xylenes, Total                     | 2921   | 90                                | 3000    | 0             | 97.4                  | 75-125        | 0                           |  |              |      |
| <i>Surr: 1,2-Dichloroethane-d4</i> | 1038   | 0                                 | 1000    | 0             | 104                   | 70-130        | 0                           |  |              |      |
| <i>Surr: 4-Bromofluorobenzene</i>  | 1022   | 0                                 | 1000    | 0             | 102                   | 70-130        | 0                           |  |              |      |
| <i>Surr: Dibromofluoromethane</i>  | 1018   | 0                                 | 1000    | 0             | 102                   | 70-130        | 0                           |  |              |      |
| <i>Surr: Toluene-d8</i>            | 965.5  | 0                                 | 1000    | 0             | 96.6                  | 70-130        | 0                           |  |              |      |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63135**      Instrument ID **VMS8**      Method: **SW8260B**

| MSD                                |              | Sample ID: 14091084-09A MSD |             |               |                | Units: µg/Kg  |                      | Analysis Date: 9/25/2014 11:47 AM |           |      |
|------------------------------------|--------------|-----------------------------|-------------|---------------|----------------|---------------|----------------------|-----------------------------------|-----------|------|
| Client ID:                         |              | Run ID: VMS5_140924C        |             |               | SeqNo: 2952271 |               | Prep Date: 9/24/2014 |                                   | DF: 1     |      |
| Analyte                            | Result       | PQL                         | SPK Val     | SPK Ref Value | %REC           | Control Limit | RPD Ref Value        | %RPD                              | RPD Limit | Qual |
| Benzene                            | 919          | 30                          | 1000        | 0             | 91.9           | 75-125        | 948                  | 3.11                              | 30        |      |
| Ethylbenzene                       | 965          | 30                          | 1000        | 0             | 96.5           | 75-125        | 976                  | 1.13                              | 30        |      |
| m,p-Xylene                         | 1971         | 60                          | 2000        | 0             | 98.6           | 80-125        | 1941                 | 1.53                              | 30        |      |
| o-Xylene                           | 961          | 30                          | 1000        | 0             | 96.1           | 75-125        | 980                  | 1.96                              | 30        |      |
| Toluene                            | 919.5        | 30                          | 1000        | 0             | 92             | 70-125        | 942                  | 2.42                              | 30        |      |
| Xylenes, Total                     | 2932         | 90                          | 3000        | 0             | 97.7           | 75-125        | 2921                 | 0.376                             | 30        |      |
| <i>Surr: 1,2-Dichloroethane-d4</i> | <i>1048</i>  | <i>0</i>                    | <i>1000</i> | <i>0</i>      | <i>105</i>     | <i>70-130</i> | <i>1038</i>          | <i>0.959</i>                      | <i>30</i> |      |
| <i>Surr: 4-Bromofluorobenzene</i>  | <i>988.5</i> | <i>0</i>                    | <i>1000</i> | <i>0</i>      | <i>98.8</i>    | <i>70-130</i> | <i>1022</i>          | <i>3.38</i>                       | <i>30</i> |      |
| <i>Surr: Dibromofluoromethane</i>  | <i>1020</i>  | <i>0</i>                    | <i>1000</i> | <i>0</i>      | <i>102</i>     | <i>70-130</i> | <i>1018</i>          | <i>0.147</i>                      | <i>30</i> |      |
| <i>Surr: Toluene-d8</i>            | <i>972.5</i> | <i>0</i>                    | <i>1000</i> | <i>0</i>      | <i>97.2</i>    | <i>70-130</i> | <i>965.5</i>         | <i>0.722</i>                      | <i>30</i> |      |

The following samples were analyzed in this batch: | 14091158-01A |

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63159** Instrument ID **WETCHEM** Method: **SW9045D**

| <b>DUP</b> | Sample ID: <b>14091178-01B DUP</b> |     | Units: <b>s.u.</b>    |               | Analysis Date: <b>9/24/2014 02:40 PM</b> |               |               |       |           |      |
|------------|------------------------------------|-----|-----------------------|---------------|--|---------------|---------------|-------|-----------|------|
| Client ID: | Run ID: <b>WETCHEM_140924S</b>     |     | SeqNo: <b>2951247</b> |               | Prep Date: <b>9/24/2014</b>              |               | DF: <b>1</b>  |       |           |      |
| Analyte    | Result                             | PQL | SPK Val               | SPK Ref Value | %REC                                     | Control Limit | RPD Ref Value | %RPD  | RPD Limit | Qual |
| pH         | 11.18                              | 0   | 0                     | 0             | 0  | 0-0           | 11.14         | 0.358 | 20        |      |

