# APPENDIX F

## Water Chemistry – Laboratory Analytical Reports

# ANALYTICAL SUMMARY REPORT

November 30, 2012

Layne Christensen Company
W229 N5005 DuPlainville Rd.
Pewaukee, WI 53072

Workorder No.: G12110440

Project Name: Madison Test Well 2A

Energy Laboratories Inc. Gillette WY received the following 1 sample for Layne Christensen Company on 11/19/2012 for analysis.

| Sample ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| G12110440-001 | Madison Test Well 2A | 11/18/12 16:00 | 11/19/12 | Aqueous | Conductivity<br>pH<br>Solids, Total Dissolved<br>Solids, Total Suspended |

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, unless otherwise noted.

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these tests results, please call.

Report Approved By:

Tracey A. Archer
Project Manager

Digitally signed by
Tracey Archer
Date: 2012.11.30 08:38:51 -07:00

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Layne Christensen Company
**Project:** Madison Test Well 2A
**Client Sample ID** Madison Test Well 2A
**Location:**
**Samp FRQ/Type:**
**Lab ID:** G12110440-001

**Report Date:** 11/30/12
**Collection Date:** 11/18/12 16:00
**Date Received:** 11/19/12
**Matrix:** Aqueous
**Sampled By:** Steve Gillman

| Analyses | Result | Units | RL | Qualifier | Method | Analysis Date / By |
|---|---|---|---|---|---|---|
| **NON-METALS** | | | | | | |
| Solids, Total Dissolved TDS @ 180 C | 10900 | mg/L | 200 | | A2540 C | 11/20/12 08:43 / jab |
| Solids, Total Suspended TSS @ 105 C | ND | mg/L | 10 | | A2540 D | 11/21/12 15:02 / jab |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Layne Christensen Company
**Project:** Madison Test Well 2A

**Report Date:** 11/30/12
**Work Order:** G12110440

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2540 C** | | | | | | | | | Batch: TDS121120A |
| **Sample ID: MB-1_121120A** | Method Blank | | | | Run: BAL-MET-AE_121120A | | | | 11/20/12 08:42 |
| Solids, Total Dissolved TDS @ 180 C | ND | mg/L | 4 | | | | | | |
| **Sample ID: LCS-2_121120A** | Laboratory Control Sample | | | | Run: BAL-MET-AE_121120A | | | | 11/20/12 08:43 |
| Solids, Total Dissolved TDS @ 180 C | 1080 | mg/L | 11 | 98 | 90 | 110 | | | |
| **Sample ID: G12110440-001A DUP** | Sample Duplicate | | | | Run: BAL-MET-AE_121120A | | | | 11/20/12 08:43 |
| Solids, Total Dissolved TDS @ 180 C | 10800 | mg/L | 200 | | | | 1.3 | 5 | |
| **Sample ID: G12110441-001A MS** | Sample Matrix Spike | | | | Run: BAL-MET-AE_121120A | | | | 11/20/12 08:44 |
| Solids, Total Dissolved TDS @ 180 C | 2960 | mg/L | 33 | 99 | 90 | 110 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Layne Christensen Company
**Project:** Madison Test Well 2A

**Report Date:** 11/30/12
**Work Order:** G12110440

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2540 D** | | | | | | | | Batch: 121121_1_SLDS-TSS-W | |
| **Sample ID: MBLK-1_121121** | Method Blank | | | | Run: BAL-MET-AE_121121A | | | 11/21/12 15:01 | |
| Solids, Total Suspended TSS @ 105 C | ND | mg/L | 1 | | | | | | |
| **Sample ID: LCS-1_121121** | Laboratory Control Sample | | | | Run: BAL-MET-AE_121121A | | | 11/21/12 15:0 | |
| Solids, Total Suspended TSS @ 105 C | 93 | mg/L | 10 | 93 | 80 | 120 | | | |
| **Sample ID: G12110440-001BDUP** | Sample Duplicate | | | | Run: BAL-MET-AE_121121A | | | 11/21/12 15:0 | |
| Solids, Total Suspended TSS @ 105 C | 9.5 | mg/L | 10 | | | | | 5 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

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# Workorder Receipt Checklist

## Layne Christensen Company G12110440

Login completed by: Amanda Alley
Date Received: 11/19/2012
Reviewed by: BL2000\kscottruff
Received by: kls
Reviewed Date: 11/19/2012
Carrier name: Hand Del

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes ☑ | No ☐ | |
| Temp Blank received? | Yes ☑ | No ☐ | Not Applicable ☐ |
| Container/Temp Blank temperature: | 1.0°C On Ice | | |
| Water - VOA vials have zero headspace? | Yes ☐ | No ☐ | No VOA vials submitted ☑ |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | Not Applicable ☐ |

Contact and Corrective Action Comments:

None

ENERGY

# Chain of Custody and Analytical Request Record

Page 1 of 1

**PLEASE PRINT** (Provide as much information as possible.)

Company Name: Layne Christensen Co

Project Name, PWS, Permit, Etc.: Madison Test Well 2A

Sample Origin State: Moorcroft Wyoming

EPA/State Compliance: Yes ☑ No ☐

Report Mail Address: 1717 W. Park Ave Redlands, CA 92373

Contact Name: Steve Gillman

Phone/Fax: 562-255-5812

Email: Steven.Gillman@Layne.com

Sampler: (Please Print) Steve Gillman

Invoice Address:

Invoice Contact & Phone:

Purchase Order:

Quote/Bottle Order:

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____
☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids
Vegetation Bioassay Other
DW - Drinking Water

ANALYSIS REQUESTED: TDS, TSS

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand

Cooler ID(s):

Receipt Temp 1.0 °C

On Ice: Y N

Custody Seal On Bottle Y N; On Cooler Y N

Intact Y N

Signature Match Y N

| | SAMPLE IDENTIFICATION (Name, Location, Interval, etc.) | Collection Date | Collection Time | MATRIX | TDS | TSS | SEE ATTACHED | Standard Turnaround (TAT) | RUSH |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Madison Test Well 2A | 11-18-12 | 4:00 PM | 2W | | | | X | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |

LABORATORY USE ONLY: 2110440

**Custody Record MUST be Signed**

| Relinquished by (print) | Date/Time | Signature | Received by (print) | Date/Time | Signature |
|---|---|---|---|---|---|
| Steve Gillman | 11-19-12 11:24 AM | [signature] | | | |
| | | | | | |

Sample Disposal: Return to Client: _____ Lab Disposal: _____

Received by Laboratory: 11/18/12 Date/Time: 1124 Signature: [signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

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# ANALYTICAL SUMMARY REPORT

January 15, 2013

Morrison Maierle Inc
PO Box 6147
Helena, MT 59604

Workorder No.: G12120325 Quote ID: G2 - Templates - Gillette

Project Name: City Of Gillette Test Well TH #2A

Energy Laboratories Inc. Gillette WY received the following 2 samples for Morrison Maierle Inc on 12/13/2012 for analysis.

| Sample ID | Client Sample ID | Collect Date | Receive Date | Matrix | Test |
|---|---|---|---|---|---|
| G12120325-001 | TH #2A | 12/13/12 13:30 | 12/13/12 | Drinking Water | Metals by ICP/ICPMS, Drinking Water<br>Acidity, Total as CaCO3<br>Alkalinity<br>Anion - Cation Balance<br>Bacteria, Iron Related<br>Bacteria, Heterotrophic Plate Count<br>Bacteria, SDWA<br>Anions by ion chromatography<br>Cyanide, SDWA<br>Color<br>Conductivity<br>Mercury, Drinking Water<br>Fluoride<br>Foaming Agents<br>515-Herbicides, Chlorinated SDWA<br>Hardness<br>Total Uranium<br>Langelier Index<br>Nitrogen, Nitrate + Nitrite<br>Odor<br>pH<br>Metals Digestion by EPA 200.2<br>Drinking Water Metals Digestion by EPA 200.2<br>Digestion, Mercury by CVAA<br>E504 Pesticides<br>Pesticides, Carbamates SDWA<br>Gross Alpha, Gross Beta<br>Radium 226 + Radium 228<br>Radium 226, Total<br>Radium 228, Total<br>Sodium Absorption Ratio<br>Solids, Total Dissolved<br>Sulfide, Methylene Blue Colorimetric<br>Semi-Volatile Organic Compounds Extraction<br>525-Semi-Volatile Organic Compounds, SDWA<br>Turbidity<br>524-Purgeable Organics, SDWA |
| G12120325-002 | Trip Blank - LOTgatd1210161430 | 12/13/12 13:30 | 12/13/12 | Trip Blank | 524-Purgeable Organics, SDWA |

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, unless otherwise noted.

As appropriate, any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the

# ANALYTICAL SUMMARY REPORT

QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these tests results, please call.

Report Approved By:

Alyson Degnan
Project Manager

Digitally signed by
Alyson T. Degnan
Date: 2013.01.15 12:26:07 -07:00

**CLIENT:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Sample Delivery Group:** G12120325

**Report Date:** 01/15/13

# CASE NARRATIVE

Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002 and WY00937.

COMBINED RA226+RA228 CALCULATION
The result for the combined Ra226/228 calculation is performed by adding the Ra226 activity to the Ra228 activity. If one or both of these activities is negative or less than the 40CFR_DL, one half the 40CFR_DL is substituted for the respective value below the 40CFR_DL. This may produce a value for the combined radium activities larger than the sum of the two original activities. This method of calculating the sum of the activities for these two radionuclides is in accordance with the guidance in 40CFR141.26(a)(4).
End of comments imported for SUBBED Workorder: C12120583

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Client Sample ID** TH #2A
**Sampled By:** M. Kaczmarek
**Lab ID:** G12120325-001L

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Received Date:** 12/13/12 15:30
**Matrix:** Drinking Water

| Analyses | Result | Units | Safe/Unsafe | Qualifier | Method | Analysis Date / By |
|---|---|---|---|---|---|---|
| **BACTERIA** | | | | | | |
| Bacteria, Total Coliform | Absent | P/A | SAFE | | A9223 B | 12/13/12 15:53 / blb |
| Bacteria, E-Coli Coliform | Absent | P/A | | | A9223 B | 12/13/12 15:53 / blb |

**Comments:** The notation "SAFE" indicates that the water was bacteriologically SAFE when sampled.
The notation "UNSAFE" indicates that the water was bacteriologically UNSAFE when sampled.

**Method Reference:** E - EPA / MCAWW Methodology A - Standard Methods 19th Ed.

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-001
**Client Sample ID** TH #2A

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Drinking Water

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **PHYSICAL CHARACTERISTICS** | | | | | | | |
| Color | ND | c.u. | LH | 5 | 15 | A2120 B | 12/18/12 16:35 / eli-b |
| Odor | 35 | T.O.N. | | | | A2150 B | 12/20/12 13:45 / eli-b |
| Surfactants, MBAS | ND | mg/L | H | 1 | | LaMotte DS-1 | 12/18/12 16:30 / eli-b |
| Turbidity | 12 | NTU | | 0.2 | | A2130 B | 12/13/12 16:14 / jab |
| **MAJOR IONS, DISSOLVED** | | | | | | | |
| Bicarbonate as HCO3 | 278 | mg/L | | 5 | | A2320 B | 12/24/12 14:35 / eli-b |
| Carbonate as CO3 | ND | mg/L | | 5 | | A2320 B | 12/24/12 14:35 / eli-b |
| Chloride | 108 | mg/L | | 1 | | E300.0 | 12/18/12 20:16 / eli-b |
| Sulfate | 324 | mg/L | | 1 | | E300.0 | 12/18/12 04:31 / eli-b |
| Calcium | 174 | mg/L | | 1 | | E200.7 | 12/18/12 14:27 / eli-b |
| Magnesium | 62 | mg/L | | 1 | | E200.7 | 12/18/12 14:27 / eli-b |
| Potassium | 3 | mg/L | | 1 | | E200.7 | 12/18/12 14:27 / eli-b |
| Sodium | 13 | mg/L | | 1 | | E200.7 | 12/18/12 14:27 / eli-b |
| **INORGANIC COMPOUNDS, SDWA** | | | | | | | |
| Antimony | ND | mg/L | | 0.003 | 0.006 | E200.8 | 12/19/12 16:04 / eli-b |
| Nitrogen, Nitrate+Nitrite as N | 0.18 | mg/L | | 0.01 | 10 | E353.2 | 12/19/12 12:09 / eli-b |
| Arsenic | ND | mg/L | | 0.001 | 0.01 | E200.8 | 12/20/12 21:14 / eli-b |
| Barium | ND | mg/L | | 0.1 | 2 | E200.7 | 12/18/12 14:27 / eli-b |
| Beryllium | ND | mg/L | | 0.001 | 0.004 | E200.7 | 12/18/12 14:27 / eli-b |
| Boron | ND | mg/L | | 0.1 | | E200.7 | 12/18/12 14:27 / eli-b |
| Cadmium | ND | mg/L | | 0.001 | 0.005 | E200.8 | 12/19/12 16:04 / eli-b |
| Chromium | ND | mg/L | | 0.01 | 0.1 | E200.7 | 12/18/12 14:27 / eli-b |
| Copper | ND | mg/L | | 0.01 | | E200.8 | 12/19/12 16:04 / eli-b |
| Cyanide, Total | ND | mg/L | | 0.005 | 0.2 | Kelada-01 | 12/16/12 13:03 / eli-b |
| Fluoride | 1.9 | mg/L | | 0.1 | 4 | A4500-F C | 12/19/12 14:40 / eli-b |
| Iron | 4.20 | mg/L | | 0.03 | | E200.7 | 12/18/12 14:27 / eli-b |
| Lead | ND | mg/L | | 0.001 | | E200.8 | 12/19/12 16:04 / eli-b |
| Manganese | 0.10 | mg/L | | 0.01 | | E200.7 | 12/18/12 14:27 / eli-b |
| Mercury | ND | mg/L | | 0.0002 | 0.002 | E245.1 | 12/18/12 16:05 / eli-b |
| Nickel | 0.02 | mg/L | | 0.01 | | E200.7 | 12/18/12 14:27 / eli-b |
| Selenium | ND | mg/L | | 0.005 | 0.05 | E200.8 | 12/20/12 21:14 / eli-b |
| Silicon | 6.2 | mg/L | | 0.1 | | E200.7 | 12/18/12 14:27 / eli-b |
| Silicon as SiO2 | 13.3 | mg/L | | 0.2 | | E200.7 | 12/18/12 14:27 / eli-b |
| Thallium | ND | mg/L | | 0.001 | 0.002 | E200.8 | 12/19/12 16:04 / eli-b |
| Zinc | 0.07 | mg/L | | 0.01 | | E200.7 | 12/18/12 14:27 / eli-b |
| **NON-METALS** | | | | | | | |
| Acidity, Total as CaCO3 | 11 | mg/L | | 4 | | A2310 B | 12/19/12 19:32 / eli-b |
| Alkalinity, Total as CaCO3 | 228 | mg/L | | 5 | | A2320 B | 12/24/12 14:35 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
L - Lowest available reporting limit for the analytical method us

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-001
**Client Sample ID** TH #2A

