

NOV 2011



Gallup Refinery  
discharge over benzene limit  
**ENTERED**

COVER LETTER

Thursday, November 17, 2011

Thurman B. Larsen  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833  
FAX (505) 722-0210

RE: Benzene Strippers

Order No.: 1111571

Dear Thurman B. Larsen:

Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 11/14/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901  
AZ license # AZ0682

**Hall Environmental Analysis Laboratory, Inc.**

**Date:** 17-Nov-11

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**CLIENT:** Western Refining Southwest, Gallup  
**Project:** Benzene Strippers  
**Lab Order:** 1111571

**CASE NARRATIVE**

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Analytical Comments for METHOD 8021BTEX W, SAMPLE 1111571-01A: pH>2

# Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-11  
Analytical Report

|                                                   |                                               |
|---------------------------------------------------|-----------------------------------------------|
| <b>CLIENT:</b> Western Refining Southwest, Gallup | <b>Client Sample ID:</b> BZ 1-2 OUT           |
| <b>Lab Order:</b> 1111571                         | <b>Collection Date:</b> 11/14/2011 8:00:00 AM |
| <b>Project:</b> Benzene Strippers                 | <b>Date Received:</b> 11/14/2011              |
| <b>Lab ID:</b> 1111571-01                         | <b>Matrix:</b> AQUEOUS                        |

| Analyses                           | Result | PQL      | Qual | Units | DF | Date Analyzed         |
|------------------------------------|--------|----------|------|-------|----|-----------------------|
| <b>EPA METHOD 8021B: VOLATILES</b> |        |          |      |       |    | Analyst: RAA          |
| Methyl tert-butyl ether (MTBE)     | ND     | 130      |      | µg/L  | 50 | 11/14/2011 4:37:39 PM |
| Benzene                            | 600    | 50       |      | µg/L  | 50 | 11/14/2011 4:37:39 PM |
| Toluene                            | 1100   | 50       |      | µg/L  | 50 | 11/14/2011 4:37:39 PM |
| Ethylbenzene                       | 89     | 50       |      | µg/L  | 50 | 11/14/2011 4:37:39 PM |
| Xylenes, Total                     | 630    | 100      |      | µg/L  | 50 | 11/14/2011 4:37:39 PM |
| Surr: 4-Bromofluorobenzene         | 104    | 76.5-115 |      | %REC  | 50 | 11/14/2011 4:37:39 PM |

**Qualifiers:**

- |                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| * Value exceeds Maximum Contaminant Level    | B Analyte detected in the associated Method Blank    |
| E Estimated value                            | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level                        |
| NC Non-Chlorinated                           | ND Not Detected at the Reporting Limit               |
| PQL Practical Quantitation Limit             | S Spike recovery outside accepted recovery limits    |

# Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-11  
Analytical Report

|                                                   |                                               |
|---------------------------------------------------|-----------------------------------------------|
| <b>CLIENT:</b> Western Refining Southwest, Gallup | <b>Client Sample ID:</b> BZ 1-2 OUT           |
| <b>Lab Order:</b> 1111571                         | <b>Collection Date:</b> 11/13/2011 8:00:00 AM |
| <b>Project:</b> Benzene Strippers                 | <b>Date Received:</b> 11/14/2011              |
| <b>Lab ID:</b> 1111571-02                         | <b>Matrix:</b> AQUEOUS                        |

| Analyses                           | Result | PQL      | Qual | Units | DF | Date Analyzed         |
|------------------------------------|--------|----------|------|-------|----|-----------------------|
| <b>EPA METHOD 8021B: VOLATILES</b> |        |          |      |       |    | Analyst: RAA          |
| Methyl tert-butyl ether (MTBE)     | ND     | 130      |      | µg/L  | 50 | 11/14/2011 6:32:59 PM |
| Benzene                            | ND     | 50       |      | µg/L  | 50 | 11/14/2011 6:32:59 PM |
| Toluene                            | ND     | 50       |      | µg/L  | 50 | 11/14/2011 6:32:59 PM |
| Ethylbenzene                       | ND     | 50       |      | µg/L  | 50 | 11/14/2011 6:32:59 PM |
| Xylenes, Total                     | ND     | 100      |      | µg/L  | 50 | 11/14/2011 6:32:59 PM |
| Surr: 4-Bromofluorobenzene         | 100    | 76.5-115 |      | %REC  | 50 | 11/14/2011 6:32:59 PM |