The following samples were analyzed in this batch:

Client: HRL Compliance Solutions, Inc  
 Work Order: 14091158  
 Project: WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63233** Instrument ID **WETCHEM** Method: **SW7196A**

|             |                                    |     |                       |               |  |               |               |      |           |      |
|-------------|------------------------------------|-----|-----------------------|---------------|--|---------------|---------------|------|-----------|------|
| <b>MBLK</b> | Sample ID: <b>MBLK-63233-63233</b> |     | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 03:30 PM</b> |               |               |      |           |      |
| Client ID:  | Run ID: <b>WETCHEM_140925Y</b>     |     | SeqNo: <b>2953126</b> |               | Prep Date: <b>9/24/2014</b> DF: <b>1</b> |               |               |      |           |      |
| Analyte     | Result                             | PQL | SPK Val               | SPK Ref Value | %REC                                     | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Chromium, Hexavalent ND 0.50

|            |                                   |     |                       |               |  |               |               |      |           |      |
|------------|-----------------------------------|-----|-----------------------|---------------|--|---------------|---------------|------|-----------|------|
| <b>LCS</b> | Sample ID: <b>LCS-63233-63233</b> |     | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 03:30 PM</b> |               |               |      |           |      |
| Client ID: | Run ID: <b>WETCHEM_140925Y</b>    |     | SeqNo: <b>2953125</b> |               | Prep Date: <b>9/24/2014</b> DF: <b>1</b> |               |               |      |           |      |
| Analyte    | Result                            | PQL | SPK Val               | SPK Ref Value | %REC                                     | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Chromium, Hexavalent 1.672 0.50 2 0 83.6 80-120 0

|            |                                   |     |                       |               |  |               |               |      |           |      |
|------------|-----------------------------------|-----|-----------------------|---------------|--|---------------|---------------|------|-----------|------|
| <b>MS</b>  | Sample ID: <b>14091096-01B MS</b> |     | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 03:30 PM</b> |               |               |      |           |      |
| Client ID: | Run ID: <b>WETCHEM_140925Y</b>    |     | SeqNo: <b>2953119</b> |               | Prep Date: <b>9/24/2014</b> DF: <b>1</b> |               |               |      |           |      |
| Analyte    | Result                            | PQL | SPK Val               | SPK Ref Value | %REC                                     | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Chromium, Hexavalent 1.566 0.50 1.992 0.2134 67.9 75-125 0 S

|            |                                    |     |                       |               |  |               |               |      |           |      |
|------------|------------------------------------|-----|-----------------------|---------------|--|---------------|---------------|------|-----------|------|
| <b>MS</b>  | Sample ID: <b>14091096-01B MSI</b> |     | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 03:30 PM</b>   |               |               |      |           |      |
| Client ID: | Run ID: <b>WETCHEM_140925Y</b>     |     | SeqNo: <b>2953121</b> |               | Prep Date: <b>9/24/2014</b> DF: <b>100</b> |               |               |      |           |      |
| Analyte    | Result                             | PQL | SPK Val               | SPK Ref Value | %REC                                       | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Chromium, Hexavalent 1137 49 1071 0.2134 106 75-125 0

|            |                                    |     |                       |               |  |               |               |      |           |      |
|------------|------------------------------------|-----|-----------------------|---------------|--|---------------|---------------|------|-----------|------|
| <b>MSD</b> | Sample ID: <b>14091096-01B MSD</b> |     | Units: <b>mg/Kg</b>   |               | Analysis Date: <b>9/25/2014 03:30 PM</b> |               |               |      |           |      |
| Client ID: | Run ID: <b>WETCHEM_140925Y</b>     |     | SeqNo: <b>2953120</b> |               | Prep Date: <b>9/24/2014</b> DF: <b>1</b> |               |               |      |           |      |
| Analyte    | Result                             | PQL | SPK Val               | SPK Ref Value | %REC                                     | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Chromium, Hexavalent 1.949 0.49 1.976 0.2134 87.8 75-125 1.566 21.8 20 R

The following samples were analyzed in this batch:

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

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **63234**      Instrument ID **WETCHEM**      Method: **USDA H60 Method**

| <b>DUP</b>                           | Sample ID: <b>14091195-03B DUP</b> |       | Units: <b>mmhos/cm @25°C</b> |               | Analysis Date: <b>9/29/2014 09:50 AM</b>  |               |               |      |           |      |
|--------------------------------------|------------------------------------|-------|------------------------------|---------------|---|---------------|---------------|------|-----------|------|
| Client ID:                           | Run ID: <b>WETCHEM_140929A</b>     |       | SeqNo: <b>2956044</b>        |               | Prep Date: <b>9/26/2014</b> DF: <b>10</b> |               |               |      |           |      |
| Analyte                              | Result                             | PQL   | SPK Val                      | SPK Ref Value | %REC                                      | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Electrical Conductivity @ Saturation | 1.032                              | 0.050 | 0                            | 0             | 0   |               | 1.086         | 5.1  | 50        |      |

