

**GW - 032**

**MONITORING  
REPORTS**

**1/2**

**2008**

**Chavez, Carl J, EMNRD**

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**From:** Rajen, Gaurav [Gaurav.Rajen@wnr.com]  
**Sent:** Tuesday, September 09, 2008 10:13 AM  
**To:** Monzeglio, Hope, NMENV; Chavez, Carl J, EMNRD  
**Cc:** Riege, Ed; Johnson, Cheryl; Dorsey, Alvin  
**Subject:** Recent Findings in our 2008 Groundwater Monitoring Events  
**Attachments:** 0808012.pdf; Tables for Hope and Carl 9-8-08-manganese.doc

Carl Chavez  
Oil Conservation Division  
1220 S. Saint Francis  
Santa Fe, NM 87505

Hope Monzeglio  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505

**RE: Recent Findings in our 2008 Groundwater Monitoring Events**

Dear Hope and Carl:

It is a pleasure to write to you. Many thanks for your help, support and keen oversight.

This e-mail is to comply with the Western Refining Gallup Refinery (GW-032) Discharge Permit requirement 20.B.2.

During review of the ongoing 2008 groundwater monitoring events, I discovered that levels of manganese in two of our down-gradient groundwater monitoring wells had exceeded the NM WQCC Standards of 0.2 mg/L (this is a drinking water standard) – 0.43 mg/L of manganese in BW-2C and 0.41 mg/L of manganese in BW-3C. These wells and others are listed in the attached Table, along with data from previous years. These wells (BW-2C and BW-3C) had not exceeded WQCC standards for manganese in the previous year.

Wells BW-2A and BW-2B that had exceeded the standard for manganese in 2007 did have elevated levels of manganese again in 2008 but are now below the standard.

Also, as in previous years, Fluoride levels were high in some of these wells, but no new contamination over the standards was discovered related to Fluorides. Levels of Fluorides in BW-3A and BW-3C have fallen below the standard as compared to 2007.

A copy of the laboratory analytical results is also attached.

All sampling events and results are not completed as yet for 2008. We will keep you informed as new findings are interpreted by us.

9/9/2008

Many thanks,

Sincerely,

Raj

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This inbound email has been scanned by the MessageLabs Email Security System.

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9/9/2008



## COVER LETTER

Wednesday, August 27, 2008

Ed Riege  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: 2008 Annual Groundwater Event

Order No.: 0808012

Dear Ed Riege:


Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 8/1/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001





# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-01

**Client Sample ID:** BW-1C  
**Collection Date:** 7/31/2008 8:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	2.4	0.10		mg/L	1	8/1/2008 9:47:26 PM
Chloride	35	0.10		mg/L	1	8/1/2008 9:47:26 PM
Bromide	ND	0.10		mg/L	1	8/1/2008 9:47:26 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	8/4/2008 1:10:49 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/1/2008 9:47:26 PM
Sulfate	260	5.0		mg/L	10	8/1/2008 10:04:51 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:28:48 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/8/2008 1:52:22 PM
Barium	0.016	0.010		mg/L	1	8/8/2008 1:52:22 PM
Cadmium	ND	0.0020		mg/L	1	8/8/2008 1:52:22 PM
Calcium	3.0	0.50		mg/L	1	8/8/2008 1:52:22 PM
Chromium	ND	0.0060		mg/L	1	8/8/2008 1:52:22 PM
Copper	ND	0.0060		mg/L	1	8/8/2008 1:52:22 PM
Iron	ND	0.050		mg/L	1	8/8/2008 1:52:22 PM
Lead	ND	0.0050		mg/L	1	8/8/2008 1:52:22 PM
Magnesium	0.62	0.50		mg/L	1	8/8/2008 1:52:22 PM
Manganese	0.013	0.0020		mg/L	1	8/8/2008 1:52:22 PM
Potassium	ND	1.0		mg/L	1	8/8/2008 1:52:22 PM
Selenium	ND	0.050		mg/L	1	8/8/2008 1:52:22 PM
Silver	ND	0.0050		mg/L	1	8/8/2008 1:52:22 PM
Sodium	310	2.5		mg/L	5	8/8/2008 4:09:59 PM
Zinc	ND	0.020		mg/L	1	8/8/2008 1:52:22 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/6/2008
Acenaphthylene	ND	10		µg/L	1	8/6/2008
Aniline	ND	10		µg/L	1	8/6/2008
Anthracene	ND	10		µg/L	1	8/6/2008
Azobenzene	ND	10		µg/L	1	8/6/2008
Benz(a)anthracene	ND	10		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	10		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzoic acid	ND	20		µg/L	1	8/6/2008
Benzyl alcohol	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0808012  
 Project: 2008 Annual Groundwater Event  
 Lab ID: 0808012-01

Client Sample ID: BW-1C  
 Collection Date: 7/31/2008 8:30:00 AM  
 Date Received: 8/1/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	10		µg/L	1	8/6/2008
Carbazole	ND	10		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/6/2008
4-Chloroaniline	ND	10		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	10		µg/L	1	8/6/2008
2-Chlorophenol	ND	10		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Chrysene	ND	10		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	10		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	10		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/6/2008
Dibenzofuran	ND	10		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/6/2008
Diethyl phthalate	ND	10		µg/L	1	8/6/2008
Dimethyl phthalate	ND	10		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	20		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	10		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
Fluoranthene	ND	10		µg/L	1	8/6/2008
Fluorene	ND	10		µg/L	1	8/6/2008
Hexachlorobenzene	ND	10		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	10		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/6/2008
Hexachloroethane	ND	10		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/6/2008
Isophorone	ND	10		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	10		µg/L	1	8/6/2008
2-Methylphenol	ND	10		µg/L	1	8/6/2008
3+4-Methylphenol	ND	10		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/6/2008
Naphthalene	ND	10		µg/L	1	8/6/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
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 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
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# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0808012  
 Project: 2008 Annual Groundwater Event  
 Lab ID: 0808012-01

Client Sample ID: BW-1C  
 Collection Date: 7/31/2008 8:30:00 AM  
 Date Received: 8/1/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	8/6/2008
3-Nitroaniline	ND	10		µg/L	1	8/6/2008
4-Nitroaniline	ND	10		µg/L	1	8/6/2008
Nitrobenzene	ND	10		µg/L	1	8/6/2008
2-Nitrophenol	ND	10		µg/L	1	8/6/2008
4-Nitrophenol	ND	10		µg/L	1	8/6/2008
Pentachlorophenol	ND	20		µg/L	1	8/6/2008
Phenanthrene	ND	10		µg/L	1	8/6/2008
Phenol	ND	10		µg/L	1	8/6/2008
Pyrene	ND	10		µg/L	1	8/6/2008
Pyridine	ND	10		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	53.6	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	55.5	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	42.8	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	64.6	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	47.8	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	28.2	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 3:37:29 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 3:37:29 AM
Acetone	ND	10		µg/L	1	8/5/2008 3:37:29 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 3:37:29 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 3:37:29 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
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 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-01

**Client Sample ID:** BW-1C  
**Collection Date:** 7/31/2008 8:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Chloroethane	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 3:37:29 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 3:37:29 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 3:37:29 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM

**Qualifiers:**  
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 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-01

**Client Sample ID:** BW-1C  
**Collection Date:** 7/31/2008 8:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 3:37:29 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 3:37:29 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 3:37:29 AM
Surr: 1,2-Dichloroethane-d4	97.4	68.1-123		%REC	1	8/5/2008 3:37:29 AM
Surr: 4-Bromofluorobenzene	98.9	53.2-145		%REC	1	8/5/2008 3:37:29 AM
Surr: Dibromofluoromethane	99.7	68.5-119		%REC	1	8/5/2008 3:37:29 AM
Surr: Toluene-d8	95.2	64-131		%REC	1	8/5/2008 3:37:29 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	1400	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	8.68	0.1		pH units	1	8/4/2008

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ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

Page 5 of 32

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-02

**Client Sample ID:** BW-2A  
**Collection Date:** 7/30/2008 9:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	1.1	0.10		mg/L	1	8/1/2008 10:22:16 PM
Chloride	40	0.10		mg/L	1	8/1/2008 10:22:16 PM
Bromide	0.43	0.10		mg/L	1	8/1/2008 10:22:16 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	8/4/2008 1:28:13 PM
Phosphorus, Orthophosphate (As P)	0.75	0.50	H	mg/L	1	8/1/2008 10:22:16 PM
Sulfate	7.3	0.50		mg/L	1	8/1/2008 10:22:16 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:30:38 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/8/2008 1:56:35 PM
Barium	0.14	0.010		mg/L	1	8/8/2008 1:56:35 PM
Cadmium	ND	0.0020		mg/L	1	8/8/2008 1:56:35 PM
Calcium	8.6	0.50		mg/L	1	8/8/2008 1:56:35 PM
Chromium	ND	0.0060		mg/L	1	8/8/2008 1:56:35 PM
Copper	ND	0.0060		mg/L	1	8/8/2008 1:56:35 PM
Iron	0.37	0.050		mg/L	1	8/8/2008 1:56:35 PM
Lead	ND	0.0050		mg/L	1	8/8/2008 1:56:35 PM
Magnesium	3.2	0.50		mg/L	1	8/8/2008 1:56:35 PM
Manganese	0.14	0.0020		mg/L	1	8/8/2008 1:56:35 PM
Potassium	ND	1.0		mg/L	1	8/8/2008 1:56:35 PM
Selenium	ND	0.050		mg/L	1	8/8/2008 1:56:35 PM
Silver	ND	0.0050		mg/L	1	8/8/2008 1:56:35 PM
Sodium	320	2.5		mg/L	5	8/8/2008 4:12:44 PM
Zinc	ND	0.020		mg/L	1	8/8/2008 1:56:35 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/6/2008
Acenaphthylene	ND	10		µg/L	1	8/6/2008
Aniline	ND	10		µg/L	1	8/6/2008
Anthracene	ND	10		µg/L	1	8/6/2008
Azobenzene	ND	10		µg/L	1	8/6/2008
Benz(a)anthracene	ND	10		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	10		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzoic acid	ND	20		µg/L	1	8/6/2008
Benzyl alcohol	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-02

**Client Sample ID:** BW-2A  
**Collection Date:** 7/30/2008 9:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	10		µg/L	1	8/6/2008
Carbazole	ND	10		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/6/2008
4-Chloroaniline	ND	10		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	10		µg/L	1	8/6/2008
2-Chlorophenol	ND	10		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Chrysene	ND	10		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	10		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	10		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/6/2008
Dibenzofuran	ND	10		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/6/2008
Diethyl phthalate	ND	10		µg/L	1	8/6/2008
Dimethyl phthalate	ND	10		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	20		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	10		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
Fluoranthene	ND	10		µg/L	1	8/6/2008
Fluorene	ND	10		µg/L	1	8/6/2008
Hexachlorobenzene	ND	10		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	10		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/6/2008
Hexachloroethane	ND	10		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/6/2008
Isophorone	ND	10		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	10		µg/L	1	8/6/2008
2-Methylphenol	ND	10		µg/L	1	8/6/2008
3+4-Methylphenol	ND	10		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/6/2008
Naphthalene	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-02

**Client Sample ID:** BW-2A  
**Collection Date:** 7/30/2008 9:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	8/6/2008
3-Nitroaniline	ND	10		µg/L	1	8/6/2008
4-Nitroaniline	ND	10		µg/L	1	8/6/2008
Nitrobenzene	ND	10		µg/L	1	8/6/2008
2-Nitrophenol	ND	10		µg/L	1	8/6/2008
4-Nitrophenol	ND	10		µg/L	1	8/6/2008
Pentachlorophenol	ND	20		µg/L	1	8/6/2008
Phenanthrene	ND	10		µg/L	1	8/6/2008
Phenol	ND	10		µg/L	1	8/6/2008
Pyrene	ND	10		µg/L	1	8/6/2008
Pyridine	ND	10		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	59.7	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	68.8	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	50.7	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	67.9	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	60.8	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	35.3	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 4:06:13 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 4:06:13 AM
Acetone	ND	10		µg/L	1	8/5/2008 4:06:13 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 4:06:13 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 4:06:13 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-02

**Client Sample ID:** BW-2A  
**Collection Date:** 7/30/2008 9:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						<b>Analyst: HL</b>
Chloroethane	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 4:06:13 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 4:06:13 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 4:06:13 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-02

**Client Sample ID:** BW-2A  
**Collection Date:** 7/30/2008 9:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 4:06:13 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 4:06:13 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 4:06:13 AM
Surr: 1,2-Dichloroethane-d4	97.1	68.1-123		%REC	1	8/5/2008 4:06:13 AM
Surr: 4-Bromofluorobenzene	105	53.2-145		%REC	1	8/5/2008 4:06:13 AM
Surr: Dibromofluoromethane	98.8	68.5-119		%REC	1	8/5/2008 4:06:13 AM
Surr: Toluene-d8	95.6	64-131		%REC	1	8/5/2008 4:06:13 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	1400	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	7.87	0.1		pH units	1	8/4/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-03

**Client Sample ID:** BW-2B  
**Collection Date:** 7/30/2008 10:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	1.8	0.10		mg/L	1	8/1/2008 11:49:19 PM
Chloride	30	0.10		mg/L	1	8/1/2008 11:49:19 PM
Bromide	1.1	0.10		mg/L	1	8/1/2008 11:49:19 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	8/4/2008 1:45:38 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	8/1/2008 11:49:19 PM
Sulfate	150	5.0		mg/L	10	8/2/2008 12:08:44 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:32:28 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/12/2008 11:06:57 AM
Barium	0.041	0.010		mg/L	1	8/12/2008 11:06:57 AM
Cadmium	ND	0.0020		mg/L	1	8/12/2008 11:06:57 AM
Calcium	13	0.50		mg/L	1	8/12/2008 11:06:57 AM
Chromium	ND	0.0060		mg/L	1	8/12/2008 11:06:57 AM
Copper	ND	0.0060		mg/L	1	8/12/2008 11:06:57 AM
Iron	0.064	0.050		mg/L	1	8/12/2008 11:06:57 AM
Lead	ND	0.0050		mg/L	1	8/12/2008 11:06:57 AM
Magnesium	3.0	0.50		mg/L	1	8/12/2008 11:06:57 AM
Manganese	0.16	0.0020		mg/L	1	8/12/2008 11:06:57 AM
Potassium	ND	1.0		mg/L	1	8/12/2008 11:06:57 AM
Selenium	ND	0.050		mg/L	1	8/12/2008 11:06:57 AM
Silver	ND	0.0050		mg/L	1	8/12/2008 11:06:57 AM
Sodium	570	5.0		mg/L	10	8/12/2008 2:00:43 PM
Zinc	ND	0.020		mg/L	1	8/12/2008 11:06:57 AM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/6/2008
Acenaphthylene	ND	10		µg/L	1	8/6/2008
Aniline	ND	10		µg/L	1	8/6/2008
Anthracene	ND	10		µg/L	1	8/6/2008
Azobenzene	ND	10		µg/L	1	8/6/2008
Benz(a)anthracene	ND	10		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	10		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzoic acid	ND	20		µg/L	1	8/6/2008
Benzyl alcohol	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-03

**Client Sample ID:** BW-2B  
**Collection Date:** 7/30/2008 10:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	10		µg/L	1	8/6/2008
Carbazole	ND	10		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/6/2008
4-Chloroaniline	ND	10		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	10		µg/L	1	8/6/2008
2-Chlorophenol	ND	10		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Chrysene	ND	10		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	10		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	10		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/6/2008
Dibenzofuran	ND	10		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/6/2008
Diethyl phthalate	ND	10		µg/L	1	8/6/2008
Dimethyl phthalate	ND	10		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	20		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	10		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
Fluoranthene	ND	10		µg/L	1	8/6/2008
Fluorene	ND	10		µg/L	1	8/6/2008
Hexachlorobenzene	ND	10		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	10		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/6/2008
Hexachloroethane	ND	10		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/6/2008
Isophorone	ND	10		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	10		µg/L	1	8/6/2008
2-Methylphenol	ND	10		µg/L	1	8/6/2008
3+4-Methylphenol	ND	10		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/6/2008
Naphthalene	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-03

**Client Sample ID:** BW-2B  
**Collection Date:** 7/30/2008 10:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	8/6/2008
3-Nitroaniline	ND	10		µg/L	1	8/6/2008
4-Nitroaniline	ND	10		µg/L	1	8/6/2008
Nitrobenzene	ND	10		µg/L	1	8/6/2008
2-Nitrophenol	ND	10		µg/L	1	8/6/2008
4-Nitrophenol	ND	10		µg/L	1	8/6/2008
Pentachlorophenol	ND	20		µg/L	1	8/6/2008
Phenanthrene	ND	10		µg/L	1	8/6/2008
Phenol	ND	10		µg/L	1	8/6/2008
Pyrene	ND	10		µg/L	1	8/6/2008
Pyridine	ND	10		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	55.8	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	61.7	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	45.2	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	63.1	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	58.9	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	29.9	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2-Dibromoethane (EOB)	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 4:34:55 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 4:34:55 AM
Acetone	ND	10		µg/L	1	8/5/2008 4:34:55 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 4:34:55 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 4:34:55 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-03

**Client Sample ID:** BW-2B  
**Collection Date:** 7/30/2008 10:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Chloroethane	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 4:34:55 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 4:34:55 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 4:34:55 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-03

**Client Sample ID:** BW-2B  
**Collection Date:** 7/30/2008 10:30:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 4:34:55 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 4:34:55 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 4:34:55 AM
Surr: 1,2-Dichloroethane-d4	96.5	68.1-123		%REC	1	8/5/2008 4:34:55 AM
Surr: 4-Bromofluorobenzene	102	53.2-145		%REC	1	8/5/2008 4:34:55 AM
Surr: Dibromofluoromethane	100	68.5-119		%REC	1	8/5/2008 4:34:55 AM
Surr: Toluene-d8	96.9	64-131		%REC	1	8/5/2008 4:34:55 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	2200	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	7.76	0.1		pH units	1	8/4/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-04

**Client Sample ID:** BW-2C  
**Collection Date:** 7/30/2008 2:45:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	1.9	0.10		mg/L	1	8/2/2008 12:41:33 AM
Chloride	44	1.0		mg/L	10	8/2/2008 12:58:58 AM
Bromide	0.14	0.10		mg/L	1	8/2/2008 12:41:33 AM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	8/4/2008 2:03:03 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	8/2/2008 12:41:33 AM
Sulfate	270	5.0		mg/L	10	8/2/2008 12:58:58 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:34:12 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/8/2008 2:00:45 PM
Barium	0.13	0.010		mg/L	1	8/8/2008 2:00:45 PM
Cadmium	ND	0.0020		mg/L	1	8/8/2008 2:00:45 PM
Calcium	24	0.50		mg/L	1	8/8/2008 2:00:45 PM
Chromium	ND	0.0060		mg/L	1	8/8/2008 2:00:45 PM
Copper	ND	0.0060		mg/L	1	8/8/2008 2:00:45 PM
Iron	1.3	0.25		mg/L	5	8/8/2008 4:15:15 PM
Lead	ND	0.0050		mg/L	1	8/8/2008 2:00:45 PM
Magnesium	2.0	0.50		mg/L	1	8/8/2008 2:00:45 PM
Manganese	0.43	0.0020		mg/L	1	8/8/2008 2:00:45 PM
Potassium	1.1	1.0		mg/L	1	8/8/2008 2:00:45 PM
Selenium	ND	0.050		mg/L	1	8/8/2008 2:00:45 PM
Silver	ND	0.0050		mg/L	1	8/8/2008 2:00:45 PM
Sodium	300	2.5		mg/L	5	8/8/2008 4:15:15 PM
Zinc	ND	0.020		mg/L	1	8/8/2008 2:00:45 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	50		µg/L	1	8/6/2008
Acenaphthylene	ND	50		µg/L	1	8/6/2008
Aniline	ND	50		µg/L	1	8/6/2008
Anthracene	ND	50		µg/L	1	8/6/2008
Azobenzene	ND	50		µg/L	1	8/6/2008
Benz(a)anthracene	ND	50		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	50		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	50		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	50		µg/L	1	8/6/2008
Benzoic acid	ND	100		µg/L	1	8/6/2008
Benzyl alcohol	ND	50		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	50		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-04

**Client Sample ID:** BW-2C  
**Collection Date:** 7/30/2008 2:45:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	50		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	50		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	50		µg/L	1	8/6/2008
Carbazole	ND	50		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	50		µg/L	1	8/6/2008
4-Chloroaniline	ND	50		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	50		µg/L	1	8/6/2008
2-Chlorophenol	ND	50		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	50		µg/L	1	8/6/2008
Chrysene	ND	50		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	50		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	50		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/6/2008
Dibenzofuran	ND	50		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	50		µg/L	1	8/6/2008
Diethyl phthalate	ND	50		µg/L	1	8/6/2008
Dimethyl phthalate	ND	50		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	100		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	50		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	100		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	100		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	50		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	50		µg/L	1	8/6/2008
Fluoranthene	ND	50		µg/L	1	8/6/2008
Fluorene	ND	50		µg/L	1	8/6/2008
Hexachlorobenzene	ND	50		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	50		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/6/2008
Hexachloroethane	ND	50		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/6/2008
Isophorone	ND	50		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	50		µg/L	1	8/6/2008
2-Methylphenol	ND	50		µg/L	1	8/6/2008
3+4-Methylphenol	ND	50		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	50		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/6/2008
Naphthalene	ND	50		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0808012  
Project: 2008 Annual Groundwater Event  
Lab ID: 0808012-04

Client Sample ID: BW-2C  
Collection Date: 7/30/2008 2:45:00 PM  
Date Received: 8/1/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	50		µg/L	1	8/6/2008
3-Nitroaniline	ND	50		µg/L	1	8/6/2008
4-Nitroaniline	ND	50		µg/L	1	8/6/2008
Nitrobenzene	ND	50		µg/L	1	8/6/2008
2-Nitrophenol	ND	50		µg/L	1	8/6/2008
4-Nitrophenol	ND	50		µg/L	1	8/6/2008
Pentachlorophenol	ND	100		µg/L	1	8/6/2008
Phenanthrene	ND	50		µg/L	1	8/6/2008
Phenol	ND	50		µg/L	1	8/6/2008
Pyrene	ND	50		µg/L	1	8/6/2008
Pyridine	ND	50		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	50		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	68.4	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	76.6	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	58.9	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	69.2	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	68.3	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	40.5	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 5:03:37 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 5:03:37 AM
Acetone	ND	10		µg/L	1	8/5/2008 5:03:37 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 5:03:37 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 5:03:37 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-04

**Client Sample ID:** BW-2C  
**Collection Date:** 7/30/2008 2:45:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Chloroethane	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 5:03:37 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 5:03:37 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 5:03:37 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-04

**Client Sample ID:** BW-2C  
**Collection Date:** 7/30/2008 2:45:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 5:03:37 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 5:03:37 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 5:03:37 AM
Surr: 1,2-Dichloroethane-d4	96.3	68.1-123		%REC	1	8/5/2008 5:03:37 AM
Surr: 4-Bromofluorobenzene	102	53.2-145		%REC	1	8/5/2008 5:03:37 AM
Surr: Dibromofluoromethane	100	68.5-119		%REC	1	8/5/2008 5:03:37 AM
Surr: Toluene-d8	90.9	64-131		%REC	1	8/5/2008 5:03:37 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	1400	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	8.83	0.1		pH units	1	8/4/2008

**Qualifiers:**

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- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-05

**Client Sample ID:** BW-3B  
**Collection Date:** 7/31/2008 1:50:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	1.4	0.10		mg/L	1	8/2/2008 1:33:47 AM
Chloride	34	0.10		mg/L	1	8/2/2008 1:33:47 AM
Bromide	0.42	0.10		mg/L	1	8/2/2008 1:33:47 AM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	8/4/2008 2:20:28 PM
Phosphorus, Orthophosphate (As P)	1.1	0.50		mg/L	1	8/2/2008 1:33:47 AM
Sulfate	55	0.50		mg/L	1	8/2/2008 1:33:47 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:35:55 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/8/2008 2:06:19 PM
Barium	0.11	0.010		mg/L	1	8/8/2008 2:06:19 PM
Cadmium	ND	0.0020		mg/L	1	8/8/2008 2:06:19 PM
Calcium	8.3	0.50		mg/L	1	8/8/2008 2:06:19 PM
Chromium	ND	0.0060		mg/L	1	8/8/2008 2:06:19 PM
Copper	ND	0.0060		mg/L	1	8/8/2008 2:06:19 PM
Iron	0.43	0.050		mg/L	1	8/8/2008 2:06:19 PM
Lead	ND	0.0050		mg/L	1	8/8/2008 2:06:19 PM
Magnesium	2.6	0.50		mg/L	1	8/8/2008 2:06:19 PM
Manganese	0.12	0.0020		mg/L	1	8/8/2008 2:06:19 PM
Potassium	ND	1.0		mg/L	1	8/8/2008 2:06:19 PM
Selenium	ND	0.050		mg/L	1	8/8/2008 2:06:19 PM
Silver	ND	0.0050		mg/L	1	8/8/2008 2:06:19 PM
Sodium	370	2.5		mg/L	5	8/8/2008 4:17:46 PM
Zinc	ND	0.020		mg/L	1	8/8/2008 2:06:19 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/6/2008
Acenaphthylene	ND	10		µg/L	1	8/6/2008
Aniline	ND	10		µg/L	1	8/6/2008
Anthracene	ND	10		µg/L	1	8/6/2008
Azobenzene	ND	10		µg/L	1	8/6/2008
Benz(a)anthracene	ND	10		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	10		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	8/6/2008
Benzoic acid	ND	20		µg/L	1	8/6/2008
Benzyl alcohol	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-05

**Client Sample ID:** BW-3B  
**Collection Date:** 7/31/2008 1:50:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	10		µg/L	1	8/6/2008
Carbazole	ND	10		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/6/2008
4-Chloroaniline	ND	10		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	10		µg/L	1	8/6/2008
2-Chlorophenol	ND	10		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/6/2008
Chrysene	ND	10		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	10		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	10		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/6/2008
Dibenzofuran	ND	10		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/6/2008
Diethyl phthalate	ND	10		µg/L	1	8/6/2008
Dimethyl phthalate	ND	10		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	20		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	10		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	20		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	8/6/2008
Fluoranthene	ND	10		µg/L	1	8/6/2008
Fluorene	ND	10		µg/L	1	8/6/2008
Hexachlorobenzene	ND	10		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	10		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/6/2008
Hexachloroethane	ND	10		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/6/2008
Isophorone	ND	10		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	10		µg/L	1	8/6/2008
2-Methylphenol	ND	10		µg/L	1	8/6/2008
3+4-Methylphenol	ND	10		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/6/2008
Naphthalene	ND	10		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-05

**Client Sample ID:** BW-3B  
**Collection Date:** 7/31/2008 1:50:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	8/6/2008
3-Nitroaniline	ND	10		µg/L	1	8/6/2008
4-Nitroaniline	ND	10		µg/L	1	8/6/2008
Nitrobenzene	ND	10		µg/L	1	8/6/2008
2-Nitrophenol	ND	10		µg/L	1	8/6/2008
4-Nitrophenol	ND	10		µg/L	1	8/6/2008
Pentachlorophenol	ND	20		µg/L	1	8/6/2008
Phenanthrene	ND	10		µg/L	1	8/6/2008
Phenol	ND	10		µg/L	1	8/6/2008
Pyrene	ND	10		µg/L	1	8/6/2008
Pyridine	ND	10		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	64.2	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	70.7	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	51.8	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	70.3	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	63.6	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	33.7	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 5:32:20 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 5:32:20 AM
Acetone	ND	10		µg/L	1	8/5/2008 5:32:20 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 5:32:20 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 5:32:20 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-05

**Client Sample ID:** BW-3B  
**Collection Date:** 7/31/2008 1:50:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Chloroethane	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 5:32:20 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 5:32:20 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 5:32:20 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-05

**Client Sample ID:** BW-3B  
**Collection Date:** 7/31/2008 1:50:00 PM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 5:32:20 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 5:32:20 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 5:32:20 AM
Surr: 1,2-Dichloroethane-d4	98.4	68.1-123		%REC	1	8/5/2008 5:32:20 AM
Surr: 4-Bromofluorobenzene	103	53.2-145		%REC	1	8/5/2008 5:32:20 AM
Surr: Dibromofluoromethane	98.1	68.5-119		%REC	1	8/5/2008 5:32:20 AM
Surr: Toluene-d8	91.6	64-131		%REC	1	8/5/2008 5:32:20 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	1500	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	7.95	0.1		pH units	1	8/4/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-06

**Client Sample ID:** BW-3C  
**Collection Date:** 8/1/2008 8:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SLB
Fluoride	1.5	1.0		mg/L	10	8/2/2008 2:43:25 AM
Chloride	34	1.0		mg/L	10	8/2/2008 2:43:25 AM
Bromide	ND	1.0		mg/L	10	8/2/2008 2:43:25 AM
Nitrate (As N)+Nitrite (As N)	ND	2.0		mg/L	10	8/7/2008 9:23:20 PM
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	8/2/2008 2:43:25 AM
Sulfate	240	5.0		mg/L	10	8/2/2008 2:43:25 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SNV
Mercury	ND	0.00020		mg/L	1	8/8/2008 3:37:40 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	8/8/2008 2:10:30 PM
Barium	0.27	0.010		mg/L	1	8/8/2008 2:10:30 PM
Cadmium	ND	0.0020		mg/L	1	8/8/2008 2:10:30 PM
Calcium	28	0.50		mg/L	1	8/8/2008 2:10:30 PM
Chromium	0.0078	0.0060		mg/L	1	8/8/2008 2:10:30 PM
Copper	ND	0.0060		mg/L	1	8/8/2008 2:10:30 PM
Iron	3.0	0.25		mg/L	5	8/8/2008 4:20:18 PM
Lead	ND	0.0050		mg/L	1	8/8/2008 2:10:30 PM
Magnesium	2.2	0.50		mg/L	1	8/8/2008 2:10:30 PM
Manganese	0.41	0.0020		mg/L	1	8/8/2008 2:10:30 PM
Potassium	1.6	1.0		mg/L	1	8/8/2008 2:10:30 PM
Selenium	ND	0.050		mg/L	1	8/8/2008 2:10:30 PM
Silver	ND	0.0050		mg/L	1	8/8/2008 2:10:30 PM
Sodium	350	2.5		mg/L	5	8/8/2008 4:20:18 PM
Zinc	0.032	0.020		mg/L	1	8/8/2008 2:10:30 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	50		µg/L	1	8/6/2008
Acenaphthylene	ND	50		µg/L	1	8/6/2008
Aniline	ND	50		µg/L	1	8/6/2008
Anthracene	ND	50		µg/L	1	8/6/2008
Azobenzene	ND	50		µg/L	1	8/6/2008
Benz(a)anthracene	ND	50		µg/L	1	8/6/2008
Benzo(a)pyrene	ND	50		µg/L	1	8/6/2008
Benzo(b)fluoranthene	ND	50		µg/L	1	8/6/2008
Benzo(g,h,i)perylene	ND	50		µg/L	1	8/6/2008
Benzo(k)fluoranthene	ND	50		µg/L	1	8/6/2008
Benzoic acid	ND	100		µg/L	1	8/6/2008
Benzyl alcohol	ND	50		µg/L	1	8/6/2008
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	8/6/2008
Bis(2-chloroethyl)ether	ND	50		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-06