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Drinking Water

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **NON-METALS** | | | | | | | |
| Conductivity @ 25 C | 1290 | umhos/cm | | 10 | | A2510 B | 12/13/12 17:30 / blb |
| Hardness as CaCO3 | 690 | mg/L | | | | A2340 B | 12/18/12 14:27 / jab |
| Langelier Index | 0.04 | | | | | Calculation | 01/08/13 11:16 / jab |
| pH | 6.96 | s.u. | H | 0.01 | | A4500-H B | 12/13/12 17:30 / blb |
| Sodium Adsorption Ratio (SAR) | 0.2 | unitless | | | | Calculation | 12/18/12 14:27 / jab |
| Solids, Total Dissolved TDS @ 180 C | 760 | mg/L | | 10 | | A2540 C | 12/17/12 10:02 / eli-b |
| Sulfide | ND | mg/L | | 0.04 | | A4500-S D | 12/14/12 11:45 / eli-b |
| **RADIONUCLIDES - TOTAL** | | | | | | | |
| Gross Alpha | 18.0 | pCi/L | * | | 15 | E900.0 | 12/28/12 08:36 / eli-ca |
| Gross Alpha precision (±) | 2.5 | pCi/L | | | | E900.0 | 12/28/12 08:36 / eli-ca |
| Gross Alpha MDC | 1.6 | pCi/L | | | | E900.0 | 12/28/12 08:36 / eli-ca |
| Radium 226 | 1.1 | pCi/L | | | 5 | E903.0 | 12/26/12 18:32 / eli-ca |
| Radium 226 precision (±) | 0.2 | pCi/L | | | | E903.0 | 12/26/12 18:32 / eli-ca |
| Radium 226 MDC | 0.1 | pCi/L | | | | E903.0 | 12/26/12 18:32 / eli-ca |
| Radium 228 | 0.6 | pCi/L | U | | 5 | RA-05 | 01/14/13 15:44 / eli-ca |
| Radium 228 precision (±) | 0.9 | pCi/L | | | | RA-05 | 01/14/13 15:44 / eli-ca |
| Radium 228 MDC | 0.9 | pCi/L | | | | RA-05 | 01/14/13 15:44 / eli-ca |
| Radium 226 + Radium 228 | 1.6 | pCi/L | | | 5 | A7500-RA | 01/15/13 08:29 / eli-ca |
| Radium 226 + Radium 228 precision (±) | 0.9 | pCi/L | | | | A7500-RA | 01/15/13 08:29 / eli-ca |
| Radium 226 + Radium 228 MDC | 0.9 | pCi/L | | | | A7500-RA | 01/15/13 08:29 / eli-ca |
| Uranium | 0.008 | mg/L | | 0.001 | 0.03 | E200.8 | 12/27/12 01:05 / eli-ca |
| Uranium, Activity | 5.7 | pCi/L | | 0.7 | 20 | E200.8 | 12/27/12 01:05 / eli-ca |
| - See case narrative regarding combined Ra226+Ra228 calculation. | | | | | | | |
| **DATA QUALITY** | | | | | | | |
| A/C Balance | 0.48 | % | | | | A1030 E | 01/08/13 11:16 / jab |
| Anions | 14.5 | meq/L | | | | A1030 E | 01/08/13 11:16 / jab |
| Cations | 14.6 | meq/L | | | | A1030 E | 01/08/13 11:16 / jab |
| **SOC-HERBICIDES, SDWA** | | | | | | | |
| 2,4-D | ND | ug/L | | 1.0 | 70 | E515.1 | 12/24/12 21:24 / eli-b |
| 2,4-DB | ND | ug/L | | 2.5 | | E515.1 | 12/24/12 21:24 / eli-b |
| Dalapon | ND | ug/L | | 2.5 | 200 | E515.1 | 12/24/12 21:24 / eli-b |
| Dicamba | ND | ug/L | | 0.25 | | E515.1 | 12/24/12 21:24 / eli-b |
| Dichlorprop | ND | ug/L | | 1.0 | | E515.1 | 12/24/12 21:24 / eli-b |
| Dinoseb | ND | ug/L | | 1.0 | 7 | E515.1 | 12/24/12 21:24 / eli-b |
| Pentachlorophenol | ND | ug/L | | 0.040 | 1 | E515.1 | 12/24/12 21:24 / eli-b |
| Picloram | ND | ug/L | | 0.50 | 500 | E515.1 | 12/24/12 21:24 / eli-b |
| 2,4,5-TP (Silvex) | ND | ug/L | | 0.20 | 50 | E515.1 | 12/24/12 21:24 / eli-b |
| Surr: DCAA | 76.0 | %REC | | 70-130 | | E515.1 | 12/24/12 21:24 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MDC - Minimum detectable concentration
H - Analysis performed past recommended holding time.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.
* - The result exceeds the MCL.
U - Not detected at minimum detectable concentration

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-001
**Client Sample ID** TH #2A

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Drinking Water

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **SOC-PESTICIDES, SDWA** | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | | 0.020 | 0.2 | E504.1 | 12/20/12 02:26 / eli-ca |
| Aldicarb | ND | ug/L | | 0.40 | 3 | E531.1 | 12/19/12 18:55 / eli-ca |
| 1,2-Dibromoethane | ND | ug/L | | 0.010 | 0.05 | E504.1 | 12/20/12 02:26 / eli-ca |
| Aldicarb sulfone | ND | ug/L | | 0.40 | 2 | E531.1 | 12/19/12 18:55 / eli-ca |
| Aldicarb sulfoxide | ND | ug/L | | 0.40 | 4 | E531.1 | 12/19/12 18:55 / eli-ca |
| 1,2,3-Trichloropropane | ND | ug/L | | 0.050 | | E504.1 | 12/20/12 02:26 / eli-ca |
| Carbaryl | ND | ug/L | | 0.40 | | E531.1 | 12/19/12 18:55 / eli-ca |
| Carbofuran | ND | ug/L | | 0.40 | 40 | E531.1 | 12/19/12 18:55 / eli-ca |
| 3-Hydroxycarbofuran | ND | ug/L | | 0.40 | | E531.1 | 12/19/12 18:55 / eli-ca |
| Methiocarb | ND | ug/L | | 0.40 | | E531.1 | 12/19/12 18:55 / eli-ca |
| Methomyl | ND | ug/L | | 0.40 | | E531.1 | 12/19/12 18:55 / eli-ca |
| Oxamyl | ND | ug/L | | 0.40 | 200 | E531.1 | 12/19/12 18:55 / eli-ca |
| Baygon | ND | ug/L | | 0.40 | | E531.1 | 12/19/12 18:55 / eli-ca |
| Surr: 1,1,1,2-Tetrachloroethane | 96.0 | %REC | | 70-130 | | E504.1 | 12/20/12 02:26 / eli-ca |
| Surr: BDMC | 77.0 | %REC | | 70-130 | | E531.1 | 12/19/12 18:55 / eli-ca |
| **VOLATILE ORGANIC COMPOUNDS, SDWA** | | | | | | | |
| Benzene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Bromobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Bromochloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Bromodichloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Bromoform | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Bromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| n-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| sec-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| tert-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Carbon tetrachloride | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Chlorobenzene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 16:52 / eli-b |
| Chlorodibromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Chloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Chloroform | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Chloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 2-Chlorotoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 4-Chlorotoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | | 1.0 | 0.2 | E524.2 | 12/18/12 16:52 / eli-b |
| Dibromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2-Dichlorobenzene | ND | ug/L | | 0.50 | 600 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,3-Dichlorobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,4-Dichlorobenzene | ND | ug/L | | 0.50 | 75 | E524.2 | 12/18/12 16:52 / eli-b |
| Dichlorodifluoromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1-Dichloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2-Dichloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-001
**Client Sample ID** TH #2A

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Drinking Water

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPOUNDS, SDWA** | | | | | | | |
| 1,2-Dibromoethane | ND | ug/L | | 0.50 | 0.05 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1-Dichloroethene | ND | ug/L | | 0.50 | 7 | E524.2 | 12/18/12 16:52 / eli-b |
| cis-1,2-Dichloroethene | ND | ug/L | | 0.50 | 70 | E524.2 | 12/18/12 16:52 / eli-b |
| trans-1,2-Dichloroethene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2-Dichloropropane | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,3-Dichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 2,2-Dichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| cis-1,3-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| trans-1,3-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Ethylbenzene | ND | ug/L | | 0.50 | 700 | E524.2 | 12/18/12 16:52 / eli-b |
| Hexachlorobutadiene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Isopropylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| p-Isopropyltoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Methyl tert-butyl ether (MTBE) | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Methylene chloride | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Naphthalene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| n-Propylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Styrene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Tetrachloroethene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Toluene | ND | ug/L | | 0.50 | 1000 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2,3-Trichlorobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2,4-Trichlorobenzene | ND | ug/L | | 0.50 | 70 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1,1-Trichloroethane | ND | ug/L | | 0.50 | 200 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,1,2-Trichloroethane | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Trichloroethene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 16:52 / eli-b |
| Trichlorofluoromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2,3-Trichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Trihalomethanes, Total | ND | ug/L | | 0.50 | 80 | E524.2 | 12/18/12 16:52 / eli-b |
| 1,2,4-Trimethylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| 1,3,5-Trimethylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Vinyl chloride | ND | ug/L | | 0.50 | 2 | E524.2 | 12/18/12 16:52 / eli-b |
| m+p-Xylenes | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| o-Xylene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 16:52 / eli-b |
| Xylenes, Total | ND | ug/L | | 0.50 | 10000 | E524.2 | 12/18/12 16:52 / eli-b |
| Surr: p-Bromofluorobenzene | 107 | %REC | | 80-120 | | E524.2 | 12/18/12 16:52 / eli-b |
| Surr: 1,2-Dichloroethane-d4 | 102 | %REC | | 74-127 | | E524.2 | 12/18/12 16:52 / eli-b |
| Surr: Toluene-d8 | 96.0 | %REC | | 80-120 | | E524.2 | 12/18/12 16:52 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-001
**Client Sample ID** TH #2A

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Drinking Water

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **SEMI-VOLATILE ORGANIC COMPOUNDS** | | | | | | | |
| Alachlor | ND | ug/L | | 0.10 | 2 | E525.2 | 12/20/12 23:59 / eli-b |
| Aldrin | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1016 | ND | ug/L | | 0.080 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1221 | ND | ug/L | | 2.0 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1232 | ND | ug/L | | 0.50 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1242 | ND | ug/L | | 0.30 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1248 | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1254 | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Aroclor 1260 | ND | ug/L | | 0.20 | | E525.2 | 12/20/12 23:59 / eli-b |
| Atrazine | ND | ug/L | | 0.10 | 3 | E525.2 | 12/20/12 23:59 / eli-b |
| Benzo(a)pyrene | ND | ug/L | | 0.10 | 0.2 | E525.2 | 12/20/12 23:59 / eli-b |
| bis(2-ethylhexyl)Adipate | ND | ug/L | | 0.50 | 400 | E525.2 | 12/20/12 23:59 / eli-b |
| bis(2-ethylhexyl)Phthalate | ND | ug/L | | 2.0 | 6 | E525.2 | 12/20/12 23:59 / eli-b |
| Butachlor | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Chlordane | ND | ug/L | | 1.0 | 2 | E525.2 | 12/20/12 23:59 / eli-b |
| Dieldrin | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Endrin | ND | ug/L | | 0.10 | 2 | E525.2 | 12/20/12 23:59 / eli-b |
| gamma-BHC (Lindane) | ND | ug/L | | 0.10 | 0.2 | E525.2 | 12/20/12 23:59 / eli-b |
| Heptachlor | ND | ug/L | | 0.10 | 0.4 | E525.2 | 12/20/12 23:59 / eli-b |
| Heptachlor epoxide | ND | ug/L | | 0.10 | 0.2 | E525.2 | 12/20/12 23:59 / eli-b |
| Hexachlorobenzene | ND | ug/L | | 0.10 | 1 | E525.2 | 12/20/12 23:59 / eli-b |
| Hexachlorocyclopentadiene | ND | ug/L | | 0.10 | 50 | E525.2 | 12/20/12 23:59 / eli-b |
| Methoxychlor | ND | ug/L | | 0.10 | 40 | E525.2 | 12/20/12 23:59 / eli-b |
| Metolachlor | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Metribuzin | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Propachlor | ND | ug/L | | 0.10 | | E525.2 | 12/20/12 23:59 / eli-b |
| Simazine | ND | ug/L | | 0.10 | 4 | E525.2 | 12/20/12 23:59 / eli-b |
| Toxaphene | ND | ug/L | | 2.0 | 3 | E525.2 | 12/20/12 23:59 / eli-b |
| Surr: 1,3-Dimethyl-2-nitrobenzene | 95.0 | %REC | | 70-130 | | E525.2 | 12/20/12 23:59 / eli-b |
| Surr: Perylene-d12 | 91.0 | %REC | | 70-130 | | E525.2 | 12/20/12 23:59 / eli-b |
| Surr: Pyrene-d10 | 92.0 | %REC | | 70-130 | | E525.2 | 12/20/12 23:59 / eli-b |
| Surr: Triphenylphosphate | 115 | %REC | | 70-130 | | E525.2 | 12/20/12 23:59 / eli-b |

Note: The federal MCL for total PCB's is 0.5 ug/L as Decachlorobiphenyl (DCB). PCB screening at the reporting limits given for the individual Aroclors meets or exceeds federal and state requirements for "Total PCB" monitoring if Aroclors are not detected.

| | | | | | |
|---|---|---|---|---|---|
| **BACTERIA** | | | | | |
| Bacteria, Heterotrophic Plate Count | >7380 | MPN/mL | 2 | SimPlate | 12/13/12 16:31 / jab |
| Bacteria, Iron Related | 150 | CFU/ml | 25 | IRB-BART | 12/13/12 15:54 / jab |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-002
**Client Sample ID** Trip Blank - LOTgatd1210161430

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Trip Blank

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPOUNDS, SDWA** | | | | | | | |
| Benzene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Bromobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Bromochloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Bromodichloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Bromoform | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Bromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| n-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| sec-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| tert-Butylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Carbon tetrachloride | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Chlorobenzene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 17:22 / eli-b |
| Chlorodibromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Chloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Chloroform | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Chloromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 2-Chlorotoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 4-Chlorotoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | | 1.0 | 0.2 | E524.2 | 12/18/12 17:22 / eli-b |
| Dibromomethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2-Dichlorobenzene | ND | ug/L | | 0.50 | 600 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,3-Dichlorobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,4-Dichlorobenzene | ND | ug/L | | 0.50 | 75 | E524.2 | 12/18/12 17:22 / eli-b |
| Dichlorodifluoromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1-Dichloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2-Dichloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2-Dibromoethane | ND | ug/L | | 0.50 | 0.05 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1-Dichloroethene | ND | ug/L | | 0.50 | 7 | E524.2 | 12/18/12 17:22 / eli-b |
| cis-1,2-Dichloroethene | ND | ug/L | | 0.50 | 70 | E524.2 | 12/18/12 17:22 / eli-b |
| trans-1,2-Dichloroethene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2-Dichloropropane | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,3-Dichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 2,2-Dichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| cis-1,3-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| trans-1,3-Dichloropropene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Ethylbenzene | ND | ug/L | | 0.50 | 700 | E524.2 | 12/18/12 17:22 / eli-b |
| Hexachlorobutadiene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Isopropylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| p-Isopropyltoluene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Methyl tert-butyl ether (MTBE) | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Methylene chloride | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Naphthalene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A
**Lab ID:** G12120325-002
**Client Sample ID** Trip Blank - LOTgatd1210161430