**Qualifiers:**

- |                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| * Value exceeds Maximum Contaminant Level    | B Analyte detected in the associated Method Blank    |
| E Estimated value                            | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level                        |
| NC Non-Chlorinated                           | ND Not Detected at the Reporting Limit               |
| PQL Practical Quantitation Limit             | S Spike recovery outside accepted recovery limits    |

# Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-11  
Analytical Report

|                                                   |                                               |
|---------------------------------------------------|-----------------------------------------------|
| <b>CLIENT:</b> Western Refining Southwest, Gallup | <b>Client Sample ID:</b> BZ 1-2 OUT           |
| <b>Lab Order:</b> 1111571                         | <b>Collection Date:</b> 11/12/2011 8:00:00 AM |
| <b>Project:</b> Benzene Strippers                 | <b>Date Received:</b> 11/14/2011              |
| <b>Lab ID:</b> 1111571-03                         | <b>Matrix:</b> AQUEOUS                        |

| Analyses                           | Result | PQL      | Qual | Units | DF | Date Analyzed         |
|------------------------------------|--------|----------|------|-------|----|-----------------------|
| <b>EPA METHOD 8021B: VOLATILES</b> |        |          |      |       |    | Analyst: RAA          |
| Methyl tert-butyl ether (MTBE)     | ND     | 130      |      | µg/L  | 50 | 11/14/2011 7:01:43 PM |
| Benzene                            | ND     | 50       |      | µg/L  | 50 | 11/14/2011 7:01:43 PM |
| Toluene                            | ND     | 50       |      | µg/L  | 50 | 11/14/2011 7:01:43 PM |
| Ethylbenzene                       | ND     | 50       |      | µg/L  | 50 | 11/14/2011 7:01:43 PM |
| Xylenes, Total                     | ND     | 100      |      | µg/L  | 50 | 11/14/2011 7:01:43 PM |
| Surr: 4-Bromofluorobenzene         | 101    | 76.5-115 |      | %REC  | 50 | 11/14/2011 7:01:43 PM |

**Qualifiers:**

- |                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| * Value exceeds Maximum Contaminant Level    | B Analyte detected in the associated Method Blank    |
| E Estimated value                            | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level                        |
| NC Non-Chlorinated                           | ND Not Detected at the Reporting Limit               |
| PQL Practical Quantitation Limit             | S Spike recovery outside accepted recovery limits    |

# Hall Environmental Analysis Laboratory, Inc.

Date: 17-Nov-11  
Analytical Report

|                                                   |                                               |
|---------------------------------------------------|-----------------------------------------------|
| <b>CLIENT:</b> Western Refining Southwest, Gallup | <b>Client Sample ID:</b> BZ 1-2 OUT           |
| <b>Lab Order:</b> 1111571                         | <b>Collection Date:</b> 11/11/2011 8:00:00 AM |
| <b>Project:</b> Benzene Strippers                 | <b>Date Received:</b> 11/14/2011              |
| <b>Lab ID:</b> 1111571-04                         | <b>Matrix:</b> AQUEOUS                        |