**Client Sample ID:** BW-3C  
**Collection Date:** 8/1/2008 8:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	50		µg/L	1	8/6/2008
Bis(2-ethylhexyl)phthalate	ND	50		µg/L	1	8/6/2008
4-Bromophenyl phenyl ether	ND	50		µg/L	1	8/6/2008
Butyl benzyl phthalate	ND	50		µg/L	1	8/6/2008
Carbazole	ND	50		µg/L	1	8/6/2008
4-Chloro-3-methylphenol	ND	50		µg/L	1	8/6/2008
4-Chloroaniline	ND	50		µg/L	1	8/6/2008
2-Chloronaphthalene	ND	50		µg/L	1	8/6/2008
2-Chlorophenol	ND	50		µg/L	1	8/6/2008
4-Chlorophenyl phenyl ether	ND	50		µg/L	1	8/6/2008
Chrysene	ND	50		µg/L	1	8/6/2008
Di-n-butyl phthalate	ND	50		µg/L	1	8/6/2008
Di-n-octyl phthalate	ND	50		µg/L	1	8/6/2008
Dibenz(a,h)anthracene	ND	50		µg/L	1	8/6/2008
Dibenzofuran	ND	50		µg/L	1	8/6/2008
1,2-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
1,3-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
1,4-Dichlorobenzene	ND	50		µg/L	1	8/6/2008
3,3'-Dichlorobenzidine	ND	50		µg/L	1	8/6/2008
Diethyl phthalate	ND	50		µg/L	1	8/6/2008
Dimethyl phthalate	ND	50		µg/L	1	8/6/2008
2,4-Dichlorophenol	ND	100		µg/L	1	8/6/2008
2,4-Dimethylphenol	ND	50		µg/L	1	8/6/2008
4,6-Dinitro-2-methylphenol	ND	100		µg/L	1	8/6/2008
2,4-Dinitrophenol	ND	100		µg/L	1	8/6/2008
2,4-Dinitrotoluene	ND	50		µg/L	1	8/6/2008
2,6-Dinitrotoluene	ND	50		µg/L	1	8/6/2008
Fluoranthene	ND	50		µg/L	1	8/6/2008
Fluorene	ND	50		µg/L	1	8/6/2008
Hexachlorobenzene	ND	50		µg/L	1	8/6/2008
Hexachlorobutadiene	ND	50		µg/L	1	8/6/2008
Hexachlorocyclopentadiene	ND	50		µg/L	1	8/6/2008
Hexachloroethane	ND	50		µg/L	1	8/6/2008
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	8/6/2008
Isophorone	ND	50		µg/L	1	8/6/2008
2-Methylnaphthalene	ND	50		µg/L	1	8/6/2008
2-Methylphenol	ND	50		µg/L	1	8/6/2008
3+4-Methylphenol	ND	50		µg/L	1	8/6/2008
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	8/6/2008
N-Nitrosodimethylamine	ND	50		µg/L	1	8/6/2008
N-Nitrosodiphenylamine	ND	50		µg/L	1	8/6/2008
Naphthalene	ND	50		µg/L	1	8/6/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-06

**Client Sample ID:** BW-3C  
**Collection Date:** 8/1/2008 8:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	50		µg/L	1	8/6/2008
3-Nitroaniline	ND	50		µg/L	1	8/6/2008
4-Nitroaniline	ND	50		µg/L	1	8/6/2008
Nitrobenzene	ND	50		µg/L	1	8/6/2008
2-Nitrophenol	ND	50		µg/L	1	8/6/2008
4-Nitrophenol	ND	50		µg/L	1	8/6/2008
Pentachlorophenol	ND	100		µg/L	1	8/6/2008
Phenanthrene	ND	50		µg/L	1	8/6/2008
Phenol	ND	50		µg/L	1	8/6/2008
Pyrene	ND	50		µg/L	1	8/6/2008
Pyridine	ND	50		µg/L	1	8/6/2008
1,2,4-Trichlorobenzene	ND	50		µg/L	1	8/6/2008
2,4,5-Trichlorophenol	ND	50		µg/L	1	8/6/2008
2,4,6-Trichlorophenol	ND	50		µg/L	1	8/6/2008
Surr: 2,4,6-Tribromophenol	64.9	16.6-150		%REC	1	8/6/2008
Surr: 2-Fluorobiphenyl	66.0	19.6-134		%REC	1	8/6/2008
Surr: 2-Fluorophenol	48.5	9.54-113		%REC	1	8/6/2008
Surr: 4-Terphenyl-d14	64.1	22.7-145		%REC	1	8/6/2008
Surr: Nitrobenzene-d5	56.9	14.6-134		%REC	1	8/6/2008
Surr: Phenol-d5	31.8	10.7-80.3		%REC	1	8/6/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 6:00:59 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 6:00:59 AM
Acetone	ND	10		µg/L	1	8/5/2008 6:00:59 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 6:00:59 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 6:00:59 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-06

**Client Sample ID:** BW-3C  
**Collection Date:** 8/1/2008 8:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Chloroethane	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 6:00:59 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 6:00:59 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 6:00:59 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-06

**Client Sample ID:** BW-3C  
**Collection Date:** 8/1/2008 8:00:00 AM  
**Date Received:** 8/1/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 6:00:59 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 6:00:59 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 6:00:59 AM
Surr: 1,2-Dichloroethane-d4	97.1	68.1-123		%REC	1	8/5/2008 6:00:59 AM
Surr: 4-Bromofluorobenzene	98.5	53.2-145		%REC	1	8/5/2008 6:00:59 AM
Surr: Dibromofluoromethane	101	68.5-119		%REC	1	8/5/2008 6:00:59 AM
Surr: Toluene-d8	91.2	64-131		%REC	1	8/5/2008 6:00:59 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: KMS
Specific Conductance	1500	0.010		µmhos/cm	1	8/4/2008
<b>SM4500-H+B: PH</b>						Analyst: KMS
pH	8.63	0.1		pH units	1	8/4/2008

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0808012  
**Project:** 2008 Annual Groundwater Event  
**Lab ID:** 0808012-07

**Client Sample ID:** Trip Blank  
**Collection Date:**  
**Date Received:** 8/1/2008  
**Matrix:** TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Benzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Toluene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Ethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Naphthalene	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 6:29:44 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2008 6:29:44 AM
Acetone	ND	10		µg/L	1	8/5/2008 6:29:44 AM
Bromobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Bromoform	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Bromomethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
2-Butanone	ND	10		µg/L	1	8/5/2008 6:29:44 AM
Carbon disulfide	ND	10		µg/L	1	8/5/2008 6:29:44 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Chlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Chloroethane	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
Chloroform	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Chloromethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Dibromomethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
2-Hexanone	ND	10		µg/L	1	8/5/2008 6:29:44 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 27-Aug-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0808012  
Project: 2008 Annual Groundwater Event  
Lab ID: 0808012-07

Client Sample ID: Trip Blank  
Collection Date:  
Date Received: 8/1/2008  
Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: HL
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2008 6:29:44 AM
Methylene Chloride	ND	3.0		µg/L	1	8/5/2008 6:29:44 AM
n-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Styrene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2008 6:29:44 AM
Vinyl chloride	ND	1.0		µg/L	1	8/5/2008 6:29:44 AM
Xylenes, Total	ND	1.5		µg/L	1	8/5/2008 6:29:44 AM
Surr: 1,2-Dichloroethane-d4	96.4	68.1-123		%REC	1	8/5/2008 6:29:44 AM
Surr: 4-Bromofluorobenzene	101	53.2-145		%REC	1	8/5/2008 6:29:44 AM
Surr: Dibromofluoromethane	102	68.5-119		%REC	1	8/5/2008 6:29:44 AM
Surr: Toluene-d8	90.4	64-131		%REC	1	8/5/2008 6:29:44 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report

<b>Sample Number</b>	080805040-001	<b>Sampling Date</b>	7/31/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-01E / BW-1C	<b>Sampling Time</b>	8:30 AM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	0.00115	mg/L	0.001	8/15/2008	DMB	EPA 6020A	

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00189; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report

<b>Sample Number</b>	080805040-002	<b>Sampling Date</b>	7/30/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-02E / BW-2A	<b>Sampling Time</b>	9:00 AM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	ND	mg/L	0.001	8/15/2008	DMB	EPA 6020A	

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87693; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report

<b>Sample Number</b>	080805040-003	<b>Sampling Date</b>	7/30/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-03E / BW-2B	<b>Sampling Time</b>	10:30 AM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	0.0115	mg/L	0.001	8/15/2008	DMB	EPA 6020A	

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2832; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report

<b>Sample Number</b>	080805040-004	<b>Sampling Date</b>	7/30/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-04E / BW-2C	<b>Sampling Time</b>	2:45 PM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	0.00728	mg/L	0.001	8/15/2008	DMB	EPA 8020A	

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:80142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report

<b>Sample Number</b>	080805040-005	<b>Sampling Date</b>	7/31/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-05E / BW-3B	<b>Sampling Time</b>	1:50 PM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	ND	mg/L	0.001	8/15/2008	DMB	EPA 6020A	

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

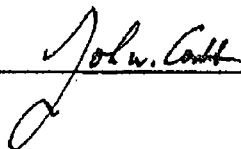
## Analytical Results Report

<b>Sample Number</b>	080805040-006	<b>Sampling Date</b>	8/1/2008	<b>Date/Time Received</b>	8/5/2008 10:30 AM
<b>Client Sample ID</b>	0808012-06E / BW-3C	<b>Sampling Time</b>	8:00 AM	<b>Extraction Date</b>	8/12/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Uranium	0.00251	mg/L	0.001	8/15/2008	DMB	EPA 6020A	

Authorized Signature



MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:80142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

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# Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080805040  
**Project Name:** 0808012

## Analytical Results Report Quality Control Data

### Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Uranium	0.0473	mg/L	0.05	94.6	85-115	8/12/2008	8/15/2008

### Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
080805040-001	Uranium	0.00115	0.0483	mg/L	0.05	94.3	75-125	8/12/2008	8/15/2008

### Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Uranium	0.0474	mg/L	0.05	92.5	1.9	0-20	8/12/2008	8/15/2008

### Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Uranium	ND	mg/L	0.001	8/12/2008	8/15/2008

AR Acceptable Range  
ND Not Detected  
PQL Practical Quantitation Limit  
RPD Relative Percentage Difference

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

Wednesday, August 27, 2008

Page 1 of 1

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: EPA Method 300.0: Anions

Sample ID: MB

MBLK

Batch ID: R29597 Analysis Date: 8/1/2008 9:18:48 AM

Fluoride	ND	mg/L	0.10
Chloride	ND	mg/L	0.10
Bromide	ND	mg/L	0.10
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50
Sulfate	ND	mg/L	0.50

Sample ID: MB

MBLK

Batch ID: R29639 Analysis Date: 8/4/2008 9:24:30 AM

Fluoride	ND	mg/L	0.10
Chloride	ND	mg/L	0.10
Bromide	ND	mg/L	0.10
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50
Sulfate	ND	mg/L	0.50

Sample ID: MB

MBLK

Batch ID: R29679 Analysis Date: 8/7/2008 10:04:22 AM

Fluoride	ND	mg/L	0.10
Chloride	ND	mg/L	0.10
Bromide	ND	mg/L	0.10
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50
Sulfate	ND	mg/L	0.50

Sample ID: LCS

LCS

Batch ID: R29597 Analysis Date: 8/1/2008 9:36:13 AM

Fluoride	0.5057	mg/L	0.10	101	90	110
Chloride	5.033	mg/L	0.10	101	90	110
Bromide	2.497	mg/L	0.10	99.9	90	110
Nitrate (As N)+Nitrite (As N)	3.580	mg/L	0.20	102	90	110
Phosphorus, Orthophosphate (As P)	4.861	mg/L	0.50	97.2	90	110
Sulfate	10.09	mg/L	0.50	101	90	110

Sample ID: LCS

LCS

Batch ID: R29639 Analysis Date: 8/4/2008 9:41:54 AM

Fluoride	0.4918	mg/L	0.10	98.4	90	110
Chloride	4.893	mg/L	0.10	97.9	90	110
Bromide	2.540	mg/L	0.10	102	90	110
Nitrate (As N)+Nitrite (As N)	3.514	mg/L	0.20	100	90	110
Phosphorus, Orthophosphate (As P)	5.000	mg/L	0.50	100	90	110
Sulfate	10.29	mg/L	0.50	103	90	110

Sample ID: LCS

LCS

Batch ID: R29679 Analysis Date: 8/7/2008 10:21:47 AM

Chloride	5.038	mg/L	0.10	101	90	110
Bromide	2.618	mg/L	0.10	105	90	110
Nitrate (As N)+Nitrite (As N)	3.599	mg/L	0.20	103	90	110
Phosphorus, Orthophosphate (As P)	5.032	mg/L	0.50	101	90	110
Sulfate	10.46	mg/L	0.50	105	90	110

Sample ID: LCS-b

LCS

Batch ID: R29679 Analysis Date: 8/7/2008 7:04:05 PM

Fluoride	0.5291	mg/L	0.10	106	90	110
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## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-16674

MBLK

Batch ID:

16674

Analysis Date:

8/6/2008

Acenaphthene	ND	µg/L	10
Acenaphthylene	ND	µg/L	10
Aniline	ND	µg/L	10
Anthracene	ND	µg/L	10
Azobenzene	ND	µg/L	10
Benz(a)anthracene	ND	µg/L	10
Benzo(a)pyrene	ND	µg/L	10
Benzo(b)fluoranthene	ND	µg/L	10
Benzo(g,h,i)perylene	ND	µg/L	10
Benzo(k)fluoranthene	ND	µg/L	10
Benzoic acid	ND	µg/L	20
Benzyl alcohol	ND	µg/L	10
Bis(2-chloroethoxy)methane	ND	µg/L	10
Bis(2-chloroethyl)ether	ND	µg/L	10
Bis(2-chloroisopropyl)ether	ND	µg/L	10
Bis(2-ethylhexyl)phthalate	ND	µg/L	10
4-Bromophenyl phenyl ether	ND	µg/L	10
Butyl benzyl phthalate	ND	µg/L	10
Carbazole	ND	µg/L	10
4-Chloro-3-methylphenol	ND	µg/L	10
4-Chloroaniline	ND	µg/L	10
2-Chloronaphthalene	ND	µg/L	10
2-Chlorophenol	ND	µg/L	10
4-Chlorophenyl phenyl ether	ND	µg/L	10
Chrysene	ND	µg/L	10
Di-n-butyl phthalate	ND	µg/L	10
Di-n-octyl phthalate	ND	µg/L	10
Dibenz(a,h)anthracene	ND	µg/L	10
Dibenzofuran	ND	µg/L	10
1,2-Dichlorobenzene	ND	µg/L	10
1,3-Dichlorobenzene	ND	µg/L	10
1,4-Dichlorobenzene	ND	µg/L	10
3,3'-Dichlorobenzidine	ND	µg/L	10
Diethyl phthalate	ND	µg/L	10
Dimethyl phthalate	ND	µg/L	10
2,4-Dichlorophenol	ND	µg/L	20
2,4-Dimethylphenol	ND	µg/L	10
4,6-Dinitro-2-methylphenol	ND	µg/L	20
2,4-Dinitrophenol	ND	µg/L	20
2,4-Dinitrotoluene	ND	µg/L	10
2,6-Dinitrotoluene	ND	µg/L	10
Fluoranthene	ND	µg/L	10
Fluorene	ND	µg/L	10
Hexachlorobenzene	ND	µg/L	10

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-16674

MBLK

Batch ID: 16674

Analysis Date:

8/6/2008

Hexachlorobutadiene	ND	µg/L	10
Hexachlorocyclopentadiene	ND	µg/L	10
Hexachloroethane	ND	µg/L	10
Indeno(1,2,3-cd)pyrene	ND	µg/L	10
Isophorone	ND	µg/L	10
2-Methylnaphthalene	ND	µg/L	10
2-Methylphenol	ND	µg/L	10
3+4-Methylphenol	ND	µg/L	10
N-Nitrosodi-n-propylamine	ND	µg/L	10
N-Nitrosodimethylamine	ND	µg/L	10
N-Nitrosodiphenylamine	ND	µg/L	10
Naphthalene	ND	µg/L	10
2-Nitroaniline	ND	µg/L	10
3-Nitroaniline	ND	µg/L	10
4-Nitroaniline	ND	µg/L	10
Nitrobenzene	ND	µg/L	10
2-Nitrophenol	ND	µg/L	10
4-Nitrophenol	ND	µg/L	10
Pentachlorophenol	ND	µg/L	20
Phenanthrene	ND	µg/L	10
Phenol	ND	µg/L	10
Pyrene	ND	µg/L	10
Pyridine	ND	µg/L	10
1,2,4-Trichlorobenzene	ND	µg/L	10
2,4,5-Trichlorophenol	ND	µg/L	10
2,4,6-Trichlorophenol	ND	µg/L	10

Sample ID: lcs-16674

LCS

Batch ID: 16674

Analysis Date:

8/7/2008

Acenaphthene	55.04	µg/L	10	55.0	11	123
4-Chloro-3-methylphenol	67.46	µg/L	10	33.7	15.4	119
2-Chlorophenol	79.64	µg/L	10	39.8	12.2	122
1,4-Dichlorobenzene	45.90	µg/L	10	45.9	16.9	100
2,4-Dinitrotoluene	55.90	µg/L	10	55.9	13	138
N-Nitrosodi-n-propylamine	59.24	µg/L	10	59.2	9.93	122
4-Nitrophenol	42.36	µg/L	10	21.2	12.5	87.4
Pentachlorophenol	56.14	µg/L	20	28.1	3.55	114
Phenol	54.36	µg/L	10	27.2	7.53	73.1
Pyrene	56.24	µg/L	10	56.2	12.6	140
1,2,4-Trichlorobenzene	42.92	µg/L	10	42.9	17.4	98.7

Sample ID: lcsd-16674

LCSD

Batch ID: 16674

Analysis Date:

8/6/2008

Acenaphthene	62.80	µg/L	10	62.8	11	123	13.2	30.5
4-Chloro-3-methylphenol	97.08	µg/L	10	48.5	15.4	119	36.0	28.6
2-Chlorophenol	113.3	µg/L	10	56.7	12.2	122	34.9	107
1,4-Dichlorobenzene	49.90	µg/L	10	49.9	16.9	100	8.35	62.1
2,4-Dinitrotoluene	61.94	µg/L	10	61.9	13	138	10.3	14.7

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8270C: Semivolatiles									
Sample ID: lcsd-16674		LCSD			Batch ID: 16674		Analysis Date:		8/8/2008
N-Nitrosodi-n-propylamine	67.04	µg/L	10	67.0	9.93	122	12.4	30.3	
4-Nitrophenol	68.84	µg/L	10	34.4	12.5	87.4	47.6	36.3	R
Pentachlorophenol	89.06	µg/L	20	44.5	3.55	114	45.3	49	
Phenol	69.16	µg/L	10	34.6	7.53	73.1	24.0	52.4	
Pyrene	61.18	µg/L	10	61.2	12.6	140	8.41	16.3	
1,2,4-Trichlorobenzene	49.38	µg/L	10	49.4	17.4	98.7	14.0	36.4	

Method: EPA Method 7470: Mercury

Sample ID: MB-16721		MBLK			Batch ID: 16721		Analysis Date:		8/8/2008 3:01:50 PM
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-16721		LCS			Batch ID: 16721		Analysis Date:		8/8/2008 3:03:33 PM
Mercury	0.004789	mg/L	0.00020	95.8	80	120			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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## Method: EPA 6010B: Total Recoverable Metals

Sample ID: MB-16676

MBLK

Batch ID: 16676 Analysis Date: 8/8/2008 12:36:37 PM

Arsenic	ND	mg/L	0.020
Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0020
Calcium	ND	mg/L	0.50
Chromium	ND	mg/L	0.0060
Copper	ND	mg/L	0.0060
Iron	ND	mg/L	0.050
Lead	ND	mg/L	0.0050
Magnesium	ND	mg/L	0.50
Manganese	ND	mg/L	0.0020
Potassium	ND	mg/L	1.0
Selenium	ND	mg/L	0.050
Silver	ND	mg/L	0.0050
Sodium	ND	mg/L	0.50
Zinc	ND	mg/L	0.020

Sample ID: MB-16714

MBLK

Batch ID: 16714 Analysis Date: 8/12/2008 10:57:39 AM

Arsenic	ND	mg/L	0.020
Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0020
Calcium	ND	mg/L	0.50
Chromium	ND	mg/L	0.0060
Copper	ND	mg/L	0.0060
Iron	ND	mg/L	0.050
Lead	ND	mg/L	0.0050
Magnesium	ND	mg/L	0.50
Manganese	ND	mg/L	0.0020
Potassium	ND	mg/L	1.0
Selenium	ND	mg/L	0.050
Silver	ND	mg/L	0.0050
Sodium	ND	mg/L	0.50
Zinc	ND	mg/L	0.020

Sample ID: LCS-16676

LCS

Batch ID: 16676 Analysis Date: 8/8/2008 12:39:41 PM

Arsenic	0.4558	mg/L	0.020	91.2	80	120
Barium	0.4695	mg/L	0.010	93.9	80	120
Cadmium	0.4515	mg/L	0.0020	90.3	80	120
Calcium	49.55	mg/L	0.50	99.1	80	120
Chromium	0.4716	mg/L	0.0060	94.3	80	120
Copper	0.4909	mg/L	0.0060	98.2	80	120
Iron	0.4831	mg/L	0.050	96.6	80	120
Lead	0.4437	mg/L	0.0050	88.7	80	120
Magnesium	50.39	mg/L	0.50	101	80	120
Manganese	0.4669	mg/L	0.0020	93.4	80	120
Potassium	54.25	mg/L	1.0	109	80	120
Selenium	0.4214	mg/L	0.050	84.3	80	120

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: EPA 8010B: Total Recoverable Metals</b>									
<b>Sample ID: LCS-16676</b>		<b>LCS</b>			<b>Batch ID: 16676</b>	<b>Analysis Date: 8/8/2008 12:39:41 PM</b>			
Silver	0.4772	mg/L	0.0050	95.4	80	120			
Sodium	53.54	mg/L	0.50	107	80	120			
Zinc	0.4601	mg/L	0.020	92.0	80	120			
<b>Sample ID: LCS-16714</b>		<b>LCS</b>			<b>Batch ID: 16714</b>	<b>Analysis Date: 8/12/2008 11:00:43 AM</b>			
Arsenic	0.5057	mg/L	0.020	101	80	120			
Barium	0.4650	mg/L	0.010	93.0	80	120			
Cadmium	0.4711	mg/L	0.0020	94.2	80	120			
Calcium	49.53	mg/L	0.50	99.1	80	120			
Chromium	0.4722	mg/L	0.0060	94.4	80	120			
Copper	0.4766	mg/L	0.0060	95.3	80	120			
Iron	0.4698	mg/L	0.050	94.0	80	120			
Lead	0.4671	mg/L	0.0050	93.4	80	120			
Magnesium	49.31	mg/L	0.50	98.6	80	120			
Manganese	0.4625	mg/L	0.0020	92.5	80	120			
Potassium	50.47	mg/L	1.0	101	80	120			
Selenium	0.4779	mg/L	0.050	95.6	80	120			
Silver	0.4733	mg/L	0.0050	94.1	80	120			
Sodium	52.15	mg/L	0.50	104	80	120			
Zinc	0.4646	mg/L	0.020	92.9	80	120			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5ml rb

MBLK

Batch ID: R29596 Analysis Date: 8/4/2008 8:42:06 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5ml rb

MBLK

Batch ID: R29596 Analysis Date: 8/4/2008 8:42:06 AM

4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: b5

MBLK

Batch ID: R29596 Analysis Date: 8/4/2008 9:23:12 PM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Page 2

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: b5

MBLK

Batch ID: R29596 Analysis Date: 8/4/2008 9:23:12 PM

Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 100ng tcs

LCS

Batch ID: R29596 Analysis Date: 8/4/2008 9:39:54 AM

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2008 Annual Groundwater Event

Work Order: 0808012

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260B: VOLATILES									
Sample ID: 100ng lcs									
		LCS				Batch ID: R29596	Analysis Date:	8/4/2008 9:39:54 AM	
Benzene	22.36	µg/L	1.0	112	86.8	120			
Toluene	18.80	µg/L	1.0	94.0	64.1	127			
Chlorobenzene	19.23	µg/L	1.0	96.1	82.4	113			
1,1-Dichloroethene	27.46	µg/L	1.0	137	86.5	132			S
Trichloroethene (TCE)	23.81	µg/L	1.0	119	77.3	123			
Sample ID: 100ng lcs									
		LCS				Batch ID: R29596	Analysis Date:	8/4/2008 10:20:48 PM	
Benzene	21.82	µg/L	1.0	109	86.8	120			
Toluene	18.43	µg/L	1.0	92.2	64.1	127			
Chlorobenzene	18.62	µg/L	1.0	93.1	82.4	113			
1,1-Dichloroethene	26.65	µg/L	1.0	133	86.5	132			S
Trichloroethene (TCE)	22.66	µg/L	1.0	113	77.3	123			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

## Sample Receipt Checklist

Client Name WESTERN REFINING GALLU

Date Received:

8/1/2008

Work Order Number 0808012

Received by: AT

Checklist completed by:

Signature

Date

Sample ID labels checked by:

Initials

Matrix:

Carrier name Client drop-off

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

Container/Temp Blank temperature?

3°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

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

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

Comments: \_\_\_\_\_

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



**TABLE: Detected Total Recoverable Metals in Boundary Wells (Note: Only data for detected contaminants are presented. For a complete list of all metals analyzed see section 5.0. All units are in mg/l.)**

	Date Sampled	Ba	Ca	Fe	Mg	Mn	K	Na	U
BW-1C	7/31/08	.016	3.0	<0.05	.62	.013	<1.0	310	.00115
	12/31/07	0.023	3.6	<0.05	0.74	0.01	<1.0	360	<0.1
	10/28/06	<0.02	3.4	<0.05	<1.0				
BW-2A	7/30/08	0.14	8.6	0.37	3.2	0.14	<1.0	320	<.001
	12/31/07	0.18	11	0.7	3.9	<b><u>0.22</u></b>	<1/0	380	<0.1
	10/28/06	0.15	10	<0.05					
BW-2B	7/30/08	0.041	13	.064	3.0	0.16	<1.0	570	.0115
	12/31/07	0.07	16	0.62	3.6	<b><u>0.29</u></b>	1.6	640	<0.1
	10/28/06	0.071	23	<0.05					
BW-2C	7/30/08	0.13	24	1.3	2.0	<b><u>0.43</u></b>	1.1	300	.00728
	12/31/07	0.026	2.9	0.16	0.68	0.024	<1.0	340	<0.1
	10/28/06	0.031	5.6	<0.05	<1.0				
BW-3B	7/31/08	0.11	8.3	0.43	2.6	0.12	<1.0	370	<.001
	12/31/07	0.099	9.0	0.64	2.9	0.13	<1.0	430	<0.1
	10/28/06	0.11	9.0	<0.05					
BW-3C	8/1/08	.27	28	3.0	2.2	<b><u>0.41</u></b>	1.6	350	.00251
	12/31/07	0.068	4.2	0.14	0.81	0.015	1.1	360	<0.1
	10/28/06	0.029	6.0	<0.05					
EPA MCLs		2.0							0.03
NMWQS		1.0				0.2			

Note: levels exceeding the standard are in bold and underlined.

**TABLE: Anions and Select Parameters in Boundary Wells (All units are in mg/l, except for pH and Specific Conductivity)**

	Year	Date Sampled	Fluoride	Chloride	Nitrate (as N) + Nitrite	Phosphorous Orthophosphate (as P)	Sulfate	pH	Specific Conductivity microSiemens /cm
BW-1C	2008	7/31/08	<b><u>2.4</u></b>	35	<1.0	<0.5	260	8.68	1400
	2007	12/31/07	<b><u>2.6</u></b>	35	<1.0	<0.5	270	8.5	1400
	2006	10/27/06	<b><u>2.7</u></b>	36	<0.5	<0.5	NA*	8.39	1400
BW-2A	2008	7/30/08	1.1	40	<1.0	0.75	7.3	7.87	1400
	2007	12/31/07	1.3	42	<1.0	0.70	7.7	7.76	1400
	2006	10/27/06	1.3	39	<0.5	0.64	7.5	8.27	1400
BW-2B	2008	7/30/08	<b><u>1.6</u></b>	30	<1.0	<0.5	150	7.76	2200
	2007	12/31/07	<b><u>1.8</u></b>	30	<1.0	<0.5	150	7.77	2400
	2006	10/27/06	<b><u>1.9</u></b>	31	<0.5	<0.5	140	8.1	1400
BW-2C	2008	7/30/08	<b><u>1.9</u></b>	44	<1.0	<50	270	8.83	1400
	2007	12/31/07	<b><u>2.3</u></b>	45	<1.0	<0.5	290	8.73	1400
	2006	10/27/06	<b><u>2.4</u></b>	42	<0.5	<0.5	270	8.52	1300
BW-3B	2008	7/31/08	1.4	34	<1.0	1.1	55	7.95	1500
	2007	12/31/07	<b><u>1.6</u></b>	35	<1.0	1.1	51	7.93	1600
	2006	10/27/06	<b><u>1.7</u></b>	33	<0.5	1.1	250	8.5	1600
BW-3C	2008	8/1/08	1.5	34	<2.0	<5.0	240	8.63	1500
	2007	12/31/07	<b><u>1.8</u></b>	38	<1.0	<0.5	300	8.59	1500
	2006	10/27/06	<b><u>1.9</u></b>	37	<0.5	<0.5	280	8.39	1400
EPA MCLs			4.0					6-9,	
NMWQS			1.6	250 (domestic water)	10		600	6.5 – 8.5	

Note: Levels over regulatory standards are in bold and underlined.

August 28, 2008

Hope Monzeglio  
Environmental Specialist  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, BLDG 1  
Santa Fe NM 87505

Carl Chavez, Environmental Engr.  
Oil Conservation Division  
1220 S. Saint Francis  
Santa Fe, NM 87505

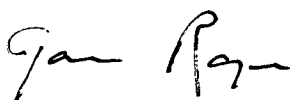
**RE: 2007 Annual Groundwater Report, Discharge Permit GW-032**

Dear Hope and Carl:

Western Refining - Gallup has prepared a 2007 annual ground water monitoring report according to the requirements in the OCD Discharge Permit GW-032.

If you have any questions please contact me at (505) 722-0227 or Ed Riege at (505) 722-0217.