**Report Date:** 01/15/13
**Collection Date:** 12/13/12 13:30
**Date Received:** 12/13/12
**Matrix:** Trip Blank

| Analyses | Result | Units | Qual | RL | MCL/ QCL | Method | Analysis Date / By |
|---|---|---|---|---|---|---|---|
| **VOLATILE ORGANIC COMPOUNDS, SDWA** | | | | | | | |
| n-Propylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Styrene | ND | ug/L | | 0.50 | 100 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Tetrachloroethene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Toluene | ND | ug/L | | 0.50 | 1000 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2,3-Trichlorobenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2,4-Trichlorobenzene | ND | ug/L | | 0.50 | 70 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1,1-Trichloroethane | ND | ug/L | | 0.50 | 200 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,1,2-Trichloroethane | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Trichloroethene | ND | ug/L | | 0.50 | 5 | E524.2 | 12/18/12 17:22 / eli-b |
| Trichlorofluoromethane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2,3-Trichloropropane | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Trihalomethanes, Total | ND | ug/L | | 0.50 | 80 | E524.2 | 12/18/12 17:22 / eli-b |
| 1,2,4-Trimethylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| 1,3,5-Trimethylbenzene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Vinyl chloride | ND | ug/L | | 0.50 | 2 | E524.2 | 12/18/12 17:22 / eli-b |
| m+p-Xylenes | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| o-Xylene | ND | ug/L | | 0.50 | | E524.2 | 12/18/12 17:22 / eli-b |
| Xylenes, Total | ND | ug/L | | 0.50 | 10000 | E524.2 | 12/18/12 17:22 / eli-b |
| Surr: p-Bromofluorobenzene | 97.0 | %REC | | 80-120 | | E524.2 | 12/18/12 17:22 / eli-b |
| Surr: 1,2-Dichloroethane-d4 | 81.0 | %REC | | 74-127 | | E524.2 | 12/18/12 17:22 / eli-b |
| Surr: Toluene-d8 | 105 | %REC | | 80-120 | | E524.2 | 12/18/12 17:22 / eli-b |

**Report Definitions:**
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2130 B** | | | | | | | | Batch: 121213_1_TURB-W | |
| **Sample ID: MBLK-1_121213** | Method Blank | | | | Run: TURBIDIMETER 2100P_12121 | | | 12/13/12 16:06 | |
| Turbidity | 0.1 | NTU | 0.05 | | | | | | |
| **Sample ID: LCS-1_121213** | Laboratory Control Sample | | | | Run: TURBIDIMETER 2100P_12121 | | | 12/13/12 16:0 | |
| Turbidity | 480 | NTU | 0.2 | 97 | 90 | 110 | | | |
| **Sample ID: G12120325-001ADUP** | Sample Duplicate | | | | Run: TURBIDIMETER 2100P_12121 | | | 12/13/12 16:1 | |
| Turbidity | 13 | NTU | 0.2 | | | | 1.6 | 10 | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2510 B** | | | | | | | | | Batch: R200003 |
| **Sample ID: SC 100** | Initial Calibration Verification Standard | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 12:16 |
| Conductivity @ 25 C | 103 | umhos/cm | 10 | 103 | 95 | 105 | | | |
| **Sample ID: SC 5000** | Initial Calibration Verification Standard | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 12:19 |
| Conductivity @ 25 C | 5060 | umhos/cm | 10 | 101 | 95 | 105 | | | |
| **Sample ID: SC 20000** | Initial Calibration Verification Standard | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 12:21 |
| Conductivity @ 25 C | 20800 | umhos/cm | 10 | 104 | 95 | 105 | | | |
| **Sample ID: SC 50000** | Initial Calibration Verification Standard | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 13:34 |
| Conductivity @ 25 C | 53000 | umhos/cm | 10 | 105 | 95 | 105 | | | |
| **Sample ID: MBLK - SC** | Method Blank | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 16:55 |
| Conductivity @ 25 C | 3.70 | umhos/cm | 10 | | | | | | |
| **Sample ID: G12120321-002ADUP** | Sample Duplicate | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 17:28 |
| Conductivity @ 25 C | 2370 | umhos/cm | 10 | | | | 0.3 | 5 | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Gillette, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A4500-H B** | | | | | | | Analytical Run: PHSC_101-G_121213A | | |
| **Sample ID: pH 8** | Initial Calibration Verification Standard | | | | | | | | 12/13/12 12:26 |
| pH | 7.98 | s.u. | 0.010 | 100 | 98 | 102 | | | |
| **Method: A4500-H B** | | | | | | | | | Batch: R20000 |
| **Sample ID: G12120321-002ADUP** | Sample Duplicate | | | | Run: PHSC_101-G_121213A | | | | 12/13/12 17:28 |
| pH | 8.18 | s.u. | 0.010 | | | | 0.0 | 1.5 | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.7** | | | | | | | | | Analytical Run: ICP203-B_121218A | |
| **Sample ID: ICV** | 17 | Continuing Calibration Verification Standard | | | | | | | 12/18/12 13:26 | |
| Barium | | 2.42 | mg/L | 0.10 | 97 | 95 | 105 | | | |
| Beryllium | | 1.25 | mg/L | 0.010 | 100 | 95 | 105 | | | |
| Boron | | 2.55 | mg/L | 0.10 | 102 | 95 | 105 | | | |
| Cadmium | | 2.46 | mg/L | 0.010 | 99 | 95 | 105 | | | |
| Calcium | | 25.5 | mg/L | 1.0 | 102 | 95 | 105 | | | |
| Chromium | | 2.44 | mg/L | 0.050 | 98 | 95 | 105 | | | |
| Copper | | 2.41 | mg/L | 0.010 | 96 | 95 | 105 | | | |
| Iron | | 2.56 | mg/L | 0.030 | 102 | 95 | 105 | | | |
| Magnesium | | 25.1 | mg/L | 1.0 | 100 | 95 | 105 | | | |
| Manganese | | 2.47 | mg/L | 0.010 | 99 | 95 | 105 | | | |
| Nickel | | 2.38 | mg/L | 0.050 | 95 | 95 | 105 | | | |
| Potassium | | 25.9 | mg/L | 1.0 | 103 | 95 | 105 | | | |
| Sodium | | 25.4 | mg/L | 1.0 | 102 | 95 | 105 | | | |
| Zinc | | 2.47 | mg/L | 0.010 | 99 | 95 | 105 | | | |
| Silicon | | 5.06 | mg/L | 0.10 | 101 | 95 | 105 | | | |
| Silica | | 10.8 | mg/L | 0.21 | 101 | 95 | 105 | | | |
| Silicon as SiO2 | | 10.8 | mg/L | 0.21 | 101 | 95 | 105 | | | |
| **Method: E200.7** | | | | | | | | | Batch: 67854 | |
| **Sample ID: LCS-67854** | 17 | Laboratory Control Sample | | | | Run: ICP203-B_121218A | | | 12/18/12 14:23 | |
| Barium | | 0.496 | mg/L | 0.050 | 99 | 85 | 115 | | | |
| Beryllium | | 0.245 | mg/L | 0.0010 | 98 | 85 | 115 | | | |
| Boron | | 0.509 | mg/L | 0.050 | 102 | 85 | 115 | | | |
| Cadmium | | 0.244 | mg/L | 0.0010 | 98 | 85 | 115 | | | |
| Calcium | | 25.5 | mg/L | 1.0 | 102 | 85 | 115 | | | |
| Chromium | | 0.487 | mg/L | 0.0050 | 97 | 85 | 115 | | | |
| Copper | | 0.492 | mg/L | 0.0050 | 98 | 85 | 115 | | | |
| Iron | | 2.62 | mg/L | 0.030 | 105 | 85 | 115 | | | |
| Magnesium | | 25.4 | mg/L | 1.0 | 101 | 85 | 115 | | | |
| Manganese | | 2.51 | mg/L | 0.0010 | 100 | 85 | 115 | | | |
| Nickel | | 0.480 | mg/L | 0.010 | 96 | 85 | 115 | | | |
| Potassium | | 28.9 | mg/L | 1.0 | 115 | 85 | 115 | | | |
| Silicon | | 5.14 | mg/L | 0.10 | 103 | 85 | 115 | | | |
| Sodium | | 26.9 | mg/L | 1.0 | 108 | 85 | 115 | | | |
| Zinc | | 0.498 | mg/L | 0.010 | 100 | 85 | 115 | | | |
| Silica | | 11.0 | mg/L | 0.21 | 103 | 85 | 115 | | | |
| Silicon as SiO2 | | 11.0 | mg/L | 0.21 | 103 | 85 | 115 | | | |
| **Sample ID: G12120325-001CMS3** | 17 | Sample Matrix Spike | | | | Run: ICP203-B_121218A | | | 12/18/12 14:42 | |
| Barium | | 0.472 | mg/L | 0.050 | 90 | 70 | 130 | | | |
| Beryllium | | 0.234 | mg/L | 0.0016 | 94 | 70 | 130 | | | |
| Boron | | 0.530 | mg/L | 0.050 | 96 | 70 | 130 | | | |
| Cadmium | | 0.237 | mg/L | 0.0010 | 94 | 70 | 130 | | | |
| Calcium | | 197 | mg/L | 1.0 | | 70 | 130 | | | A |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.7** | | | | | | | | | | Batch: 67854 |
| **Sample ID: G12120325-001CMS3** | 17 | Sample Matrix Spike | | | | Run: ICP203-B_121218A | | | 12/18/12 14:42 | |
| Chromium | | 0.471 | mg/L | 0.0060 | 94 | 70 | 130 | | | |
| Copper | | 0.467 | mg/L | 0.010 | 91 | 70 | 130 | | | |
| Iron | | 6.51 | mg/L | 0.030 | 93 | 70 | 130 | | | |
| Magnesium | | 85.9 | mg/L | 1.0 | 97 | 70 | 130 | | | |
| Manganese | | 2.48 | mg/L | 0.0010 | 95 | 70 | 130 | | | |
| Nickel | | 0.487 | mg/L | 0.010 | 93 | 70 | 130 | | | |
| Potassium | | 26.6 | mg/L | 1.0 | 94 | 70 | 130 | | | |
| Silicon | | 11.0 | mg/L | 0.10 | 95 | 70 | 130 | | | |
| Sodium | | 36.4 | mg/L | 1.0 | 94 | 70 | 130 | | | |
| Zinc | | 0.541 | mg/L | 0.010 | 94 | 70 | 130 | | | |
| Silica | | 23.5 | mg/L | 0.21 | 95 | 70 | 130 | | | |
| Silicon as SiO2 | | 23.5 | mg/L | 0.21 | 95 | 0 | 0 | | | S |
| **Sample ID: G12120325-001CMSD** | 17 | Sample Matrix Spike Duplicate | | | | Run: ICP203-B_121218A | | | 12/18/12 14:46 | |
| Barium | | 0.489 | mg/L | 0.050 | 94 | 70 | 130 | 3.6 | 20 | |
| Beryllium | | 0.240 | mg/L | 0.0016 | 96 | 70 | 130 | 2.4 | 20 | |
| Boron | | 0.547 | mg/L | 0.050 | 99 | 70 | 130 | 3.2 | 20 | |
| Cadmium | | 0.237 | mg/L | 0.0010 | 94 | 70 | 130 | 0.0 | 20 | |
| Calcium | | 200 | mg/L | 1.0 | | 70 | 130 | 1.8 | 20 | A |
| Chromium | | 0.469 | mg/L | 0.0060 | 94 | 70 | 130 | 0.6 | 20 | |
| Copper | | 0.481 | mg/L | 0.010 | 94 | 70 | 130 | 3.0 | 20 | |
| Iron | | 6.69 | mg/L | 0.030 | 100 | 70 | 130 | 2.6 | 20 | |
| Magnesium | | 87.9 | mg/L | 1.0 | 105 | 70 | 130 | 2.3 | 20 | |
| Manganese | | 2.53 | mg/L | 0.0010 | 97 | 70 | 130 | 2.0 | 20 | |
| Nickel | | 0.487 | mg/L | 0.010 | 93 | 70 | 130 | 0.0 | 20 | |
| Potassium | | 28.3 | mg/L | 1.0 | 100 | 70 | 130 | 6.2 | 20 | |
| Silicon | | 11.3 | mg/L | 0.10 | 101 | 70 | 130 | 2.5 | 20 | |
| Sodium | | 37.5 | mg/L | 1.0 | 98 | 70 | 130 | 2.9 | 20 | |
| Zinc | | 0.543 | mg/L | 0.010 | 95 | 70 | 130 | 0.5 | 20 | |
| Silica | | 24.1 | mg/L | 0.21 | 101 | 70 | 130 | 2.5 | 20 | |
| Silicon as SiO2 | | 24.1 | mg/L | 0.21 | 101 | 0 | 0 | 2.5 | 20 | S |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

S - Spike recovery outside of advisory limits.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc **Report Date:** 01/07/13