| Analyses                           | Result | PQL      | Qual | Units | DF | Date Analyzed         |
|------------------------------------|--------|----------|------|-------|----|-----------------------|
| <b>EPA METHOD 8021B: VOLATILES</b> |        |          |      |       |    | Analyst: RAA          |
| Methyl tert-butyl ether (MTBE)     | ND     | 130      |      | µg/L  | 50 | 11/14/2011 7:30:36 PM |
| Benzene                            | ND     | 50       |      | µg/L  | 50 | 11/14/2011 7:30:36 PM |
| Toluene                            | 78     | 50       |      | µg/L  | 50 | 11/14/2011 7:30:36 PM |
| Ethylbenzene                       | ND     | 50       |      | µg/L  | 50 | 11/14/2011 7:30:36 PM |
| Xylenes, Total                     | ND     | 100      |      | µg/L  | 50 | 11/14/2011 7:30:36 PM |
| Surr: 4-Bromofluorobenzene         | 100    | 76.5-115 |      | %REC  | 50 | 11/14/2011 7:30:36 PM |

**Qualifiers:**

- |                                              |                                                      |
|----------------------------------------------|------------------------------------------------------|
| * Value exceeds Maximum Contaminant Level    | B Analyte detected in the associated Method Blank    |
| E Estimated value                            | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | MCL Maximum Contaminant Level                        |
| NC Non-Chlorinated                           | ND Not Detected at the Reporting Limit               |
| PQL Practical Quantitation Limit             | S Spike recovery outside accepted recovery limits    |

## QA/QC SUMMARY REPORT

**Client:** Western Refining Southwest, Gallup  
**Project:** Benzene Strippers

**Work Order:** 1111571

| Analyte | Result | Units | PQL | SPK Va | SPK ref | %Rec | LowLimit | HighLimit | %RPD | RPDLimit | Qual |
|---------|--------|-------|-----|--------|---------|------|----------|-----------|------|----------|------|
|---------|--------|-------|-----|--------|---------|------|----------|-----------|------|----------|------|

**Method:** EPA Method 8021B: Volatiles**Sample ID:** 1111571-01A MSD

MSD

Batch ID: R49110 Analysis Date: 11/14/2011 5:35:22 PM

|                                |       |      |     |      |       |      |      |     |      |      |
|--------------------------------|-------|------|-----|------|-------|------|------|-----|------|------|
| Methyl tert-butyl ether (MTBE) | 774.6 | µg/L | 130 | 1000 | 0     | 77.5 | 74.6 | 120 | 2.51 | 15.2 |
| Benzene                        | 1383  | µg/L | 50  | 1000 | 603.7 | 77.9 | 76.6 | 119 | 7.60 | 16.4 |
| Toluene                        | 1889  | µg/L | 50  | 1000 | 1102  | 78.8 | 77.3 | 118 | 8.12 | 13.9 |
| Ethylbenzene                   | 944.3 | µg/L | 50  | 1000 | 89.19 | 85.5 | 76.6 | 114 | 2.18 | 13.5 |
| Xylenes, Total                 | 3134  | µg/L | 100 | 3000 | 632.4 | 83.4 | 82   | 113 | 4.33 | 12.9 |

**Sample ID:** 5ML-RB

MBLK

Batch ID: R49110 Analysis Date: 11/14/2011 1:10:02 PM

|                                |    |      |     |  |  |  |  |  |  |  |
|--------------------------------|----|------|-----|--|--|--|--|--|--|--|
| Methyl tert-butyl ether (MTBE) | ND | µg/L | 2.5 |  |  |  |  |  |  |  |
| Benzene                        | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Toluene                        | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Ethylbenzene                   | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Xylenes, Total                 | ND | µg/L | 2.0 |  |  |  |  |  |  |  |

**Sample ID:** b 12

MBLK

Batch ID: R49132 Analysis Date: 11/16/2011 3:38:01 PM

|                                |    |      |     |  |  |  |  |  |  |  |
|--------------------------------|----|------|-----|--|--|--|--|--|--|--|
| Methyl tert-butyl ether (MTBE) | ND | µg/L | 2.5 |  |  |  |  |  |  |  |
| Benzene                        | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Toluene                        | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Ethylbenzene                   | ND | µg/L | 1.0 |  |  |  |  |  |  |  |
| Xylenes, Total                 | ND | µg/L | 2.0 |  |  |  |  |  |  |  |