Sincerely,



Gaurav Rajen, Environmental Engineer  
Western Refining - Gallup Refinery

cc: Ed Riege w/o report

# OIL CONSERVATION DIVISION

## 2007 ANNUAL GROUNDWATER REPORT

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### Binder 1: Annual Groundwater Report

Western Refining – Gallup Refinery

McKinley County, New Mexico



September 1, 2008

EPA ID No. NMD000333211

Discharge Permit No. GW-032

Prepared By: Gaurav Rajen, Environmental Engineer, Western Refining – Gallup Refinery

Signature: Gaurav Rajen, Date: 8/28/08

Certified By: Mark Turri, Refinery Manager, Western Refining – Gallup Refinery

Signature: Mark P. Turri, Date: 8/28/08

## Executive Summary

The purpose of groundwater sampling performed in 2007 at Gallup Refinery is to determine whether contamination resulting from refinery related activities has entered groundwater at the facility. In previous reports, we have described the twenty monitoring wells that are distributed within the boundaries of the refinery and the nine monitoring wells that are located along the perimeter of the facility's wastewater treatment lagoons and ponds. In 2007, three new shallow groundwater monitoring wells were established, of which two were subsequently closed as directed by the Hazardous Waste Bureau of the New Mexico Environment Department. The additional new well that remained open has not been sampled in 2007.<sup>1</sup>

Groundwater monitoring is conducted at the Gallup Refinery located approximately 17 miles east of Gallup and approximately 1 mile north of Interstate I-40 at Exit 39. The facility is owned and operated by Western Refining Southwest, Inc. with headquarters in El Paso, Texas. U.S. Environmental Protection Agency (EPA) Permit ID No. NMD000333211 pertains to the facility.

**In 2007, monitoring** conducted between December 27-31, 2007 (and January 1, 2008, as inclement weather prevented completion of sampling of some wells within December 2007)) **showed that in Potable Well #3 the contaminant 2-Methylnaphthalene was at a level of 0.032 mg/l. This level exceeds the current NM Water Quality Control Commission standard of 0.03 mg/l for 2-Methylnaphthalene.**

**In 2007, monitoring** conducted between December 27-31, 2007 (and January 1, 2008, as inclement weather prevented completion of sampling of some wells within December 2007)) **showed that Methyl Tetra-Butyl Ether (MTBE) contamination had entered the shallow perched groundwater at OW-14 and OW-30. The levels of MTBE were 0.92 mg/l in OW-14 and 0.29 mg/l in OW-30. These levels exceed the current U.S. EPA Maximum Contaminant level (MCL) of 0.20 mg/l and the current NM Water Quality Control Commission standard of 0.1 mg/l.** The monitoring in 2006 and 2005 had also shown that MTBE contamination had entered the shallow perched groundwater at OW-14 and OW-30.<sup>2</sup> The sampling in 2007, as had been found in 2006, established that the MTBE contamination was limited in extent and had not migrated significantly to other nearby wells (OW-12 had a level of non-detect, OW-13 a level of 0.0013 mg/l, and OW-29 had a level of 0.0043 mg/l). **The monitoring of well OW-14 also found that Benzene was elevated. The benzene concentration in this sample was 0.014 mg/l, exceeding the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l.** The highest level of Benzene in this well in 2006 was 0.0042 mg/l, but in 2005 the level was 0.017 mg/l. In 2007, Benzene was not detected in nearby wells (OW-12, OW-13, OW29 and OW-30 had no detectable levels of Benzene.) In 2007, 1-Methylnaphthalene was found in the sample taken from OW 14. The level of 1-Methylnaphthalene was at 0.027 mg/l, which is below the NM WQCC standard of 0.03 mg/l.

<sup>1</sup> In 2007, three new shallow groundwater monitoring wells (KA-1, KA-2, and KA-3) were established around the facility's New American Petroleum Institute Oil-Water Separator (NAPIS). Well logs for these new wells are attached to this document. The New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) disapproved these three wells, and three new wells were drilled in March of 2008. Of the three wells drilled in 2007, two were asked by NMED-HWB to be abandoned and one kept open. These wells have not been sampled in 2007.

<sup>2</sup> On 9/27/2005, OW-14 had MTBE levels of 0.077 mg/l, and OW-30 of <0.0025 mg/l. On 10/27/2006, OW-14 had MTBE at a level of 0.18 mg/l, and OW-30 a level of 0.018 mg/l. On 12/28/2006, OW-14 was at level of 0.18 mg/l of MTBE.



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I. Annual Groundwater Report (Binder 1)

## Section 1 Introduction

### 1.1 Facility Description

This annual groundwater report pertains to the Western Refining Southwest Inc. Gallup Refinery located at Exit 39 on Interstate I-40. This refinery is known as the Gallup Refinery and is located at Jamestown New Mexico, approximately 17 miles east of Gallup. Figure 1 shows the regional location of the Gallup Refinery.

The owner is:

Western Refining  
123 W. Mills Avenue  
El Paso, TX 79901  
(parent corporation)

Operator: Western Refining Southwest Inc (postal address)  
Route 3, Box 7  
Gallup, New Mexico 87301

Western Refining Southwest Inc (physical address)  
I-40, Exit 39  
Jamestown, New Mexico 87347

SIC code 2911 (petroleum refining) applies to the Gallup Refinery.

The following regulatory identification and permit governs the Gallup Refinery:

- U.S. EPA ID Number NMD000333211
- OCD Discharge Permit No. GW-032

The facility status is corrective action/compliance. Annual and quarterly groundwater sampling is conducted at the facility to evaluate present contamination.

The refinery is situated on an 810 acre irregular shaped tract of land that is substantially located within the lower one quarter of Section 28 and throughout Section 33 of Township 15 North, Range 15 West of the New Mexico Prime Meridian. A small component of the property lies within the northeastern one quarter of Section 4 of Township 14 North, Range 15 West. Figure 2 is a topographic map showing the general layout of the refinery in comparison to the local topography.

## 1.2 Background Information

The Gallup Refinery is located within a rural and sparsely populated section of McKinley County in Jamestown New Mexico. The setting is a high desert plain on the western slope of the continental divide. The nearest population centers are the Pilot (formerly Giant) Travel Center refueling plaza, the Interstate 40 highway corridor, and a small cluster of residential homes located on the south side of Interstate 40 approximately 2 miles southwest of the refinery (Jamestown). The surrounding land is comprised primarily of public lands and is used for cattle and sheep grazing at a density of less than six cattle or 30 sheep per section. Except for Gallup, McKinley County is predominantly rural area, as are the adjoining portions of neighboring counties.

The refinery primarily receives crude oil via two 6 inch diameter pipelines; Bisti Pipeline comes down from the Four Corners Area and enters the refinery property from the north and Hospah Pipeline comes in from the northeast and is an interconnection with a main interstate pipeline. In addition, the refinery also receives natural gasoline feedstocks via a 4-inch Diameter pipeline that comes in from the west along the Interstate 40 corridor from the Conoco gas plant. These feedstocks are then stored in tanks until refined into products. The refinery has an overall capacity to process up to 32,000 barrels per day of crude oil and natural gasoline feedstocks.

The refinery incorporates various processing units that convert crude oil and natural gasoline into finished products. These units are briefly described as follows.

- The crude distillation unit separates crude oil into various fractions; including gas, naphtha, light oil, heavy oil, and residuals.
- The fluidized catalytic cracking unit (FCCU) dissociates (cracks) long-chain hydrocarbon molecules into smaller molecules, and essentially converts heavier oils into naphtha and lighter oils.
- The alkylation unit combines specific types of hydrocarbon molecules into a high octane gasoline blending component.
- The reforming unit combines low octane naphtha molecules to form high octane naphtha.
- The hydrotreating unit removes undesirable sulfur and nitrogen compounds from intermediate feedstocks, and also saturates the feedstocks with hydrogen.
- The isomerization unit converts low octane hydrocarbon molecules into high octane molecules.
- The treater units remove impurities from various intermediate and blending feedstocks in order to produce finished products that comply with sales specifications.
- The sulfur recovery unit converts and recovers various sulfur compounds from other processing units and then produces a solid elemental sulfur byproduct.

As a result of these processing steps, the refinery produces a wide range of petroleum products including propane, butane, unleaded gasoline, diesel, kerosene, and residual fuel. In addition to the aforementioned processing units, various other equipment and systems support the operation of the refinery and are briefly described as follows.

Storage tanks are used throughout the refinery to hold and store crude oil, natural gasoline, intermediate feedstocks, finished products, chemicals, and water. These tanks are all located aboveground and range

in size from 80,000 barrels to less than a 1,000 barrels. A grouping of tanks is commonly referred to as a "tank farm" such as the hot oil "tank farm".

Pumps, valves, and piping systems are used throughout the refinery to transfer various liquids among storage tanks and processing units.

A railroad spur track and a railcar loading rack are used to transfer feed-stocks and products from refinery storage tanks into and out of railcars.

Several tank truck loading racks are used at the refinery to load out finished products and also may receive crude oil, other feedstocks, additives, and chemicals.

A pipeline from the refinery carries diesel fuel to the Pilot (formerly Giant) Travel Center. Gasoline is delivered to the Pilot Center via tanker truck.

A firefighting training facility is used to conduct employee firefighting training. Waste water from the facility, when training is conducted, is pumped into a tank which is then pumped out by a vacuum truck. The vacuum truck pumps the oily water into a process sewer leading to the New API Separator (NAPIS).

The process wastewater system is a network of curbing, paving, catch basins, and underground piping that collects waste water effluent from various processing areas within the refinery and then conveys this wastewater to the new API separator.

The NAPIS is a two compartment oil water separator. Oil is separated from water based on the principle that, given a quiet surface, oil will float to the water surface where it can be skimmed off. The skimmed slop oil is passed to a collection chamber where it is pumped back into the refinery process. The clarified water is piped to the top of dual stripping columns where benzene is removed. The stripped water flows into the first aeration lagoon. Sludge sinks to the bottom of the separator which is periodically vacuumed out by a vacuum truck and disposed as hazardous waste at an approved landfill or recycled and reused in refineries that have this allowable exemption under RCRA.

At the stripping columns, ambient air is blown upwards through the falling cascade of clarified wastewater as it passes through distillation column packing. Countercurrent desorption of benzene from the water occurs due to the high volume of air passing over the relatively large surface area provided by the packing. The desorbed benzene is absorbed into the air stream and vented to the atmosphere. Effluent from the stripper columns gravity flows through piping into the first aeration lagoon.

At the aeration basins, the treated wastewater is mixed with air in order to oxidize any remaining organic constituents and increase the dissolved oxygen concentration available in the water for growth of bacteria and other microbial organisms. The microbes degrade hydrocarbons into carbon dioxide and water. Three 15-hp mechanical aerators provide aeration in the first aeration lagoon with two 15-hp aerators providing aeration in the second lagoon. Effluent from the second aeration lagoon flows onward into the first of several evaporation ponds of various sizes.

At the evaporation ponds, wastewater is converted into vapor via solar and mechanical wind-effect evaporation. No wastewater is discharged from the refinery to surface waters of the state because all of the waste water evaporates. Therefore, the refinery is not required to have a NPDES discharge permit for discharge of treated process water. However, the Gallup refinery does have a NPDES permit for storm water discharge.

The storm water system is a network of valves, gates, berms, embankments, culverts, trenches, ditches, natural arroyos, and retention ponds that collect, convey, control, treat, and release storm water that falls within or passes through refinery property. Storm water discharge from the refinery is very infrequent

due to the arid desert-like nature of the surrounding geographical area. The Gallup Refinery maintains a storm water pollution prevention plan (SWPPP) that includes Best Management Practices (BMPs) for effective storm water pollution prevention. The refinery has constructed several new berms in various areas and improved outfalls (installed barrier dams equipped with gate valves) to minimize the possibility of contaminated runoff leaving the refinery property.

### 1.3 Site Characteristics

The Gallup Refinery is located within a rural and sparsely populated section of McKinley County. It is situated in the high desert plain on the western flank of the continental divide approximately 17 miles east of Gallup. The surrounding land is comprised primarily of public lands and is used for cattle and sheep grazing at low densities<sup>4</sup>. Surface vegetation consists of native xerophytic vegetation including grasses, shrubs, small junipers, and some prickly pear cacti. Average rainfall at the refinery is less than 7 inches per year, although it can vary to slightly higher levels elsewhere in the county depending on elevation.

Local topography consists of a gradually inclined down-slope from high ground in the southeast to a lowland fluvial plain in the northwest. The highest point on refinery property is located at the southeast corner boundary (elevation approximately 7,040 feet) and the lowest point is located at the northwest corner boundary (elevation approximately 6,860 feet). The refinery processing facility is located on a flat man-made terrace at an elevation of approximately 6,950 feet.

Surface water in this region consists of the man-made evaporation ponds and aeration basins located within the refinery, a livestock watering pond (Jon Myer's Pond) located east of the refinery, two small unnamed spring fed ponds located south of the refinery, and the South Fork of the Puerco River and its tributary arroyos. The various ponds and basins typically contain water consistently throughout the year. The South Fork of the Puerco River and its tributaries are intermittent and generally contain water only during, and immediately after, the occurrence of precipitation.

The 810 acre refinery property site is located on a layered geologic formation. Surface soils generally consist of fluvial and alluvial deposits; primarily clay and silt with minor inter-bedded sand layers. Below this surface layer is the Chinle Formation, which consists of low permeability claystones and siltstones that comprise the shales of this formation. As such, the Chinle Formation effectively serves as an aquiclude. Inter-bedded within the Chinle Formation is the Sonsela Sandstone bed, which represents the uppermost potential aquifer in the region.

The Sonsela Sandstone bed lies within and parallels the dip of the Chinle Formation. As such, its high point is located southeast of the refinery and it slopes downward to the northwest as it passes under the refinery. Due to the confinement of the Chinle Formation aquiclude, the Sonsela Sandstone bed acts as a water-bearing reservoir and is artesian at its lower extremis. Artesian conditions exist through much of the central and western portions of the refinery property.

Groundwater flow within the Chinle Formation is extremely slow and typically averages less than  $10^{-10}$  centimeters per second (less than 0.01 feet per year). Groundwater flow within the surface soil layer above the Chinle Formation is highly variable due to the presence of complex and irregular stratigraphy: including sand stringers, cobble beds, and dense clay layers. As such, hydraulic conductivity may range from less than  $10^{-2}$  centimeters per second in the gravelly sands immediately overlying the Chinle Formation up to  $10^{-8}$  centimeters per second in the clay soil layers located near the surface.

Shallow groundwater located under refinery property generally flows along the upper contact of the Chinle Formation. The prevailing flow direction is from the southeast and toward the northwest; however, a subsurface ridge has been identified and is thought to deflect some flow in a northeasterly direction in the vicinity of the refinery tank farm.

<sup>4</sup> See, for example, the web site of McKinley County at <http://www.co.mckinley.nm.us/>

## 2. Scope of Activities

The annual monitoring of the ground water monitoring wells was conducted primarily in May, and December 2007. The following table shows the dates of sampling and the parameters of analysis:

Well/ Pond	Date Sampled	Parameters of Analysis
OW-11	12-27-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), and Volatiles (EPA Method 8260B)
OW-12	12-27-2007	Volatiles (EPA Method 8260B)
OW-13	12-27-2007	Volatiles (EPA Method 8260B)
OW-14	1/1/2008 (Inclement weather prevented sampling for this well along with the other wells monitored on 12-27-2007, 12-28-2007, 12-29-2007, and 12-31-2007)	Volatiles (EPA Method 8260B)
OW-29	12-28-2007	Volatiles (EPA Method 8260B)
OW-30	12-28-2007	Volatiles (EPA Method 8260B)
BW-1A	Not sampled - Dry	
BW-1B	Not sampled - Dry	
BW-1C	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
BW-2A	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
BW-2B	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
BW-2C	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
BW-3A	Not sampled - Dry	
BW-3B	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity



BW-3C	12-31-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
GWM-1	5-24-2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
GWM-2	Dry	
GWM-3	Dry	
MW-1	12-29-2007	Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
MW-4	12-29-2007	Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
MW-5	12-29-2007	Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity
SMW-2	1-1-2008 (Inclement weather prevented sampling for this well along with the other wells monitored on 12-27-2007, 12-28-2007, 12-29-2007, and 12-31-2007)	Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH,

SMW-4	12-29-2007	Specific Conductivity Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH.
PW-3	1-1-2008 (Inclement weather prevented sampling for this well along with the other wells monitored on 12-27-2007, 12-28-2007, 12-29-2007, and 12-31-2007)	Specific Conductivity Mercury (EPA Method 7470), Antimony (EPA Method 200B), Cyanide (Method SM4500CNE), Total Recoverable Metals (EPA Method 6010B), Dissolved metals (EPA Method 6010B), Diesel Range Organics (DRO, EPA Method 8015B), Gasoline Range Organics (GRO, EPA Method 8015B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH.
RW-1	February, April, June, July and November 2007	Measure product layer thickness
RW-2	February, April, June, July and November 2007	Measure product layer thickness
RW-5	February, April, June, July and November 2007	Measure product layer thickness
RW-6	February, April, June, July and November 2007	Measure product layer thickness
Ponds 1 and 2 -Inlets	December 2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity, TDS (Not all parameters were analyzed for each inlet according to the discharge permit.)
Ponds 1 through 8	November 29 2007	Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), Anions (EPA Method 300), Volatiles (EPA Method 8260B), Semi- Volatiles (EPA Method 8270C), pH, Specific Conductivity

The results of the annual sampling event are summarized in tables provided in Section 4 (Groundwater Monitoring Events). In addition to these wells, several other effluent streams both into and within the wastewater treatment system were sampled. Examples of sampling activities in addition to the sampling of groundwater monitoring wells are provided in section 4.0. Complete details of all of these sampling activities are described in section 3b of Binder 2 attached to this report.

#### Groundwater Monitoring Well Installations in 2007

In 2007, three new shallow groundwater monitoring wells (KA-1, KA-2, and KA-3) were established around the facility's New American Petroleum Institute Oil-Water Separator (NAPIS). Well logs for these new wells are attached to this document. The New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB) disapproved these three wells, and three new wells were asked to be drilled in 2008. Of the three wells drilled in 2007, two were asked by NMED-HWB to be abandoned and one kept open. These wells have not been sampled in 2007.

Ground water remediation activities are conducted at the Gallup refinery including the pumping of **4.075** gallons of product from recovery well No.1 (RW-1) in 2007.

## Perimeter Search

Western Refining conducts a perimeter search of the refinery property on a bimonthly basis starting in December 2004. The inspection focuses on hydrocarbon staining or any release that could result in contamination leaving the property boundary. Western Refining has prepared an inspection checklist to be completed and signed by the environmental employee conducting the inspection. Completed inspection sheets are maintained onsite.

### 3. Regulatory Criteria

No site-specific groundwater risk based screening levels have been established for the Gallup refinery so the criteria that Gallup groundwater samples are compared with are the New Mexico Water Quality Control Commission Standards 20.6.2.3103 and the U. S. EPA's National Primary Drinking Water Quality Standards (MCLs) and the NMED total petroleum hydrocarbon (TPH) screening guidelines. Tables comparing the results of sampling with the standards are provided in Section 4.

## Attachment I

### New Mexico Water Quality Control Commission Ground Water Standards

A. Human Health Standards - Ground water shall meet the standards of Section A and B unless otherwise provided. If more than one water contaminant affecting human health is present, the toxic pollutant criteria of WQCC Section 1-101.UU. for the combination of contaminants, or the Human Health Standard of WQCC Section 3-103.A. for each contaminant shall apply, whichever is more stringent.

Arsenic (As) 0.1 mg/l  
Barium (Ba) 1.0 mg/l  
Cadmium (Cd) 0.01 mg/l  
Chromium (Cr) 0.05 mg/l  
Cyanide (CN) 0.2 mg/l  
Fluoride (F) 1.6 mg/l  
Lead (Pb) 0.05 mg/l  
Total Mercury (Hg) 0.002 mg/l  
Nitrate (NO<sub>3</sub> as N) 10.0 mg/l  
Selenium (Se) 0.05 mg/l  
Silver (Ag) 0.05 mg/l  
Uranium (U) 5.0 mg/l  
Radioactivity: Combined  
Radium-226 & Radium-228 30.0 pCi/l  
Benzene 0.01 mg/l  
Polychlorinated biphenyls (PCB's) 0.001 mg/l  
Toluene 0.75 mg/l  
Carbon Tetrachloride 0.01 mg/l  
1,2-Dichloroethane (EDC) 0.01 mg/l  
1,1-Dichloroethylene (1, 1-DCE) 0.005 mg/l  
1, 1,2,2-tetrachloroethylene (PCE) 0.02 mg/l  
1, 1,2-trichloroethylene (TCE) 0.1 mg/l  
ethylbenzene 0.75 mg/l  
total xylenes 0.62 mg/l  
methylene chloride 0.1 mg/l  
chloroform 0.1 mg/l  
1, 1 -dichloroethane 0.025 mg/l  
ethylene dibromide (EDB) 0.0001 mg/l  
1, 1, 1 -trichloroethane 0.06 mg/l  
1, 1,2-trichloroethane 0.01 mg/l  
1, 1,2,2-tetrachloroethane 0.01 mg/l  
vinyl chloride 0.001 mg/l  
PAH'S: total naphthalene plus  
monomethylnaphthalenes 0.03 mg/l  
benzo-a-pyrene 0.0007 mg/l

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## B. Other Standards for Domestic Water Supply

Chloride (Cl) 250. mg/l  
Copper (Cu) 1.0 mg/l  
Iron (Fe) 1.0 mg/l  
Manganese (Mn) 0.2 mg/l  
Phenols 0.005 mg/l  
Sulfate (SO<sub>4</sub>) 600. mg/l  
Total Dissolved Solids (TDS) 1000. mg/l  
Zinc (Zn) 10. mg/l  
pH between 6 and 9

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## C. Standards for Irrigation Use

Ground water shall meet the standards of subsections A, B, and C unless otherwise provided.

Aluminum (Al) 5.0 mg/l  
Boron (B) 0.75 mg/l  
Cobalt (Co) 0.05 mg/l  
Molybdenum (Mo) 1.0 mg/l  
Nickel (Ni) 0.2 mg/l

**TITLE 20 ENVIRONMENTAL PROTECTION**  
**CHAPTER 6 WATER QUALITY**  
**PART 4 STANDARDS FOR INTERSTATE AND INTRASTATE SURFACE WATERS**

**20.6.4.1 ISSUING AGENCY:** Water Quality Control commission.  
 [20.6.4.1 NMAC - Rp 20 NMAC 6.1.1001, 10-12-00]

**20.6.4.2 SCOPE:** Except as otherwise provided by statute or regulation of the water quality control commission, this part governs all surface waters of the state of New Mexico, which are subject to the New Mexico Water Quality Act, Sections 74-6-1 through 74-6-17 NMSA 1978.  
 [20.6.4.2 NMAC - Rp 20 NMAC 6.1.1002, 10-12-00; A, 05-23-05]

**20.6.4.3 STATUTORY AUTHORITY:** This part is adopted by the water quality control commission pursuant to Subsection C of Section 74-6-4 NMSA 1978.  
 [20.6.4.3 NMAC - Rp 20 NMAC 6.1.1003, 10-12-00]

**20.6.4.4 DURATION:** Permanent.  
 [20.6.4.4 NMAC - Rp 20 NMAC 6.1.1004, 10-12-00]

**20.6.4.5 EFFECTIVE DATE:** October 12, 2000, unless a later date is indicated in the history note at the end of a section.  
 [20.6.4.5 NMAC - Rp 20 NMAC 6.1.1005, 10-12-00]

**20.6.4.6 OBJECTIVE:**

**A.** The purpose of this part is to establish water quality standards that consist of the designated use or uses of surface waters of the state, the water quality criteria necessary to protect the use or uses and an antidegradation policy.

**B.** The state of New Mexico is required under the New Mexico Water Quality Act (Subsection C of Section 74-6-4 NMSA 1978) and the federal Clean Water Act, as amended (33 U.S.C. Section 1251 *et seq.*) to adopt water quality standards that protect the public health or welfare, enhance the quality of water and are consistent with and serve the purposes of the New Mexico Water Quality Act and the federal Clean Water Act. It is the objective of the federal Clean Water Act to restore and maintain the chemical, physical and biological integrity of the nation's waters, including those in New Mexico. This part is consistent with Section 101(a)(2) of the federal Clean Water Act, which declares that it is the national goal that wherever attainable, an interim goal of water quality that provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water be achieved by July 1, 1983. Agricultural, municipal, domestic and industrial water supply are other essential uses of New Mexico's surface water; however, water contaminants resulting from these activities will not be permitted to lower the quality of surface waters of the state below that required for protection and propagation of fish, shellfish and wildlife and recreation in and on the water, where practicable.

**C.** Pursuant to Subsection A of Section 74-6-12 NMSA 1978, this part does not grant to the water quality control commission or to any other entity the power to take away or modify property rights in water.  
 [20.6.4.6 NMAC - Rp 20 NMAC 6.1.1006, 10-12-00; A, 05-23-05]

**20.6.4.7 DEFINITIONS:** Terms defined in the New Mexico Water Quality Act, but not defined in this part will have the meaning given in the Water Quality Act.

**A.** "Acute toxicity" means toxicity involving a stimulus severe enough to induce a response in 96 hours of exposure or less. Acute toxicity is not always measured in terms of lethality, but may include other toxic effects that occur within a short time period.

**B.** "Adjusted gross alpha" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample, including radium-226, but excluding radon-222 and uranium. Also excluded are source, special nuclear and by-product material as defined by the Atomic Energy Act of 1954.

**C.** "Aquatic life" means any plant or animal life that uses surface water as primary habitat for at least a portion of its life cycle, but does not include avian or mammalian species.

**D.** "Attainable" means achievable by the imposition of effluent limits required under sections 301(b) and 306 of the Clean Water Act and implementation of cost-effective and reasonable best management practices for nonpoint source control.

**E.** "Best management practices" or "BMPs":

(1) for national pollutant discharge elimination system (NPDES) permitting purposes means schedules of activities, prohibitions of practices, maintenance procedures and other management practices to prevent or reduce the pollution of "waters of the United States;" BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal or drainage from raw material storage; or

(2) for nonpoint source pollution control purposes means methods, measures or practices selected by an agency to meet its nonpoint source control needs; BMPs include but are not limited to structural and nonstructural controls



and operation and maintenance procedures; BMPS can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters; BMPs for nonpoint source pollution control purposes shall not be mandatory except as required by state or federal law.

F. **"Bioaccumulation"** refers to the uptake and retention of a substance by an organism from its surrounding medium and food.

G. **"Bioaccumulation factor"** is the ratio of a substance's concentration in tissue versus its concentration in ambient water, in situations where the organism and the food chain are exposed.

H. **"Biomonitoring"** means the use of living organisms to test the suitability of effluents for discharge into receiving waters or to test the quality of surface waters of the state.

I. **"CAS number"** means an assigned number by chemical abstract service (CAS) to identify a substance. CAS numbers index information published in chemical abstracts by the American chemical society.

J. **"cfs"** means cubic feet per second.

K. **"cfu"** means colony forming units.

L. **"Chronic toxicity"** means toxicity involving a stimulus that lingers or continues for a relatively long period relative to the life span of an organism. Chronic effects include, but are not limited to, lethality, growth impairment, behavioral modifications, disease and reduced reproduction.

M. **"Classified water of the state"** means a surface water of the state, or reach of a surface water of the state, for which the commission has adopted a segment description and has designated a use or uses and applicable water quality criteria in 20.6.4.101 through 20.6.4.899 NMAC.

N. **"Coldwater"** in reference to an aquatic life use means a surface water of the state where the water temperature and other characteristics are suitable for the support or propagation or both of coldwater aquatic life.

O. **"Commission"** means the New Mexico water quality control commission.

P. **"Criteria"** are elements of state water quality standards, expressed as constituent concentrations, levels or narrative statements, representing a quality of water that supports a use. When criteria are met, water quality will protect the designated use.

Q. **"DDT and derivatives"** means 4,4'-DDT (CAS number 50293), 4,4'-DDE (CAS number 72559) and 4,4'-DDD (CAS number 72548).

R. **"Department"** means the New Mexico environment department.

S. **"Designated management agency"** means an agency as defined by 40 CFR Section 130.9(d).

T. **"Designated use"** means a use specified in Sections 20.6.4.101 through 20.6.4.899 NMAC for a surface water of the state whether or not it is being attained.

U. **"Dissolved"** means a constituent of a water sample that will pass through a 0.45-micrometer pore-size membrane filter under a pressure differential not exceeding one atmosphere. The "dissolved" fraction is also termed "filterable residue."

V. **"Domestic water supply"** means a surface water of the state that could be used for drinking or culinary purposes after disinfection.

W. **"Escherichia coli" or "E. coli"** means a bacterial species that inhabits the intestinal tract of humans and other warm-blooded animals, the presence of which indicates the potential presence of pathogenic microorganisms capable of producing disease.

X. **"Ephemeral"** when used to describe a surface water of the state means a water body that flows only in direct response to precipitation or snowmelt in the immediate locality; its bed is always above the water table of the adjacent region.

Y. **"Existing use"** means a use actually attained in a surface water of the state on or after November 28, 1975, whether or not it is a designated use.

Z. **"Fecal coliform bacteria"** means the portion of the coliform group of bacteria present in the gut or the feces of warmblooded animals. It generally includes organisms capable of producing gas from lactose broth in a suitable culture medium within 24 hours at  $44.5 \pm 0.2^\circ\text{C}$ .

AA. **"Fish culture"** means production of coldwater or warmwater fishes in a hatchery or rearing station.

BB. **"Fish early life stages"** means the egg and larval stages of development of fish ending when the fish has its full complement of fin rays and loses larval characteristics.

CC. **"High quality coldwater"** in reference to an aquatic life use means a perennial surface water of the state in a minimally disturbed condition with considerable aesthetic value and superior coldwater aquatic life habitat. A surface water of the state to be so categorized must have water quality, stream bed characteristics and other attributes of habitat sufficient to protect and maintain a propagating coldwater aquatic life population.

DD. **"Intermittent"** when used to describe a surface water of the state means a water body that contains water only at certain times of the year, such as when it receives flow from springs, melting snow or precipitation.

EE. **"Interstate waters"** means all surface waters of the state that cross or form a part of the border between states.

FF. **"Intrastate waters"** means all surface waters of the state that are not interstate waters.

GG. **"Irrigation"** means application of water to land areas to supply the water needs of beneficial plants.

HH. **"LC-50"** means the concentration of a substance that is lethal to 50 percent of the test organisms within a

defined time period. The length of the time period, which may vary from 24 hours to one week or more, depends on the test method selected to yield the information desired.

**II. "Limited aquatic life"** as a designated use, means the surface water is capable of supporting only a limited community of aquatic life. This subcategory includes surface waters that support aquatic species selectively adapted to take advantage of naturally occurring rapid environmental changes, ephemeral or intermittent water, high turbidity, fluctuating temperature, low dissolved oxygen content or unique chemical characteristics.

**JJ. "Livestock watering"** means the use of a surface water of the state as a supply of water for consumption by livestock.

**KK. "Marginal coldwater"** in reference to an aquatic life use means that natural intermittent or low flows, or other natural habitat conditions severely limit maintenance of a coldwater aquatic life population or historical data indicate that the maximum temperature in the surface water of the state may exceed 25°C (77°F).