**Project:** City Of Gillette Test Well TH #2A **Work Order:** G12120325

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | Analytical Run: ICPMS202-B_121219A | |
| **Sample ID: QCS** | 5 | Initial Calibration Verification Standard | | | | | | | 12/19/12 10:56 | |
| Antimony | | 0.0489 | mg/L | 0.050 | 98 | 90 | 110 | | | |
| Arsenic | | 0.0478 | mg/L | 0.0050 | 96 | 90 | 110 | | | |
| Lead | | 0.0479 | mg/L | 0.010 | 96 | 90 | 110 | | | |
| Selenium | | 0.0484 | mg/L | 0.0050 | 97 | 90 | 110 | | | |
| Thallium | | 0.0483 | mg/L | 0.10 | 97 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | | | Batch: 67854 |
| **Sample ID: MB-67854** | 5 | Method Blank | | | | Run: ICPMS202-B_121219A | | | 12/19/12 16:01 | |
| Antimony | | 5E-05 | mg/L | 8E-06 | | | | | | |
| Arsenic | | 0.003 | mg/L | 0.0002 | | | | | | |
| Lead | | 1E-05 | mg/L | 7E-06 | | | | | | |
| Selenium | | 0.007 | mg/L | 0.0004 | | | | | | |
| Thallium | | ND | mg/L | 6E-05 | | | | | | |
| **Sample ID: LCS-67854** | 5 | Laboratory Control Sample | | | | Run: ICPMS202-B_121219A | | | 12/19/12 16:12 | |
| Antimony | | 0.524 | mg/L | 0.0010 | 105 | 85 | 115 | | | |
| Arsenic | | 0.493 | mg/L | 0.0010 | 98 | 85 | 115 | | | |
| Lead | | 0.517 | mg/L | 0.0010 | 103 | 85 | 115 | | | |
| Selenium | | 0.481 | mg/L | 0.0010 | 95 | 85 | 115 | | | |
| Thallium | | 0.505 | mg/L | 0.00050 | 101 | 85 | 115 | | | |
| **Sample ID: G12120325-001CMS3** | 5 | Sample Matrix Spike | | | | Run: ICPMS202-B_121219A | | | 12/19/12 16:30 | |
| Antimony | | 0.544 | mg/L | 0.0010 | 109 | 70 | 130 | | | |
| Arsenic | | 0.501 | mg/L | 0.0010 | 100 | 70 | 130 | | | |
| Lead | | 0.529 | mg/L | 0.0010 | 106 | 70 | 130 | | | |
| Selenium | | 0.487 | mg/L | 0.0010 | 96 | 70 | 130 | | | |
| Thallium | | 0.523 | mg/L | 0.00050 | 105 | 70 | 130 | | | |
| **Sample ID: G12120325-001CMSD** | 5 | Sample Matrix Spike Duplicate | | | | Run: ICPMS202-B_121219A | | | 12/19/12 16:33 | |
| Antimony | | 0.538 | mg/L | 0.0010 | 108 | 70 | 130 | 1.1 | 20 | |
| Arsenic | | 0.498 | mg/L | 0.0010 | 99 | 70 | 130 | 0.7 | 20 | |
| Lead | | 0.528 | mg/L | 0.0010 | 105 | 70 | 130 | 0.2 | 20 | |
| Selenium | | 0.487 | mg/L | 0.0010 | 96 | 70 | 130 | 0.0 | 20 | |
| Thallium | | 0.518 | mg/L | 0.00050 | 104 | 70 | 130 | 1.0 | 20 | |
| **Sample ID: G12120325-001CMS3** | 5 | Sample Matrix Spike | | | | Run: ICPMS202-B_121219A | | | 12/20/12 21:28 | |
| Antimony | | 0.530 | mg/L | 0.0010 | 106 | 70 | 130 | | | |
| Arsenic | | 0.507 | mg/L | 0.0010 | 101 | 70 | 130 | | | |
| Lead | | 0.514 | mg/L | 0.0010 | 103 | 70 | 130 | | | |
| Selenium | | 0.502 | mg/L | 0.0010 | 100 | 70 | 130 | | | |
| Thallium | | 0.516 | mg/L | 0.00050 | 103 | 70 | 130 | | | |
| **Sample ID: G12120325-001CMSD** | 5 | Sample Matrix Spike Duplicate | | | | Run: ICPMS202-B_121219A | | | 12/20/12 21:31 | |
| Antimony | | 0.525 | mg/L | 0.0010 | 105 | 70 | 130 | 3.5 | 20 | |
| Arsenic | | 0.501 | mg/L | 0.0010 | 100 | 70 | 130 | 0.1 | 20 | |
| Lead | | 0.518 | mg/L | 0.0010 | 103 | 70 | 130 | 2.1 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | | | Batch: 6785 |
| **Sample ID: G12120325-001CMSD** | 5 | Sample Matrix Spike Duplicate | | | | Run: ICPMS202-B_121219A | | | 12/20/12 21:31 | |
| Selenium | | 0.497 | mg/L | 0.0010 | 98 | 70 | 130 | 2.1 | 20 | |
| Thallium | | 0.509 | mg/L | 0.00050 | 102 | 70 | 130 | 2.7 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Count | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|
| **Method: E245.1** | | | | | | | | | Analytical Run: HGCV201-B_121218A | |
| **Sample ID: QCS** | | Initial Calibration Verification Standard | | | | | | | 12/18/12 15:46 | |
| Mercury | | 0.00194 | mg/L | 0.00010 | 97 | 90 | 110 | | | |
| **Method: E245.1** | | | | | | | | | Batch: 67868 | |
| **Sample ID: MB-67868** | | Method Blank | | | | Run: HGCV201-B_121218A | | | 12/18/12 15:57 | |
| Mercury | | ND | mg/L | 2E-05 | | | | | | |
| **Sample ID: LCS-67868** | | Laboratory Control Sample | | | | Run: HGCV201-B_121218A | | | 12/18/12 15:59 | |
| Mercury | | 0.00188 | mg/L | 0.00010 | 94 | 85 | 115 | | | |
| **Sample ID: G12120325-001CMS** | | Sample Matrix Spike | | | | Run: HGCV201-B_121218A | | | 12/18/12 16:08 | |
| Mercury | | 0.00186 | mg/L | 0.00010 | 93 | 70 | 130 | | | |
| **Sample ID: G12120325-001CMSD** | | Sample Matrix Spike Duplicate | | | | Run: HGCV201-B_121218A | | | 12/18/12 16:11 | |
| Mercury | | 0.00180 | mg/L | 0.00010 | 90 | 70 | 130 | 3.3 | 30 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2120 B** | | | | | | | | Analytical Run: MISC-WC_121218E | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | | 12/18/12 16:45 |
| Color | 25 | c.u. | 5 | 100 | 90 | 110 | | | |
| **Method: A2120 B** | | | | | | | | Batch: R196979 | |
| **Sample ID: MB-R196979** | Method Blank | | | | Run: MISC-WC_121218E | | | | 12/18/12 16:50 |
| Color | 1 | c.u. | | | | | | | |
| **Sample ID: G12120325-001BDUP** | Sample Duplicate | | | | Run: MISC-WC_121218E | | | | 12/18/12 16:40 |
| Color | 1 | c.u. | 5 | | 80 | 120 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2310 B** | | | | | | | | | Batch: R197113 |
| **Sample ID: MBLK** | Method Blank | | | | Run: MAN-TECH_121219B | | | | 12/19/12 17:59 |
| Acidity, Total as CaCO3 | | mg/L | | | | | | | |
| **Sample ID: LCS** | Laboratory Control Sample | | | | Run: MAN-TECH_121219B | | | | 12/19/12 18:06 |
| Acidity, Total as CaCO3 | 127 | mg/L | 4.0 | 103 | 90 | 110 | | | |
| **Sample ID: B12121138-007ADUP** | Sample Duplicate | | | | Run: MAN-TECH_121219B | | | | 12/19/12 18:21 |
| Acidity, Total as CaCO3 | 3.65 | mg/L | 4.0 | | | | | 10 | |
| **Sample ID: B12121138-017ADUP** | Sample Duplicate | | | | Run: MAN-TECH_121219B | | | | 12/19/12 19:21 |
| Acidity, Total as CaCO3 | 62.9 | mg/L | 4.0 | | | | 0.9 | 10 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2320 B** | | | | | | | | | Batch: R19731: |
| **Sample ID: MBLK** | Method Blank | | | | Run: MAN-TECH_121224A | | | | 12/24/12 12:47 |
| Alkalinity, Total as CaCO3 | 2 | mg/L | 0.7 | | | | | | |
| Bicarbonate as HCO3 | 2 | mg/L | 0.9 | | | | | | |
| Carbonate as CO3 | | mg/L | | | | | | | |
| **Sample ID: LCS** | Laboratory Control Sample | | | | Run: MAN-TECH_121224A | | | | 12/24/12 12:5/ |
| Alkalinity, Total as CaCO3 | 101 | mg/L | 4.0 | 100 | 90 | 110 | | | |
| **Sample ID: B12121348-004AMS** | Sample Matrix Spike | | | | Run: MAN-TECH_121224A | | | | 12/24/12 15:54 |
| Alkalinity, Total as CaCO3 | 388 | mg/L | 4.0 | 88 | 80 | 120 | | | |
| **Sample ID: B12121490-002ADUP** | Sample Duplicate | | | | Run: MAN-TECH_121224A | | | | 12/24/12 17:09 |
| Alkalinity, Total as CaCO3 | 377 | mg/L | 4.0 | | | | 0.4 | 20 | |
| Bicarbonate as HCO3 | 459 | mg/L | 4.0 | | | | 0.4 | 20 | |
| Carbonate as CO3 | ND | mg/L | 4.0 | | | | | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A2540 C** | | | | | | | | | Batch: TDS121217A |
| **Sample ID: MBLK1** | Method Blank | | | | Run: BAL #11_121217C | | | | 12/17/12 10:00 |
| Solids, Total Dissolved TDS @ 180 C | ND | mg/L | 6 | | | | | | |
| **Sample ID: LCS1** | Laboratory Control Sample | | | | Run: BAL #11_121217C | | | | 12/17/12 10:01 |
| Solids, Total Dissolved TDS @ 180 C | 1910 | mg/L | 10 | 96 | 90 | 110 | | | |
| **Sample ID: B12121224-001A MS** | Sample Matrix Spike | | | | Run: BAL #11_121217C | | | | 12/17/12 10:01 |
| Solids, Total Dissolved TDS @ 180 C | 1950 | mg/L | 10 | 96 | 90 | 110 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A4500-F C** | | | | | | | | Analytical Run: MAN-TECH_121219A | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | 12/19/12 12:35 | |
| Fluoride | 1.02 | mg/L | 0.10 | 102 | 90 | 110 | | | |
| **Method: A4500-F C** | | | | | | | | Batch: R19709 | |
| **Sample ID: MB** | Method Blank | | | | Run: MAN-TECH_121219A | | | 12/19/12 12:29 | |
| Fluoride | 0.03 | mg/L | 0.02 | | | | | | |
| **Sample ID: LFB** | Laboratory Fortified Blank | | | | Run: MAN-TECH_121219A | | | 12/19/12 12:32 | |
| Fluoride | 0.980 | mg/L | 0.10 | 95 | 90 | 110 | | | |
| **Sample ID: B12121172-009AMS** | Sample Matrix Spike | | | | Run: MAN-TECH_121219A | | | 12/19/12 14:1 | |
| Fluoride | 0.950 | mg/L | 0.10 | 93 | 80 | 120 | | | |
| **Sample ID: B12121172-009AMSD** | Sample Matrix Spike Duplicate | | | | Run: MAN-TECH_121219A | | | 12/19/12 14:1 | |
| Fluoride | 0.990 | mg/L | 0.10 | 97 | 80 | 120 | 4.1 | 10 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: A4500-S D** | | | | | | | | | Batch: R196850 |
| **Sample ID: MB-R196850** | Method Blank | | | | Run: SPEC_121214B | | | | 12/14/12 11:45 |
| Sulfide | ND | mg/L | 0.008 | | | | | | |
| **Sample ID: LCS-R196850** | Laboratory Control Sample | | | | Run: SPEC_121214B | | | | 12/14/12 11:45 |
| Sulfide | 0.230 | mg/L | 0.040 | 104 | 70 | 130 | | | |
| **Sample ID: B12121112-001DMS** | Sample Matrix Spike | | | | Run: SPEC_121214B | | | | 12/14/12 11:45 |
| Sulfide | 0.238 | mg/L | 0.040 | 100 | 70 | 130 | | | |
| **Sample ID: B12121112-001DMSD** | Sample Matrix Spike Duplicate | | | | Run: SPEC_121214B | | | | 12/14/12 11:45 |
| Sulfide | 0.245 | mg/L | 0.040 | 103 | 70 | 130 | 3.1 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E300.0** | | | | | | | | Analytical Run: IC202-B_121213A | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | 12/17/12 11:46 | |
| Chloride | 24.6 | mg/L | 1.0 | 98 | 90 | 110 | | | |
| Sulfate | 99.3 | mg/L | 1.0 | 99 | 90 | 110 | | | |
| **Method: E300.0** | | | | | | | | Batch: R196798 | |
| **Sample ID: ICB** | Method Blank | | | | Run: IC202-B_121213A | | | 12/13/12 13:58 | |
| Chloride | 0.06 | mg/L | 0.02 | | | | | | |
| Sulfate | ND | mg/L | 0.08 | | | | | | |
| **Sample ID: LFB** | Laboratory Fortified Blank | | | | Run: IC202-B_121213A | | | 12/13/12 14:13 | |
| Chloride | 26.4 | mg/L | 1.0 | 106 | 90 | 110 | | | |
| Sulfate | 107 | mg/L | 1.1 | 107 | 90 | 110 | | | |
| **Sample ID: B12121063-009AMS** | Sample Matrix Spike | | | | Run: IC202-B_121213A | | | 12/18/12 19:00 | |
| Chloride | 62.1 | mg/L | 1.0 | 94 | 90 | 110 | | | |
| Sulfate | 182 | mg/L | 1.1 | 105 | 90 | 110 | | | |
| **Sample ID: B12121063-009AMSD** | Sample Matrix Spike Duplicate | | | | Run: IC202-B_121213A | | | 12/18/12 19:15 | |
| Chloride | 62.4 | mg/L | 1.0 | 95 | 90 | 110 | 0.5 | 20 | |
| Sulfate | 184 | mg/L | 1.1 | 107 | 90 | 110 | 1.2 | 20 | |
| **Method: E300.0** | | | | | | | | Analytical Run: IC203-B_121214A | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | 12/17/12 12:50 | |
| Sulfate | 96.4 | mg/L | 1.0 | 96 | 90 | 110 | | | |
| **Method: E300.0** | | | | | | | | Batch: R196879 | |
| **Sample ID: ICB** | Method Blank | | | | Run: IC203-B_121214A | | | 12/14/12 12:59 | |
| Sulfate | ND | mg/L | 0.06 | | | | | | |
| **Sample ID: LFB** | Laboratory Fortified Blank | | | | Run: IC203-B_121214A | | | 12/14/12 13:14 | |
| Sulfate | 96.8 | mg/L | 1.1 | 97 | 90 | 110 | | | |
| **Sample ID: B12121227-001AMS** | Sample Matrix Spike | | | | Run: IC203-B_121214A | | | 12/18/12 03:46 | |
| Sulfate | 1070 | mg/L | 11 | 99 | 90 | 110 | | | |
| **Sample ID: B12121227-001AMSD** | Sample Matrix Spike Duplicate | | | | Run: IC203-B_121214A | | | 12/18/12 04:01 | |
| Sulfate | 1060 | mg/L | 11 | 99 | 90 | 110 | 0.6 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E353.2** | | | | | | | | Analytical Run: FIA203-B_121219A | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | | 12/19/12 08:26 |
| Nitrogen, Nitrate+Nitrite as N | 23.7 | mg/L | 0.060 | 108 | 90 | 110 | | | |
| **Method: E353.2** | | | | | | | | | Batch: R197059 |
| **Sample ID: MBLK** | Method Blank | | | | Run: FIA203-B_121219A | | | | 12/19/12 08:27 |
| Nitrogen, Nitrate+Nitrite as N | ND | mg/L | 0.003 | | | | | | |
| **Sample ID: LFB** | Laboratory Fortified Blank | | | | Run: FIA203-B_121219A | | | | 12/19/12 08:28 |
| Nitrogen, Nitrate+Nitrite as N | 1.03 | mg/L | 0.010 | 105 | 90 | 110 | | | |
| **Sample ID: B12121138-007CMS** | Sample Matrix Spike | | | | Run: FIA203-B_121219A | | | | 12/19/12 12:16 |
| Nitrogen, Nitrate+Nitrite as N | 1.02 | mg/L | 0.010 | 104 | 90 | 110 | | | |
| **Sample ID: B12121138-007CMSD** | Sample Matrix Spike Duplicate | | | | Run: FIA203-B_121219A | | | | 12/19/12 12:17 |
| Nitrogen, Nitrate+Nitrite as N | 1.01 | mg/L | 0.010 | 103 | 90 | 110 | 1.0 | 10 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/07/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: Kelada-01** | | | | | | | | Analytical Run: SFA-201-B_121216/ | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | | 12/16/12 11:33 |
| Cyanide, Total | 0.103 | mg/L | 0.0050 | 103 | 90 | 110 | | | |
| **Method: Kelada-01** | | | | | | | | | Batch: R19685 |
| **Sample ID: LFB** | Laboratory Fortified Blank | | | | Run: SFA-201-B_121216A | | | | 12/16/12 11:36 |
| Cyanide, Total | 0.104 | mg/L | 0.0050 | 104 | 90 | 110 | | | |
| **Sample ID: MB** | Method Blank | | | | Run: SFA-201-B_121216A | | | | 12/16/12 11:38 |
| Cyanide, Total | 0.0006 | mg/L | 0.0004 | | | | | | |
| **Sample ID: B12121144-001BMS** | Sample Matrix Spike | | | | Run: SFA-201-B_121216A | | | | 12/16/12 12:35 |
| Cyanide, Total | 0.106 | mg/L | 0.0050 | 103 | 90 | 110 | | | |
| **Sample ID: B12121144-001BMSD** | Sample Matrix Spike Duplicate | | | | Run: SFA-201-B_121216A | | | | 12/16/12 12:3 |
| Cyanide, Total | 0.108 | mg/L | 0.0050 | 105 | 90 | 110 | 1.6 | 10 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 12/21/12
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E504.1** | | | | | | | | | Batch: 36078 |
| **Sample ID: LCS-36078** | Laboratory Control Sample | | | | Run: ECD1-C_121219A | | | | 12/19/12 20:19 |
| 1,2-Dibromo-3-chloropropane | 0.256 | ug/L | 0.020 | 102 | 70 | 130 | | | |
| 1,2-Dibromoethane | 0.320 | ug/L | 0.010 | 128 | 70 | 130 | | | |
| 1,2,3-Trichloropropane | 0.267 | ug/L | 0.050 | 107 | 70 | 130 | | | |
| Surr: 1,1,1,2-Tetrachloroethane | | | 0.020 | 97 | 70 | 130 | | | |
| **Sample ID: LCSD-36078** | Laboratory Control Sample Duplicate | | | | Run: ECD1-C_121219A | | | | 12/19/12 21:01 |
| 1,2-Dibromo-3-chloropropane | 0.252 | ug/L | 0.020 | 101 | 70 | 130 | 1.6 | 20 | |
| 1,2-Dibromoethane | 0.319 | ug/L | 0.010 | 128 | 70 | 130 | 0.3 | 20 | |
| 1,2,3-Trichloropropane | 0.269 | ug/L | 0.050 | 108 | 70 | 130 | 0.7 | 20 | |
| Surr: 1,1,1,2-Tetrachloroethane | | | 0.020 | 94 | 70 | 130 | 0.0 | 10 | |
| **Sample ID: MB-36078** | Method Blank | | | | Run: ECD1-C_121219A | | | | 12/19/12 21:41 |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 0.020 | | | | | | |
| 1,2-Dibromoethane | ND | ug/L | 0.010 | | | | | | |
| 1,2,3-Trichloropropane | ND | ug/L | 0.050 | | | | | | |
| Surr: 1,1,1,2-Tetrachloroethane | | | 0.020 | 92 | 70 | 130 | | | |
| **Sample ID: C12120348-001GMS** | Sample Matrix Spike | | | | Run: ECD1-C_121219A | | | | 12/20/12 03:06 |
| 1,2-Dibromo-3-chloropropane | 0.258 | ug/L | 0.020 | 103 | 65 | 135 | | | |
| 1,2-Dibromoethane | 0.322 | ug/L | 0.010 | 128 | 65 | 135 | | | |
| 1,2,3-Trichloropropane | 0.267 | ug/L | 0.050 | 107 | 65 | 135 | | | |
| Surr: 1,1,1,2-Tetrachloroethane | | | 0.020 | 99 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 12/21/12
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E531.1** | | | | | | | | | Batch: R16844 |
| **Sample ID: LCS** | Laboratory Control Sample | | | | Run: HPLC203-C_121217B | | | | 12/18/12 18:02 |
| Aldicarb | 7.3 | ug/L | 0.40 | 91 | 80 | 120 | | | |
| Aldicarb sulfone | 6.8 | ug/L | 0.40 | 85 | 80 | 120 | | | |
| Aldicarb sulfoxide | 8.6 | ug/L | 0.40 | 107 | 80 | 120 | | | |
| Carbaryl | 7.4 | ug/L | 0.40 | 93 | 80 | 120 | | | |
| Carbofuran | 9.3 | ug/L | 0.40 | 116 | 80 | 120 | | | |
| 3-Hydroxycarbofuran | 7.5 | ug/L | 0.40 | 94 | 80 | 120 | | | |
| Methiocarb | 7.0 | ug/L | 0.40 | 88 | 80 | 120 | | | |
| Methomyl | 8.8 | ug/L | 0.40 | 110 | 80 | 120 | | | |
| Oxamyl | 7.5 | ug/L | 0.40 | 94 | 80 | 120 | | | |
| Baygon | 6.6 | ug/L | 0.40 | 83 | 80 | 120 | | | |
| Surr: BDMC | | | 0.40 | 86 | 70 | 130 | | | |
| **Sample ID: MBLK** | Method Blank | | | | Run: HPLC203-C_121217B | | | | 12/18/12 19:0 |
| Aldicarb | ND | ug/L | 0.40 | | | | | | |
| Aldicarb sulfone | ND | ug/L | 0.40 | | | | | | |
| Aldicarb sulfoxide | ND | ug/L | 0.40 | | | | | | |
| Carbaryl | ND | ug/L | 0.40 | | | | | | |
| Carbofuran | ND | ug/L | 0.40 | | | | | | |
| 3-Hydroxycarbofuran | ND | ug/L | 0.40 | | | | | | |
| Methiocarb | ND | ug/L | 0.40 | | | | | | |
| Methomyl | ND | ug/L | 0.40 | | | | | | |
| Oxamyl | ND | ug/L | 0.40 | | | | | | |
| Baygon | ND | ug/L | 0.40 | | | | | | |
| Surr: BDMC | | | 0.40 | 106 | 70 | 130 | | | |
| **Sample ID: C12120330-001DMS** | Sample Matrix Spike | | | | Run: HPLC203-C_121217B | | | | 12/18/12 20:0 |
| Aldicarb | 7.6 | ug/L | 0.40 | 95 | 80 | 120 | | | |
| Aldicarb sulfone | 7.8 | ug/L | 0.40 | 97 | 80 | 120 | | | |
| Aldicarb sulfoxide | 9.1 | ug/L | 0.40 | 114 | 80 | 120 | | | |
| Carbaryl | 8.2 | ug/L | 0.40 | 102 | 80 | 120 | | | |
| Carbofuran | 7.9 | ug/L | 0.40 | 99 | 80 | 120 | | | |
| 3-Hydroxycarbofuran | 7.2 | ug/L | 0.40 | 90 | 80 | 120 | | | |
| Methiocarb | 7.5 | ug/L | 0.40 | 94 | 80 | 120 | | | |
| Methomyl | 7.9 | ug/L | 0.40 | 98 | 80 | 120 | | | |
| Oxamyl | 7.9 | ug/L | 0.40 | 99 | 80 | 120 | | | |
| Baygon | 7.4 | ug/L | 0.40 | 93 | 80 | 120 | | | |
| Surr: BDMC | | | 0.40 | 90 | 70 | 130 | | | |
| **Sample ID: C12120330-001DMSD** | Sample Matrix Spike Duplicate | | | | Run: HPLC203-C_121217B | | | | 12/18/12 21:03 |
| Aldicarb | 7.6 | ug/L | 0.40 | 95 | 80 | 120 | 0.4 | 20 | |
| Aldicarb sulfone | 8.0 | ug/L | 0.40 | 100 | 80 | 120 | 3.5 | 20 | |
| Aldicarb sulfoxide | 9.4 | ug/L | 0.40 | 118 | 80 | 120 | 3.2 | 20 | |
| Carbaryl | 8.7 | ug/L | 0.40 | 108 | 80 | 120 | 5.9 | 20 | |
| Carbofuran | 8.6 | ug/L | 0.40 | 107 | 80 | 120 | 8.2 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 12/21/12
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E531.1** | | | | | | | | | Batch: R168449 |
| **Sample ID: C12120330-001DMSD** | Sample Matrix Spike Duplicate | | | | Run: HPLC203-C_121217B | | | 12/18/12 21:03 | |
| 3-Hydroxycarbofuran | 7.7 | ug/L | 0.40 | 97 | 80 | 120 | 7.6 | 20 | |
| Methiocarb | 7.9 | ug/L | 0.40 | 98 | 80 | 120 | 4.4 | 20 | |
| Methomyl | 8.1 | ug/L | 0.40 | 101 | 80 | 120 | 2.9 | 20 | |
| Oxamyl | 8.0 | ug/L | 0.40 | 101 | 80 | 120 | 2.0 | 20 | |
| Baygon | 7.6 | ug/L | 0.40 | 95 | 80 | 120 | 2.2 | 20 | |
| Surr: BDMC | | | 0.40 | 96 | 70 | 130 | 0.0 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/02/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E200.8** | | | | | | | | Analytical Run: ICPMS4-C_121226/ | |
| **Sample ID: ICV** | Initial Calibration Verification Standard | | | | | | | 12/26/12 11:08 | |
| Uranium | 0.0486 | mg/L | 0.00030 | 97 | 90 | 110 | | | |
| **Method: E200.8** | | | | | | | | Batch: 36068 | |
| **Sample ID: MB-36068** | Method Blank | | | | Run: ICPMS4-C_121226A | | | 12/27/12 00:06 | |
| Uranium | ND | mg/L | 9E-06 | | | | | | |
| **Sample ID: LCS3-36068** | Laboratory Control Sample | | | | Run: ICPMS4-C_121226A | | | 12/27/12 00:11 | |
| Uranium | 0.505 | mg/L | 0.0010 | 101 | 85 | 115 | | | |
| **Sample ID: C12120613-001DMS3** | Sample Matrix Spike | | | | Run: ICPMS4-C_121226A | | | 12/27/12 00:23 | |
| Uranium | 0.554 | mg/L | 0.0010 | 111 | 70 | 130 | | | |
| **Sample ID: C12120613-001DMSD3** | Sample Matrix Spike Duplicate | | | | Run: ICPMS4-C_121226A | | | 12/27/12 00:2 | |
| Uranium | 0.550 | mg/L | 0.0010 | 110 | 70 | 130 | 0.6 | 20 | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E900.0** | | | | | | | | | Batch: GrDW-0312 |
| **Sample ID: Th230-GrDW-0312** | Laboratory Control Sample | | | | Run: TENNELEC-3_121220B | | | | 12/28/12 08:36 |
| Gross Alpha | 120 | pCi/L | | 119 | 80 | 120 | | | |
| **Sample ID: MB-GrDW-0312** | Method Blank | | | | Run: TENNELEC-3_121220B | | | | 12/28/12 08:36 |
| Gross Alpha | 3 | pCi/L | | | | | | | |
| Gross Alpha precision (±) | 0.7 | pCi/L | | | | | | | |
| Gross Alpha MDC | 0.6 | pCi/L | | | | | | | |
| Alpha MB is within Control Limits. | | | | | | | | | |
| **Sample ID: C12120536-002AMS** | Sample Matrix Spike | | | | Run: TENNELEC-3_121220B | | | | 12/28/12 08:36 |
| Gross Alpha | 83 | pCi/L | | 78 | 70 | 130 | | | |
| **Sample ID: C12120536-002AMSD** | Sample Matrix Spike Duplicate | | | | Run: TENNELEC-3_121220B | | | | 12/28/12 08:36 |
| Gross Alpha | 100 | pCi/L | | 98 | 70 | 130 | 22 | 20 | R |