The following samples were analyzed in this batch:

|              |
|--------------|
| 14091158-01C |
|--------------|

**Client:** HRL Compliance Solutions, Inc  
**Work Order:** 14091158  
**Project:** WPX PA 23-12 Cuttings 9.23.14

# QC BATCH REPORT

Batch ID: **R148858**      Instrument ID **MOIST**      Method: **A2540 G**

|             |                                 |     |         |                       |                    |               |               |  |           |      |
|-------------|---------------------------------|-----|---------|-----------------------|--------------------|---------------|---------------|--|-----------|------|
| <b>MBLK</b> | Sample ID: <b>WBLKS-R148858</b> |     |         |                       | Units: % of sample |               |               | Analysis Date: <b>9/24/2014 12:50 PM</b> |           |      |
| Client ID:  | Run ID: <b>MOIST_140924A</b>    |     |         | SeqNo: <b>2951178</b> |                    | Prep Date:    |               | DF: <b>1</b>                             |           |      |
| Analyte     | Result                          | PQL | SPK Val | SPK Ref Value         | %REC               | Control Limit | RPD Ref Value | %RPD                                     | RPD Limit | Qual |

Moisture                                      ND      0.050

|            |                                |     |         |                       |                    |               |               |  |           |      |
|------------|--------------------------------|-----|---------|-----------------------|--------------------|---------------|---------------|--|-----------|------|
| <b>LCS</b> | Sample ID: <b>WLCS-R148858</b> |     |         |                       | Units: % of sample |               |               | Analysis Date: <b>9/24/2014 12:50 PM</b> |           |      |
| Client ID: | Run ID: <b>MOIST_140924A</b>   |     |         | SeqNo: <b>2951179</b> |                    | Prep Date:    |               | DF: <b>1</b>                             |           |      |
| 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

|            |                                    |     |         |                       |                    |               |               |  |           |      |
|------------|------------------------------------|-----|---------|-----------------------|--------------------|---------------|---------------|--|-----------|------|
| <b>DUP</b> | Sample ID: <b>14091011-03B DUP</b> |     |         |                       | Units: % of sample |               |               | Analysis Date: <b>9/24/2014 12:50 PM</b> |           |      |
| Client ID: | Run ID: <b>MOIST_140924A</b>       |     |         | SeqNo: <b>2951181</b> |                    | Prep Date:    |               | DF: <b>1</b>                             |           |      |
| Analyte    | Result                             | PQL | SPK Val | SPK Ref Value         | %REC               | Control Limit | RPD Ref Value | %RPD                                     | RPD Limit | Qual |

Moisture                                      9.61      0.050                      0                      0      0      0-0                      9.45      1.68      20

The following samples were analyzed in this batch: 14091158-01B



# 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 # **14091158**

| PROJECT NAME   |          | WPX PA 23-12                            |             | SAMPLER         |           | Reed Wold                     |       | DATE                                     |  | 9/23/14 |  | PAGE     |  | 1 of 1                     |  |  |  |
|----------------|----------|---|-------------|-----------------|-----------|-------------------------------|-------|--|--|---------|--|----------|--|----------------------------|--|--|--|
| PROJECT No.    |          | cuttings                                |             | SITE ID         |           | PA 23-12                      |       | TURNAROUND                               |  | 24HR    |  | DISPOSAL |  | By Lab or Return to Client |  |  |  |
| COMPANY NAME   |          | HRL Compliance                          |             | EDD FORMAT      |           |                               |       | BTEX/6LO<br>PRO/PAH/ metals<br>SAR/EC/PH |  |         |  |          |  |                            |  |  |  |
| SEND REPORT TO |          | Mark Mumby                              |             | PURCHASE ORDER  |           |                               |       |  |  |         |  |          |  |                            |  |  |  |
| ADDRESS        |          | 2385 F 1/2 Rd                           |             | BILL TO COMPANY |           | WPX                           |       |  |  |         |  |          |  |                            |  |  |  |
| CITY/STATE/ZIP |          | Grand Junction, CO 81508                |             | INVOICE ATTN TO |           | Karolina Blaney               |       |  |  |         |  |          |  |                            |  |  |  |
| PHONE          |          | 970-243-3271                            |             | ADDRESS         |           | 1058 Co Rd 215                |       |  |  |         |  |          |  |                            |  |  |  |
| FAX            |          | 970-243-3280                            |             | CITY/STATE/ZIP  |           | Parachure CO 81635            |       |  |  |         |  |          |  |                            |  |  |  |
| E-MAIL         |          | mmumby@hrlcomp.com<br>rwold@hrlcomp.com |             | PHONE           |           | 970-883-2295                  |       |  |  |         |  |          |  |                            |  |  |  |
| E-MAIL         |          |   |             | E-MAIL          |           | Karolina.blaney@wpxenergy.com |       |  |  |         |  |          |  |                            |  |  |  |
| Lab ID         | Field ID | Matrix                                  | Sample Date | Sample Time     | # Bottles | Pres.                         | QC    |  |  |         |  |          |  |                            |  |  |  |
| 1              | cuttings | so                                      | 9/23/14     | 3:20            | 3         | 8                             | X X 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:<br><br><div style="text-align: center; font-size: 2em;">2.6c</div> | 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 9-6035