**LL. "Marginal warmwater"** in reference to an aquatic life use means natural intermittent or low flow or other natural habitat conditions severely limit the ability of the surface water of the state to sustain a natural aquatic life population on a continuous annual basis; or historical data indicate that natural water temperature routinely exceeds 32.2°C (90°F).

**MM. "Micrograms per liter (µg/L)"** means micrograms of solute per liter of solution; equivalent to parts per billion when the specific gravity of the solution = 1.000.

**NN. "Milligrams per liter (mg/L)"** means milligrams of solute per liter of solution; equivalent to parts per million when the specific gravity of the solution = 1.000.

**OO. "Minimum quantification level"** means the minimum quantification level for a constituent determined by official published documents of the United States environmental protection agency.

**PP. "Natural causes"** means those causal agents that would affect water quality and the effect is not caused by human activity but is due to naturally occurring conditions.

**QQ. "Nonpoint source"** means any source of pollutants not regulated as a point source that degrades the quality or adversely affects the biological, chemical or physical integrity of surface waters of the state.

**RR. "NTU"** means nephelometric turbidity units based on a standard method using formazin polymer or its equivalent as the standard reference suspension. Nephelometric turbidity measurements expressed in units of NTU are numerically identical to the same measurements expressed in units of FTU (formazin turbidity units).

**SS. "Organoleptic"** means the capability to produce a detectable sensory stimulus such as odor or taste.

**TT. "Playa"** means a shallow closed basin lake typically found in the high plains and deserts.

**UU. "Perennial"** when used to describe a surface water of the state means the water body contains water continuously throughout the year in all years; its upper surface, generally, is lower than the water table of the region adjoining the stream.

**VV. "Picocurie (pCi)"** means a measure of radioactivity equal to the quantity of a radioactive substance in which the rate of disintegrations is 2.22 per minute.

**WW. "Point source"** means any discernible, confined and discrete conveyance from which pollutants are or may be discharged into a surface water of the state, but does not include return flows from irrigated agriculture.

**XX. "Practicable"** means that which may be done, practiced or accomplished; that which is performable, feasible, possible.

**YY. "Primary contact"** means any recreational or other water use in which there is prolonged and intimate human contact with the water, such as swimming and water skiing, involving considerable risk of ingesting water in quantities sufficient to pose a significant health hazard. Primary contact also means any use of surface waters of the state for cultural, religious or ceremonial purposes in which there is intimate human contact with the water, including but not limited to ingestion or immersion, that could pose a significant health hazard.

**ZZ. "Secondary contact"** means any recreational or other water use in which human contact with the water may occur and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, wading, commercial and recreational boating and any limited seasonal contact.

**AAA. "Segment"** means a classified surface water of the state described in 20.6.4.101 through 20.6.4.899 NMAC. The water within a segment should have the same uses, similar hydrologic characteristics or flow regimes, and natural physical, chemical and biological characteristics and exhibit similar reactions to external stresses, such as the discharge of pollutants.

**BBB. "Specific conductance"** means conductivity adjusted to 25°C.

**CCC. "State"** means the state of New Mexico.

**DDD. "Surface water(s) of the state"** means all surface waters situated wholly or partly within or bordering upon the state, including lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, reservoirs or natural ponds. Surface waters of the state also means all tributaries of such waters, including adjacent wetlands, any manmade bodies of water that were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state, and any "waters of the United States" as defined under the Clean Water Act that are not included in the preceding description. Surface waters of the state does not include private waters that do not combine with other surface or subsurface water or any water under tribal regulatory jurisdiction pursuant to Section 518 of the Clean Water Act. Waste treatment systems, including treatment ponds or lagoons designed and actively

used to meet requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR Part 423.11(m) that also meet the criteria of this definition), are not surface waters of the state, unless they were originally created in surface waters of the state or resulted in the impoundment of surface waters of the state.

**EEE.** "TDS" means total dissolved solids, also termed "total filterable residue."

**FFF.** "Technology-based limitations" means the application of technology-based effluent limitations as required under Section 301(b) of the federal Clean Water Act.

**GGG.** "Total" means a constituent of a water sample that is analytically determined without filtration.

**HHH.** "Total PCBs" means the sum of all homolog, all isomer, all congener or all aroclor analyses.

**III.** "Toxic pollutant" means those pollutants, or combination of pollutants, including disease-causing agents, that after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will cause death, shortened life spans, disease, adverse behavioral changes, reproductive or physiological impairment or physical deformations in such organisms or their offspring.

**JJJ.** "Tributary" means a perennial, intermittent or ephemeral waterbody that flows into a larger waterbody, and includes a tributary of a tributary.

**KKK.** "Turbidity" is an expression of the optical property in water that causes incident light to be scattered or absorbed rather than transmitted in straight lines.

**LLL.** "Warmwater" with reference to an aquatic life use means that water temperature and other characteristics are suitable for the support or propagation of both of warmwater aquatic life.

**MMM.** "Water contaminant" means any substance that could alter if discharged or spilled the physical, chemical, biological or radiological qualities of water. "Water contaminant" does not mean source, special nuclear or by-product material as defined by the Atomic Energy Act of 1954, but may include all other radioactive materials, including but not limited to radium and accelerator-produced isotopes.

**NNN.** "Water pollutant" means a water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or to unreasonably interfere with the public welfare or the use of property.

**OOO.** "Water quality-based controls" means effluent limitations, as provided under Section 301(b)(1)(C) of the federal Clean Water Act, that are developed and imposed on point-source dischargers in order to protect and maintain applicable water quality standards. These controls are more stringent than the technology-based effluent limitations required under other paragraphs of Section 301(b).

**PPP.** "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico. Wetlands that are constructed outside of a surface water of the state for the purpose of providing wastewater treatment and that do not impound a surface water of the state are not included in this definition.

**QQQ.** "Wildlife habitat" means a surface water of the state used by plants and animals not considered as pathogens, vectors for pathogens or intermediate hosts for pathogens for humans or domesticated livestock and plants.  
[20.6.4.7 NMAC - Rp 20 NMAC 6.1.1007, 10-12-00; A, 7-19-01; A, 05-23-05; A, 07-17-05; A, 08-01-07]

#### 20.6.4.8 ANTIDEGRADATION POLICY AND IMPLEMENTATION PLAN:

**A. Antidegradation Policy:** This antidegradation policy applies to all surface waters of the state.

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected in all surface waters of the state.

(2) Where the quality of a surface water of the state exceeds levels necessary to support the propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality shall be maintained and protected unless the commission finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, that allowing lower water quality is necessary to accommodate important economic and social development in the area in which the water is located. In allowing such degradation or lower water quality, the state shall assure water quality adequate to protect existing uses fully. Further, the state shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable BMPs for nonpoint source control. Additionally, the state shall encourage the use of watershed planning as a further means to protect surface waters of the state.

(3) No degradation shall be allowed in waters designated by the commission as outstanding national resource waters (ONRWs), except as provided in Subparagraphs (a) through (e) of this paragraph.

(a) Temporary and short-term degradation of water quality shall be allowed only when such degradation can be shown to result in restoration or maintenance of the chemical, physical or biological integrity of the ONRW and is consistent with the objectives in 20.6.4.6 NMAC and with the purposes for which the commission designated the ONRW.

(b) Temporary and short-term degradation of water quality that complies with Subparagraph (a) of this paragraph shall be limited to the shortest possible time and last no longer than 12 months, unless approved by the commission.

(c) Temporary and short-term degradation shall only be approved on a case-by-case basis by the commission, the department or a designated management agency as appropriate. Temporary and short-term degradation

resulting from applications under 20.6.4.16 NMAC shall be considered and may be approved by the commission. All other temporary and short-term degradation shall be considered and may be approved by the department or by a designated management agency pursuant to a commission-approved memorandum of agreement between the department and the designated management agency. In approving temporary and short-term degradation, the commission, the department or the designated management agency shall consider and minimize the frequency and cumulative effects of such degradation. The approval of temporary and short-term degradation shall not result in permanent degradation of water quality in the ONRW or in water quality lower than necessary to protect existing uses in the ONRW and shall not alter the essential character or special use that makes the water an ONRW.

(d) In implementing activities that may result in temporary and short-term degradation of water quality, all practical means of minimizing such temporary and short-term degradation shall be utilized.

(e) Preexisting land-use activities allowed by federal or state law prior to designation as an ONRW, and controlled by best management practices (BMPs), shall be allowed to continue so long as there are no new or increased discharges resulting from the activity after designation of the ONRW.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, this antidegradation policy and implementing method shall be consistent with Section 316 of the federal Clean Water Act.

(5) In implementing this section, the commission through the appropriate regional offices of the United States environmental protection agency will keep the administrator advised and provided with such information concerning the surface waters of the state as he or she will need to discharge his or her responsibilities under the federal Clean Water Act.

**B. Implementation Plan:** The department, acting under authority delegated by the commission, implements the water quality standards, including the antidegradation policy, by describing specific methods and procedures in the continuing planning process and by establishing and maintaining controls on the discharge of pollutants to surface waters of the state. The steps summarized in the following paragraphs, which may not all be applicable in every water pollution control action, list the implementation activities of the department. These implementation activities are supplemented by detailed antidegradation review procedures developed under the state's continuing planning process. The department:

(1) obtains information pertinent to the impact of the effluent on the receiving water and advises the prospective discharger of requirements for obtaining a permit to discharge;

(2) reviews the adequacy of existing data and conducts a water quality survey of the receiving water in accordance with an annually reviewed, ranked priority list of surface waters of the state requiring total maximum daily loads pursuant to Section 303(d) of the federal Clean Water Act;

(3) assesses the probable impact of the effluent on the receiving water relative to its attainable or designated uses and numeric and narrative criteria;

(4) requires the highest and best degree of wastewater treatment practicable and commensurate with protecting and maintaining the designated uses and existing water quality of surface waters of the state;

(5) develops water quality based effluent limitations and comments on technology based effluent limitations, as appropriate, for inclusion in any federal permit issued to a discharger pursuant to Section 402 of the federal Clean Water Act;

(6) requires that these effluent limitations be included in any such permit as a condition for state certification pursuant to Section 401 of the federal Clean Water Act;

(7) coordinates its water pollution control activities with other constituent agencies of the commission, and with local, state and federal agencies, as appropriate;

(8) develops and pursues inspection and enforcement programs to ensure that dischargers comply with state regulations and standards, and complements EPA's enforcement of federal permits;

(9) ensures that the provisions for public participation required by the New Mexico Water Quality Act and the federal Clean Water Act are followed;

(10) provides continuing technical training for wastewater treatment facility operators through the utility operators training and certification programs;

(11) provides funds to assist the construction of publicly owned wastewater treatment facilities through the wastewater construction program authorized by Section 601 of the federal Clean Water Act, and through funds appropriated by the New Mexico legislature;

(12) conducts water quality surveillance of the surface waters of the state to assess the effectiveness of water pollution controls, determines whether water quality standards are being attained, and proposes amendments to improve water quality standards;

(13) encourages, in conjunction with other state agencies, implementation of the best management practices set forth in the New Mexico statewide water quality management plan and the nonpoint source management program, such implementation shall not be mandatory except as provided by federal or state law;

(14) evaluates the effectiveness of BMPs selected to prevent, reduce or abate sources of water pollutants;

(15) develops procedures for assessing use attainment as required by 20.6.4.15 NMAC and establishing site-specific standards; and

(16) develops list of surface waters of the state not attaining designated uses, pursuant to Sections 305(b) and 303(d) of the federal Clean Water Act.

[20.6.4.8 NMAC - Rp 20 NMAC 6.1.1101, 10-12-00; A, 05-23-05; A, 08-01-07]

#### 20.6.4.9 OUTSTANDING NATIONAL RESOURCE WATERS:

**A. Procedures for nominating an ONRW:** Any person may nominate a surface water of the state for designation as an ONRW by filing a petition with the commission pursuant to the *guidelines for water quality control commission regulation hearings*. A petition to classify a surface water of the state as an ONRW shall include:

- (1) a map of the surface water of the state, including the location and proposed upstream and downstream boundaries;
- (2) a written statement and evidence based on scientific principles in support of the nomination, including specific reference to one or more the applicable ONRW criteria listed in Subsection B of this section;
- (3) water quality data including chemical, physical or biological parameters, if available, to establish a baseline condition for the proposed ONRW;
- (4) a discussion of activities that might contribute to the reduction of water quality in the proposed ONRW;
- (5) any additional evidence to substantiate such a designation, including a discussion of the economic impact of the designation on the local and regional economy within the state of New Mexico and the benefit to the state; and
- (6) affidavit of publication of notice of the petition in a newspaper of general circulation in the affected counties and in a newspaper of general statewide circulation.

**B. Criteria for ONRWs:** A surface water of the state, or a portion of a surface water of the state, may be designated as an ONRW where the commission determines that the designation is beneficial to the state of New Mexico, and:

- (1) the water is a significant attribute of a state gold medal trout fishery, national or state park, national or state monument, national or state wildlife refuge or designated wilderness area, or is part of a designated wild river under the federal Wild and Scenic Rivers Act; or
- (2) the water has exceptional recreational or ecological significance; or
- (3) the existing water quality is equal to or better than the numeric criteria for protection of aquatic life uses, recreational uses and human health uses, and the water has not been significantly modified by human activities in a manner that substantially detracts from its value as a natural resource.

**C.** Pursuant to a petition filed under Subsection A of this section, the commission may classify a surface water of the state or a portion of a surface water of the state as an ONRW if the criteria set out in Subsection B of this section are met.

**D. Waters classified as ONRWs:** The following waters are classified as ONRWs:

- (1) Rio Santa Barbara, including the west, middle and east forks from their headwaters downstream to the boundary of the Pecos Wilderness; and
- (2) the waters within the United States forest service Valle Vidal special management unit including:
  - (a) Rio Costilla, including Comanche, La Cueva, Fernandez, Chuckwagon, Little Costilla, Holman, Gold, Grassy, LaBelle and Vidal creeks, from their headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit;
  - (b) Middle Ponil creek, including the waters of Greenwood Canyon, from their headwaters downstream to the boundary of the Elliott S. Barker wildlife management area;
  - (c) Shuree lakes;
  - (d) North Ponil creek, including McCrystal and Seally Canyon creeks, from their headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit; and
  - (e) Leandro creek from its headwaters downstream to the boundary of the United States forest service Valle Vidal special management unit.

[20.6.4.9 NMAC - Rn, Subsections B, C and D of 20.6.4.8 NMAC, 05-23-05; A, 05-23-05; A, 07-17-05; A, 02-16-06]

#### 20.6.4.10 REVIEW OF STANDARDS; NEED FOR ADDITIONAL STUDIES:

**A.** Section 303(c)(1) of the federal Clean Water Act requires that the state hold public hearings at least once every three years for the purpose of reviewing water quality standards and proposing, as appropriate, necessary revisions to water quality standards.

**B.** It is recognized that, in some cases, numeric criteria have been adopted that reflect use designations rather than existing conditions of surface waters of the state. Narrative criteria are required for many constituents because accurate data on background levels are lacking. More intensive water quality monitoring may identify surface waters of the state where existing quality is considerably better than the established criteria. When justified by sufficient data and information, the water quality criteria will be modified to protect the attainable uses.

**C.** It is also recognized that contributions of water contaminants by diffuse nonpoint sources of water pollution may make attainment of certain criteria difficult. Revision of these criteria may be necessary as new information is obtained on nonpoint sources and other problems unique to semi-arid regions.

[20.6.4.10 NMAC - Rp 20 NMAC 6.1.1102, 10-12-00; Rn, 20.6.4.9 NMAC, 05-23-05; A, 05-23-05]

#### 20.6.4.11 APPLICABILITY OF WATER QUALITY STANDARDS:

**A. Waters Created by Discharge:** When a discharge to an otherwise ephemeral or intermittent, non-

classified surface water of the state causes a water to enter a surface water of the state with criteria that are more restrictive than the criteria listed in 20.6.4.97 or 20.6.4.98 NMAC, the more restrictive criteria shall apply at the point such a water enters the surface water of the state with the more restrictive criteria. If discharge to such otherwise ephemeral or intermittent, non-classified waters of the state ceases or is diverted elsewhere the criteria listed in 20.6.4.97 or 20.6.4.98 NMAC shall apply.

**B. Critical Low Flow:** The numeric standards set under Subsection F of 20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC and 20.6.4.900 NMAC may not be attainable when streamflow is less than the critical low flow, but narrative criteria in 20.6.4.13 NMAC will continue to apply. The critical low flow of a stream at a particular site shall be:

(1) for human health criteria, the harmonic mean flow; "harmonic mean flow" is the number of daily flow measurements divided by the sum of the reciprocals of the flows; that is, it is the reciprocal of the mean of reciprocals; for ephemeral waters the calculation shall be based upon the nonzero flow intervals and modified by including a factor to adjust for the proportion of intervals with zero flow;

$$\text{Harmonic Mean} = \frac{n}{\sum 1/Q}$$

where  $n$  = number of flow values  
and  $Q$  = flow value

$$\text{Modified Harmonic Mean} = \left[ \frac{\sum_{i=1}^{Nt-N_0} \frac{1}{Q_i}}{Nt - N_0} \right]^{-1} \times \left[ \frac{Nt - N_0}{Nt} \right]$$

where,  $Q_i$  = nonzero flow  
 $Nt$  = total number of flow values  
and  $N_0$  = number of zero flow values

(2) for all other narrative and numeric criteria, the minimum average four consecutive day flow that occurs with a frequency of once in three years (4Q3); critical low-flow numeric values may be determined on an annual, a seasonal or a monthly basis, as appropriate, after due consideration of site-specific conditions.

**C. Guaranteed Minimum Flow:** The commission may allow the use of a contractually guaranteed minimum streamflow in lieu of a critical low flow determined under Subsection B of this section on a case-by-case basis and upon consultation with the interstate stream commission. Should drought, litigation or any other reason interrupt or interfere with minimum flows under a guaranteed minimum flow contract for a period of at least thirty consecutive days, such permission, at the sole discretion of the commission, may then be revoked. Any minimum flow specified under such revoked permission shall be superseded by a critical low flow determined under Subsection B of this section. A public notice of the request for a guaranteed minimum flow shall be published in a newspaper of general circulation by the department at least 30 days prior to scheduled action by the commission. These water quality standards do not grant to the commission or any other entity the power to create, take away or modify property rights in water.

**D. Mixing Zones:** A limited mixing zone, contiguous to a point source wastewater discharge, may be allowed in any stream receiving such a discharge. Mixing zones serve as regions of initial dilution that allow the application of a dilution factor in calculations of effluent limitations. Effluent limitations shall be developed that will protect the most sensitive existing, designated or attainable use of the receiving water.

**E. Mixing Zone Limitations:** Wastewater mixing zones, in which the numeric criteria set under Subsection F of 20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC or 20.6.4.900 NMAC may be exceeded, shall be subject to the following limitations:

(1) Mixing zones are not allowed for discharges to publicly owned lakes, reservoirs, or playas; these effluents shall meet all applicable criteria set under Subsection F of 20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC and 20.6.4.900 NMAC at the point of discharge.

(2) The acute numeric criteria, as set out in Paragraph (1) of Subsection I, Subsection J, and Subsection K of 20.6.4.900 NMAC, shall be attained at the point of discharge for any discharge to a surface water of the state with a designated aquatic life use.

(3) The general criteria set out in Subsections A, B, C, D, E, G, H and J of 20.6.4.13 NMAC, and the provision set out in Subsection D of 20.6.4.14 NMAC are applicable within mixing zones.

(4) The areal extent and concentration isopleths of a particular mixing zone will depend on site-specific conditions including, but not limited to, wastewater flow, receiving water critical low flow, outfall design, channel characteristics and climatic conditions and, if needed, shall be determined on a case-by-case basis. When the physical boundaries or other characteristics of a particular mixing zone must be known, the methods presented in Section 4.4.5,

"Ambient-induced mixing," in "Technical support document for water quality-based toxics control" (March 1991, EPA/505/2-90-001) shall be used.

(5) All applicable water quality criteria set under Subsection F of 20.6.4.13 NMAC, 20.6.4.101 through 20.6.4.899 NMAC and 20.6.4.900 NMAC, shall be attained at the boundaries of mixing zones. A continuous zone of passage through or around the mixing zone shall be maintained in which the water quality meets all applicable criteria and allows the migration of aquatic life presently common in surface waters of the state with no effect on their populations.

**F. Multiple Uses:** When a classified water of the state has more than a single designated use, the applicable numeric criteria shall be the most stringent of those established for such classified water.

**G. Human health criteria** in Subsection J of Section 20.6.4.900 NMAC shall apply to those waters with a designated, existing or attainable aquatic life use. When limited aquatic life is a designated use, the human health criteria shall apply only if adopted on a segment-specific basis. The human health criteria for persistent toxic pollutants, as identified in Subsection J of Section 20.6.4.900 NMAC, shall also apply to all tributaries of waters with a designated, existing or attainable aquatic life use.

**H. Aquatic Life:** Aquatic life criteria shall apply to all surface waters of the state containing an aquatic life community. Except when a limited aquatic life use and specific criteria have been designated on a segment-specific basis, or when otherwise provided in this part, chronic aquatic life criteria listed in Subsection J of 20.6.4.900 NMAC are applicable to all perennial surface waters of the state, and acute aquatic life criteria listed in Subsection J of 20.6.4.900 NMAC are applicable to all surface waters of the state.

**I. Exceptions:** Numeric criteria for temperature, dissolved solids, dissolved oxygen, sediment or turbidity adopted under the Water Quality Act do not apply when changes in temperature, dissolved solids, dissolved oxygen, sediment or turbidity in a surface water of the state are attributable to:

- (1) natural causes (discharges from municipal separate storm sewers are not covered by this exception.); or
- (2) the reasonable operation of irrigation and flood control facilities that are not subject to federal or state water pollution control permitting; major reconstruction of storage dams or division dams except for emergency actions necessary to protect health and safety of the public are not covered by this exception.

[20.6.4.11 NMAC - Rp 20 NMAC 6.1.1103, 10-12-00; A, 10-11-02; Rn, 20.6.4.10 NMAC, 05-23-05; A, 05-23-05]

**20.6.4.12 COMPLIANCE WITH WATER QUALITY STANDARDS:** The following provisions apply to determining compliance for enforcement purposes; they do not apply for purposes of determining attainment of uses. The department has developed assessment protocols for the purpose of determining attainment of uses that are available for review from the department's surface water quality bureau.

**A.** Compliance with acute water quality criteria shall be determined from the analytical results of a single grab sample. Acute criteria shall not be exceeded.

**B.** Compliance with chronic water quality criteria shall be determined from the arithmetic mean of the analytical results of samples collected using applicable protocols. Chronic criteria shall not be exceeded more than once every three years.

**C.** Compliance with water quality standards for total ammonia shall be determined by performing the biomonitoring procedures set out in Subsections D and E of 20.6.4.14 NMAC, or by attainment of applicable ammonia criteria set out in Subsections K, L and M of 20.6.4.900 NMAC.

**D.** Compliance with water quality criteria for the protection of human health shall be determined from the analytical results of representative grab samples, as defined in the water quality management plan. Human health criteria shall not be exceeded.

**E.** The commission may establish a numeric water quality standard at a concentration that is below the minimum quantification level. In such cases, the water quality standard is enforceable at the minimum quantification level.

**F.** In determining compliance with criteria for chromium an analysis that measures both the trivalent and hexavalent ions shall be used.

**G.** For compliance with hardness-dependent numeric criteria, hardness (as mg CaCO<sub>3</sub>/L) shall be determined from a sample taken at the same time that the sample for the water contaminant is taken.

**H.** The hardness-dependent formulae for metals shall be valid only for hardness values of 0-400 mg/L. For values above 400 mg/L, the value for 400 mg/L shall apply.

**I.** The total ammonia tables shall be valid only for temperatures of 0 to 30°C and for pH values of 6.5 to 9.0. For temperatures below 0°C, the total ammonia criteria for 0°C shall apply; for temperatures above 30°C, the total ammonia criteria for 30°C shall apply. For pH values below 6.5, the total ammonia criteria for 6.5 shall apply; for pH values above 9.0, the total ammonia criteria for 9.0 shall apply.

**J. Compliance Schedules:** It shall be the policy of the commission to allow on a case-by-case basis the inclusion of a schedule of compliance in a NPDES permit issued to an existing facility. Such schedule of compliance will be for the purpose of providing a permittee with adequate time to make treatment facility modifications necessary to comply with water quality based permit limitations determined to be necessary to implement new or revised water quality standards. Compliance schedules may be included in NPDES permits at the time of permit renewal or modification and shall be written to require compliance at the earliest practicable time. Compliance schedules shall also specify milestone dates so as to measure progress towards final project completion (e.g., design completion, construction start, construction completion, date



of compliance).

[20.6.4.12 NMAC - Rp 20 NMAC 6.1.1104, 10-12-00; A, 10-11-02; Rn, 20.6.4.11 NMAC, 05-23-05; A, 05-23-05]

**20.6.4.13 GENERAL CRITERIA:** General criteria are established to sustain and protect existing or attainable uses of surface waters of the state. These general criteria apply to all surface waters of the state at all times, unless a specified criterion is provided elsewhere in this part. Surface waters of the state shall be free of any water contaminant in such quantity and of such duration as may with reasonable probability injure human health, animal or plant life or property, or unreasonably interfere with the public welfare or the use of property.

**A. Bottom Deposits and Suspended or Settleable Solids:**

(1) Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.

(2) Suspended or settleable solids from other than natural causes shall not be present in surface waters of the state in quantities that damage or impair the normal growth, function or reproduction of aquatic life or adversely affect other designated uses.

**B. Floating Solids, Oil and Grease:** Surface waters of the state shall be free of oils, scum, grease and other floating materials resulting from other than natural causes that would cause the formation of a visible sheen or visible deposits on the bottom or shoreline, or would damage or impair the normal growth, function or reproduction of human, animal, plant or aquatic life.

**C. Color:** Color-producing materials resulting from other than natural causes shall not create an aesthetically undesirable condition nor shall color impair the use of the water by desirable aquatic life presently common in surface waters of the state.

**D. Organoleptic Quality:**

(1) **Flavor of Fish:** Water contaminants from other than natural causes shall be limited to concentrations that will not impart unpalatable flavor to fish.

(2) **Odor and Taste of Water:** Water contaminants from other than natural causes shall be limited to concentrations that will not result in offensive odor or taste arising in a surface water of the state or otherwise interfere with the reasonable use of the water.

**E. Plant Nutrients:** Plant nutrients from other than natural causes shall not be present in concentrations that will produce undesirable aquatic life or result in a dominance of nuisance species in surface waters of the state.

**F. Toxic Pollutants:**

(1) Except as provided in 20.6.4.16 NMAC, surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms.

(2) Pursuant to this section, the human health criteria shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for human health not listed in 20.6.4.900 NMAC, the following provisions shall be applied in accordance with 20.6.4.11, 20.6.4.12 and 20.6.4.14 NMAC.

(a) The human health criterion shall be the recommended human health criterion for "consumption of organisms only" published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act. In determining such criterion for a cancer-causing toxic pollutant, a cancer risk of  $10^{-5}$  (one cancer per 100,000 exposed persons) shall be used.

(b) When a numeric criterion for the protection of human health has not been published by the U.S. environmental protection agency, a quantifiable criterion may be derived from data available in the U.S. environmental protection agency's Integrated Risk Information System (IRIS) using the appropriate formula specified in *methodology for deriving ambient water quality criteria for the protection of human health (2000)*, EPA-822-B-00-004.

(3) Pursuant to this section, the chronic aquatic life standard shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for aquatic life with no chronic standard listed in 20.6.4.900 NMAC, the following provisions shall be applied in sequential order in accordance with 20.6.4.11, 20.6.4.12 and 20.6.4.14 NMAC.

(a) The chronic aquatic life criterion shall be the "freshwater criterion continuous concentration" published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act;

(b) If the U.S. environmental protection agency has not published a chronic aquatic life criterion, a geometric mean LC-50 value shall be calculated for the particular species, genus or group that is representative of the form of life to be preserved, using the results of toxicological studies published in scientific journals.

(i) The chronic aquatic life criterion for a toxic pollutant that does not bioaccumulate shall be 10 percent of the calculated geometric mean LC-50 value; and

(ii) The chronic aquatic life criterion for a toxic pollutant that does bioaccumulate shall be: the calculated geometric mean LC-50 adjusted by a bioaccumulation factor for the particular species, genus or group



representative of the form of life to be preserved, but when such bioaccumulation factor has not been published, the criterion shall be one percent of the calculated geometric mean LC-50 value.

(4) Pursuant to this section, the acute aquatic life criteria shall be as set out in 20.6.4.900 NMAC. For a toxic pollutant for aquatic life with no acute criterion listed in 20.6.4.900 NMAC, the acute aquatic life criterion shall be the "freshwater criterion maximum concentration" published by the U.S. environmental protection agency pursuant to Section 304(a) of the federal Clean Water Act.

(5) Within 90 days of the issuance of a final NPDES permit containing a numeric criterion selected or calculated pursuant to Paragraph 2, Paragraph 3 or Paragraph 4 of Subsection F of this section, the department shall petition the commission to adopt such criterion into these standards.

**G. Radioactivity:** The radioactivity of surface waters of the state shall be maintained at the lowest practical level and shall in no case exceed the criteria set forth in the New Mexico Radiation Protection Regulations, 20.3.1 and 20.3.4 NMAC.

**H. Pathogens:** Surface waters of the state shall be free of pathogens from other than natural sources in sufficient quantity to impair public health or the designated, existing or attainable uses of a surface water of the state.

**I. Temperature:** Maximum temperatures for each classified water of the state have been specified in 20.6.4.101 through 20.6.4.899 NMAC. However, the introduction of heat by other than natural causes shall not increase the temperature, as measured from above the point of introduction, by more than 2.7°C (5°F) in a stream, or more than 1.7°C (3°F) in a lake or reservoir. In no case will the introduction of heat be permitted when the maximum temperature specified for the reach would thereby be exceeded. These temperature criteria shall not apply to impoundments constructed offstream for the purpose of heat disposal. High water temperatures caused by unusually high ambient air temperatures are not violations of these standards.

**J. Turbidity:** Turbidity attributable to other than natural causes shall not reduce light transmission to the point that the normal growth, function or reproduction of aquatic life is impaired or that will cause substantial visible contrast with the natural appearance of the water. Turbidity shall not exceed 10 NTU over background turbidity when the background turbidity is 50 NTU or less, or increase more than 20 percent when the background turbidity is more than 50 NTU. Background turbidity shall be measured at a point immediately upstream of the turbidity-causing activity. However, limited-duration activities necessary to accommodate dredging, construction or other similar activities and that cause the criterion to be exceeded may be authorized provided all practicable turbidity control techniques have been applied and all appropriate permits and approvals have been obtained.

**K. Total Dissolved Solids (TDS):** TDS attributable to other than natural causes shall not damage or impair the normal growth, function or reproduction of animal, plant or aquatic life. TDS shall be measured by either the "calculation method" (sum of constituents) or the filterable residue method. Approved test procedures for these determinations are set forth in 20.6.4.14 NMAC.