The RPD for the MS/MSD pair is outside the control limits indicating a possible low precision for the batch. The individual spike recoveries are acceptable, the MB is acceptable, and the LCS is acceptable. Sample non-homogeneity or matrix effects may be responsible for the MS/MSD performance. All other QC parameters for the batch and the instrument are in control therefore the batch is approved.

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E903.0** | | | | | | | | Batch: RA226DW-013 | |
| **Sample ID: LCS-RA226DW-0131** | Laboratory Control Sample | | | | Run: BERTHOLD 770-2_121220A | | | 12/26/12 16:45 | |
| Radium 226 | 12 | pCi/L | | 98 | 90 | 110 | | | |
| **Sample ID: C12110954-001BDUP** | Sample Duplicate | | | | Run: BERTHOLD 770-2_121220A | | | 12/26/12 16:4 | |
| Radium 226 | 0.21 | pCi/L | | | | | 15 | 20 | |
| Radium 226 precision (±) | 0.12 | pCi/L | | | | | | | |
| Radium 226 MDC | 0.10 | pCi/L | | | | | | | |
| **Sample ID: C12120444-001CMS** | Sample Matrix Spike | | | | Run: BERTHOLD 770-2_121220A | | | 12/26/12 16:45 | |
| Radium 226 | 23 | pCi/L | | 91 | 80 | 120 | | | |
| **Sample ID: G12120325-001KDUP** | Sample Duplicate | | | | Run: BERTHOLD 770-2_121220A | | | 12/26/12 18:32 | |
| Radium 226 | 1.2 | pCi/L | | | | | 3.9 | 20 | |
| Radium 226 precision (±) | 0.24 | pCi/L | | | | | | | |
| Radium 226 MDC | 0.12 | pCi/L | | | | | | | |
| **Sample ID: MB-RA226DW-0131** | Method Blank | | | | Run: BERTHOLD 770-2_121220A | | | 12/26/12 20:0 | |
| Radium 226 | 0.1 | pCi/L | | | | | | | U |
| Radium 226 precision (±) | 0.1 | pCi/L | | | | | | | |
| Radium 226 MDC | 0.1 | pCi/L | | | | | | | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
ND - Not detected at the reporting limit.
U - Not detected at minimum detectable concentration

# QA/QC Summary Report

Prepared by Casper, WY Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/15/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: RA-05** | | | | | | | | | Batch: RA228DW-0128 |
| **Sample ID: LCS-228-RA228DW-0128** | Laboratory Control Sample | | | | Run: TENNELEC-3_121220D | | | | 01/14/13 13:23 |
| Radium 228 | 4.1 | pCi/L | | 94 | 80 | 120 | | | |
| **Sample ID: C12120393-002AMS** | Sample Matrix Spike | | | | Run: TENNELEC-3_121220D | | | | 01/14/13 13:23 |
| Radium 228 | 11 | pCi/L | | 114 | 70 | 130 | | | |
| **Sample ID: C12120444-001CDUP** | Sample Duplicate | | | | Run: TENNELEC-3_121220D | | | | 01/14/13 13:23 |
| Radium 228 | 0.79 | pCi/L | | | | | 39 | 20 | R |
| Radium 228 precision (±) | 0.69 | pCi/L | | | | | | | |
| Radium 228 MDC | 0.68 | pCi/L | | | | | | | |
| - Duplicate RPD is outside of the acceptance range for this analysis; however, the RER of 0.5 is less than the limit of 2.0. This batch is approved. | | | | | | | | | |
| **Sample ID: C12120676-001ADUP** | Sample Duplicate | | | | Run: TENNELEC-3_121220D | | | | 01/14/13 15:44 |
| Radium 228 | 0.019 | pCi/L | | | | | 320 | 20 | UR |
| Radium 228 precision (±) | 0.96 | pCi/L | | | | | | | |
| Radium 228 MDC | 1.0 | pCi/L | | | | | | | |
| - Duplicate RPD is outside of the acceptance range for this analysis; however, the RER of 0.1 is less than the limit of 2.0. This batch is approved. | | | | | | | | | |
| **Sample ID: MB-228-RA228DW-0128** | Method Blank | | | | Run: TENNELEC-3_121220D | | | | 01/14/13 15:44 |
| Radium 228 | -0.2 | pCi/L | | | | | | | U |
| Radium 228 precision (±) | 0.9 | pCi/L | | | | | | | |
| Radium 228 MDC | 1 | pCi/L | | | | | | | |