|                 | SIGNATURE | PRINTED NAME   | DATE    | TIME |
|-----------------|-----------|----------------|---------|------|
| RELINQUISHED BY |           | Reed Wold      | 9/23/14 | 3:45 |
| RECEIVED BY     |           |                | 9/23/14 | 3:45 |
| RELINQUISHED BY |           |                | 9/23/14 | 3:45 |
| RECEIVED BY     |           | Diane F. Silva | 9/24/14 | 0930 |
| RELINQUISHED BY |           |                |         |      |
| RECEIVED BY     |           |                |         |      |

Sample Receipt Checklist

Client Name: **HRL**

Date/Time Received: **24-Sep-14 09:30**

Work Order: **14091158**

Received by: **DS**

Checklist completed by Diane Shaw 24-Sep-14  
eSignature Date

Reviewed by: Ann Preston 24-Sep-14  
eSignature Date

Matrices: **Soil**  
Carrier name: **FedEx**

|   |  |                             |  |
|---|--|-----------------------------|--|
| Shipping container/cooler in good condition?            | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input type="checkbox"/>                       |
| Custody seals intact on shipping container/cooler?      | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input type="checkbox"/>                       |
| Custody seals intact on sample bottles?                 | Yes <input type="checkbox"/>                       | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/>            |
| Chain of custody present?                               | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Chain of custody agrees with sample labels?             | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Samples in proper container/bottle?                     | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Sample containers intact?                               | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Sufficient sample volume for indicated test?            | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| All samples received within holding time?               | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Container/Temp Blank temperature in compliance?         | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Sample(s) received on ice?                              | Yes <input checked="" type="checkbox"/>            | No <input type="checkbox"/> |  |
| Temperature(s)/Thermometer(s):                          | <input type="text" value="2.6 c"/>                 |                             |  |
| Cooler(s)/Kit(s):                                       | <input type="text"/>                               |                             |  |
| Date/Time sample(s) sent to storage:                    | <input type="text" value="9/24/2014 10:50:15 AM"/> |                             |  |
| Water - VOA vials have zero headspace?                  | Yes <input type="checkbox"/>                       | No <input type="checkbox"/> | No VOA vials submitted <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt?                     | Yes <input type="checkbox"/>                       | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/>                    |
| pH adjusted?  | Yes <input type="checkbox"/>                       | No <input type="checkbox"/> | N/A <input checked="" type="checkbox"/>                    |
| pH adjusted by:   | <input type="text"/>                               |                             |  |

Login Notes:

-----

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

From: (016) 309-0970  
Nick Marlowe  
ALS Environmental  
127 E. 1st Street  
PARACHUTE, CO 81635

Origin ID: RLA



Ship Date: 23SEP14  
ActWgt: 54.9 LB  
CAT: 2294040/NET3550  
Dim: 24 X 15 X 15 IN

Delivery Address Bar Code



SHIP TO: (016) 391-0070  
sample receiving  
ALS Laboratory Group  
3352 128TH AVE

BILL BENDER

Ref # 002314-1  
Invoice #  
PO # Parakute  
Dept #

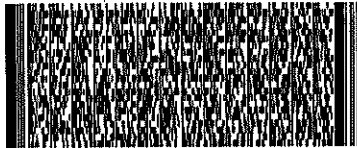
HOLLAND, MI 49424

WED - 24 SEP 10:30A  
PRIORITY OVERNIGHT

TRK# 7712 5687 6084  
EOP

49424  
MI-128  
GRR

XX HLMA




0220100048403

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2. Fold the printed page along the horizontal line.
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Fax. +1 281 530 5887

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