**L. Dissolved Gases:** Surface waters of the state shall be free of nitrogen and other dissolved gases at levels above 110 percent saturation when this supersaturation is attributable to municipal, industrial or other discharges. [20.6.4.13 NMAC - Rp 20 NMAC 6.1.1105, 10-12-00; A, 10-11-02; Rn, 20.6.4.12 NMAC, 05-23-05; A, 05-23-05]

#### 20.6.4.14 SAMPLING AND ANALYSIS:

**A.** Sampling and analytical techniques shall conform with methods described in the following references unless otherwise specified by the commission pursuant to a petition to amend these standards:

(1) "guidelines establishing test procedures for the analysis of pollutants under the Clean Water Act," 40 CFR Part 136 or any test procedure approved or accepted by EPA using procedures provided in 40 CFR Parts 136.3(d), 136.4, and 136.5;

(2) *standard methods for the examination of water and wastewater*, latest edition, American public health association;

(3) *methods for chemical analysis of water and waste*, and other methods published by EPA office of research and development or office of water;

(4) *techniques of water resource investigations of the U.S. geological survey*;

(5) *annual book of ASTM standards*: volumes 11.01 and 11.02, water (I) and (II), latest edition, ASTM international;

(6) *federal register*, latest methods published for monitoring pursuant to Resource Conservation and Recovery Act regulations;

(7) *national handbook of recommended methods for water-data acquisition*, latest edition, prepared cooperatively by agencies of the United States government under the sponsorship of the U.S. geological survey; or

(8) *federal register*, latest methods published for monitoring pursuant to the Safe Drinking Water Act regulations.

**B. Bacteriological Surveys:** The monthly geometric mean shall be used in assessing attainment of criteria when a minimum of five samples is collected in a 30-day period.

#### **C. Sampling Procedures:**

(1) **Streams:** Stream monitoring stations below discharges shall be located a sufficient distance downstream to ensure adequate vertical and lateral mixing.

(2) Lakes: Sampling stations in lakes shall be located at least 250 feet from a discharge.

(3) Lakes: Except for the restriction specified in Paragraph (2) of this subsection, lake sampling stations shall be located at any site where the attainment of a water quality standard is to be assessed. Water quality measurements taken at intervals in the entire water column at a sampling station shall be averaged for the epilimnion, or in the absence of an epilimnion, for the upper one-third of the water column of the lake to determine attainment of criteria, except that attainment of criteria for toxic pollutants shall be assessed during periods of complete vertical mixing, e.g., during spring or fall turnover, or by taking depth-integrated composite samples of the water column.

D. Acute toxicity of effluent to aquatic life shall be determined using the procedures specified in U.S. environmental protection agency "methods for measuring the acute toxicity of effluents to freshwater and marine organisms" (5<sup>th</sup> Ed., 2002, EPA 821-R-02-012), or latest edition thereof if adopted by EPA at 40 CFR Part 136, which is incorporated herein by reference. Acute toxicities of substances shall be determined using at least two species tested in whole effluent and a series of effluent dilutions. Acute toxicity due to discharges shall not occur within the wastewater mixing zone in any surface water of the state with an existing or designated aquatic life use.

E. Chronic toxicity of effluent or ambient surface waters of the state to aquatic life shall be determined using the procedures specified in U.S. environmental protection agency "Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms" (4<sup>th</sup> Ed., 2002, EPA 821-R-02-013), or latest edition thereof if adopted by EPA at 40 CFR Part 136, which is incorporated herein by reference. Chronic toxicities of substances shall be determined using at least two species tested in ambient surface water or whole effluent and a series of effluent dilutions. Chronic toxicity due to discharges shall not occur at the critical low flow, or any flow greater than the critical low flow, in any surface water of the state with an existing or designated aquatic life use more than once every three years. [20.6.4.14 NMAC - Rp 20 NMAC 6.1.1106, 10-12-00; Rn, 20.6.4.13 NMAC, 05-23-05, A, 05-23-05]

#### 20.6.4.15 USE ATTAINABILITY ANALYSIS:

A. A use attainability analysis is a scientific study that shall be conducted only for the purpose of assessing the factors affecting the attainment of a use. Whenever a use attainability analysis is conducted, it shall be subject to the requirements and limitations set forth in 40 CFR Part 131, Water Quality Standards; specifically, Subsections 131.3(g), 131.10(g), 131.10(h) and 131.10(j) shall be applicable.

(1) Any person who proposes to classify, or reclassify to a designated use with less stringent criteria, a surface water of the state with designated uses that do not include the uses specified in Section 101(a)(2) of the federal Clean Water Act must conduct a use attainability analysis. Section 101(a)(2) uses are also specified in Subsection B of 20.6.4.6 NMAC.

(2) A designated use cannot be removed if it is an existing use.

(3) A use attainability analysis or an equivalent study approved by the department and the regional administrator must be conducted to remove any non-existing designated use from any classified waters of the state.

B. Physical, chemical and biological evaluations of surface waters of the state other than lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the "technical support manual: waterbody surveys and assessments for conducting use attainability analyses," United States environmental protection agency, office of water, regulations and standards, Washington, D.C., November 1983, or latest edition thereof, which is incorporated herein by reference, or an alternative equivalent study methodology approved by the department.

C. Physical, chemical and biological evaluations of lakes and reservoirs for purposes of use attainability analyses or equivalent studies shall be conducted according to the procedures outlined in the "technical support manual: waterbody surveys and assessments for conducting use attainability analyses, volume III: lake systems," United States environmental protection agency, office of water, regulations and standards, Washington, D.C., November 1984, or latest edition thereof, which is incorporated herein by reference, or an alternative equivalent study methodology approved by the department.

D. A use attainability analysis or equivalent study should include:

(1) identification of existing uses of the surface water of the state to be reviewed that have existed since 1975;

(2) an evaluation of the best water quality attained in the surface water of the state to be reviewed that has existed since 1975;

(3) an analysis of appropriate factors demonstrating that attaining the designated use is not feasible because of the condition listed in 40 CFR Part 131.10(g);

(4) a physical evaluation of the surface water of the state to be reviewed to identify factors that impair attainment of designated uses and to determine which designated uses are feasible to attain in such surface water of the state;

(5) an evaluation of the water chemistry of the surface water of the state to be reviewed to identify chemical constituents that impair the designated uses that are feasible to attain in such water; and

(6) an evaluation of the aquatic and terrestrial biota utilizing the surface water of the state to determine resident species and which species could potentially exist in such water if physical and chemical factors impairing a designated use are corrected.

E. Any person may submit notice to the department stating that they intend to conduct a use attainability analysis or equivalent study. The proponent shall develop a work plan to conduct the use attainability analysis or equivalent study and shall submit the work plan to the department and the regional EPA staff for review and comment. The work plan

should identify the scope of data currently available and proposed to be gathered, the factors affecting use attainment that will be analyzed and must contain provisions for public notice and consultation with appropriate state and federal agencies. A copy of the notice and the work plan must be submitted concurrently to the commission. Upon approval of the work plan by the department, the proponent shall conduct the use attainability analysis or equivalent study in accordance with the approved work plan. The cost of such analysis or equivalent study shall be the responsibility of the proponent. Upon completion of the use attainability analysis or equivalent study, the proponent shall submit the data, findings and conclusions to the department and the commission.

F. If the department determines that the analysis or equivalent study was conducted in accordance with the approved work plan and the findings and conclusions are based upon sound scientific rationale, and demonstrates that it is not feasible to attain the designated use, the department or the proponent may request the commission to initiate rulemaking proceedings to modify the designated use for the surface water of the state that was reviewed.

[20.6.4.15 NMAC - Rp 20 NMAC 6.1.1107, 10-12-00; Rn, 20.6.4.14 NMAC, 05-23-05; A, 05-23-05; A, 07-17-05]

**20.6.4.16 PLANNED USE OF A PISCICIDE:** The use of a piscicide registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. Section 136 *et seq.*, and under the New Mexico Pesticide Control Act (NMPCA), Section 76-4-1 *et seq.* NMSA 1978 (1973) in a surface water of the state, shall not be a violation of Subsection F of 20.6.4.13 NMAC when such use has been approved by the commission under procedures provided in this section. The commission may approve the reasonable use of a piscicide under this section to further a Clean Water Act objective to restore and maintain the physical or biological integrity of surface waters of the state, including restoration of native species.

A. Any person seeking commission approval of the use of a piscicide shall file a written petition concurrently with the commission and the surface water bureau of the department. The petition shall contain, at a minimum, the following information:

- (1) petitioner's name and address;
- (2) identity of the piscicide and the period of time (not to exceed five years) or number of applications for which approval is requested;
- (3) documentation of registration under FIFRA and NMPCA and certification that the petitioner intends to use the piscicide according to the label directions, for its intended function;
- (4) target and potential non-target species in the treated waters and adjacent riparian area, including threatened or endangered species;
- (5) potential environmental consequences to the treated waters and the adjacent riparian area, and protocols for limiting such impacts;
- (6) surface water of the state proposed for treatment;
- (7) results of pre-treatment survey;
- (8) evaluation of available alternatives and justification for selecting piscicide use;
- (9) post-treatment assessment monitoring protocol; and
- (10) any other information required by the commission.

B. Within thirty days of receipt of the petition, the department shall review the petition and file a recommendation with the commission to grant, grant with conditions or deny the petition. The recommendation shall include reasons, and a copy shall be sent to the petitioner by certified mail.

C. The commission shall review the petition and the department's recommendation and shall within 90 days of receipt of the department's recommendation hold a public hearing in the locality affected by the proposed use in accordance with Adjudicatory Procedures, 20.1.3 NMAC. In addition to the public notice requirements in Adjudicatory Procedures, 20.1.3 NMAC, the petitioner shall provide written notice to:

- (1) local political subdivisions;
- (2) local water planning entities;
- (3) local conservancy and irrigation districts; and
- (4) local media outlets, except that the petitioner shall only be required to publish notice in a newspaper of circulation in the locality affected by the proposed use.

D. In a hearing provided for in this Section, registration of a piscicide under FIFRA and NMPCA shall provide a rebuttable presumption that the determinations of the EPA Administrator in registering the piscicide, as outlined in 7 U.S.C. Section 136a(c)(5), are valid. For purposes of this Section the rebuttable presumptions regarding the piscicide include:

- (1) Its composition is such as to warrant the proposed claims for it;
- (2) Its labeling and other material submitted for registration comply with the requirements of FIFRA and NMPCA;
- (3) It will perform its intended function without unreasonable adverse effects on the environment; and
- (4) When used in accordance with all FIFRA label requirements it will not generally cause unreasonable adverse effects on the environment.

(5) "Unreasonable adverse effects on the environment" has the meaning provided in FIFRA, 7 U.S.C. Section 136(bb): "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide."

E. After a public hearing, the commission may grant the petition in whole or in part, may grant the petition subject to conditions, or may deny the petition. In granting any petition in whole or part or subject to conditions, the commission shall require the petitioner to implement post-treatment assessment monitoring and provide notice to the public in the immediate and near downstream vicinity of the application prior to and during the application.  
[20.6.4.16 NMAC - Rn, Paragraph (6) of Subsection F of 20.6.4.12 NMAC, 05-23-05; A, 05-23-05]

**20.6.4.17 - 20.6.4.49: [RESERVED]**

**20.6.4.50 BASINWIDE PROVISIONS** - Special provisions arising from interstate compacts, international treaties or court decrees or that otherwise apply to a basin are contained in 20.6.4.51 through 20.6.4.59 NMAC.  
[20.6.4.50 NMAC - N, 05-23-05]

**20.6.4.51 - 20.6.4.53: [RESERVED]**

**20.6.4.54 COLORADO RIVER BASIN** - For the tributaries of the Colorado river system, the state of New Mexico will cooperate with the Colorado river basin states and the federal government to support and implement the salinity policy and program outlined in the most current "review, water quality standards for salinity, Colorado river system" or equivalent report by the Colorado river salinity control forum.

A. Numeric criteria expressed as the flow-weighted annual average concentration for salinity are established at three points in the Colorado river basin as follows: below Hoover dam, 723 mg/L; below Parker dam, 747 mg/L; and at Imperial dam, 879 mg/L.

B. As a part of the program, objectives for New Mexico shall include the elimination of discharges of water containing solids in solution as a result of the use of water to control or convey fly ash from coal-fired electric generators, wherever practicable.

[20.6.4.54 NMAC - Rn, Paragraphs (1) through (3) of Subsection K of 20.6.4.12 NMAC, 05-23-05; A, 05-23-05]

**20.6.4.55 - 20.6.4.96: [RESERVED]**

**20.6.4.97 EPHEMERAL WATERS** - All ephemeral surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC.

A. **Designated Uses:** livestock watering, wildlife habitat, limited aquatic life and secondary contact.

B. **Criteria:**

(1) The use-specific criteria in 20.6.4.900 NMAC, with the exception of the chronic criteria for aquatic life, are applicable for the designated uses listed in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria shall not exceed 548 cfu/100 mL, no single sample shall exceed 2507 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.97 NMAC - N, 05-23-05]

**20.6.4.98 INTERMITTENT WATERS** - All intermittent surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC.

A. **Designated Uses:** livestock watering, wildlife habitat, aquatic life and secondary contact.

B. **Criteria:**

(1) The use-specific criteria in 20.6.4.900 NMAC.

(2) The monthly geometric mean of E. coli bacteria shall not exceed 548 cfu/100 mL, no single sample shall exceed 2507 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.98 NMAC - N, 05-23-05]

**20.6.4.99 PERENNIAL WATERS** - All perennial surface waters of the state that are not included in a classified water of the state in 20.6.4.101 through 20.6.4.899 NMAC.

A. **Designated Uses:** aquatic life, livestock watering, wildlife habitat and secondary contact.

B. **Criteria:**

(1) Temperature shall not exceed 34°C (93.2°F). The use-specific criteria in 20.6.4.900 NMAC are applicable to the designated uses listed in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria shall not exceed 548 cfu/100 mL, no single sample shall exceed 2507 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.99 NMAC - N, 05-23-05]

**20.6.4.100: [RESERVED]**

**20.6.4.101 RIO GRANDE BASIN** - The main stem of the Rio Grande from the international boundary with Mexico upstream to one mile below Percha dam.

A. **Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

B. **Criteria:**

(1) In any single sample: pH: within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).

(3) At mean monthly flows above 350 cfs, the monthly average concentration for: TDS 2,000 mg/L or less, sulfate 500 mg/L or less and chlorides 400 mg/L or less.

C. **Remarks:** Sustained flow in the Rio Grande below Caballo reservoir is dependent on release from Caballo reservoir during the irrigation season; at other times of the year, there may be little or no flow. [20.6.4.101 NMAC - Rp 20 NMAC 6.1.2101, 10-12-00; A, 12-15-01; A, 05-23-05]

**20.6.4.102 RIO GRANDE BASIN - The main stem of the Rio Grande from one mile below Percha dam upstream to Caballo dam.**

A. **Designated Uses:** irrigation, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. **Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

C. **Remarks:** Sustained flow in the Rio Grande below Caballo reservoir is dependent on release from Caballo reservoir during the irrigation season; at other times of the year, there may be little or no flow. [20.6.4.102 NMAC - Rp 20 NMAC 6.1.2102, 10-12-00; A, 05-23-05]

**20.6.4.103 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Caballo reservoir upstream to Elephant Butte dam and perennial reaches of tributaries to the Rio Grande in Sierra and Socorro counties.**

A. **Designated Uses:** fish culture, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, secondary contact and warmwater aquatic life.

B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

C. **Remarks:** Flow in this reach of the Rio Grande main stem is dependent upon release from Elephant Butte dam. [20.6.4.103 NMAC - Rp 20 NMAC 6.1.2103, 10-12-00; A, 05-23-05]

**20.6.4.104 RIO GRANDE BASIN - Caballo and Elephant Butte reservoir.**

A. **Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

B. **Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.104 NMAC - Rp 20 NMAC 6.1.2104, 10-12-00; A, 05-23-05]

**20.6.4.105 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Elephant Butte reservoir upstream to Alameda bridge (Corrales bridge) and intermittent water below the perennial reaches of the Rio Puerco that enters the main stem of the Rio Grande.**

A. **Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-

specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 1,500 mg/L or less, sulfate 500 mg/L or less and chloride 250 mg/L or less.

[20.6.4.105 NMAC - Rp 20 NMAC 6.1.2105, 10-12-00; A, 05-23-05]

**20.6.4.106 RIO GRANDE BASIN - The main stem of the Rio Grande from Alameda bridge (Corrales bridge) upstream to the Angostura diversion works and intermittent water in the Jemez river below the Jemez pueblo boundary that enters the main stem of the Rio Grande.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: dissolved oxygen greater than 5.0 mg/L, pH within the range of 6.6 to 9.0 and temperature less than 32.2°C (90°F). The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 1,500 mg/L or less, sulfate 500 mg/L or less and chloride 250 mg/L or less.

[20.6.4.106 NMAC - Rp 20 NMAC 6.1.2105.1, 10-12-00; A, 05-23-05]

**20.6.4.107 RIO GRANDE BASIN - The Jemez river from the Jemez pueblo boundary upstream to Soda dam near the town of Jemez Springs and perennial reaches of Vallecito creek.**

**A. Designated Uses:** coldwater aquatic life, primary contact, irrigation, livestock watering and wildlife habitat.

**B. Criteria:**

(1) In any single sample: temperature 25°C (77°F) and pH within the range of 6.6 to 8.8. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.107 NMAC - Rp 20 NMAC 6.1.2105.5, 10-12-00; A, 05-23-05]

**20.6.4.108 RIO GRANDE BASIN - Perennial reaches of the Jemez river and all its tributaries above Soda dam near the town of Jemez Springs, except Sulphur creek above its confluence with Redondo creek, and perennial reaches of the Guadalupe river and all its tributaries.**

**A. Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 400 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.108 NMAC - Rp 20 NMAC 6.1.2106, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.124 NMAC.]

**20.6.4.109 RIO GRANDE BASIN - Perennial reaches of Bluewater creek, Rio Moquino, Seboyeta creek, Rio Paguete, the Rio Puerco above the village of Cuba and all other perennial reaches of tributaries to the Rio Puerco including the Rio San Jose in Cibola county from the USGS gaging station at Correo upstream to Horace springs.**

**A. Designated Uses:** coldwater aquatic life, domestic water supply, fish culture, irrigation, livestock watering, wildlife habitat and primary contact.

**B. Criteria:**

(1) In any single sample: pH shall be within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.109 NMAC - Rp 20 NMAC 6.1.2107, 10-12-00; A, 05-23-05]

**20.6.4.110 RIO GRANDE BASIN - The main stem of the Rio Grande from Angostura diversion works upstream to Cochiti dam.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, secondary contact, coldwater aquatic life and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.110 NMAC - Rp 20 NMAC 6.1.2108, 10-12-00; A, 05-23-05]

**20.6.4.111 RIO GRANDE BASIN - Perennial reaches of Las Huertas creek.**

**A. Designated Uses:** high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.111 NMAC - Rp 20 NMAC 6.1.2108.5, 10-12-00; A, 7-25-01; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.125 NMAC.]

**20.6.4.112 RIO GRANDE BASIN - Cochiti reservoir.**

**A. Designated Uses:** livestock watering, wildlife habitat, warmwater aquatic life, coldwater aquatic life and primary contact.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F). The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.112 NMAC - Rp 20 NMAC 6.1.2109, 10-12-00; A, 05-23-05]

**20.6.4.113 RIO GRANDE BASIN - The Santa Fe river and perennial reaches of its tributaries from Cochiti reservoir upstream to the outfall of the Santa Fe wastewater treatment facility.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, secondary contact, and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0, temperature 30°C (86°F) or less and dissolved oxygen 4.0 mg/L or more. Dissolved oxygen 5.0 mg/L or more as a 24-hour average. Values used in the calculation of the 24-hour average for dissolved oxygen shall not exceed the dissolved oxygen saturation value. For a measured value above the dissolved oxygen saturation value, the dissolved oxygen saturation value will be used in calculating the 24-hour average. The dissolved oxygen saturation value shall be determined from the table set out in Subsection N of 20.6.4.900 NMAC. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.113 NMAC - Rp 20 NMAC 6.1.2110, 10-12-00; A, 10-11-02; A, 05-23-05]

**20.6.4.114 RIO GRANDE BASIN - The main stem of the Rio Grande from the headwaters of Cochiti reservoir upstream to Rio Pueblo de Taos, Embudo creek from its mouth on the Rio Grande upstream to the junction of the Rio Pueblo and the Rio Santa Barbara, the Santa Cruz river below Santa Cruz dam, the Rio Tesuque below the Santa Fe national forest and the Pojoaque river below Nambe dam.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 22°C (71.6°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At mean monthly flows above 100 cfs, the monthly average concentration for: TDS 500 mg/L or less, sulfate 150 mg/L or less and chloride 25 mg/L or less.

[20.6.4.114 NMAC - Rp 20 NMAC 6.1.2111, 10-12-00; A, 05-23-05]

**20.6.4.115 RIO GRANDE BASIN - The perennial reaches of Rio Vallecitos and its tributaries, and perennial reaches of Rio del Oso and perennial reaches of El Rito creek above the town of El Rito.**

A. **Designated Uses:** domestic water supply, irrigation, high quality coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.

B. **Criteria:**

(1) In any single sample: specific conductance 300  $\square$ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.115 NMAC - Rp 20 NMAC 6.1.2112, 10-12-00; A, 05-23-05]

**20.6.4.116 RIO GRANDE BASIN - The Rio Chama from its mouth on the Rio Grande upstream to Abiquiu reservoir, perennial reaches of the Rio Tusas, perennial reaches of the Rio Ojo Caliente, perennial reaches of Abiquiu creek and perennial reaches of El Rito creek below the town of El Rito.**

A. **Designated Uses:** irrigation, livestock watering, wildlife habitat, coldwater aquatic life, warmwater aquatic life and secondary contact.

B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 31°C (87.8°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.116 NMAC - Rp 20 NMAC 6.1.2113, 10-12-00; A, 05-23-05]

**20.6.4.117 RIO GRANDE BASIN - Abiquiu reservoir.**

A. **Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact, coldwater aquatic life and warmwater aquatic life.

B. **Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.117 NMAC - Rp 20 NMAC 6.1.2114, 10-12-00; A, 05-23-05]

**20.6.4.118 RIO GRANDE BASIN - The Rio Chama from the headwaters of Abiquiu reservoir upstream to El Vado reservoir and perennial reaches of the Rio Gallina and Rio Puerco de Chama north of state highway 96.**

A. **Designated Uses:** irrigation, livestock watering, wildlife habitat, coldwater aquatic life, warmwater aquatic life and secondary contact.

B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 26°C (78.8°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.118 NMAC - Rp 20 NMAC 6.1.2115, 10-12-00; A, 05-23-05]

**20.6.4.119 RIO GRANDE BASIN - All perennial reaches of tributaries to the Rio Chama above Abiquiu dam except the Rio Gallina and Rio Puerco de Chama north of state highway 96 and the main stem of the Rio Chama from the headwaters of El Vado reservoir upstream to the New Mexico-Colorado line.**

A. **Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation,



livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 500  $\mu$ mhos/cm or less (1,000  $\mu$ mhos or less for Coyote creek), pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.119 NMAC - Rp 20 NMAC 6.1.2116, 10-12-00; A, 05-23-05]

**20.6.4.120 RIO GRANDE BASIN - El Vado and Heron reservoirs.**

**A. Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact and coldwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.120 NMAC - Rp 20 NMAC 6.1.2117, 10-12-00; A, 05-23-05]

**20.6.4.121 RIO GRANDE BASIN - Perennial tributaries to the Rio Grande in Bandelier national monument and their headwaters in Sandoval county and all perennial reaches of tributaries to the Rio Grande in Santa Fe county unless included in other segments.**

**A. Designated Uses:** domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply, secondary contact and primary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300  $\mu$ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.121 NMAC - Rp 20 NMAC 6.1.2118, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segments are under 20.6.4.126, 20.6.4.127 and 20.6.4.128 NMAC.]

**20.6.4.122 RIO GRANDE BASIN - The main stem of the Rio Grande from Rio Pueblo de Taos upstream to the New Mexico-Colorado line, the Red river from its mouth on the Rio Grande upstream to the mouth of Placer creek, and the Rio Pueblo de Taos from its mouth on the Rio Grande upstream to the mouth of the Rio Grande del Rancho.**

**A. Designated Uses:** coldwater aquatic life, fish culture, irrigation, livestock watering, wildlife habitat and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.122 NMAC - Rp 20 NMAC 6.1.2119, 10-12-00; A, 05-23-05]

**20.6.4.123 RIO GRANDE BASIN - Perennial reaches of the Red river upstream of the mouth of Placer creek, all perennial reaches of tributaries to the Red river, and all other perennial reaches of tributaries to the Rio Grande in Taos and Rio Arriba counties unless included in other segments.**

**A. Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 400  $\mu$ mhos/cm or less (500  $\mu$ mhos or less for the Rio Fernando de Taos) and pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less. For the Red river in this segment, total phosphorus (as P) less than 0.1 mg/L. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.123 NMAC - Rp 20 NMAC 6.1.2120, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.129 NMAC.]

**20.6.4.124 RIO GRANDE BASIN - Perennial reaches of Sulphur creek from its headwaters to its confluence with Redondo creek.**

- A. **Designated Uses:** limited aquatic life, wildlife habitat, livestock watering and secondary contact.
- B. **Criteria:**

(1) In any single sample: pH within the range of 2.0 to 9.0 and temperature 30°C (86°F) or less. The use-specific criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) The chronic aquatic life criteria of Subsections I and J of 20.6.4.900 NMAC shall also apply.

[20.6.4.124 NMAC - N, 05-23-05]

**20.6.4.125 RIO GRANDE BASIN - Perennial reaches of San Pedro creek.**

A. **Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

- B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.125 NMAC - N, 05-23-05]

**20.6.4.126 RIO GRANDE BASIN - Perennial portions of Cañon deValle from Los Alamos national laboratory (LANL) stream gage E256 upstream to Burning Ground spring, Sandia canyon from Sigma canyon upstream to LANL NPDES outfall 001, Pajarito canyon from Arroyo de La Delfe upstream into Starmers gulch and Starmers spring and Water canyon from Area-A canyon upstream to State Route 501.**

- A. **Designated Uses:** coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.
- B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 24°C (75.2°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.126 NMAC - N, 05-23-05]

**20.6.4.127 RIO GRANDE BASIN - Perennial portions of Los Alamos canyon upstream from Los Alamos reservoir and Los Alamos reservoir.**

A. **Designated Uses:** coldwater aquatic life, livestock watering, wildlife habitat, irrigation and primary contact.

- B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.127 NMAC - N, 05-23-05]

**20.6.4.128 RIO GRANDE BASIN - Ephemeral and intermittent portions of watercourses within lands managed by U.S. department of energy (DOE) within LANL, including but not limited to: Mortandad canyon, Cañada del Buey, Ancho canyon, Chaquehui canyon, Indio canyon, Fence canyon, Potrillo canyon and portions of Cañon de Valle, Los Alamos canyon, Sandia canyon, Pajarito canyon and Water canyon not specifically identified in 20.6.4.126 NMAC. (Surface waters within lands scheduled for transfer from DOE to tribal, state or local authorities are specifically excluded.)**

- A. **Designated Uses:** livestock watering, wildlife habitat, limited aquatic life and secondary contact.
- B. **Criteria:**

(1) The use-specific criteria in 20.6.4.900 NMAC, except the chronic criteria for aquatic life are applicable for the designated uses listed in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) The acute total ammonia criteria set forth in Subsection K of 20.6.4.900 NMAC (salmonids absent) are applicable to this use.

[20.6.4.128 NMAC - N, 05-23-05]

**20.6.4.129 RIO GRANDE BASIN - Perennial reaches of the Rio Hondo.**

**A. Designated Uses:** domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 400  $\mu$ mhos/cm or less, pH within the range of 6.6 to 8.8, total phosphorous (as P) less than 0.1 mg/L and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.129 NMAC - N, 05-23-05]

**20.6.4.130 - 20.6.4.200: [RESERVED]**

**20.6.4.201 PECOS RIVER BASIN - The main stem of the Pecos river from the New Mexico-Texas line upstream to the mouth of the Black river (near Loving).**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS 20,000 mg/L or less, sulfate 3,000 mg/L or less and chloride 10,000 mg/L or less.

[20.6.4.201 NMAC - Rp 20 NMAC 6.1.2201, 10-12-00; A, 05-23-05]

**20.6.4.202 PECOS RIVER BASIN - The main stem of the Pecos river from the mouth of the Black river upstream to lower Tansil dam, including perennial reaches of the Black river, the Delaware river and Blue spring.**

**A. Designated Uses:** industrial water supply, irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS 8,500 mg/L or less, sulfate 2,500 mg/L or less and chloride 3,500 mg/L or less.

**C. Remarks:** Diversion for irrigation frequently limits summer flow in this reach of the main stem Pecos river to that contributed by springs along the watercourse.

[20.6.4.202 NMAC - Rp 20 NMAC 6.1.2202, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.218 NMAC.]

**20.6.4.203 PECOS RIVER BASIN - The main stem of the Pecos river from lower the headwaters of Lake Carlsbad upstream to Avalon dam.**

**A. Designated Uses:** industrial water supply, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.203 NMAC - Rp 20 NMAC 6.1.2203, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.219 NMAC.]

**20.6.4.204 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Avalon reservoir upstream to Brantley dam.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2880 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.204 NMAC - Rp 20 NMAC 6.1.2204, 10-12-00; A, 05-23-05]

**20.6.4.205 PECOS RIVER BASIN - Brantley reservoir.**

**A. Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.205 NMAC - Rp 20 NMAC 6.1.2205, 10-12-00; A, 05-23-05]

**20.6.4.206 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Brantley reservoir upstream to Salt creek (near Acme), perennial reaches of the Rio Peñasco downstream from state highway 24 near Dunken, perennial reaches of the Rio Hondo and its tributaries below Bonney canyon and perennial reaches of the Rio Felix.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS 14,000 mg/L or less, sulfate 3,000 mg/L or less and chloride 6,000 mg/L or less.

[20.6.4.206 NMAC - Rp 20 NMAC 6.1.2206, 10-12-00; A, 05-23-05]

**20.6.4.207 PECOS RIVER BASIN - The main stem of the Pecos river from Salt creek (near Acme) upstream to Sumner dam.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS 8,000 mg/L or less, sulfate 2,500 mg/L or less and chloride 4,000 mg/L or less.