**Qualifiers:**

RL - Analyte reporting limit.
MDC - Minimum detectable concentration
U - Not detected at minimum detectable concentration
ND - Not detected at the reporting limit.
R - RPD exceeds advisory limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E515.1** | | | | | | | | | Batch: 6795 |
| **Sample ID: MB-67956** | Method Blank | | | | Run: CECD.I_121220A | | | 12/24/12 12:1 | |
| 2,4-D | ND | ug/L | 1.0 | | | | | | |
| 2,4-DB | ND | ug/L | 2.5 | | | | | | |
| Dalapon | ND | ug/L | 2.5 | | | | | | |
| Dicamba | ND | ug/L | 0.25 | | | | | | |
| Dichlorprop | ND | ug/L | 1.0 | | | | | | |
| Dinoseb | ND | ug/L | 1.0 | | | | | | |
| Pentachlorophenol | ND | ug/L | 0.040 | | | | | | |
| Picloram | ND | ug/L | 0.50 | | | | | | |
| 2,4,5-TP (Silvex) | ND | ug/L | 0.20 | | | | | | |
| Surr: DCAA | | | 0.10 | 79 | 70 | 130 | | | |
| **Sample ID: LCS-67956** | Laboratory Control Sample | | | | Run: CECD.I_121220A | | | 12/25/12 02:1 | |
| 2,4-D | 5.12 | ug/L | 1.0 | 102 | 70 | 130 | | | |
| 2,4-DB | 4.94 | ug/L | 2.5 | 99 | 70 | 130 | | | |
| Dalapon | 3.02 | ug/L | 2.5 | 60 | 70 | 130 | | | S |
| Dicamba | 5.74 | ug/L | 0.25 | 115 | 70 | 130 | | | |
| Dichlorprop | 5.80 | ug/L | 1.0 | 116 | 70 | 130 | | | |
| Dinoseb | 2.16 | ug/L | 1.0 | 43 | 70 | 130 | | | S |
| Pentachlorophenol | 3.73 | ug/L | 0.040 | 75 | 70 | 130 | | | |
| Picloram | 4.82 | ug/L | 0.50 | 96 | 70 | 130 | | | |
| 2,4,5-TP (Silvex) | 4.75 | ug/L | 0.20 | 95 | 70 | 130 | | | |
| Surr: DCAA | | | 0.10 | 95 | 70 | 130 | | | |
| -The recoveries for Dalapon and Dinoseb are within USEPA Water Study performance acceptance limits. | | | | | | | | | |
| **Sample ID: B12121665-001AMS** | Sample Matrix Spike | | | | Run: CECD.I_121220A | | | 12/24/12 17:37 | |
| 2,4-D | 3.73 | ug/L | 1.0 | 75 | 65 | 135 | | | |
| 2,4-DB | 4.85 | ug/L | 2.5 | 97 | 65 | 135 | | | |
| Dalapon | 2.85 | ug/L | 2.5 | 57 | 65 | 135 | | | S |
| Dicamba | 6.74 | ug/L | 0.25 | 135 | 65 | 135 | | | |
| Dichlorprop | 4.78 | ug/L | 1.0 | 96 | 65 | 135 | | | |
| Dinoseb | 1.72 | ug/L | 1.0 | 34 | 65 | 135 | | | S |
| Pentachlorophenol | 4.01 | ug/L | 0.040 | 80 | 65 | 135 | | | |
| Picloram | 4.01 | ug/L | 0.50 | 80 | 65 | 135 | | | |
| 2,4,5-TP (Silvex) | 4.24 | ug/L | 0.20 | 85 | 65 | 135 | | | |
| Surr: DCAA | | | 0.10 | 89 | 70 | 130 | | | |
| **Sample ID: B12121665-001AMSD** | Sample Matrix Spike Duplicate | | | | Run: CECD.I_121220A | | | 12/24/12 18:09 | |
| 2,4-D | 3.78 | ug/L | 1.0 | 76 | 65 | 135 | 1.3 | 40 | |
| 2,4-DB | 4.69 | ug/L | 2.5 | 94 | 65 | 135 | 3.4 | 40 | |
| Dalapon | 2.85 | ug/L | 2.5 | 57 | 65 | 135 | 0.0 | 40 | S |
| Dicamba | 6.57 | ug/L | 0.25 | 131 | 65 | 135 | 2.6 | 40 | |
| Dichlorprop | 4.73 | ug/L | 1.0 | 95 | 65 | 135 | 1.1 | 40 | |
| Dinoseb | 1.83 | ug/L | 1.0 | 37 | 65 | 135 | 6.2 | 40 | S |
| Pentachlorophenol | 3.87 | ug/L | 0.040 | 77 | 65 | 135 | 3.6 | 40 | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E515.1** | | | | | | | | | Batch: 67956 |
| **Sample ID: B12121665-001AMSD** | Sample Matrix Spike Duplicate | | | | Run: CECD.I_121220A | | | | 12/24/12 18:09 |
| Picloram | 4.15 | ug/L | 0.50 | 83 | 65 | 135 | 3.4 | 40 | |
| 2,4,5-TP (Silvex) | 4.19 | ug/L | 0.20 | 84 | 65 | 135 | 1.2 | 40 | |
| Surr: DCAA | | | 0.10 | 87 | 70 | 130 | | | |
| **Method: E515.1** | | | | | | | | | Analytical Run: R197335 |
| **Sample ID: 8151ck5** | Continuing Calibration Verification Standard | | | | | | | | 12/24/12 19:14 |
| 2,4-D | 0.472 | ug/L | 1.0 | 94 | 80 | 120 | | | |
| 2,4-DB | 0.424 | ug/L | 2.5 | 85 | 80 | 120 | | | |
| Dalapon | 0.492 | ug/L | 2.5 | 98 | 80 | 120 | | | |
| Dicamba | 0.515 | ug/L | 0.25 | 103 | 80 | 120 | | | |
| Dichlorprop | 0.489 | ug/L | 1.0 | 98 | 80 | 120 | | | |
| Dinoseb | 0.436 | ug/L | 1.0 | 87 | 80 | 120 | | | |
| Pentachlorophenol | 0.460 | ug/L | 0.040 | 92 | 80 | 120 | | | |
| Picloram | 0.470 | ug/L | 0.50 | 94 | 80 | 120 | | | |
| 2,4,5-TP (Silvex) | 0.484 | ug/L | 0.20 | 97 | 80 | 120 | | | |
| Surr: DCAA | | | 0.10 | 100 | 80 | 120 | | | |
| **Sample ID: 8151ck5** | Continuing Calibration Verification Standard | | | | | | | | 12/25/12 02:49 |
| 2,4-D | 0.487 | ug/L | 1.0 | 97 | 80 | 120 | | | |
| 2,4-DB | 0.430 | ug/L | 2.5 | 86 | 80 | 120 | | | |
| Dalapon | 0.489 | ug/L | 2.5 | 98 | 80 | 120 | | | |
| Dicamba | 0.520 | ug/L | 0.25 | 104 | 80 | 120 | | | |
| Dichlorprop | 0.495 | ug/L | 1.0 | 99 | 80 | 120 | | | |
| Dinoseb | 0.445 | ug/L | 1.0 | 89 | 80 | 120 | | | |
| Pentachlorophenol | 0.468 | ug/L | 0.040 | 94 | 80 | 120 | | | |
| Picloram | 0.477 | ug/L | 0.50 | 95 | 80 | 120 | | | |
| 2,4,5-TP (Silvex) | 0.503 | ug/L | 0.20 | 101 | 80 | 120 | | | |
| Surr: DCAA | | | 0.10 | 102 | 80 | 120 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E524.2** | | | | | | | | | Analytical Run: R19708 |
| **Sample ID: ccv121812** | Continuing Calibration Verification Standard | | | | | | | | 12/18/12 11:1o |
| Benzene | 5.52 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Bromobenzene | 4.80 | ug/L | 0.50 | 96 | 70 | 130 | | | |
| Bromochloromethane | 6.80 | ug/L | 0.50 | 136 | 70 | 130 | | | S |
| Bromodichloromethane | 5.00 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| Bromoform | 5.44 | ug/L | 0.50 | 109 | 70 | 130 | | | |
| Bromomethane | 5.84 | ug/L | 0.50 | 117 | 70 | 130 | | | |
| n-Butylbenzene | 5.32 | ug/L | 0.50 | 106 | 70 | 130 | | | |
| sec-Butylbenzene | 5.24 | ug/L | 0.50 | 105 | 70 | 130 | | | |
| tert-Butylbenzene | 4.96 | ug/L | 0.50 | 99 | 70 | 130 | | | |
| Carbon tetrachloride | 6.04 | ug/L | 0.50 | 121 | 70 | 130 | | | |
| Chlorobenzene | 5.56 | ug/L | 0.50 | 111 | 70 | 130 | | | |
| Chlorodibromomethane | 5.32 | ug/L | 0.50 | 106 | 70 | 130 | | | |
| Chloroethane | 5.72 | ug/L | 0.50 | 114 | 70 | 130 | | | |
| Chloroform | 5.80 | ug/L | 0.50 | 116 | 70 | 130 | | | |
| Chloromethane | 5.84 | ug/L | 0.50 | 117 | 70 | 130 | | | |
| 2-Chlorotoluene | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| 4-Chlorotoluene | 5.12 | ug/L | 0.50 | 102 | 70 | 130 | | | |
| 1,2-Dibromo-3-chloropropane | 4.36 | ug/L | 1.0 | 87 | 70 | 130 | | | |
| Dibromomethane | 5.00 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| 1,2-Dichlorobenzene | 4.96 | ug/L | 0.50 | 99 | 70 | 130 | | | |
| 1,3-Dichlorobenzene | 5.04 | ug/L | 0.50 | 101 | 70 | 130 | | | |
| 1,4-Dichlorobenzene | 5.44 | ug/L | 0.50 | 109 | 70 | 130 | | | |
| Dichlorodifluoromethane | 5.40 | ug/L | 0.50 | 108 | 70 | 130 | | | |
| 1,1-Dichloroethane | 6.12 | ug/L | 0.50 | 122 | 70 | 130 | | | |
| 1,2-Dichloroethane | 5.92 | ug/L | 0.50 | 118 | 70 | 130 | | | |
| 1,2-Dibromoethane | 5.04 | ug/L | 0.50 | 101 | 70 | 130 | | | |
| 1,1-Dichloroethene | 5.92 | ug/L | 0.50 | 118 | 70 | 130 | | | |
| cis-1,2-Dichloroethene | 5.92 | ug/L | 0.50 | 118 | 70 | 130 | | | |
| trans-1,2-Dichloroethene | 5.72 | ug/L | 0.50 | 114 | 70 | 130 | | | |
| 1,2-Dichloropropane | 5.16 | ug/L | 0.50 | 103 | 70 | 130 | | | |
| 1,3-Dichloropropane | 4.76 | ug/L | 0.50 | 95 | 70 | 130 | | | |
| 2,2-Dichloropropane | 6.20 | ug/L | 0.50 | 124 | 70 | 130 | | | |
| 1,1-Dichloropropene | 5.80 | ug/L | 0.50 | 116 | 70 | 130 | | | |
| cis-1,3-Dichloropropene | 5.12 | ug/L | 0.50 | 102 | 70 | 130 | | | |
| trans-1,3-Dichloropropene | 5.00 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| Ethylbenzene | 5.48 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Hexachlorobutadiene | 5.52 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Isopropylbenzene | 5.40 | ug/L | 0.50 | 108 | 70 | 130 | | | |
| p-Isopropyltoluene | 5.52 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Methyl tert-butyl ether (MTBE) | 4.88 | ug/L | 0.50 | 98 | 70 | 130 | | | |
| Methylene chloride | 5.64 | ug/L | 0.50 | 113 | 70 | 130 | | | |
| Naphthalene | 5.00 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| n-Propylbenzene | 5.52 | ug/L | 0.50 | 110 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Report Date:** 01/09/13
**Project:** City Of Gillette Test Well TH #2A
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E524.2** | | | | | | | | | Analytical Run: R197087 |
| **Sample ID: ccv121812** | Continuing Calibration Verification Standard | | | | | | | | 12/18/12 11:16 |
| Styrene | 5.64 | ug/L | 0.50 | 113 | 70 | 130 | | | |
| 1,1,1,2-Tetrachloroethane | 5.00 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| 1,1,2,2-Tetrachloroethane | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| Tetrachloroethene | 5.24 | ug/L | 0.50 | 105 | 70 | 130 | | | |
| Toluene | 4.96 | ug/L | 0.50 | 99 | 70 | 130 | | | |
| 1,2,3-Trichlorobenzene | 4.44 | ug/L | 0.50 | 89 | 70 | 130 | | | |
| 1,2,4-Trichlorobenzene | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| 1,1,1-Trichloroethane | 6.04 | ug/L | 0.50 | 121 | 70 | 130 | | | |
| 1,1,2-Trichloroethane | 4.80 | ug/L | 0.50 | 96 | 70 | 130 | | | |
| Trichloroethene | 5.32 | ug/L | 0.50 | 106 | 70 | 130 | | | |
| Trichlorofluoromethane | 5.36 | ug/L | 0.50 | 107 | 70 | 130 | | | |
| 1,2,3-Trichloropropane | 4.44 | ug/L | 0.50 | 89 | 70 | 130 | | | |
| 1,2,4-Trimethylbenzene | 5.24 | ug/L | 0.50 | 105 | 70 | 130 | | | |
| 1,3,5-Trimethylbenzene | 5.48 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Vinyl chloride | 5.68 | ug/L | 0.50 | 114 | 70 | 130 | | | |
| m+p-Xylenes | 10.6 | ug/L | 0.50 | 106 | 70 | 130 | | | |
| o-Xylene | 5.16 | ug/L | 0.50 | 103 | 70 | 130 | | | |
| Trihalomethanes, Total | 21.6 | ug/L | 0.50 | | 0 | 0 | | | |
| Xylenes, Total | 15.8 | ug/L | 0.50 | | 0 | 0 | | | |
| Surr: p-Bromofluorobenzene | | | 0.50 | 92 | 80 | 120 | | | |
| Surr: 1,2-Dichloroethane-d4 | | | 0.50 | 100 | 74 | 127 | | | |
| Surr: Toluene-d8 | | | 0.50 | 96 | 80 | 120 | | | |
| **Method: E524.2** | | | | | | | | | Batch: R197087 |
| **Sample ID: lcs121812** | Laboratory Control Sample | | | | Run: VOASATURN_121218A | | | | 12/18/12 11:52 |
| Benzene | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| Bromobenzene | 4.40 | ug/L | 0.50 | 88 | 70 | 130 | | | |
| Bromochloromethane | 5.48 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Bromodichloromethane | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| Bromoform | 5.04 | ug/L | 0.50 | 101 | 70 | 130 | | | |
| Bromomethane | 6.12 | ug/L | 0.50 | 122 | 70 | 130 | | | |
| n-Butylbenzene | 4.56 | ug/L | 0.50 | 91 | 70 | 130 | | | |
| sec-Butylbenzene | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| tert-Butylbenzene | 4.76 | ug/L | 0.50 | 95 | 70 | 130 | | | |
| Carbon tetrachloride | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| Chlorobenzene | 5.64 | ug/L | 0.50 | 113 | 70 | 130 | | | |
| Chlorodibromomethane | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| Chloroethane | 6.04 | ug/L | 0.50 | 121 | 70 | 130 | | | |
| Chloroform | 5.16 | ug/L | 0.50 | 103 | 70 | 130 | | | |
| Chloromethane | 6.04 | ug/L | 0.50 | 121 | 70 | 130 | | | |
| 2-Chlorotoluene | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| 4-Chlorotoluene | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| 1,2-Dibromo-3-chloropropane | 3.80 | ug/L | 1.0 | 76 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E524.2** | | | | | | | | | Batch: R19708 |
| **Sample ID: lcs121812** | Laboratory Control Sample | | | | Run: VOASATURN_121218A | | | | 12/18/12 11:52 |
| Dibromomethane | 4.96 | ug/L | 0.50 | 99 | 70 | 130 | | | |
| 1,2-Dichlorobenzene | 4.44 | ug/L | 0.50 | 89 | 70 | 130 | | | |
| 1,3-Dichlorobenzene | 4.56 | ug/L | 0.50 | 91 | 70 | 130 | | | |
| 1,4-Dichlorobenzene | 4.88 | ug/L | 0.50 | 98 | 70 | 130 | | | |
| Dichlorodifluoromethane | 5.36 | ug/L | 0.50 | 107 | 70 | 130 | | | |
| 1,1-Dichloroethane | 5.60 | ug/L | 0.50 | 112 | 70 | 130 | | | |
| 1,2-Dichloroethane | 5.24 | ug/L | 0.50 | 105 | 70 | 130 | | | |
| 1,2-Dibromoethane | 5.16 | ug/L | 0.50 | 103 | 70 | 130 | | | |
| 1,1-Dichloroethene | 5.64 | ug/L | 0.50 | 113 | 70 | 130 | | | |
| cis-1,2-Dichloroethene | 5.44 | ug/L | 0.50 | 109 | 70 | 130 | | | |
| trans-1,2-Dichloroethene | 5.36 | ug/L | 0.50 | 107 | 70 | 130 | | | |
| 1,2-Dichloropropane | 5.08 | ug/L | 0.50 | 102 | 70 | 130 | | | |
| 1,3-Dichloropropane | 4.60 | ug/L | 0.50 | 92 | 70 | 130 | | | |
| 2,2-Dichloropropane | 5.04 | ug/L | 0.50 | 101 | 70 | 130 | | | |
| 1,1-Dichloropropene | 5.56 | ug/L | 0.50 | 111 | 70 | 130 | | | |
| cis-1,3-Dichloropropene | 4.80 | ug/L | 0.50 | 96 | 70 | 130 | | | |
| trans-1,3-Dichloropropene | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| Ethylbenzene | 5.40 | ug/L | 0.50 | 108 | 70 | 130 | | | |
| Hexachlorobutadiene | 4.88 | ug/L | 0.50 | 98 | 70 | 130 | | | |
| Isopropylbenzene | 5.20 | ug/L | 0.50 | 104 | 70 | 130 | | | |
| p-Isopropyltoluene | 4.88 | ug/L | 0.50 | 98 | 70 | 130 | | | |
| Methyl tert-butyl ether (MTBE) | 4.84 | ug/L | 0.50 | 97 | 70 | 130 | | | |
| Methylene chloride | 5.40 | ug/L | 0.50 | 108 | 70 | 130 | | | |
| Naphthalene | 4.28 | ug/L | 0.50 | 86 | 70 | 130 | | | |
| n-Propylbenzene | 4.80 | ug/L | 0.50 | 96 | 70 | 130 | | | |
| Styrene | 5.92 | ug/L | 0.50 | 118 | 70 | 130 | | | |
| 1,1,1,2-Tetrachloroethane | 5.40 | ug/L | 0.50 | 108 | 70 | 130 | | | |
| 1,1,2,2-Tetrachloroethane | 4.28 | ug/L | 0.50 | 86 | 70 | 130 | | | |
| Tetrachloroethene | 5.52 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Toluene | 4.92 | ug/L | 0.50 | 98 | 70 | 130 | | | |
| 1,2,3-Trichlorobenzene | 4.36 | ug/L | 0.50 | 87 | 70 | 130 | | | |
| 1,2,4-Trichlorobenzene | 4.28 | ug/L | 0.50 | 86 | 70 | 130 | | | |
| 1,1,1-Trichloroethane | 5.72 | ug/L | 0.50 | 114 | 70 | 130 | | | |
| 1,1,2-Trichloroethane | 4.72 | ug/L | 0.50 | 94 | 70 | 130 | | | |
| Trichloroethene | 4.96 | ug/L | 0.50 | 99 | 70 | 130 | | | |
| Trichlorofluoromethane | 5.32 | ug/L | 0.50 | 106 | 70 | 130 | | | |
| 1,2,3-Trichloropropane | 4.28 | ug/L | 0.50 | 86 | 70 | 130 | | | |
| 1,2,4-Trimethylbenzene | 4.40 | ug/L | 0.50 | 88 | 70 | 130 | | | |
| 1,3,5-Trimethylbenzene | 4.56 | ug/L | 0.50 | 91 | 70 | 130 | | | |
| Vinyl chloride | 5.36 | ug/L | 0.50 | 107 | 70 | 130 | | | |
| m+p-Xylenes | 9.96 | ug/L | 0.50 | 100 | 70 | 130 | | | |
| o-Xylene | 5.48 | ug/L | 0.50 | 110 | 70 | 130 | | | |
| Surr: p-Bromofluorobenzene | | | 0.50 | 90 | 80 | 120 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E524.2** | | | | | | | | | Batch: R197087 |
| **Sample ID: lcs121812** | Laboratory Control Sample | | | | Run: VOASATURN_121218A | | | | 12/18/12 11:52 |
| Surr: 1,2-Dichloroethane-d4 | | | 0.50 | 98 | 74 | 127 | | | |
| Surr: Toluene-d8 | | | 0.50 | 104 | 80 | 120 | | | |
| **Sample ID: blk121812** | Method Blank | | | | Run: VOASATURN_121218A | | | | 12/18/12 12:53 |
| Benzene | ND | ug/L | 0.50 | | | | | | |
| Bromobenzene | ND | ug/L | 0.50 | | | | | | |
| Bromochloromethane | ND | ug/L | 0.50 | | | | | | |