**Sample ID:** 100NG BTEX LCS

LCS

Batch ID: R49110 Analysis Date: 11/14/2011 12:41:15 PM

|                                |       |      |     |    |        |      |    |     |  |  |
|--------------------------------|-------|------|-----|----|--------|------|----|-----|--|--|
| Methyl tert-butyl ether (MTBE) | 16.67 | µg/L | 2.5 | 20 | 0      | 83.3 | 80 | 120 |  |  |
| Benzene                        | 19.47 | µg/L | 1.0 | 20 | 0      | 97.4 | 80 | 120 |  |  |
| Toluene                        | 20.44 | µg/L | 1.0 | 20 | 0      | 102  | 80 | 120 |  |  |
| Ethylbenzene                   | 20.61 | µg/L | 1.0 | 20 | 0.1114 | 102  | 80 | 120 |  |  |
| Xylenes, Total                 | 61.30 | µg/L | 2.0 | 60 | 0      | 102  | 80 | 120 |  |  |

**Sample ID:** 100NG BTEX LCS

LCS

Batch ID: R49132 Analysis Date: 11/16/2011 7:28:41 PM

|                                |       |      |     |    |       |      |    |     |  |  |
|--------------------------------|-------|------|-----|----|-------|------|----|-----|--|--|
| Methyl tert-butyl ether (MTBE) | 18.02 | µg/L | 2.5 | 20 | 1.741 | 81.4 | 80 | 120 |  |  |
| Benzene                        | 19.30 | µg/L | 1.0 | 20 | 0     | 96.5 | 80 | 120 |  |  |
| Toluene                        | 19.89 | µg/L | 1.0 | 20 | 0     | 99.4 | 80 | 120 |  |  |
| Ethylbenzene                   | 19.90 | µg/L | 1.0 | 20 | 0     | 99.5 | 80 | 120 |  |  |
| Xylenes, Total                 | 59.20 | µg/L | 2.0 | 60 | 0     | 98.7 | 80 | 120 |  |  |

**Sample ID:** 1111571-01A MS

MS

Batch ID: R49110 Analysis Date: 11/14/2011 5:06:30 PM

|                                |       |      |     |      |       |      |      |     |  |  |
|--------------------------------|-------|------|-----|------|-------|------|------|-----|--|--|
| Methyl tert-butyl ether (MTBE) | 794.3 | µg/L | 130 | 1000 | 0     | 79.4 | 74.6 | 120 |  |  |
| Benzene                        | 1492  | µg/L | 50  | 1000 | 603.7 | 88.8 | 76.6 | 119 |  |  |
| Toluene                        | 2049  | µg/L | 50  | 1000 | 1102  | 94.8 | 77.3 | 118 |  |  |
| Ethylbenzene                   | 965.1 | µg/L | 50  | 1000 | 89.19 | 87.6 | 76.6 | 114 |  |  |
| Xylenes, Total                 | 3273  | µg/L | 100 | 3000 | 632.4 | 88.0 | 82   | 113 |  |  |

**Qualifiers:**

|    |                                            |    |                                                    |
|----|--------------------------------------------|----|----------------------------------------------------|
| E  | Estimated value                            | H  | Holding times for preparation or analysis exceeded |
| J  | Analyte detected below quantitation limits | NC | Non-Chlorinated                                    |
| ND | Not Detected at the Reporting Limit        | R  | RPD outside accepted recovery limits               |

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING GALLU

Date Received:

11/14/2011

Work Order Number 1111571

Received by: LNM

Checklist completed by:

*[Handwritten Signature]* 11/14/11  
Signature Date

Sample ID labels checked by:

IO  
Initials

Matrix:

Carrier name: Client drop-off

- Shipping container/cooler in good condition? Yes  No  Not Present
- Custody seals intact on shipping container/cooler? Yes  No  Not Present  Not Shipped
- Custody seals intact on sample bottles? Yes  No  N/A
- Chain of custody present? Yes  No
- Chain of custody signed when relinquished and received? Yes  No
- Chain of custody agrees with sample labels? Yes  No
- Samples in proper container/bottle? Yes  No
- Sample containers intact? Yes  No
- Sufficient sample volume for indicated test? Yes  No
- All samples received within holding time? Yes  No
- Water - VOA vials have zero headspace? No VOA vials submitted  Yes  No
- Water - Preservation labels on bottle and cap match? Yes  No  N/A
- Water - pH acceptable upon receipt? Yes  No  N/A

Number of preserved bottles checked for pH:

<2 >12 unless noted below.

Container/Temp Blank temperature? 1.0° <6° C Acceptable if given sufficient time to cool.

COMMENTS:

Client contacted \_\_\_\_\_ Date contacted: \_\_\_\_\_ Person contacted \_\_\_\_\_

Contacted by: \_\_\_\_\_ Regarding: \_\_\_\_\_

Comments:

1111571-01A pH > 2 RA 11/14/11

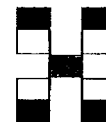
Corrective Action \_\_\_\_\_



# Chain-of-Custody Record

Client: Western Refining  
Gallup Refinery  
 Mailing Address: RT 3 Box 7  
Gallup NM 87301  
 Phone #: 505 722 3833  
 email or Fax#: 505 722 0210  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other \_\_\_\_\_  
 EDD (Type) \_\_\_\_\_

Turn-Around Time: No Charge  
 Standard  Rush  
 Project Name: BZ Strippers  
 Project #: BZ API-OUT  
 Project Manager: Thornan Larsen  
 Sampler: JRO, API OPS  
 On Ice:   
 Sample #: \_\_\_\_\_



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

### Analysis Request

| Date     | Time | Matrix           | Sample Request ID | Container Type and # | Preservative Type | HEAL No | BTEX + MTBE + TMB's (8021) | BTEX + MTBE + TPH (Gas only) | TPH Method 8015B (Gas/Diesel) | TPH (Method 418.1) | EDB (Method 504.1) | 8310 (PNA or PAH) | RCRA 8 Metals | Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> ) | 8081 Pesticides / 8082 PCB's | 8260B (VOA) | 8270 (Semi-VOA) | 8021 & BTEX-MTBE | Air Bubbles (Y) |  |
|----------|------|------------------|-------------------|----------------------|-------------------|---------|----------------------------|------------------------------|-------------------------------|--------------------|--------------------|-------------------|---------------|----------------------------------------------------------------------------------------|------------------------------|-------------|-----------------|------------------|-----------------|--|
| 11-14-11 | 0800 | H <sub>2</sub> O | BZ 1-2 OUT        | 40ML-3               | HCL               | -1      |                            |                              |                               |                    |                    |                   |               |                                                                                        |                              |             |                 |                  | X               |  |
| 11-13-11 | 0800 | H <sub>2</sub> O | BZ 1-2 OUT        | 40ML-3               | HCL               | -2      |                            |                              |                               |                    |                    |                   |               |                                                                                        |                              |             |                 |                  | X               |  |
| 11-12-11 | 0800 | H <sub>2</sub> O | BZ 1-2 OUT        | 40ML-3               | HCL               | -3      |                            |                              |                               |                    |                    |                   |               |                                                                                        |                              |             |                 |                  | X               |  |
| 11-11-11 | 0800 | H <sub>2</sub> O | BZ 1-2 OUT        | 40ML-3               | HCL               | -4      |                            |                              |                               |                    |                    |                   |               |                                                                                        |                              |             |                 |                  | X               |  |

Date: 11/14/11 Time: 1:05 Relinquished by: [Signature]  
 Received by: [Signature] Date: 11/14/11 Time: 1:30  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_ Relinquished by: \_\_\_\_\_  
 Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Remarks: WINT 5.6  
CC: KRISTIN VAN HOUN

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.