[20.6.4.207 NMAC - Rp 20 NMAC 6.1.2207, 10-12-00; A, 05-23-05]

**20.6.4.208 PECOS RIVER BASIN - Perennial reaches of the Rio Peñasco and its tributaries above state highway 24 near Dunken, perennial reaches of the Rio Bonito downstream from state highway 48 (near Angus), the Rio Ruidoso downstream of the U.S. highway 70 bridge near Seeping Springs lakes, perennial reaches of the Rio Hondo upstream from Bonney canyon and perennial reaches of Agua Chiquita.**

**A. Designated Uses:** fish culture, irrigation, livestock watering, wildlife habitat, coldwater aquatic life and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8, temperature 30°C (86°F) or less and total phosphorus (as P) less than 0.1 mg/L. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.208 NMAC - Rp 20 NMAC 6.1.2208, 10-12-00; A, 05-23-05]

**20.6.4.209 PECOS RIVER BASIN - Perennial reaches of Eagle creek above Alto reservoir, perennial reaches of the Rio Bonito and its tributaries upstream of state highway 48 (near Angus) and perennial reaches of the Rio Ruidoso and its tributaries upstream of the U.S. highway 70 bridge near Seeping Springs lakes.**

**A. Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 600 µmhos/cm or less in Eagle creek, 1,100 µmhos or less in Bonito creek, and 1,500 µmhos or less in the Rio Ruidoso, pH within the range of 6.6 to 8.8, total phosphorus (as P) less than 0.1 mg/L and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.209 NMAC - Rp 20 NMAC 6.1.2209, 10-12-00; A, 05-23-05]

**20.6.4.210 PECOS RIVER BASIN - Sumner reservoir.**

**A. Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.210 NMAC - Rp 20 NMAC 6.1.2210, 10-12-00; A, 05-23-05]

**20.6.4.211 PECOS RIVER BASIN - The main stem of the Pecos river from the headwaters of Sumner reservoir upstream to Tecolote creek.**

**A. Designated Uses:** fish culture, irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 50 cfs: TDS 3,000 mg/L or less, sulfate 2,000 mg/L or less and chloride 400 mg/L or less.

[20.6.4.211 NMAC - Rp 20 NMAC 6.1.2211, 10-12-00; A, 05-23-05]

**20.6.4.212 PECOS RIVER BASIN - Perennial tributaries to the main stem of the Pecos river from the headwaters of Sumner reservoir upstream to Santa Rosa dam.**

**A. Designated Uses:** irrigation, coldwater aquatic life, livestock watering, wildlife habitat and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.212 NMAC - Rp 20 NMAC 6.1.2211.1, 10-12-00; A, 05-23-05]

**20.6.4.213 PECOS RIVER BASIN - McAllister lake.**

**A. Designated Uses:** coldwater aquatic life, secondary contact, livestock watering and wildlife habitat.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.213 NMAC - Rp 20 NMAC 6.1.2211.3, 10-12-00; A, 05-23-05]

**20.6.4.214 PECOS RIVER BASIN - Storrie lake.**

**A. Designated Uses:** coldwater aquatic life, warmwater aquatic life, primary contact, livestock watering, wildlife habitat, municipal water supply and irrigation storage.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.214 NMAC - Rp 20 NMAC 6.1.2211.5, 10-12-00; A, 05-23-05]

**20.6.4.215 PECOS RIVER BASIN - Perennial reaches of the Gallinas river and all its tributaries above the diversion for the Las Vegas municipal reservoir and perennial reaches of Tecolote creek and its perennial tributaries.**

**A. Designated Uses:** domestic water supply, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300 µmhos/cm or less except specific conductance 450 µmhos/cm or less in Wright Canyon creek, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.215 NMAC - Rp 20 NMAC 6.1.2212, 10-12-00; A, 05-23-05]

**20.6.4.216 PECOS RIVER BASIN - The main stem of the Pecos river from Tecolote creek upstream to Cañon de Mazanita.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 30°C (86°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less, single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

(3) At all flows above 10 cfs: TDS 250 mg/L or less, sulfate 25 mg/L or less and chloride 5 mg/L or less.

[20.6.4.216 NMAC - Rp 20 NMAC 6.1.2213, 10-12-00; A, 05-23-05]

**20.6.4.217 PECOS RIVER BASIN - Perennial reaches of Cow creek and all perennial reaches of its tributaries and the main stem of the Pecos river from Cañon de Manzanita upstream to its headwaters, including perennial reaches of all tributaries thereto.**

**A. Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.217 NMAC - Rp 20 NMAC 6.1.2214, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segments are under 20.6.4.220 and 20.6.4.221 NMAC.]

**20.6.4.218 PECOS RIVER BASIN - Tansil lake and Lake Carlsbad.**

**A. Designated Uses:** industrial water supply, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 34°C (93.2°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.218 NMAC - N, 05-23-05]

**20.6.4.219 PECOS RIVER BASIN - Avalon reservoir.**

**A. Designated Uses:** irrigation storage, livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.219 NMAC - N, 05-23-05]

**20.6.4.220 PECOS RIVER BASIN - Perennial reaches of the Gallinas river and its tributaries from its mouth upstream to the diversion for the Las Vegas municipal reservoir, except Pecos Arroyo.**

**A. Designated Uses:** irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 30°C (86°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section. (see Subsection B of 20.6.4.14 NMAC)

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less, single sample 410 cfu/100 mL or less.

[20.6.4.220 NMAC - N, 05-23-05]

**20.6.4.221 PECOS RIVER BASIN - Pecos Arroyo.**

**A. Designated Uses:** livestock watering, wildlife habitat, warmwater aquatic life and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.221 NMAC - N, 05-23-05]

**20.6.4.222 - 20.6.4.300: [RESERVED]****20.6.4.301 CANADIAN RIVER BASIN - The main stem of the Canadian river from the New Mexico-Texas line upstream to Ute dam, and any flow that enters the main stem from Revuelto creek.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 6,500 mg/L or less at flows above 25 cfs. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.301 NMAC - Rp 20 NMAC 6.1.2301, 10-12-00; A, 05-23-05]

**20.6.4.302 CANADIAN RIVER BASIN - Ute reservoir.**

**A. Designated Uses:** livestock watering, wildlife habitat, municipal and industrial water supply, primary

contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.302 NMAC - Rp 20 NMAC 6.1.2302, 10-12-00; A, 05-23-05]

**20.6.4.303 CANADIAN RIVER BASIN - The main stem of the Canadian river from the headwaters of Ute reservoir upstream to Conchas dam, the perennial reaches of Pajarito and Ute creeks and their perennial tributaries.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.303 NMAC - Rp 20 NMAC 6.1.2303, 10-12-00; A, 05-23-05]

**20.6.4.304 CANADIAN RIVER BASIN - Conchas reservoir.**

**A. Designated Uses:** irrigation storage, livestock watering, wildlife habitat, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.304 NMAC - Rp 20 NMAC 6.1.2304, 10-12-00; A, 05-23-05]

**20.6.4.305 CANADIAN RIVER BASIN - The main stem of the Canadian river from the headwaters of Conchas reservoir upstream to the New Mexico-Colorado line, perennial reaches of the Conchas river, the Mora river downstream from the USGS gaging station near Shoemaker, the Vermejo river downstream from Rail canyon and perennial reaches of Raton, Chicorica and Uña de Gato creeks.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 3,500 mg/L or less at flows above 10 cfs. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.305 NMAC - Rp 20 NMAC 6.1.2305, 10-12-00; A, 05-23-05]

**20.6.4.306 CANADIAN RIVER BASIN - The Cimarron river downstream from state highway 21 in Cimarron to the Canadian river and all perennial reaches of tributaries to the Cimarron river downstream from state highway 21 in Cimarron.**

**A. Designated Uses:** irrigation, warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0, temperature 32.2°C (90°F) or less and TDS 3,500 mg/L or less at flows above 10 cfs. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.306 NMAC - Rp 20 NMAC 6.1.2305.1, 10-12-00; A, 7-19-01; A, 05-23-05]

**20.6.4.307 CANADIAN RIVER BASIN - Perennial reaches of the Mora river from the USGS gaging station near Shoemaker upstream to the state highway 434 bridge in Mora, all perennial reaches of tributaries to the Mora**



river downstream from the USGS gaging station at La Cueva in San Miguel and Mora counties, perennial reaches of Ocate creek and its tributaries downstream of Ocate, and perennial reaches of Rayado creek downstream of Miami lake diversion in Colfax county.

A. **Designated Uses:** marginal coldwater aquatic life, warmwater aquatic life, secondary contact, irrigation, livestock watering and wildlife habitat.

B. **Criteria:**

(1) In any single sample: temperature 25°C (77°F) or less and pH within the range of 6.6 to 9.0. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.307 NMAC - Rp 20 NMAC 6.1.2305.3, 10-12-00; A, 05-23-05]

#### **20.6.4.308 CANADIAN RIVER BASIN - Charette lakes.**

A. **Designated Uses:** coldwater aquatic life, warmwater aquatic life, secondary contact, livestock watering and wildlife habitat.

B. **Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less; single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.308 NMAC - Rp 20 NMAC 6.1.2305.5, 10-12-00; A, 05-23-05]

**20.6.4.309 CANADIAN RIVER BASIN - The Mora river and perennial reaches of its tributaries upstream from the state highway 434 bridge in Mora, all perennial reaches of tributaries to the Mora river upstream from the USGS gaging station at La Cueva, perennial reaches of Coyote creek and its tributaries, the Cimarron river and its perennial tributaries above state highway 21 in Cimarron, all perennial reaches of tributaries to the Cimarron river north and northwest of highway 64, perennial reaches of Rayado creek and its tributaries above Miami lake diversion, Ocate creek and perennial reaches of its tributaries upstream of Ocate, perennial reaches of the Vermejo river upstream from Rail canyon and all other perennial reaches of tributaries to the Canadian river northwest and north of U.S. highway 64 in Colfax county unless included in other segments.**

A. **Designated Uses:** domestic water supply, irrigation, high quality coldwater aquatic life, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

B. **Criteria:**

(1) In any single sample: specific conductance 500 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.309 NMAC - Rp 20 NMAC 6.1.2306, 10-12-00; A, 7-19-01; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.310 NMAC.]

**20.6.4.310 CANADIAN RIVER BASIN - Perennial reaches of Corrupa creek and perennial reaches of tributaries of the Canadian river north of U.S. highway 54/66 and east and northeast of the Ute creek drainage.**

A. **Designated Uses:** livestock watering, wildlife habitat, secondary contact and warmwater aquatic life.

B. **Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 548 cfu/100 mL or less, single sample 2507 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.310 NMAC - N, 05-23-05]

#### **20.6.4.311 - 20.6.4.400: [RESERVED]**

**20.6.4.401 SAN JUAN RIVER BASIN - The main stem of the San Juan river from the Navajo Nation boundary at the Hogback upstream to its confluence with the Animas river.**

A. **Designated Uses:** municipal and industrial water supply, irrigation, livestock watering, wildlife habitat, secondary contact, marginal coldwater aquatic life and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.401 NMAC - Rp 20 NMAC 6.1.2401, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.408 NMAC.]

**20.6.4.402 SAN JUAN RIVER BASIN - La Plata river from its confluence with the San Juan river upstream to the New Mexico-Colorado line.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, marginal coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.402 NMAC - Rp 20 NMAC 6.1.2402, 10-12-00; A, 05-23-05]

**20.6.4.403 SAN JUAN RIVER BASIN - The Animas river from its confluence with the San Juan upstream to Estes Arroyo.**

**A. Designated Uses:** municipal and industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 27°C (80.6°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.403 NMAC - Rp 20 NMAC 6.1.2403, 10-12-00; A, 05-23-05]

**20.6.4.404 SAN JUAN RIVER BASIN - The Animas river from Estes Arroyo upstream to the New Mexico-Colorado line.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.404 NMAC - Rp 20 NMAC 6.1.2404, 10-12-00; A, 05-23-05]

**20.6.4.405 SAN JUAN RIVER BASIN - The main stem of the San Juan river from Canyon Largo upstream to the Navajo dam.**

**A. Designated Uses:** high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 400 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.405 NMAC - Rp 20 NMAC 6.1.2405, 10-12-00; A, 05-23-05]

**20.6.4.406 SAN JUAN RIVER BASIN - Navajo reservoir in New Mexico.**

**A. Designated Uses:** coldwater aquatic life, warmwater aquatic life, irrigation storage, livestock watering, wildlife habitat, municipal and industrial water storage and primary contact.

**B. Criteria:**

(1) At any sampling site: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.406 NMAC - Rp 20 NMAC 6.1.2406, 10-12-00; A, 05-23-05]

**20.6.4.407 SAN JUAN RIVER BASIN - Perennial reaches of the Navajo and Los Pinos rivers in New Mexico.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8, temperature 20°C (68°F) or less and total phosphorus (as P) 0.1 mg/L or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.407 NMAC - Rp 20 NMAC 6.1.2407, 10-12-00; A, 05-23-05]

**20.6.4.408 SAN JUAN RIVER BASIN - The main stem of the San Juan river from its confluence with the Animas river upstream to its confluence with Canyon Largo.**

**A. Designated Uses:** municipal and industrial water supply, irrigation, livestock watering, wildlife habitat, secondary contact, marginal coldwater aquatic life and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0, and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.408 NMAC - N, 05-23-05]

**20.6.4.409 - 20.6.4.500: [RESERVED]****20.6.4.501 GILA RIVER BASIN - The main stem of the Gila river from the New Mexico-Arizona line upstream to Redrock canyon and perennial reaches of streams in Hidalgo county.**

**A. Designated Uses:** irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.501 NMAC - Rp 20 NMAC 6.1.2501, 10-12-00; A, 05-23-05]

**20.6.4.502 GILA RIVER BASIN - The main stem of the Gila river from Redrock canyon upstream to the confluence of the West Fork Gila river and East Fork Gila river and perennial reaches of tributaries to the Gila river below Mogollon creek.**

**A. Designated Uses:** industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 28°C (82.4°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.502 NMAC - Rp 20 NMAC 6.1.2502, 10-12-00; A, 05-23-05]

**20.6.4.503 GILA RIVER BASIN - All perennial tributaries to the Gila river above and including Mogollon creek.**

**A. Designated Uses:** domestic water supply, high quality coldwater aquatic life, irrigation, livestock

watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300  $\mu$ mhos/cm or less for the main stem of the Gila river above Gila hot springs and 400  $\mu$ mhos or less for other reaches, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less except 32.2°C (90°F) or less in the east fork of the Gila river and Sapillo creek below lake Roberts. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.503 NMAC - Rp 20 NMAC 6.1.2503, 10-12-00; A, 05-23-05]

**20.6.4.504 GILA RIVER BASIN - Wall lake, Lake Roberts and Snow lake.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300  $\mu$ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 22°C (72°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.504 NMAC - Rp 20 NMAC 6.1.2504, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.806 NMAC.]

**20.6.4.505 - 20.6.4.600: [RESERVED]**

**20.6.4.601 SAN FRANCISCO RIVER BASIN - The main stem of the San Francisco river from the New Mexico-Arizona line upstream to state highway 12 at Reserve and perennial reaches of Mule creek.**

**A. Designated Uses:** irrigation, marginal warmwater and marginal coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 32.2°C (90°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.601 NMAC - Rp 20 NMAC 6.1.2601, 10-12-00; A, 05-23-05]

**20.6.4.602 SAN FRANCISCO RIVER BASIN - The main stem of the San Francisco river from state highway 12 at Reserve upstream to the New Mexico-Arizona line.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and primary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.602 NMAC - Rp 20 NMAC 6.1.2602, 10-12-00; A, 05-23-05]

**20.6.4.603 SAN FRANCISCO RIVER BASIN - All perennial reaches of tributaries to the San Francisco river above the confluence of Whitewater creek and including Whitewater creek.**

**A. Designated Uses:** domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 400  $\mu$ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less except 25°C (77°F) or less in Tularosa creek. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of E. coli bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.603 NMAC - Rp 20 NMAC 6.1.2603, 10-12-00; A, 05-23-05]

**20.6.4.604 - 20.6.4.700: [RESERVED]****20.6.4.701 DRY CIMARRON RIVER - Perennial portions of the Dry Cimarron river above Oak creek and perennial reaches of Oak creek.**

**A. Designated Uses:** marginal coldwater aquatic life, warmwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8, temperature 25°C (77°F) or less, TDS 1,200 mg/L or less, sulfate 600 mg/L or less, and chloride 40 mg/L or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.701 NMAC - Rp 20 NMAC 6.1.2701, 10-12-00; A, 05-23-05]

[NOTE: The segment covered by this section was divided effective 05-23-05. The standards for the additional segment are under 20.6.4.702 NMAC.]

**20.6.4.702 DRY CIMARRON RIVER - Perennial portions of the Dry Cimarron river below Oak creek, and perennial portions of Long canyon and Carrizozo creeks.**

**A. Designated Uses:** warmwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8, temperature 32.2°C (90°F) or less, TDS 1,200 mg/L or less, sulfate 600 mg/L or less and chloride 40 mg/L or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.702 NMAC - N, 05-23-05]

**20.6.4.703 - 20.6.4.800: [RESERVED]****20.6.4.801 CLOSED BASINS - Rio Tularosa lying east of the old U.S. highway 70 bridge crossing east of Tularosa and all perennial tributaries to the Tularosa basin except Three Rivers.**

**A. Designated Uses:** coldwater aquatic life, fish culture, irrigation, livestock watering, wildlife habitat, municipal and industrial water supply and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.801 NMAC - Rp 20 NMAC 6.1.2801, 10-12-00; A, 05-23-05]

**20.6.4.802 CLOSED BASINS - Perennial reaches of Three Rivers.**

**A. Designated Uses:** irrigation, domestic water supply, high quality coldwater aquatic life, secondary contact, livestock watering and wildlife habitat.

**B. Criteria:**

(1) In any single sample: specific conductance 500 µmhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).

[20.6.4.802 NMAC - Rp 20 NMAC 6.1.2802, 10-12-00; A, 05-23-05]

**20.6.4.803 CLOSED BASINS - Perennial reaches of the Mimbres river downstream of the confluence with Willow Springs canyon and all perennial reaches of tributaries thereto.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of

this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).  
[20.6.4.803 NMAC - Rp 20 NMAC 6.1.2803, 10-12-00; A, 05-23-05]

**20.6.4.804 CLOSED BASINS - Perennial reaches of the Mimbres river upstream of the confluence with Willow Springs canyon and all perennial tributaries thereto.**

**A. Designated Uses:** irrigation, domestic water supply, high quality coldwater aquatic life, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300  $\mu$ mhos or less, pH within the range of 6.6 to 8.8 and temperature 20°C (68°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 235 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).  
[20.6.4.804 NMAC - Rp 20 NMAC 6.1.2804, 10-12-00; A, 05-23-05]

**20.6.4.805 CLOSED BASINS - Perennial reaches of the Sacramento river (Sacramento-Salt Flat closed basin) and all perennial tributaries thereto.**

**A. Designated Uses:** domestic and municipal water supply, livestock watering, wildlife habitat, marginal coldwater aquatic life and secondary contact.

**B. Criteria:**

(1) In any single sample: pH within the range of 6.6 to 9.0 and temperature 25°C (77°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).  
[20.6.4.805 NMAC - Rp 20 NMAC 6.1.2805, 10-12-00; A, 05-23-05]

**20.6.4.806 CLOSED BASINS - Bear canyon reservoir.**

**A. Designated Uses:** coldwater aquatic life, irrigation, livestock watering, wildlife habitat and secondary contact.

**B. Criteria:**

(1) In any single sample: specific conductance 300  $\mu$ mhos/cm or less, pH within the range of 6.6 to 8.8 and temperature 22°C (72°F) or less. The use-specific numeric criteria set forth in 20.6.4.900 NMAC are applicable to the designated uses listed above in Subsection A of this section.

(2) The monthly geometric mean of *E. coli* bacteria 126 cfu/100 mL or less; single sample 410 cfu/100 mL or less (see Subsection B of 20.6.4.14 NMAC).  
[20.6.4.806 NMAC - N, 05-23-05]

**20.6.4.807 - 20.6.4.899: [RESERVED]**

**20.6.4.900 CRITERIA APPLICABLE TO ATTAINABLE OR DESIGNATED USES UNLESS OTHERWISE SPECIFIED IN 20.6.4.97 THROUGH 20.6.4.899 NMAC.**

**A. Fish Culture, Water Supply and Storage:** Fish culture and municipal and industrial water supply and storage are designated uses in particular classified waters of the state where these uses are actually being realized. However, no numeric criteria apply uniquely to these uses. Water quality adequate for these uses is ensured by the general criteria and numeric criteria for bacterial quality, pH and temperature that are established for all classified waters of the state listed in 20.6.4.97 through 20.6.4.899 NMAC.

**B. Domestic Water Supply:** Surface waters of the state designated for use as domestic water supplies shall not contain substances in concentrations that create a lifetime cancer risk of more than one cancer per 100,000 exposed persons. Those criteria listed under domestic water supply in Subsection J of this section apply to this use.

**C. Irrigation and Irrigation Storage:** The following numeric criteria and those criteria listed under irrigation in Subsection J of this section apply to this use:

- |   |      |      |
|---|------|------|
| (1) dissolved selenium  | 0.13 | mg/L |
| (2) dissolved selenium in presence of >500 mg/L SO <sub>4</sub> | 0.25 | mg/L |

**D. Primary Contact:** The monthly geometric mean of *E. coli* bacteria of 126 cfu/100 mL and single sample of 410 cfu/100 mL, apply to this use and pH shall be within the range of 6.6 to 9.0.

**E. Secondary Contact:** The monthly geometric mean of *E. coli* bacteria of 548 cfu/100 mL and single sample of 2507 cfu/100 mL apply to this use.

**F. Livestock Watering:** The criteria listed in Subsection J for livestock watering apply to this use.

**G. Wildlife Habitat:** Wildlife habitat shall be free from any substances at concentrations that are toxic to or will adversely affect plants and animals that use these environments for feeding, drinking, habitat or propagation; can bioaccumulate; or might impair the community of animals in a watershed or the ecological integrity of surface waters of the state. The discharge of substances that bioaccumulate, in excess of levels listed in Subsection J for wildlife habitat is allowed if, and only to the extent that, the substances are present in the intake waters that are diverted and utilized prior to discharge, and then only if the discharger utilizes best available treatment technology to reduce the amount of bioaccumulating substances that are discharged. The numeric criteria listed in Subsection J for wildlife habitat apply to this use except when a site-specific or segment-specific criterion has been adopted under 20.6.4.101 through 20.6.4.899 NMAC.

**H. Aquatic Life:** Surface waters of the state with a designated, existing or attainable use of aquatic life shall be free from any substances at concentrations that can impair the community of plants and animals in or the ecological integrity of surface waters of the state. Except as provided in paragraph 6 below, the acute and chronic aquatic life criteria set out in subsections I and J of this section are applicable to this use. In addition, the specific criteria for aquatic life subcategories in the following paragraphs shall apply to waters classified under the respective designations

(1) **High Quality Coldwater:** Dissolved oxygen 6.0 mg/L or more, temperature 20°C (68°F) or less, pH within the range of 6.6 to 8.8 and specific conductance a limit varying between 300 µmhos/cm and 1,500 µmhos/cm depending on the natural background in particular surface waters of the state (the intent of this criterion is to prevent excessive increases in dissolved solids which would result in changes in community structure). The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria for pollutants listed in Subsection J of this section are applicable to this use.

(2) **Coldwater:** Dissolved oxygen 6.0 mg/L or more, temperature 20°C (68°F) or less and pH within the range of 6.6 to 8.8. The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.

(3) **Marginal Coldwater:** Dissolved oxygen than 6 mg/L or more, on a case by case basis maximum temperatures may exceed 25°C (77°F) and the pH may range from 6.6 to 9.0. The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.

(4) **Warmwater:** Dissolved oxygen 5 mg/L or more, temperature 32.2°C (90°F) or less, and pH within the range of 6.6 to 9.0. The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.

(5) **Marginal Warmwater:** Dissolved oxygen 5 mg/L or more, pH within the range of 6.6 to 9.0 and on a case by case basis maximum temperatures may exceed 32.2°C (90°F). The total ammonia criteria set out in Subsections K, L and M of this section and the human health criteria listed in Subsection J of this section are applicable to this use.

(6) **Limited Aquatic Life:** Criteria shall be developed on a segment-specific basis. The acute aquatic life criteria of Subsections I and J of this section shall apply. Chronic aquatic life criteria do not apply unless adopted on a segment specific basis.

**I.** The following schedule of equations for the determination of numeric criteria for the substances listed and those criteria listed in Subsection J for aquatic life shall apply to the subcategories of aquatic life identified in this section.

(1) **Acute criteria:**

- |                        |  |   |
|------------------------|--|---|
| (a) dissolved silver   | $0.85 e^{(1.72(\ln(\text{hardness}))-6.59)}$     | µg/L  |
| (b) dissolved cadmium  | $(e^{(1.0166(\ln(\text{hardness}))-3.924)})cf$   | µg/L, the hardness-dependent formulae for cadmium must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute factor for cadmium is $cf = 1.136672 - ((\ln \text{ hardness})(0.041838))$      |
| (c) dissolved chromium | $0.316 e^{(0.819(\ln(\text{hardness}))+3.7256)}$ | µg/L  |
| (d) dissolved copper   | $0.960 e^{(0.9422(\ln(\text{hardness}))-1.700)}$ | µg/L  |
| (e) dissolved lead     | $(e^{(1.273(\ln(\text{hardness}))-1.46)})cf$     | µg/L, the hardness-dependent formulae for lead must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute and chronic factor for lead is $cf = 1.46203 - ((\ln \text{ hardness})(0.145712))$ |
| (f) dissolved nickel   | $0.998 e^{(0.8460(\ln(\text{hardness}))+2.255)}$ | µg/L  |
| (g) dissolved zinc     | $0.978 e^{(0.8473(\ln(\text{hardness}))+0.884)}$ | µg/L  |

(2) **Chronic criteria:**

- |                        |  |   |
|------------------------|--|---|
| (a) dissolved cadmium  | $(e^{(0.7409(\ln(\text{hardness}))-4.719)})cf$   | µg/L, the hardness-dependent formulae for cadmium must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the chronic factor for cadmium is $cf = 1.101672 - ((\ln \text{ hardness})(0.041838))$    |
| (b) dissolved chromium | $0.860 e^{(0.819(\ln(\text{hardness}))+0.6848)}$ | µg/L  |
| (c) dissolved copper   | $0.960 e^{(0.8545(\ln(\text{hardness}))-1.702)}$ | µg/L  |
| (d) dissolved lead     | $(e^{(1.273(\ln(\text{hardness}))-4.705)})cf$    | µg/L, the hardness-dependent formulae for lead must be multiplied by a conversion factor (cf) to be expressed as dissolved values; the acute and chronic factor for lead is $cf = 1.46203 - ((\ln \text{ hardness})(0.145712))$ |
| (e) dissolved nickel   | $0.997 e^{(0.846(\ln(\text{hardness}))+0.0584)}$ | µg/L  |

(f) dissolved zinc  $0.986 e^{(0.8473(\ln(\text{hardness}))+0.884)} \mu\text{g/L}$

J. **Numeric criteria.** The following table sets forth the numeric criteria adopted by the commission to protect existing, designated and attainable uses. Additional criteria that are not compatible with this table are found in Subsections A through I of this section.