| Bromodichloromethane | ND | ug/L | 0.50 | | | | | | |
| Bromoform | ND | ug/L | 0.50 | | | | | | |
| Bromomethane | ND | ug/L | 0.50 | | | | | | |
| n-Butylbenzene | ND | ug/L | 0.50 | | | | | | |
| sec-Butylbenzene | ND | ug/L | 0.50 | | | | | | |
| tert-Butylbenzene | ND | ug/L | 0.50 | | | | | | |
| Carbon tetrachloride | ND | ug/L | 0.50 | | | | | | |
| Chlorobenzene | ND | ug/L | 0.50 | | | | | | |
| Chlorodibromomethane | ND | ug/L | 0.50 | | | | | | |
| Chloroethane | ND | ug/L | 0.50 | | | | | | |
| Chloroform | ND | ug/L | 0.50 | | | | | | |
| Chloromethane | ND | ug/L | 0.50 | | | | | | |
| 2-Chlorotoluene | ND | ug/L | 0.50 | | | | | | |
| 4-Chlorotoluene | ND | ug/L | 0.50 | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | ug/L | 1.0 | | | | | | |
| Dibromomethane | ND | ug/L | 0.50 | | | | | | |
| 1,2-Dichlorobenzene | ND | ug/L | 0.50 | | | | | | |
| 1,3-Dichlorobenzene | ND | ug/L | 0.50 | | | | | | |
| 1,4-Dichlorobenzene | ND | ug/L | 0.50 | | | | | | |
| Dichlorodifluoromethane | ND | ug/L | 0.50 | | | | | | |
| 1,1-Dichloroethane | ND | ug/L | 0.50 | | | | | | |
| 1,2-Dichloroethane | ND | ug/L | 0.50 | | | | | | |
| 1,2-Dibromoethane | ND | ug/L | 0.50 | | | | | | |
| 1,1-Dichloroethene | ND | ug/L | 0.50 | | | | | | |
| cis-1,2-Dichloroethene | ND | ug/L | 0.50 | | | | | | |
| trans-1,2-Dichloroethene | ND | ug/L | 0.50 | | | | | | |
| 1,2-Dichloropropane | ND | ug/L | 0.50 | | | | | | |
| 1,3-Dichloropropane | ND | ug/L | 0.50 | | | | | | |
| 2,2-Dichloropropane | ND | ug/L | 0.50 | | | | | | |
| 1,1-Dichloropropene | ND | ug/L | 0.50 | | | | | | |
| cis-1,3-Dichloropropene | ND | ug/L | 0.50 | | | | | | |
| trans-1,3-Dichloropropene | ND | ug/L | 0.50 | | | | | | |
| Ethylbenzene | ND | ug/L | 0.50 | | | | | | |
| Hexachlorobutadiene | ND | ug/L | 0.50 | | | | | | |
| Isopropylbenzene | ND | ug/L | 0.50 | | | | | | |
| p-Isopropyltoluene | ND | ug/L | 0.50 | | | | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E524.2** | | | | | | | | | Batch: R19708 |
| **Sample ID: blk121812** | Method Blank | | | | Run: VOASATURN_121218A | | | | 12/18/12 12:53 |
| Methyl tert-butyl ether (MTBE) | ND | ug/L | 0.50 | | | | | | |
| Methylene chloride | ND | ug/L | 0.50 | | | | | | |
| Naphthalene | ND | ug/L | 0.50 | | | | | | |
| n-Propylbenzene | ND | ug/L | 0.50 | | | | | | |
| Styrene | ND | ug/L | 0.50 | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | ug/L | 0.50 | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | ug/L | 0.50 | | | | | | |
| Tetrachloroethene | ND | ug/L | 0.50 | | | | | | |
| Toluene | ND | ug/L | 0.50 | | | | | | |
| 1,2,3-Trichlorobenzene | ND | ug/L | 0.50 | | | | | | |
| 1,2,4-Trichlorobenzene | ND | ug/L | 0.50 | | | | | | |
| 1,1,1-Trichloroethane | ND | ug/L | 0.50 | | | | | | |
| 1,1,2-Trichloroethane | ND | ug/L | 0.50 | | | | | | |
| Trichloroethene | ND | ug/L | 0.50 | | | | | | |
| Trichlorofluoromethane | ND | ug/L | 0.50 | | | | | | |
| 1,2,3-Trichloropropane | ND | ug/L | 0.50 | | | | | | |
| 1,2,4-Trimethylbenzene | ND | ug/L | 0.50 | | | | | | |
| 1,3,5-Trimethylbenzene | ND | ug/L | 0.50 | | | | | | |
| Vinyl chloride | ND | ug/L | 0.50 | | | | | | |
| m+p-Xylenes | ND | ug/L | 0.50 | | | | | | |
| o-Xylene | ND | ug/L | 0.50 | | | | | | |
| Trihalomethanes, Total | ND | ug/L | 0.50 | | | | | | |
| Xylenes, Total | ND | ug/L | 0.50 | | | | | | |
| Surr: p-Bromofluorobenzene | | | 0.50 | 102 | 80 | 120 | | | |
| Surr: 1,2-Dichloroethane-d4 | | | 0.50 | 98 | 74 | 127 | | | |
| Surr: Toluene-d8 | | | 0.50 | 99 | 80 | 120 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E525.2** | | | | | | | | | Batch: 67904 |
| **Sample ID: MB-67904** | Method Blank | | | | Run: SVSATURN2_121220A | | | | 12/20/12 19:29 |
| Alachlor | ND | ug/L | 0.10 | | | | | | |
| Aldrin | ND | ug/L | 0.10 | | | | | | |
| Atrazine | ND | ug/L | 0.10 | | | | | | |
| Benzo(a)pyrene | ND | ug/L | 0.10 | | | | | | |
| bis(2-ethylhexyl)Adipate | ND | ug/L | 0.50 | | | | | | |
| bis(2-ethylhexyl)Phthalate | ND | ug/L | 0.60 | | | | | | |
| Butachlor | ND | ug/L | 0.10 | | | | | | |
| Chlordane | ND | ug/L | 1.0 | | | | | | |
| Dieldrin | ND | ug/L | 0.10 | | | | | | |
| Endrin | ND | ug/L | 0.10 | | | | | | |
| gamma-BHC (Lindane) | ND | ug/L | 0.10 | | | | | | |
| Heptachlor | ND | ug/L | 0.10 | | | | | | |
| Heptachlor epoxide | ND | ug/L | 0.10 | | | | | | |
| Hexachlorobenzene | ND | ug/L | 0.10 | | | | | | |
| Hexachlorocyclopentadiene | ND | ug/L | 0.10 | | | | | | |
| Methoxychlor | ND | ug/L | 0.10 | | | | | | |
| Metolachlor | ND | ug/L | 0.10 | | | | | | |
| Metribuzin | ND | ug/L | 0.10 | | | | | | |
| Propachlor | ND | ug/L | 0.10 | | | | | | |
| Simazine | ND | ug/L | 0.10 | | | | | | |
| Toxaphene | ND | ug/L | 2.0 | | | | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 102 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 87 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 96 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 108 | 70 | 130 | | | |
| **Sample ID: MB-67904** | Method Blank | | | | Run: SVSATURN2_121220A | | | | 12/20/12 19:29 |
| Aroclor 1016 | ND | ug/L | 0.080 | | | | | | |
| Aroclor 1221 | ND | ug/L | 2.0 | | | | | | |
| Aroclor 1232 | ND | ug/L | 0.50 | | | | | | |
| Aroclor 1242 | ND | ug/L | 0.30 | | | | | | |
| Aroclor 1248 | ND | ug/L | 0.10 | | | | | | |
| Aroclor 1254 | ND | ug/L | 0.10 | | | | | | |
| Aroclor 1260 | ND | ug/L | 0.20 | | | | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 102 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 87 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 96 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 108 | 70 | 130 | | | |
| **Sample ID: CLD-67904** | Laboratory Control Sample | | | | Run: SVSATURN2_121220A | | | | 12/20/12 20:08 |
| Chlordane | 21.6 | ug/L | 1.0 | 108 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 100 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 84 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E525.2** | | | | | | | | | Batch: 6790 |
| **Sample ID: CLD-67904** | Laboratory Control Sample | | | | Run: SVSATURN2_121220A | | | | 12/20/12 20:08 |
| Surr: Pyrene-d10 | | | 0.10 | 86 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 108 | 70 | 130 | | | |
| **Sample ID: AR1660-67904** | Laboratory Control Sample | | | | Run: SVSATURN2_121220A | | | | 12/20/12 20:47 |
| Aroclor 1016 | 1.80 | ug/L | 0.080 | 90 | 70 | 130 | | | |
| Aroclor 1260 | 2.02 | ug/L | 0.20 | 101 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 99 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 86 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 88 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 106 | 70 | 130 | | | |
| **Sample ID: LCS-67904** | Laboratory Control Sample | | | | Run: SVSATURN2_121220A | | | | 12/20/12 21:2[illegible] |
| Alachlor | 1.91 | ug/L | 0.10 | 96 | 70 | 130 | | | |
| Aldrin | 1.81 | ug/L | 0.10 | 91 | 70 | 130 | | | |
| Atrazine | 1.74 | ug/L | 0.10 | 87 | 70 | 130 | | | |
| Benzo(a)pyrene | 1.60 | ug/L | 0.10 | 80 | 70 | 130 | | | |
| bis(2-ethylhexyl)Adipate | 1.60 | ug/L | 0.50 | 80 | 70 | 130 | | | |
| bis(2-ethylhexyl)Phthalate | 1.87 | ug/L | 0.60 | 94 | 70 | 130 | | | |
| Butachlor | 1.86 | ug/L | 0.10 | 93 | 70 | 130 | | | |
| Dieldrin | 1.81 | ug/L | 0.10 | 91 | 70 | 130 | | | |
| Endrin | 2.15 | ug/L | 0.10 | 107 | 70 | 130 | | | |
| gamma-BHC (Lindane) | 1.82 | ug/L | 0.10 | 91 | 70 | 130 | | | |
| Heptachlor | 1.52 | ug/L | 0.10 | 76 | 70 | 130 | | | |
| Heptachlor epoxide | 1.77 | ug/L | 0.10 | 89 | 70 | 130 | | | |
| Hexachlorobenzene | 1.68 | ug/L | 0.10 | 84 | 70 | 130 | | | |
| Hexachlorocyclopentadiene | 1.72 | ug/L | 0.10 | 86 | 70 | 130 | | | |
| Methoxychlor | 2.53 | ug/L | 0.10 | 126 | 70 | 130 | | | |
| Metolachlor | 2.04 | ug/L | 0.10 | 102 | 70 | 130 | | | |
| Metribuzin | 1.59 | ug/L | 0.10 | 80 | 70 | 130 | | | |
| Propachlor | 2.30 | ug/L | 0.10 | 115 | 70 | 130 | | | |
| Simazine | 1.82 | ug/L | 0.10 | 91 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 95 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 93 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 94 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 109 | 70 | 130 | | | |
| **Sample ID: G12120325-001JMS** | Sample Matrix Spike | | | | Run: SVSATURN2_121220A | | | | 12/21/12 17:3[illegible] |
| Alachlor | 1.96 | ug/L | 0.10 | 98 | 70 | 130 | | | |
| Aldrin | 1.94 | ug/L | 0.10 | 97 | 70 | 130 | | | |
| Atrazine | 1.92 | ug/L | 0.10 | 96 | 70 | 130 | | | |
| Benzo(a)pyrene | 1.65 | ug/L | 0.10 | 83 | 70 | 130 | | | |
| bis(2-ethylhexyl)Adipate | 1.78 | ug/L | 0.50 | 89 | 70 | 130 | | | |
| bis(2-ethylhexyl)Phthalate | 2.17 | ug/L | 0.60 | 108 | 70 | 130 | | | |
| Butachlor | 2.03 | ug/L | 0.10 | 101 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E525.2** | | | | | | | | | Batch: 67904 |
| **Sample ID: G12120325-001JMS** | Sample Matrix Spike | | | | Run: SVSATURN2_121220A | | | | 12/21/12 17:30 |
| Dieldrin | 1.99 | ug/L | 0.10 | 100 | 70 | 130 | | | |
| Endrin | 2.30 | ug/L | 0.10 | 115 | 70 | 130 | | | |
| gamma-BHC (Lindane) | 2.03 | ug/L | 0.10 | 101 | 70 | 130 | | | |
| Heptachlor | 2.16 | ug/L | 0.10 | 108 | 70 | 130 | | | |
| Heptachlor epoxide | 1.96 | ug/L | 0.10 | 98 | 70 | 130 | | | |
| Hexachlorobenzene | 1.95 | ug/L | 0.10 | 98 | 70 | 130 | | | |
| Hexachlorocyclopentadiene | 2.18 | ug/L | 0.10 | 109 | 70 | 130 | | | |
| Methoxychlor | 2.84 | ug/L | 0.10 | 142 | 70 | 130 | | | S |
| Metolachlor | 2.16 | ug/L | 0.10 | 108 | 70 | 130 | | | |
| Metribuzin | 1.91 | ug/L | 0.10 | 96 | 70 | 130 | | | |
| Propachlor | 2.86 | ug/L | 0.10 | 143 | 70 | 130 | | | S |
| Simazine | 2.07 | ug/L | 0.10 | 103 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 97 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 90 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 97 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 110 | 70 | 130 | | | |
| **Sample ID: G12120325-001JMSD** | Sample Matrix Spike Duplicate | | | | Run: SVSATURN2_121220A | | | | 12/21/12 18:08 |
| Alachlor | 1.94 | ug/L | 0.10 | 97 | 70 | 130 | 1.0 | 40 | |
| Aldrin | 2.07 | ug/L | 0.10 | 103 | 70 | 130 | 6.5 | 40 | |
| Atrazine | 2.06 | ug/L | 0.10 | 103 | 70 | 130 | 7.0 | 40 | |
| Benzo(a)pyrene | 1.63 | ug/L | 0.10 | 82 | 70 | 130 | 1.2 | 40 | |
| bis(2-ethylhexyl)Adipate | 1.74 | ug/L | 0.50 | 87 | 70 | 130 | 2.3 | 40 | |
| bis(2-ethylhexyl)Phthalate | 2.11 | ug/L | 0.60 | 105 | 70 | 130 | 2.8 | 40 | |
| Butachlor | 2.16 | ug/L | 0.10 | 108 | 70 | 130 | 6.2 | 40 | |
| Dieldrin | 1.98 | ug/L | 0.10 | 99 | 70 | 130 | 0.5 | 40 | |
| Endrin | 2.30 | ug/L | 0.10 | 115 | 70 | 130 | 0.0 | 40 | |
| gamma-BHC (Lindane) | 2.01 | ug/L | 0.10 | 100 | 70 | 130 | 1.0 | 40 | |
| Heptachlor | 1.90 | ug/L | 0.10 | 95 | 70 | 130 | 13 | 40 | |
| Heptachlor epoxide | 1.96 | ug/L | 0.10 | 98 | 70 | 130 | 0.0 | 40 | |
| Hexachlorobenzene | 2.08 | ug/L | 0.10 | 104 | 70 | 130 | 6.5 | 40 | |
| Hexachlorocyclopentadiene | 2.14 | ug/L | 0.10 | 107 | 70 | 130 | 1.9 | 40 | |
| Methoxychlor | 2.82 | ug/L | 0.10 | 141 | 70 | 130 | 0.7 | 40 | S |
| Metolachlor | 2.18 | ug/L | 0.10 | 109 | 70 | 130 | 0.9 | 40 | |
| Metribuzin | 1.86 | ug/L | 0.10 | 93 | 70 | 130 | 2.7 | 40 | |
| Propachlor | 2.73 | ug/L | 0.10 | 137 | 70 | 130 | 4.7 | 40 | S |
| Simazine | 1.96 | ug/L | 0.10 | 98 | 70 | 130 | 5.5 | 40 | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 97 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 92 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 103 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 109 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.
ND - Not detected at the reporting limit.
S - Spike recovery outside of advisory limits.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E525.2** | | | | | | | | | Analytical Run: R19725 |
| **Sample ID: 525_CCV_5** | Continuing Calibration Verification Standard | | | | | | | | 12/20/12 16:15 |
| Alachlor | 1.78 | ug/L | 0.10 | 89 | 70 | 130 | | | |
| Aldrin | 2.18 | ug/L | 0.10 | 109 | 70 | 130 | | | |
| Atrazine | 1.98 | ug/L | 0.10 | 99 | 70 | 130 | | | |
| Benzo(a)pyrene | 1.89 | ug/L | 0.10 | 95 | 70 | 130 | | | |
| bis(2-ethylhexyl)Adipate | 1.76 | ug/L | 0.50 | 88 | 70 | 130 | | | |
| bis(2-ethylhexyl)Phthalate | 2.09 | ug/L | 0.60 | 104 | 70 | 130 | | | |
| Butachlor | 1.80 | ug/L | 0.10 | 90 | 70 | 130 | | | |
| Dieldrin | 2.04 | ug/L | 0.10 | 102 | 70 | 130 | | | |
| Endrin | 2.10 | ug/L | 0.10 | 105 | 70 | 130 | | | |
| gamma-BHC (Lindane) | 1.99 | ug/L | 0.10 | 100 | 70 | 130 | | | |
| Heptachlor | 2.00 | ug/L | 0.10 | 100 | 70 | 130 | | | |
| Heptachlor epoxide | 1.95 | ug/L | 0.10 | 98 | 70 | 130 | | | |
| Hexachlorobenzene | 2.14 | ug/L | 0.10 | 107 | 70 | 130 | | | |
| Hexachlorocyclopentadiene | 2.08 | ug/L | 0.10 | 104 | 70 | 130 | | | |
| Methoxychlor | 2.45 | ug/L | 0.10 | 123 | 70 | 130 | | | |
| Metolachlor | 1.92 | ug/L | 0.10 | 96 | 70 | 130 | | | |
| Metribuzin | 1.63 | ug/L | 0.10 | 82 | 70 | 130 | | | |
| Propachlor | 1.95 | ug/L | 0.10 | 98 | 70 | 130 | | | |
| Simazine | 1.94 | ug/L | 0.10 | 97 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 93 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 92 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 92 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 110 | 70 | 130 | | | |
| **Sample ID: Ar1660_CCV_5** | Continuing Calibration Verification Standard | | | | | | | | 12/20/12 16:55 |
| Aroclor 1016 | 1.51 | ug/L | 0.080 | 94 | 70 | 130 | | | |
| Aroclor 1260 | 3.73 | ug/L | 0.20 | 93 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 96 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 84 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 82 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 105 | 70 | 130 | | | |
| **Sample ID: CLD_CCV_5** | Continuing Calibration Verification Standard | | | | | | | | 12/20/12 17:33 |
| Chlordane | 19.9 | ug/L | 1.0 | 99 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 106 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 83 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 85 | 70 | 130 | | | |
| Surr: Triphenylphosphate | | | 0.10 | 106 | 70 | 130 | | | |
| **Sample ID: TOX_CCV_5** | Continuing Calibration Verification Standard | | | | | | | | 12/20/12 18:12 |
| Toxaphene | 43.5 | ug/L | 2.0 | 109 | 70 | 130 | | | |
| Surr: 1,3-Dimethyl-2-nitrobenzene | | | 0.10 | 104 | 70 | 130 | | | |
| Surr: Perylene-d12 | | | 0.10 | 94 | 70 | 130 | | | |
| Surr: Pyrene-d10 | | | 0.10 | 88 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Morrison Maierle Inc
**Project:** City Of Gillette Test Well TH #2A