Pollutant total, unless indicated	CAS Number	Domestic Water Supply $\mu\text{g/L}$ unless indicated	Irrigation $\mu\text{g/L}$ unless indicated	Livestock Watering $\mu\text{g/L}$ unless indicated	Wildlife Habitat $\mu\text{g/L}$ unless indicated	Aquatic Life	
						Acute $\mu\text{g/L}$	Chrc $\mu\text{g/}$
Aluminum, dissolved	7429-90-5		5,000			750	87
Antimony, dissolved	7440-36-0	5.6					
Arsenic, dissolved	7440-38-2	2.3	100	200		340	15
Asbestos	1332-21-4	7,000,000 fibers/L					
Barium, dissolved	7440-39-3	2,000					
Beryllium, dissolved	7440-41-7	4					
Boron, dissolved	7440-42-8		750	5,000			
Cadmium, dissolved	7440-43-9	5	10	50		see 20.6.4.900.I	see 20.6.4
Chlorine residual	7782-50-5				11	19	11
Chromium, dissolved	18540-29- 9	100	100	1,000		see 20.6.4.900.I	see 20.6.4
Cobalt, dissolved	7440-48-4		50	1,000			
Copper, dissolved	7440-50-8	1300	200	500		see 20.6.4.900.I	see 20.6.4
Cyanide, dissolved	57-12-5	200					
Cyanide, weak acid dissociable	57-12-5	700			5.2	22.0	5.2
Lead, dissolved	7439-92-1	50	5,000	100		see 20.6.4.900.I	see 20.6.4
Mercury	7439-97-6	2		10	0.77		
Mercury, dissolved	7439-97-6					1.4	0.7
Methylmercury	22967-92- 6						
Molybdenum, dissolved	7439-98-7		1,000				
Nickel, dissolved	7440-02-0	100				see 20.6.4.900.I	see 20.6.4
Nitrate as N		10 mg/L					
Nitrite + Nitrate				132 mg/L			
Selenium, dissolved	7782-49-2	50	see 20.6.4.900.C	50			
Selenium, total recoverable	7782-49-2				5.0	20.0	5.0
Silver, dissolved	7440-22-4					see 20.6.4.900.I	
Thallium, dissolved	7440-28-0	1.7					
Uranium, dissolved	7440-61-1	5,000					
Vanadium, dissolved	7440-62-2		100	100			
						see	see



Zinc, dissolved	7440-66-6	7,400	2,000	25,000		20.6.4.900.1	20.6.4
Adjusted gross alpha (see 20.6.4.900.B and .F)		15 pCi/L		15 pCi/L			
Radium 226 + Radium 228		5 pCi/L		30.0 pCi/L			
Strontium 90		8 pCi/L					
Tritium		20,000 pCi/L		20,000 pCi/L			
Acenaphthene	83-32-9	670					
Acrolein	107-02-8	190					
Acrylonitrile	107-13-1	0.51					
Aldrin	309-00-2	0.00049				3.0	
Anthracene	120-12-7	8,300					
Benzene	71-43-2	22					
Benzidine	92-87-5	0.00086					
Benzo(a)anthracene	56-55-3	0.038					
Benzo(a)pyrene	50-32-8	0.038					
Benzo(b)fluoranthene	205-99-2	0.038					
Benzo(k)fluoranthene	207-08-9	0.038					
alpha-BHC	319-84-6	0.026					
beta-BHC	319-85-7	0.091					
Gamma-BHC (Lindane)	58-89-9	0.19				0.95	
Bis(2-chloroethyl) ether	111-44-4	0.30					
Bis(2-chloroisopropyl) ether	108-60-1	1,400					
Bis(2-ethylhexyl) phthalate	117817	12					
Bromoform	75-25-2	43					
Butylbenzyl phthalate	85-68-7	1,500					
Carbon tetrachloride	56-23-5	2.3					
Chlordane	57-74-9	0.0080				2.4	0.00
Chlorobenzene	108-90-7	680					
Chlorodibromomethane	124-48-1	4.0					
Chloroform	67-66-3	57					
2-Chloronaphthalene	91-58-7	1,000					
2-Chlorophenol	95-57-8	81					
Chrysene	218-01-9	0.038					
4,4'-DDT and derivatives		0.0022			0.001	1.1	0.00
Dibenzo(a,h)anthracene	53-70-3	0.038					
Dibutyl phthalate	84-74-2	2,000					
1,2-Dichlorobenzene	95-50-1	2,700					
1,3-Dichlorobenzene	541-73-1	320					
1,4-							

Dichlorobenzene	106-46-7	400				
3,3'-Dichlorobenzidine	91-94-1	0.21				
Dichlorobromomethane	75-27-4	5.5				
1,2-Dichloroethane	107-06-2	3.8				
1,1-Dichloroethylene	75-35-4	0.57				
2,4-Dichlorophenol	120-83-2	77				
1,2-Dichloropropane	78-87-5	5.0				
1,3-Dichloropropene	542-75-6	10				
Dieldrin	60-57-1	0.00052			0.24	0.0
Diethyl phthalate	84-66-2	17,000				
Dimethyl phthalate	131-11-3	270,000				
2,4-Dimethylphenol	105-67-9	380				
2,4-Dinitrophenol	51-28-5	69				
2,4-Dinitrotoluene	121-14-2	1.1				
2,3,7,8-TCDD Dioxin	1746-01-6	5.0E-08				
1,2-Diphenylhydrazine	122-66-7	0.36				
alpha-Endosulfan	959-98-8	62			0.22	0.0
beta-Endosulfan	33213-65-9	62			0.22	0.0
Endosulfan sulfate	1031-07-8	62				
Endrin	72-20-8	0.76			0.086	0.0
Endrin aldehyde	7421-93-4	0.29				
Ethylbenzene	100-41-4	3,100				
Fluoranthene	206-44-0	130				
Fluorene	86-73-7	1,100				
Heptachlor	76-44-8	0.00079			0.52	0.00
Heptachlor epoxide	1024-57-3	0.00039			0.52	0.00
Hexachlorobenzene	118-74-1	0.0028				
Hexachlorobutadiene	87-68-3	4.4				
Hexachlorocyclopentadiene	77-47-4	240				
Hexachloroethane	67-72-1	14				
Ideno(1,2,3-cd) pyrene	193-39-5	0.038				
Isophorone	78-59-1	350				
Methyl bromide	74-83-9	47				
2-Methyl-4,6-dinitrophenol	534-52-1	13				
Methylene chloride	75-09-2	46				
Nitrobenzene	98-95-3	17				
N-Nitrosodimethylamine	62-75-9	0.0069				
N-Nitrosodi-n-propylamine	621-64-7	0.050				
N-Nitrosodiphenylamine	86-30-6	33				
PCBs	1336-36-3	0.00064			0.014	0.0
Pentachlorophenol	87-86-5	2.7			19	15
Phenol	108-95-2	21,000				
Pyrene	129-00-0	830				

1,1,2,2-Tetrachloroethane	79-34-5	1.7					
Tetrachloroethylene	127-18-4	6.9					
Toluene	108-88-3	6,800					
Toxaphene	8001-35-2	0.0028				0.73	0.00
1,2-Trans-dichloroethylene	156-60-5	700					
1,2,4-Trichlorobenzene	120-82-1	260					
1,1,2-Trichloroethane	79-00-5	5.9					
Trichloroethylene	79-01-6	25					
2,4,6-Trichlorophenol	88-06-2	14					
Vinyl chloride	75-01-4	20					

**K. Acute Criteria, Total Ammonia (mg/L as N)**

pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

**L. Chronic Criteria, Total Ammonia (mg/L as N), Fish Early Life Stages Present**

pH	Temperature (°C)										
	0	14	15	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.46	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	6.36	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	6.25	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	6.10	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.93	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.73	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18

7.1	5.67	5.67	5.49	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	5.22	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.92	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.59	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	4.23	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.85	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.47	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	3.09	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.71	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.36	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	2.03	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.74	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.48	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.25	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	1.06	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.892	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.754	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.641	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.548	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.471	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

**M. Chronic Criteria, Total Ammonia (mg/L as N), Fish Early Life Stages Absent**

pH	Temperature (°C)									
	0	7	8	9	10	11	12	13	14	15
6.5	10.8	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46
6.6	10.7	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36
6.7	10.5	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25
6.8	10.2	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10
6.9	9.93	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93
7.0	9.60	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73
7.1	9.20	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49
7.2	8.75	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22
7.3	8.24	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92
7.4	7.69	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59
7.5	7.09	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23
7.6	6.46	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85
7.7	5.81	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47
7.8	5.17	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09
7.9	4.54	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
8.0	3.95	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36
8.1	3.41	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03
8.2	2.91	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74
8.3	2.47	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48
8.4	2.09	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25
8.5	1.77	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06
8.6	1.49	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892
8.7	1.26	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754
8.8	1.07	1.07	1.01	0.944	0.855	0.829	0.778	0.729	0.684	0.641
8.9	0.917	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548
9.0	0.790	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471

At 15° C and above, the criterion for fish early life stages absent is the same as the criterion for fish early life stages present (refer to Subsection L of 20.6.4.900 NMAC).

**N. Dissolved oxygen saturation based on temperature and elevation.**

(1) Elevation 5,000 feet or less:

Elevation (feet)
------------------

		0	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
Temperature (°C)	0	14.6	14.3	14.1	13.8	13.6	13.3	13.1	12.8	12.6	12.3	12.1
	1	14.2	13.9	13.7	13.4	13.2	12.9	12.7	12.5	12.2	12.0	11.8
	2	13.8	13.6	13.3	13.1	12.8	12.6	12.4	12.1	11.9	11.7	11.5
	3	13.4	13.2	13.0	12.7	12.5	12.3	12.0	11.8	11.6	11.4	11.1
	4	13.1	12.8	12.6	12.4	12.2	11.9	11.7	11.5	11.3	11.1	10.9
	5	12.7	12.5	12.3	12.1	11.8	11.6	11.4	11.2	11.0	10.8	10.6
	6	12.4	12.2	12.0	11.8	11.5	11.3	11.1	10.9	10.7	10.5	10.3
	7	12.1	11.9	11.7	11.5	11.3	11.1	10.8	10.6	10.4	10.2	10.1
	8	11.8	11.6	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8
	9	11.5	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.8	9.6
	10	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.4
	11	11.0	10.8	10.6	10.4	10.2	10.0	9.9	9.7	9.5	9.3	9.1
	12	10.8	10.6	10.4	10.2	10.0	9.8	9.6	9.5	9.3	9.1	8.9
	13	10.5	10.3	10.1	9.9	9.8	9.6	9.4	9.2	9.1	8.9	8.7
	14	10.3	10.1	9.9	9.7	9.6	9.4	9.2	9.0	8.9	8.7	8.5
	15	10.1	9.9	9.7	9.5	9.3	9.2	9.0	8.8	8.7	8.5	8.4
	16	9.8	9.7	9.5	9.3	9.2	9.0	8.8	8.7	8.5	8.3	8.2
	17	9.6	9.5	9.3	9.1	9.0	8.8	8.6	8.5	8.3	8.2	8.0
	18	9.4	9.3	9.1	8.9	8.8	8.6	8.5	8.3	8.1	8.0	7.8
	19	9.3	9.1	8.9	8.8	8.6	8.4	8.3	8.1	8.0	7.8	7.7
	20	9.1	8.9	8.7	8.6	8.4	8.3	8.1	8.0	7.8	7.7	7.5
	21	8.9	8.7	8.6	8.4	8.3	8.1	8.0	7.8	7.7	7.5	7.4
	22	8.7	8.6	8.4	8.2	8.1	8.0	7.8	7.7	7.5	7.4	7.2
	23	8.6	8.4	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1
	24	8.4	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0
	25	8.2	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8
	26	8.1	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8	6.7
	27	7.9	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.8	6.7	6.6
	28	7.8	7.7	7.5	7.4	7.2	7.1	7.0	6.9	6.7	6.6	6.5
	29	7.7	7.5	7.4	7.3	7.1	7.0	6.9	6.7	6.6	6.5	6.4
	30	7.5	7.4	7.3	7.1	7.0	6.9	6.7	6.6	6.5	6.4	6.3

## (2) Elevation greater than 5,000 feet:

		Elevation (feet)									
		5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000
Temperature (°C)	0	11.9	11.6	11.4	11.2	11.0	10.8	10.6	10.3	10.1	9.9
	1	11.5	11.3	11.1	10.9	10.7	10.5	10.3	10.1	9.9	9.7
	2	11.2	11.0	10.8	10.6	10.4	10.2	10.0	9.8	9.6	9.4
	3	10.9	10.7	10.5	10.3	10.1	9.9	9.7	9.5	9.3	9.1
	4	10.7	10.4	10.2	10.0	9.8	9.7	9.5	9.3	9.1	8.9
	5	10.4	10.2	10.0	9.8	9.6	9.4	9.2	9.0	8.9	8.7
	6	10.1	9.9	9.7	9.5	9.4	9.2	9.0	8.8	8.6	8.5
	7	9.9	9.7	9.5	9.3	9.1	8.9	8.8	8.6	8.4	8.2
	8	9.6	9.4	9.3	9.1	8.9	8.7	8.6	8.4	8.2	8.0
	9	9.4	9.2	9.0	8.9	8.7	8.5	8.3	8.2	8.0	7.8
	10	9.2	9.0	8.8	8.7	8.5	8.3	8.1	8.0	7.8	7.7
	11	9.0	8.8	8.6	8.5	8.3	8.1	8.0	7.8	7.6	7.5
	12	8.8	8.6	8.4	8.3	8.1	7.9	7.8	7.6	7.5	7.3
	13	8.6	8.4	8.2	8.1	7.9	7.8	7.6	7.5	7.3	7.2
	14	8.4	8.2	8.1	7.9	7.7	7.6	7.4	7.3	7.1	7.0
	15	8.2	8.0	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8
	16	8.0	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8	6.7
	17	7.9	7.7	7.6	7.4	7.3	7.1	7.0	6.8	6.7	6.6
	18	7.7	7.5	7.4	7.3	7.1	7.0	6.8	6.7	6.6	6.4
	19	7.5	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3

20	7.4	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2
21	7.2	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.0
22	7.1	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9
23	7.0	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9	5.8
24	6.8	6.7	6.6	6.4	6.3	6.2	6.1	5.9	5.8	5.7
25	6.7	6.6	6.5	6.3	6.2	6.1	6.0	5.8	5.7	5.6
26	6.6	6.5	6.3	6.2	6.1	6.0	5.8	5.7	5.6	5.5
27	6.5	6.3	6.2	6.1	6.0	5.9	5.7	5.6	5.5	5.4
28	6.4	6.2	6.1	6.0	5.9	5.8	5.6	5.5	5.4	5.3
29	6.2	6.1	6.0	5.9	5.8	5.7	5.5	5.4	5.3	5.2
30	6.1	6.0	5.9	5.8	5.7	5.6	5.4	5.3	5.2	5.1

[20.6.4.900 NMAC - Rp 20 NMAC 6.1.3100, 10-12-00; A, 10-11-02; A, 05-23-05; A, 07-17-05]

**20.6.4.901 PUBLICATION REFERENCES:** These documents are intended as guidance and are available for public review during regular business hours at the offices of the surface water quality bureau and the New Mexico environment department public library. Copies of these documents have also been filed with the New Mexico state records center in order to provide greater access to this information.

- A. American public health association. 1992. *Standard methods for the examination of water and wastewater, 18th Edition*. Washington, D.C. 1048 p.
  - B. American public health association. 1995. *Standard methods for the examination of water and wastewater, 19th Edition*. Washington, D.C. 1090 p.
  - C. American public health association. 1998. *Standard methods for the examination of water and wastewater, 20th Edition*. Washington, D.C. 1112 p.
  - D. United States geological survey. 1987. *Methods for determination of inorganic substances in water and fluvial sediments, techniques of water-resource investigations of the United States geological survey*. Washington, D.C. 80 p.
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  - L. United States environmental protection agency. 1983. *Technical support manual: waterbody surveys and assessments for conducting use attainability analyses*. Office of water, regulations and standards, Washington, D.C. 251 p. <http://www.epa.gov/OST/library/wqstandards/uaavol123.pdf>
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- [20.6.4.901 NMAC - Rp 20 NMAC 6.1.4000, 10-12-00; A, 05-23-05]

#### HISTORY of 20.6.4 NMAC:

##### Pre-NMAC History:

Material in the part was derived from that previously filed with the commission of public records - state records center and archives:

WQC 67-1, Water Quality Standards, filed 7-17-67, effective 8-18-67

WQC 67-1, Amendment Nos. 1-6, filed 3-21-68, effective 4-22-68

WQC 67-1, Amendment No. 7, filed 2-27-69, effective 3-30-69

WQC 67-1, Amendment No. 8, filed 7-14-69, effective 8-15-69

WQC 70-1, Water Quality Standards for Intrastate Waters and Tributaries to Interstate Streams, filed July 17, 1970;

WQC 67-1, Amendment Nos. 9 and 10, filed 2-12-71, effective 3-15-71

WQC 67-1, Amendment No. 11, filed 3-4-71, effective 4-5-71  
WQC 73-1, New Mexico Water Quality Standards, filed 9-17-73, effective 10-23-73  
WQC 73-1, Amendment Nos. 1 and 2, filed 10-3-75, effective 11-4-75  
WQC 73-1, Amendment No. 3, filed 1-19-76, effective 2-14-76  
WQC 77-2, Amended Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 2-24-77, effective 3-11-77  
WQC 77-2, Amendment No. 1, filed 3-23-78, effective 4-24-78  
WQC 77-2, Amendment No. 2, filed 6-12-79, effective 7-13-79  
WQCC 80-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 8-28-80, effective 9-28-80  
WQCC 81-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 5-5-81, effective 6-4-81  
WQCC 81-1, Amendment No. 1, filed 5-19-82, effective 6-18-82  
WQCC 81-1, Amendment No. 2, filed 6-24-82, effective 7-26-82  
WQCC 85-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 1-16-85, effective 2-15-85  
WQCC 85-1, Amendment No. 1, filed 8-28-87, effective 9-28-87  
WQCC 88-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 3-24-88, effective 4-25-88  
WQCC 91-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, filed 5-29-91, effective 6-29-91  
WQCC 91-1, Amendment No. 1, filed 10-11-91, effective 11-12-91

**History of the Repealed Material:**

WQC 67-1, Water Quality Standards, - Superseded, 10-23-73  
WQC 73-1, New Mexico Water Quality Standards, - Superseded, 3-11-77  
WQC 77-2, Amended Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 9-28-80  
WQCC 80-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 6-4-81  
WQCC 81-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 2-15-85  
WQCC 85-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 4-25-88  
WQCC 88-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 6-29-91  
WQCC 91-1, Water Quality Standards for Interstate and Intrastate Streams in New Mexico, - Superseded, 1-23-95  
20 NMAC 6.1, Standards for Interstate and Intrastate Streams, - Repealed, 2-23-00  
20 NMAC 6.1, Standards for Interstate and Intrastate Surface Waters, - Repealed, 10-12-00

MCL's

# EPA National Primary Drinking Water Standards

	Contaminant	MCL or TT <sup>1</sup> (mg/L) <sup>2</sup>	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
OC	Acrylamide	TT8	Nervous system or blood problems;	Added to water during sewage/wastewater increased risk of cancer treatment	zero
OC	Alachlor	0.002	Eye, liver, kidney or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
R	Alpha particles	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
IOC	Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
IOC	Arsenic	0.010 as of 1/23/06	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards, runoff from glass & electronics production wastes	0
IOC	Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
OC	Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
IOC	Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
OC	Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
OC	Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
IOC	Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
R	Beta particles and photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
DBP	Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
IOC	Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
OC	Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04
OC	Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
D	Chloramines (as Cl <sub>2</sub> )	MRDL=4.0 <sup>1</sup>	Eye/nose irritation; stomach discomfort, anemia	Water additive used to control microbes	MRDLG=4 <sup>1</sup>

## LEGEND

**D** Disinfectant  
**DBP** Disinfection Byproduct

**IOC** Inorganic Chemical  
**M** Microorganism

**OC** Organic Chemical  
**R** Radionuclides



	Contaminant	MCL or TT1 (mg/L/2)	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
OC	Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
D	Chlorine (as Cl <sub>2</sub> )	MRDL=4.0 <sup>1</sup>	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4 <sup>1</sup>
D	Chlorine dioxide (as ClO <sub>2</sub> )	MRDL=0.8 <sup>1</sup>	Anemia; infants & young children: nervous system effects	Water additive used to control microbes	MRDLG=0.8 <sup>1</sup>
DBP	Chlorite	1.0	Anemia; infants & young children: nervous system effects	Byproduct of drinking water disinfection	0.8
OC	Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
IOC	Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
IOC	Copper	TT7; Action Level = 1.3	Short term exposure: Gastrointestinal distress. Long term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
M	<i>Cryptosporidium</i>	TT3	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
IOC	Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
OC	2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
OC	Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
OC	1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
OC	o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
OC	p-Dichlorobenzene	0.075	Anemia; liver, kidney or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
OC	1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
OC	cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
OC	trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
OC	Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from drug and chemical factories	zero
OC	1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
OC	Di(2-ethylhexyl) adipate	0.4	Weight loss, live problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
OC	Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
OC	Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
OC	Dioxin (2,3,7,8-TCDD)	0.0000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
OC	Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
OC	Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1

LEGEND

D	Disinfectant	IOC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

	Contaminant	MCL or TT <sup>1</sup> (mg/L) <sup>2</sup>	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
OC	Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
OC	Epichlorohydrin	TT <sup>8</sup>	Increased cancer risk, and over a long period of time, stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
OC	Ethylbenzene	0.7	Liver or kidneys problems	Discharge from petroleum refineries	0.7
OC	Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
IOC	Fluoride	4.0	Bone disease (pain and tenderness of the bones); Children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
M	<i>Giardia lamblia</i>	TT <sup>3</sup>	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
DBP	Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a <sup>6</sup>
OC	Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
OC	Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
M	Heterotrophic plate count (HPC)	TT <sup>3</sup>	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a
OC	Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
OC	Hexachlorocyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
IOC	Lead	TT <sup>7</sup> ; Action Level = 0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
M	<i>Legionella</i>	TT <sup>3</sup>	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
OC	Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, gardens	0.0002
IOC	Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
OC	Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	0.04
IOC	Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10
IOC	Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1

LEGEND



Disinfectant



Inorganic Chemical



Organic Chemical



Disinfection Byproduct



Microorganism



Radionuclides

	Contaminant	MCL or TT <sup>1</sup> (mg/L) <sup>2</sup>	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
<b>OC</b>	Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
<b>OC</b>	Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood preserving factories	zero
<b>OC</b>	Picloram	0.5	Liver problems	Herbicide runoff	0.5
<b>OC</b>	Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
<b>R</b>	Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
<b>IOC</b>	Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines	0.05
<b>OC</b>	Simazine	0.004	Problems with blood	Herbicide runoff	0.004
<b>OC</b>	Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
<b>OC</b>	Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
<b>IOC</b>	Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
<b>OC</b>	Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
<b>M</b>	Total Coliforms (including fecal coliform and <i>E. coli</i> )	5.0% <sup>4</sup>	Not a health threat in itself; it is used to indicate whether other potentially harmful bacteria may be present <sup>5</sup>	Coliforms are naturally present in the environment as well as feces; fecal coliforms and <i>E. coli</i> only come from human and animal fecal waste.	zero
<b>DBP</b>	Total Trihalomethanes (TTHMs)	0.10 0.080 after 12/31/03	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a <sup>6</sup>
<b>OC</b>	Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
<b>OC</b>	2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
<b>OC</b>	1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07
<b>OC</b>	1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.20
<b>OC</b>	1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
<b>OC</b>	Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero
<b>M</b>	Turbidity	TT <sup>3</sup>	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing micro-organisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
<b>R</b>	Uranium	30 ug/L as of 12/08/03	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero

LEGEND



Disinfectant



Inorganic Chemical



Organic Chemical



Disinfection Byproduct



Microorganism



Radionuclides

	Contaminant	MCL or TT <sup>1</sup> (mg/L) <sup>2</sup>	Potential health effects from exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal
OC	Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
M	Viruses (enteric)	TT <sup>3</sup>	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
OC	Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

## NOTES

### 1 Definitions

- Maximum Contaminant Level Goal (MCLG)—The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- Maximum Contaminant Level (MCL)—The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- Maximum Residual Disinfectant Level Goal (MRDLG)—The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL)—The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Treatment Technique (TT)—A required process intended to reduce the level of a contaminant in drinking water.

### 2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

### 3 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- *Cryptosporidium* (as of 1/1/02 for systems serving >10,000 and 1/14/05 for systems serving <10,000) 99% removal.
- *Giardia lamblia*: 99.9% removal/inactivation
- Viruses: 99.99% removal/inactivation
- *Legionella*: No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, *Legionella* will also be controlled.
- Turbidity: At no time can turbidity (cloudiness of water) go above 5 nephelometric turbidity units (NTU); systems that filter must ensure that the turbidity go no higher than 1 NTU (0.5 NTU for conventional or direct filtration) in at least 95% of the daily samples in any month. As of January 1, 2002, for systems servicing >10,000, and January 14, 2005, for systems servicing <10,000, turbidity may never exceed 1 NTU, and must not exceed 0.3 NTU in 95% of daily samples in any month.
- HPC: No more than 500 bacterial colonies per milliliter
- Long Term 1 Enhanced Surface Water Treatment (Effective Date: January 14, 2005): Surface water systems or (GWUDI) systems serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- Filter Backwash Recycling: The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

### 4 No more than 5.0% samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or *E. coli* if two consecutive TC-positive samples, and one is also positive for *E. coli* fecal coliforms, system has an acute MCL violation.

### 5 Fecal coliform and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Disease-causing microbes (pathogens) in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems.

### 6 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:

- Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

### 7 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

### 8 Each water system must certify, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05% dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01% dosed at 20 mg/L (or equivalent).

## LEGEND

D	Disinfectant	IC	Inorganic Chemical	OC	Organic Chemical
DBP	Disinfection Byproduct	M	Microorganism	R	Radionuclides

# National Secondary Drinking Water Standards

National Secondary Drinking Water Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

#### 4. Groundwater Monitoring Results

Results of the annual groundwater sampling are summarized in tables presented in this section. The main focus of this section is to present data from wells, as well as some limited data on sampling from surface ponds. **There are numerous other effluent and surface water sampling activities also performed during the year that have been presented in Section 3b of the attached Binder 2 to this report.**

**In 2007, monitoring** conducted between December 27-31, 2007 (and January 1, 2008, as inclement weather prevented completion of sampling of some wells within December 2007)) **showed that in Potable Well #3 the contaminant 2-Methylnaphthalene was at a level of 0.032 mg/l. This level exceeds the current NM Water Quality Control Commission standard of 0.03 mg/l for 2-Methylnaphthalene.**

**In 2007, monitoring** conducted between December 27-31, 2007 (and January 1, 2008, as inclement weather prevented completion of sampling of some wells within December 2007)) **showed that Methyl Tetra-Butyl Ether (MTBE) contamination had entered the shallow perched groundwater at OW-14 and OW-30. The levels of MTBE were 0.92 mg/l in OW-14 and 0.29 mg/l in OW-30. These levels exceed the current U.S. EPA Maximum Contaminant level (MCL) of 0.20 mg/l and the current NM Water Quality Control Commission standard of 0.1 mg/l. . The monitoring in 2006 and 2005 had also shown that MTBE contamination had entered the shallow perched groundwater at OW-14 and OW-30.<sup>5</sup> The sampling in 2007, as had been found in 2006, established that the MTBE contamination was limited in extent and had not migrated significantly to other nearby wells (OW-12 had a level of non-detect, OW-13 a level of 0.0013 mg/l, and OW-29 had a level of 0.0043 mg/l). The monitoring of well OW-14 also found that Benzene was elevated. The benzene concentration in this sample was 0.014 mg/l, exceeding the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l. The highest level of Benzene in this well in 2006 was 0.0042 mg/l, but in 2005 the level was 0.017 mg/l. In 2007, Benzene was not detected in nearby wells (OW-12, OW-13, OW29 and OW-30 had no detectable levels of Benzene.) In 2007, 2-Methylnaphthalene was found in the sample taken from OW 14. The level of 2-Methylnaphthalene was at 0.027 mg/l, which is below the NM WQCC standard of 0.03 mg/l.**

**The monitoring of the Inlet of Evaporation Pond #1 found Benzene at a level of 0.13 mg/l which exceeds the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l. The level of Benzene in the Inlet of Evaporation Pond # 1 in 2006 was less than 0.01 mg/l on 10/30/2006 and at 0.21 mg/l on 3/30/2006. The levels of Napthalene, 1-Mthylnaphthalene, and 2-Methylnaphthalene were also found to be elevated at 0.2, 0.25, and 0.39 mg/l respectively, and above the NM WQCC standards of 0.03 mg/l.**

**The monitoring of the Inlet of Evaporation Pond #2 also found Benzene at a level of 0.13 mg/l which exceeds the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l. The level of Benzene in the Inlet of Evaporation Pond # 2 on 10/27/2006 was less than 0.01 mg/l. The levels of Napthalene,**

<sup>5</sup> On 9/27/2005, OW-14 had MTBE levels of 0.077 mg/l, and OW-30 of <0.0025 mg/l. On 10/27/2006, OW-14 had MTBE at a level of 0.18 mg/l, and OW-30 a level of 0.018 mg/l. On 12/28/2006, OW-14 was at level of 0.18 mg/l of MTBE.

1-Methylnaphthalene, and 2-Methylnaphthalene were also found to be elevated at 0.25, 0.46 and 0.75 mg/l, respectively, and above the NM WQCC standards of 0.03 mg/l.

Western Refining conducted annual sampling of GWM-1 on May 24, 2007. The benzene concentration in this sample was 0.016 mg/l, exceeding the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l. In 2006, the benzene concentration in this sample was 0.012 mg/l. In 2005, monitoring of well GWM-1 had also shown benzene in elevated concentrations (June 2005 = 0.010 mg/l and September 2005 = 0.081 mg/l) In 2007, MTBE levels were found in GWM-1, at a concentration of 0.23 mg/l, exceeding the U.S. EPA Maximum Contaminant level (MCL) of 0.20 mg/l and the NM Water Quality Control Commission standard of 0.1 mg/l.<sup>6</sup> In 2006, the MTBE levels were found and reported as 0.16 mg/l, in 2005 as 0.17 mg/l and in 2004 as 0.048 mg/l.

Arsenic was found in the May 2007 analysis of water from GWM-1 at 0.081 mg/l which exceeds the NMWQS of 0.050 mg/l, and the U.S. EPA MCL of 0.01 mg/l. Arsenic was found in the December 2007 analysis of water from MW-1 at 0.02 mg/l which exceeds the U.S. EPA MCL of 0.01 mg/l.

Elevated levels of fluoride have shown up in some of the boundary wells in 2007, 2006, 2005 and 2004. Chloride was detected in elevated concentration in GWM-1 in 2007 at 1,800 mg/l (3,700 mg/l in 2006 and 2,000 mg/l in 2005).

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<sup>6</sup> In 2008, the MTBE results in GWM-1 are lesser and a level of 0.12 mg/l.

**TABLE 1: Levels of Benzene, Toluene, Ethyl-benzene, Xylene, and MTBE in Potable Water Wells – all units of concentrations are in mg/l. (For wells not sampled in 2007, data are presented from previous years.)**

	Year <sup>7</sup>	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE
PW#2	2004	12-9-2004	<0.001	<0.001	<0.001	<0.0015	Not analyzed
PW#4	2004	8-4-2004	<0.001	<0.001	<0.001	<0.0015	Not analyzed
PW#3	2006	10-27-2006	<0.001	<0.001	<0.001	<0.0015	<0.001
	2007	Sampling activities were primarily conducted from December 27-31, 2007 (Sampling of this well was completed on 1-1-2008 because of inclement weather.)	<0.001	<0.001	<0.001	<0.0015	<0.001
EPA MCLs			0.005	1	0.7	10.0	0.100
NMWQS			0.01	0.75	0.75	0.62	0.200

**TABLE 2: Levels of All Contaminants in Potable Well # 3 found at least above Levels of Detection in 2007- all units of concentrations are in mg/l. (Note: Contaminants not presented were not detected. For a complete list of contaminants analyzed, see section 5.0.)**

Contaminant	Concentration Levels (mg/l)	EPA MCLs	NMWQS MCLs
Barium	0.014	2.0	1.0
Iron	0.20		
Lead	0.0056	0.015	0.05
Magnesium	42		
Manganese	0.015		
Potassium	1.2		
Sodium	15		
Zinc	0.041		
2,4 Dimethylphenol	0.016		
2-Methylnaphthalene	<b>0.032</b>		0.03
2-Methylphenol	0.210		
3+4-Methylphenol	0.360		
Phenanthrene	0.017		
Phenols	0.8		

Note: Levels over regulatory standards in 2007 are high-lighted

<sup>7</sup> No potable wells were sampled in 2005.