**Report Date:** 01/09/13
**Work Order:** G12120325

| Analyte | Result | Units | RL | %REC | Low Limit | High Limit | RPD | RPDLimit | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **Method: E525.2** | | | | | | | | | Analytical Run: R197259 |
| **Sample ID: TOX_CCV_5** | Continuing Calibration Verification Standard | | | | | | | | 12/20/12 18:12 |
| Surr: Triphenylphosphate | | | 0.10 | 107 | 70 | 130 | | | |

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# Standard Reporting Procedures

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

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# Workorder Receipt Checklist

## Morrison Maierle Inc

## G12120325

Login completed by: Kasey Scott-Ruff

Reviewed by: BL2000\adegnan

Reviewed Date: 12/14/2012

Date Received: 12/13/2012

Received by: ala

Carrier name: Hand Del

| | | | |
|---|---|---|---|
| Shipping container/cooler in good condition? | Yes ☑ | No ☐ | Not Present ☐ |
| Custody seals intact on shipping container/cooler? | Yes ☐ | No ☐ | Not Present ☑ |
| Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☑ |
| Chain of custody present? | Yes ☑ | No ☐ | |
| Chain of custody signed when relinquished and received? | Yes ☑ | No ☐ | |
| Chain of custody agrees with sample labels? | Yes ☑ | No ☐ | |
| Samples in proper container/bottle? | Yes ☑ | No ☐ | |
| Sample containers intact? | Yes ☑ | No ☐ | |
| Sufficient sample volume for indicated test? | Yes ☑ | No ☐ | |
| All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) | Yes ☑ | No ☐ | |
| Temp Blank received? | Yes ☑ | No ☐ | Not Applicable ☐ |
| Container/Temp Blank temperature: | 13.2°C No Ice | | |
| Water - VOA vials have zero headspace? | Yes ☑ | No ☐ | No VOA vials submitted ☐ |
| Water - pH acceptable upon receipt? | Yes ☑ | No ☐ | Not Applicable ☐ |

Contact and Corrective Action Comments:

None

ENERGY LABORATORIES

# Chain of Custody and Analytical Request Record





**PLEASE PRINT** (Provide as much information as possible.)

Company Name: MORRISON-MAIERLE, INC (MMI)

Project Name, PWS, Permit, Etc.: CITY OF GILLETTE - TEST WELL TH #2A

Sample Origin State: WY

EPA/State Compliance: Yes ☒ No ☐

Report Mail Address (Required): 1 ENGINEERING PLACE HELENA, MT 59602

Contact Name: MIKE KACZMAREK

Phone/Fax: 495-3440 ~~431-5568~~

Cell: (406) 431-5568

Sampler: (Please Print) M. KACZMAREK

☐ No Hard Copy Email: mkaczmarek@m-m.net

Invoice Contact & Phone: AS ABOVE

Purchase Order:

Quote/Bottle Order:

Invoice Address (Required): 1 ENGINEERING PLACE HELENA, MT 59601

☐ No Hard Copy Email: mkaczmarek@m-m.net

Special Report/Formats:

☐ DW
☐ POTW/WWTP
☐ State: _____
☐ Other: _____
☐ EDD/EDT (Electronic Data) Format: _____
☐ LEVEL IV
☐ NELAC

Number of Containers
Sample Type: A W S V B O DW
Air Water Soils/Solids Vegetation Bioassay Other DW - Drinking Water

ANALYSIS REQUESTED

SEE ATTACHED

Standard Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand

Cooler ID(s):

Receipt Temp 13.2 °C

On Ice: Y (N)

Custody Seal
On Bottle Y N
On Cooler Y N
Intact Y N
Signature Match Y N

LABORATORY USE ONLY 1212075

| | SAMPLE IDENTIFICATION (Name, Location, Interval, etc.) | Collection Date | Collection Time | MATRIX | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | TH #2A | 12/13/2012 | 1330 | | | | | | | | | | X | X | | |
| 2 | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | |

**Custody Record MUST be Signed**

Relinquished by (print): M KACZMAREK Date/Time: 12/13/2012 1530 hrs Signature: M Kaczmarek

Received by (print): Date/Time: Signature:

Relinquished by (print): Date/Time: Signature:

Received by (print): Date/Time: Signature:

Received by Laboratory: Date/Time: 12/13/12 15:30 Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

**Terry Friedlan** 120325

**From:** Michael Kaczmarek <mkaczmarek@m-m.net>
**Sent:** Tuesday, October 16, 2012 1:21 PM
**To:** nrush@energylab.com
**Cc:** Casey Hanson; tarcher@energylab.com; tfriedlan@energylab.com; adegnan@energylab.con
**Subject:** Sample Bottle Order

Hi Nancy:

The purpose of this email is to request sample bottles to be picked up at your office in Gillette tomorrow (Wednesday 10/17/2012).

The analyses to be performed are exactly the same as performed for our 3/26/2010 Workorder No.: B10032097 and reported in your Analytical Summary Report dated 5/15/2010. The sample bottle suites should be for collection of samples for the same analyses performed for that report. That report may have been issued from Billings. I tried to attach it but it is bogging down my air card capabilities.

If you have any questions, you can call me on my cell phone at (406) 431-5568.

I am currently on-site at a well north of Moorcroft. I will drive in to pick up the bottles tomorrow or will ask Casey Hanson from our office to pick them up, if he is coming out this way tomorrow.

Thanks,

**Michael Kaczmarek**
**Chief Geologist**

MORRISON MAIERLE, INC.
ENGINEERS·SURVEYORS·PLANNERS·SCIENTISTS

1 Engineering Place
Helena, MT 59602
Main: 406.442.3050
Direct: 406.495.3440
Cell: 406.431.5568

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