**TABLE 3: Levels of Benzene, Toluene, Ethyl-benzene, Xylene, and MTBE in Observation Wells and Monitoring Well (GWM-1) – all units of concentrations are in mg/l**

	Year	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE
OW#12	2007	12-27-2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10-27-2006	<0.001	<0.001	<0.001	<0.001	<0.0025
OW#13	2007	12-27-2007	<0.001	<0.001	<0.001	<0.0015	0.0013
	2006	10-27-2006	<0.001	<0.001	<0.001	<0.001	<0.0025
OW#14	2007	1-1-2008	<b>0.014</b>	<0.001	<0.001	<0.0015	<b>0.92</b>
	2006	12-28-2006	0.0042	<0.001	0.0025	<0.003	<b>0.18</b>
	2006	10-27-2006	0.0034	<0.001	<0.001	<0.003	0.016
	2005	9-27-2005	<b>0.017</b>	0.0022	0.0023	0.0014	0.077
OW#29	2007	12-28-2007	<0.001	<0.001	<0.001	<0.0015	0.0043
	2006	10-27-2006	<0.001	<0.001	<0.001	<0.003	<0.0025
	2005	9-27-2005	<0.001	<0.001	<0.001	<0.0005	<0.0025
OW#30	2007	12-28-2007	<0.001	<0.001	<0.001	<0.0015	<b>0.29</b>
	2006	10-27-2006	<0.001	<0.001	<0.001	<0.003	<0.0025
	2005	9-27-2005	<0.001	<0.001	<0.001	<0.0005	0.018
GWM-1	2007	5-24-2007	<b>0.016</b>	<0.001	<0.001	<0.0015	<b>0.23</b>
	2006	10-27-2006	<b>0.012</b>	<0.001	<0.001	<0.0015	<b>0.16</b>
EPA MCLs			0.005	1	0.7	10.0	0.100
NMWQS			0.01	0.75	0.75	0.62	0.200

Note: Levels over regulatory standards in 2007, 2006 and 2005 are high-lighted

**TABLE 5: Levels of Benzene, Toluene, Ethyl-benzene, Xylene, and MTBE in Boundary Wells – all units of concentrations are in mg/l**

	Year	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE
OW-11	2007	12/27/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-1C	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-2A	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-2B	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-2C	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-3B	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
BW-3C	2007	12/31/2007	<0.001	<0.001	<0.001	<0.0015	<0.001
	2006	10/27/2006	<0.001	<0.001	<0.001	<0.0015	<0.001
EPA MCLs			0.005	1	0.7	10.0	0.100
NMWQS			0.01	0.75	0.75	0.62	0.200

**TABLE 6: Levels of Benzene, Toluene, Ethyl-benzene, Xylene, MTBE, Diesel Range Organics, and Gasoline Range Organics in Monitoring Wells – all units of concentrations are in mg/l. (Only Well SMW-2 has contaminants above the level of non-detection: MTBE at 0.0099 significantly below regulatory standards, and Gasoline Range Organics at 0.69 mg/l. All other wells have non-detectable levels of contaminants. No Motor Range Organics were detected.)**

	Year	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE	Diesel Range Organics	Gasoline Range Organics
MW-1	2007	12/29/2007	<0.001	<0.001	<0.001	<0.0015	<0.001	<1.0	<0.05
	2006	10/26/2006	<0.001	<0.001	<0.001	<0.0015	<0.0015	<1.0	<0.05
MW-4	2007	12/29/2007	<0.001	<0.001	<0.001	<0.0015	<0.001	<1.0	<0.05
	2005	10/12/2005	<0.001	<0.001	<0.001	<0.0015	<0.0015	<1.0	<0.05
MW-5	2007	12/29/2007	<0.001	<0.001	<0.001	<0.0015	<0.001	<1.0	<0.05
	2005	10/12/2005	<0.001	<0.001	<0.001	<0.0015	<0.0015	<1.0	<0.05
SMW-2	2007	1/1/2008	<0.001	<0.001	<0.001	<0.0015	0.0099	<1.0	0.69
	2005	10/12/2005	<0.001	<0.001	<0.001	<0.0015	<0.0015	<1.0	<0.05
SMW-4	2007	12/29/2007	<0.001	<0.001	<0.001	<0.0015	<0.001	<1.0	<0.05
	2005	10/12/2005	<0.001	<0.001	<0.001	<0.0015	<0.0015	<1.0	<0.05
EPA MCLs			0.005	1	0.7	10.0	0.100		
NMWQS			0.01	0.75	0.75	0.62	0.200		

**TABLE 7: Anions and Select Parameters in Boundary Wells (All units are in mg/l, except for pH and Specific Conductivity)**

	Year	Date Sampled	Fluoride	Chloride	Nitrate (as N) + Nitrite	Phosphorus, Orthophosphate (as P)	Sulfate	pH	Specific Conductivity microSiemens/cm
OW-11	2007	12/27/07	Not analyzed:	Not analyzed:	Not analyzed:	Not analyzed	Not analyzed	Not analyzed:	Not analyzed:
	2006	10/27/06	2.5	86		<0.5	1100	8.4	3100
BW-1C	2007	12/31/07	<b>2.6</b>	35	<1.0	<0.5	270	8.5	1400
	2006	10/27/06	2.7	36	<0.5	<0.5		8.39	1400
BW-2A	2007	12/31/07	1.3	42	<1.0	0.70	7.7	7.76	1400
	2006	10/27/06	1.3	39	<0.5	0.64	7.5	8.27	1400
BW-2B	2007	12/31/07	<b>1.8</b>	30	<1.0	<0.5	150	7.77	2400
	2006	10/27/06	1.9	31	<0.5	<0.5	140	8.1	1400
BW-2C	2007	12/31/07	<b>2.3</b>	45	<1.0	<0.5	290	8.73	1400
	2006	10/27/06	2.4	42	<0.5	<0.5	270	8.52	1300
BW-3B	2007	12/31/07	<b>1.6</b>	35	<1.0	1.1	51	7.93	1600
	2006	10/27/06	1.7	33	<0.5	1.1	250	8.5	1600
BW-3C	2007	12/31/07	<b>1.8</b>	38	<1.0	<0.5	300	8.59	1500
	2006	10/27/06	1.9	37	<0.5	<0.5	280	8.39	1400
EPA MCLs			4.0					6-9	
NMW QS			1.6	250 (domestic water)	10		600	6.5 – 8.5	

Note: Levels over regulatory standards in 2007 are high-lighted

**TABLE 8: Detected Total Recoverable Metals in Boundary Wells (Note: Only data for detected contaminants are presented. For a complete list of all metals analyzed see section 5.0. All units are in mg/l.)**

	Year	Date Sampled	Ba	Ca	Fe	Mg	Mn	K	Na	U
OW-11	2007	12/27/2007	<0.01	11	<0.05	1.3	0.016	1.6	690	0.22
	2006	10/28/2006	<0.02	12	<0.05	1.4				
BW-1C	2007	12/31/2007	0.023	3.6	<0.05	0.74	0.01	<1.0	360	<0.1
	2006	10/28/2006	<0.02	3.4	<0.05	<1.0				
BW-2A	2007	12/31/2007	0.18	11	0.7	3.9	0.22	<1.0	380	<0.1
	2006	10/28/2006	0.15	10	<0.05					
BW-2B	2007	12/31/2007	0.07	16	0.62	3.6	0.29	1.6	640	<0.1
	2006	10/28/2006	0.071	23	<0.05					
BW-2C	2007	12/31/2007	0.026	2.9	0.16	0.68	0.024	<1.0	340	<0.1
	2006	10/28/2006	0.031	5.6	<0.05	<1.0				
BW-3B	2007	12/31/2007	0.099	9.0	0.64	2.9	0.13	<1.0	430	<0.1
	2006	10/28/2006	0.11	9.0	<0.05					
BW-3C	2007	12/31/2007	0.068	4.2	0.14	0.81	0.015	1.1	360	<0.1
	2006	10/28/2006	0.029	6.0	<0.05					
EPA MCLs			2.0							0.03
NMWQS			1.0							

**TABLE 9: Anions and Select Parameters in Monitoring Wells (All units are in mg/l, except for pH and Specific Conductivity)**

	Year	Date Sampled	Fluoride	Chloride	Nitrate (as N) + Nitrite	Phosphorous, Orthophosphate (as P)	Sulfate	pH	Specific Conductivity microSiemens /cm
GWM-1	2007	5/24/07	<u>1.9</u>	<u>1800</u>	<2.0	<0.5	120	6.8	8100
	2006	10/26/06	2.0	3700	<2.0	<2.5	120	6.87	
MW-1	2007	12/29/07	0.69	53	<1.0	<0.5	170	8.89	1100
	2006	10/26/06	0.84	46	<0.5	<0.5	150	8.98	
MW-4	2007	12/29/07	0.42	17	<1.0	<0.5	160	8.63	1200
MW-5	2007	12/29/07							
SMW-2	2007	1/1/08							
SMW-4	2007	12/29/07	<u>1.4</u>	60	<1.0	<0.5	160	8.34	1300
EPA MCLs			4.0					6-9	
NMWQS			1.6	250 (drinking water)	Nitrate - 10; Nitrite - 1		600	6.5 - 8.5	

Note: Wells MW-4, MW-5, SMW-2 and SMW-4 were not sampled in 2006. Levels over regulatory standards in 2007 are high-lighted

**TABLE 10: Detected Total Recoverable Metals in Monitoring Wells (Note: Only data for detected contaminants are presented. For a complete list of all metals analyzed see section 5.0. All units are in mg/l.)**

Well No.	Year	Date Sampled	As	Ba	Ca	Cr	Mg	Mn	Ni	K	Na
GWM-1	2007	5/24/07	<b>0.081</b>	0.44	360	<0.006	87	Not analyzed	<0.01	3.7	1300
	2006	10/26/06	0.077	0.53	380	<0.006	93	Not analyzed	<0.01	4.2	1400
MW-1	2007	12/29/07	<b>0.020</b>	<0.02	3.2	<0.006	<1.0	0.018	Not analyzed	<1.0	230
	2006	10/26/06	<0.02			<0.006		Not analyzed	<0.01		
MW-4	2007	12/29/07	<0.02	0.021	1.9	<0.006	<1.0	0.0052	<0.01	<1.0	320
MW-5	2007	12/29/07	<0.02	<0.02	1.4	<0.006	<1.0	0.0045	Not analyzed	<1.0	290
SMW-2	2007	1/1/08	<0.02	<0.02	200	0.055	69	Not analyzed	0.026	1.1	2200
SMW-4	2007	12/29/07	<0.02	0.024	4.6	<0.006	1.2	Not analyzed	<0.01	<1.0	340
EPA MCLs			0.01	2.0							
NMWQS			0.05	1.0							

Note: Wells MW-4, MW-5, SMW-2 and SMW-4 were not sampled in 2006. Levels over regulatory standards in 2007 are high-lighted

**TABLE 11: Detected Dissolved Metals in Monitoring Wells (Note: Only data for detected contaminants are presented. For a complete list of all metals analyzed see section 5.0. All units are in mg/l.)**

Well No.	Year	Date Sampled	Calcium	Magnesium	Potassium	Sodium
MW-1	2007	12/29/07	1.9	<1.0	<1.0	230
MW-4	2007	12/29/07	1.9	<1.0	<1.0	250
MW-5	2007	12/29/07	1.4	<1.0	<1.0	240
SMW-2	2007	1/1/08	190	64	1.1	1700
SMW-4	2007	12/29/07	3.6	<1.0	<1.0	250
EPA MCLs						
NMWQS						

Note: Analyses for dissolved metals were not conducted in 2006.

**TABLE 12: Levels of Benzene, Toluene, Ethyl-benzene, Xylene, and MTBE in Inlets to Evaporation Ponds 1 and 2 and from within Ponds 1-8 – all units of concentrations are in mg/l**

	Year	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylene	MTBE
Evaporation Pond 1 – Inlet	2007	1/1/2008	<b>0.13</b>	0.22	0.39	0.22	0.0052
	2006	10/30/2006	<0.01	<0.01	<0.01	0.062	<0.015
	2006	3/30/2006	0.21	0.44	0.06	0.43	<0.075
Evaporation Pond 2 – Inlet	2007	1/1/2008	<b>0.13</b>	0.26	0.044	0.26	0.0052
	2006	10/27/2006	<0.01	0.022	<0.01	0.045	0.018
Pond 1	2007	11/29/2007	0.064	0.23	0.048	0.31	<0.01
Pond 2	2007	11/29/2007	0.021	0.079	0.02	0.13	<0.01
Pond 3	2007	11/29/2007	<0.01	0.025	<0.01	0.038	<0.01
Pond 4	2007	11/29/2007	<0.01	0.011	<0.01	<0.015	<0.01
Pond 5	2007	11/29/2007	<0.01	<0.01	<0.01	<0.015	<0.01
Pond 6	2007	11/29/2007	<0.01	<0.01	<0.01	<0.015	<0.01
Pond 7	2007	11/29/2007	<0.01	<0.01	<0.01	<0.015	<0.01
Pond 8	2007	11/29/2007	<0.01	<0.01	<0.01	<0.015	<0.01
EPA MCLs			0.005	1	0.7	10.0	0.100
NMWQS			0.01	0.75	0.75	0.62	0.200

Note: Levels over regulatory standards in 2007 are high-lighted

**TABLE 13: Levels of All Contaminants in Inlets to Evaporation Ponds 1 and 2 found at least above Levels of Detection in 2007 (sampling completed on 1/1/2008) - all units of concentrations are in mg/l (Note: Contaminants not presented were not detected. For a complete list of contaminants analyzed, see section 5.0.)**

Contaminant	Evaporation Pond 1 – Inlet Concentration Levels (mg/l)	Evaporation Pond 2 – Inlet Concentration Levels (mg/l)	EPA MCLs	NMWQS
Diesel Range Organics	91	150		
Gasoline Range Organics	2.2	2.6		
Barium	0.067	Not analyzed	2.0	1.0
Calcium	45	Not analyzed		
Chromium	0.01	Not analyzed		
Iron	4.1	Not analyzed		
Magnesium	14	Not analyzed		
Manganese	0.11	Not analyzed		
Potassium	51	Not analyzed		
Sodium	530	Not analyzed		
Zinc	0.69	Not analyzed		
2,4 Dimethylphenol	0.31	Not analyzed		
Fluorene	0.074	Not analyzed		
2-Methylnaphthalene (Semi-volatiles)	<b>0.69</b>	Not analyzed		0.03
2-Methylphenol	2.2	Not analyzed		
3+4-Methylphenol	3.5	Not analyzed		
Phenanthrene	0.21	Not analyzed		
Phenols	4.1	Not analyzed		
1,2,4 Trimethylbenzene	0.083	0.17		
1,3,5 Trimethylbenzene	0.022	0.047		
Napthalene	<b>0.2</b>	<b>0.25</b>		0.03
1-Methylnaphthalene	<b>0.25</b>	<b>0.46</b>		0.03
2-Methylnaphthalene (Volatiles)	<b>0.39</b>	<b>0.75</b>		0.03
Carbon Disulfide	0.032	0.14		
Isopropylbenzene	0.0033	0.0063		
4-Isopropyltoluene	<0.002	0.007		
n-Butylbenzene	0.011	0.044		
n-Propylbenzene	0.0086	0.019		
seo-Butylbenzene	<0.002	0.0071		

Note: Levels over regulatory standards in 2007 are high-lighted

**TABLE 14: Levels of All Contaminants in Evaporation Ponds 1 through 8 found at least above Levels of Detection in 2007- all units of concentrations are in mg/l (Note: Contaminants not presented were not detected. For a complete list of contaminants analyzed, see section 5.0.)**

Contaminant	Pond 1	Pond 2	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8	EPA MCLs	NMWQS
Fluoride	<b>170</b>	<b>73</b>	<b>62</b>	<b>61</b>	<b>47</b>	<b>31</b>	<b>51</b>	<b>94</b>	<b>4.0</b>	1.6
Chloride	<b>180</b>	<b>1800</b>	<b>2000</b>	<b>2000</b>	<b>3000</b>	<b>8000</b>	<b>69000</b>	<b>200000</b>		250 (domestic water)
Nitrate (as N)	<1.0	<10	<4.0	<4.0	<4.0	26	<100	<200		10
Nitrite (as N)										
Phosphorous	<5.0	<0.5	<0.5	<0.5	<0.5	<5.0	<100	<250		
Sulfate	<b>850</b>	<b>1100</b>	<b>1100</b>	<b>1100</b>	<b>1300</b>	<b>3100</b>	<b>14000</b>	<b>28000</b>		600
Barium	0.073	0.043	0.033	0.035	0.054	0.094	0.10	<0.5	2.0	1.0
Calcium	32	110	93	96	160	500	800	580		
Chromium	0.013	0.0071	0.0078	0.008	0.0074	<0.006	<0.06	<0.3		
Copper	0.0061	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.3		
Magnesium	12	47	55	56	79	210	1400	11000		
Manganese	0.22	0.22	0.3	0.31	0.43	0.96	7.1	120		
Potassium	71	64	78	82	110	230	1500	16000		
Sodium	530	1400	1600	1700	2200	5500	41000	120000		
Zinc	0.51	0.16	0.094	0.092	0.084	0.028	<0.2	<1.0		
1,2,4 Trimethylbenzene	0.180	0.081	0.027	0.013	<0.01	<0.01	<0.01	<0.01		
1,3,5 Trimethylbenzene	0.048	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
Napthalene	0.240	0.12	0.052	0.029	<0.02	<0.02	<0.02	<0.02		0.03
1-Methylnaphthalene	0.360	0.22	0.099	0.062	<0.04	<0.04	<0.04	<0.04		0.03
2-Methylnaphthalene (Volatiles)	<b>0.580</b>	<b>0.34</b>	<b>0.16</b>	<b>0.092</b>	<0.04	<0.04	<0.04	<0.04		0.03
Acetone	0.8	1.2	0.93	0.8	0.22	<0.1	<0.1	<0.1		
2-Butanone	0.4	0.18	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Carbon Disulfide	<0.1	<0.1	0.11	0.11	<0.1	<0.1	<0.1	<0.1		
n-Butylbenzene	0.048	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
n-Propylbenzene	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
pH	8.47	7.96	7.71	7.73	7.7	7.46	7.22	5.49		
Specific Conductivity (microSiemens/cm)	5500	9400	9800	9800	12000	14000	180000	780000		
Chemical Oxygen Demand	878	561	463	512	488	927	4390	2200		
Biochemical Oxygen Demand	783	302	209	163	103	47.8	<64	<64		
E-Coli (CFU/100 ml)	727	63.1	27	18	<1	<1	<1	<1		

Note: Levels over regulatory standards in 2007 are high-lighted



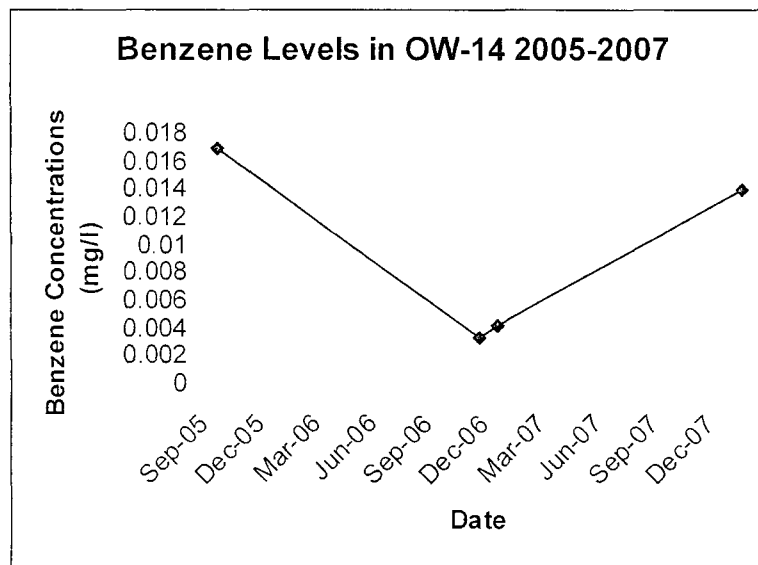


Figure 1: Benzene levels in OW-14 between 2005 and 2007

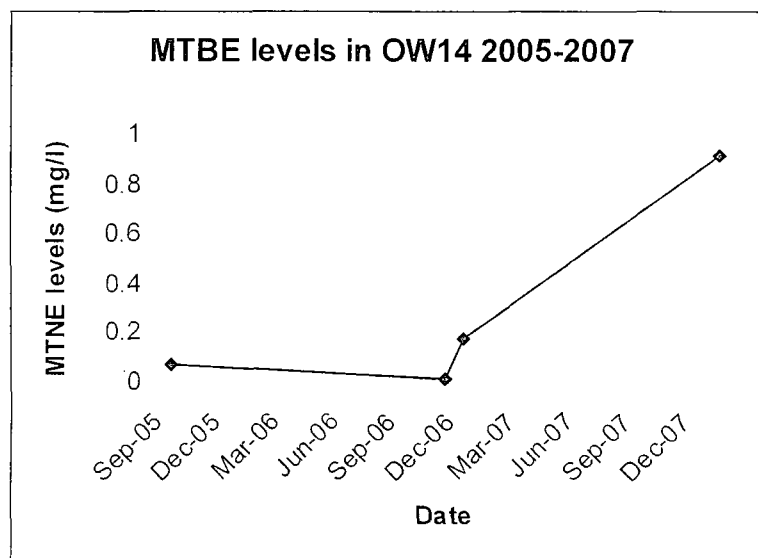


Figure 2: MTBE levels in OW-14 between 2005 and 2007

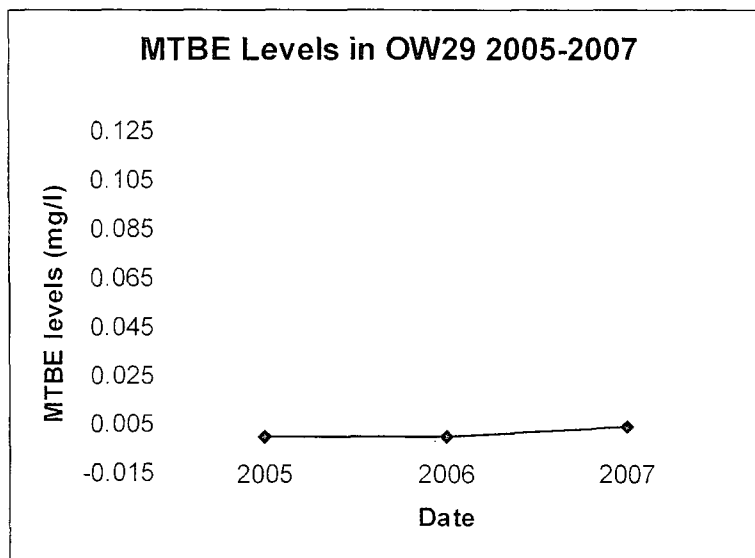


Figure 3: MTBE levels in OW-29 between 2005 and 2007

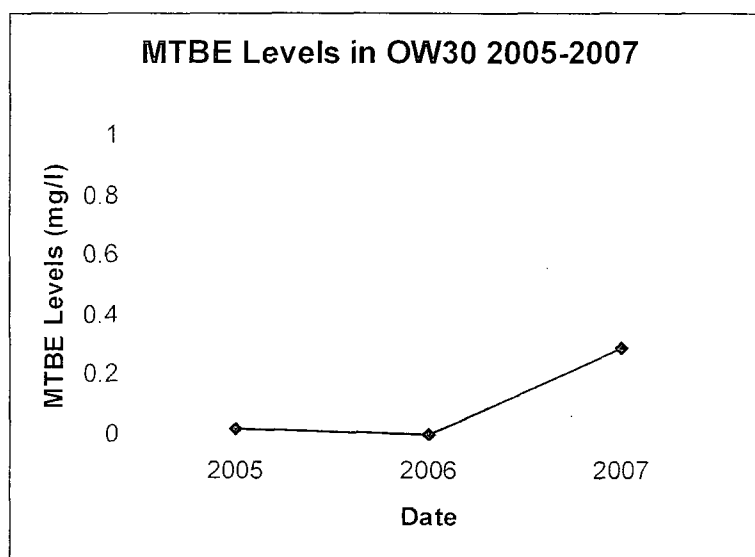


Figure 4: MTBE levels in OW-30 between 2005 and 2007

## 5. Groundwater Chemical Analytical Data



## COVER LETTER

Tuesday, June 19, 2007

Ed Riege  
Giant Refining Co  
Rt. 3 Box 7  
Gallup, NM 87301

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

RE: GWM-1 Annual 2007

Order No.: 0705390

Dear Ed Riege:

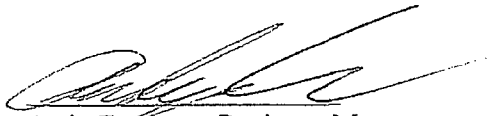
Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/25/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109  
505.345.3975 ■ Fax 505.345.4107  
[www.hallenvironmental.com](http://www.hallenvironmental.com)

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: KS
Fluoride	1.9	0.10		mg/L	1	5/29/2007 5:45:18 PM
Chloride	1800	10		mg/L	100	6/16/2007 11:08:38 AM
Nitrate (As N)+Nitrite (As N)	ND	2.0		mg/L	10	6/13/2007 9:04:06 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	5/29/2007 5:45:18 PM
Sulfate	120	2.5		mg/L	5	5/29/2007 6:02:42 PM
EPA METHOD 7470: MERCURY						Analyst: IC
Mercury	ND	0.00020		mg/L	1	5/30/2007
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: NMO
Arsenic	0.081	0.020		mg/L	1	6/1/2007 10:39:23 AM
Barium	0.44	0.020		mg/L	1	6/1/2007 10:39:23 AM
Cadmium	ND	0.0020		mg/L	1	6/1/2007 10:39:23 AM
Calcium	360	100		mg/L	100	6/1/2007 11:45:59 AM
Chromium	ND	0.0060		mg/L	1	6/1/2007 10:39:23 AM
Lead	ND	0.0050		mg/L	1	6/1/2007 10:39:23 AM
Magnesium	87	1.0		mg/L	1	6/1/2007 10:39:23 AM
Potassium	3.7	1.0		mg/L	1	6/1/2007 10:39:23 AM
Selenium	ND	0.050		mg/L	1	6/1/2007 1:54:30 PM
Silver	ND	0.0050		mg/L	1	6/1/2007 10:39:23 AM
Sodium	1300	100		mg/L	100	6/1/2007 11:45:59 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: BL
Acenaphthene	ND	10		µg/L	1	6/7/2007
Acenaphthylene	ND	10		µg/L	1	6/7/2007
Aniline	ND	20		µg/L	1	6/7/2007
Anthracene	ND	10		µg/L	1	6/7/2007
Azobenzene	ND	10		µg/L	1	6/7/2007
Benz(a)anthracene	ND	15		µg/L	1	6/7/2007
Benzo(a)pyrene	ND	10		µg/L	1	6/7/2007
Benzo(b)fluoranthene	ND	15		µg/L	1	6/7/2007
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/7/2007
Benzo(k)fluoranthene	ND	10		µg/L	1	6/7/2007
Benzoic acid	ND	50		µg/L	1	6/7/2007
Benzyl alcohol	ND	20		µg/L	1	6/7/2007
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/7/2007
Bis(2-chloroethyl)ether	ND	15		µg/L	1	6/7/2007
Bis(2-chloroisopropyl)ether	ND	15		µg/L	1	6/7/2007
Bis(2-ethylhexyl)phthalate	ND	15		µg/L	1	6/7/2007
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/7/2007
Butyl benzyl phthalate	ND	15		µg/L	1	6/7/2007

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-I Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: BL
Carbazole	ND	10		µg/L	1	6/7/2007
4-Chloro-3-methylphenol	ND	20		µg/L	1	6/7/2007
4-Chloroaniline	ND	20		µg/L	1	6/7/2007
2-Chloronaphthalene	ND	10		µg/L	1	6/7/2007
2-Chlorophenol	ND	10		µg/L	1	6/7/2007
4-Chlorophenyl phenyl ether	ND	15		µg/L	1	6/7/2007
Chrysene	ND	15		µg/L	1	6/7/2007
Di-n-butyl phthalate	ND	10		µg/L	1	6/7/2007
Di-n-octyl phthalate	ND	15		µg/L	1	6/7/2007
Dibenz(a,h)anthracene	ND	10		µg/L	1	6/7/2007
Dibenzofuran	ND	10		µg/L	1	6/7/2007
1,2-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
1,3-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
1,4-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
3,3'-Dichlorobenzidine	ND	15		µg/L	1	6/7/2007
Diethyl phthalate	ND	10		µg/L	1	6/7/2007
Dimethyl phthalate	ND	10		µg/L	1	6/7/2007
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2007
2,4-Dimethylphenol	ND	10		µg/L	1	6/7/2007
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	6/7/2007
2,4-Dinitrophenol	ND	50		µg/L	1	6/7/2007
2,4-Dinitrotoluene	ND	10		µg/L	1	6/7/2007
2,6-Dinitrotoluene	ND	10		µg/L	1	6/7/2007
Fluoranthene	ND	10		µg/L	1	6/7/2007
Fluorene	ND	10		µg/L	1	6/7/2007
Hexachlorobenzene	ND	10		µg/L	1	6/7/2007
Hexachlorobutadiene	ND	10		µg/L	1	6/7/2007
Hexachlorocyclopentadiene	ND	50		µg/L	1	6/7/2007
Hexachloroethane	ND	10		µg/L	1	6/7/2007
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	6/7/2007
Isophorone	ND	10		µg/L	1	6/7/2007
2-Methylnaphthalene	ND	10		µg/L	1	6/7/2007
2-Methylphenol	ND	15		µg/L	1	6/7/2007
3+4-Methylphenol	ND	20		µg/L	1	6/7/2007
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/7/2007
N-Nitrosodimethylamine	ND	10		µg/L	1	6/7/2007
N-Nitrosodiphenylamine	ND	10		µg/L	1	6/7/2007
Naphthalene	ND	10		µg/L	1	6/7/2007
2-Nitroaniline	ND	50		µg/L	1	6/7/2007
3-Nitroaniline	ND	50		µg/L	1	6/7/2007
4-Nitroaniline	ND	20		µg/L	1	6/7/2007

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: BL
Nitrobenzene	ND	10		µg/L	1	6/7/2007
2-Nitrophenol	ND	15		µg/L	1	6/7/2007
4-Nitrophenol	ND	50		µg/L	1	6/7/2007
Pentachlorophenol	ND	50		µg/L	1	6/7/2007
Phenanthrene	ND	10		µg/L	1	6/7/2007
Phenol	ND	10		µg/L	1	6/7/2007
Pyrene	ND	15		µg/L	1	6/7/2007
Pyridine	ND	30		µg/L	1	6/7/2007
1,2,4-Trichlorobenzene	ND	10		µg/L	1	6/7/2007
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/7/2007
2,4,6-Trichlorophenol	ND	15		µg/L	1	6/7/2007
Surr: 2,4,6-Tribromophenol	78.5	16.6-150		%REC	1	6/7/2007
Surr: 2-Fluorobiphenyl	68.6	19.6-134		%REC	1	6/7/2007
Surr: 2-Fluorophenol	46.9	9.54-113		%REC	1	6/7/2007
Surr: 4-Terphenyl-d14	74.5	22.7-145		%REC	1	6/7/2007
Surr: Nitrobenzene-d5	68.3	14.6-134		%REC	1	6/7/2007
Surr: Phenol-d5	38.0	10.7-80.3		%REC	1	6/7/2007

## EPA METHOD 8260B: VOLATILES

Analyst: SMP

Benzene	16	10		µg/L	10	6/6/2007 2:13:58 PM
Toluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Ethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Methyl tert-butyl ether (MTBE)	230	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Naphthalene	ND	20		µg/L	10	6/6/2007 2:13:58 PM
1-Methylnaphthalene	ND	40		µg/L	10	6/6/2007 2:13:58 PM
2-Methylnaphthalene	ND	40		µg/L	10	6/6/2007 2:13:58 PM
Acetone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Bromobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromochloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromodichloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromoform	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromomethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Butanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Carbon disulfide	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Carbon Tetrachloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chloroethane	ND	20		µg/L	10	6/6/2007 2:13:58 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-I Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Chloroform	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Chlorotoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Chlorotoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
cis-1,2-DCE	ND	10		µg/L	10	6/6/2007 2:13:58 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Dibromochloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Dibromomethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Dichlorodifluoromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloroethene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichloropropane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3-Dichloropropane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2,2-Dichloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Hexachlorobutadiene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Hexanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Isopropylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Isopropyltoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Methylene Chloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
n-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
n-Propylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
sec-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Styrene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
tert-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
trans-1,2-DCE	ND	10		µg/L	10	6/6/2007 2:13:58 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Trichloroethene (TCE)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Trichlorofluoromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
1,2,3-Trichloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Vinyl chloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Xylenes, Total	ND	15		µg/L	10	6/6/2007 2:13:58 PM
Surr: 1,2-Dichloroethane-d4	114	76.6-113	S	%REC	10	6/6/2007 2:13:58 PM
Surr: 4-Bromofluorobenzene	122	77-117	S	%REC	10	6/6/2007 2:13:58 PM
Surr: Dibromofluoromethane	113	72.3-121		%REC	10	6/6/2007 2:13:58 PM
Surr: Toluene-d8	108	73-113		%REC	10	6/6/2007 2:13:58 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: LMM
Specific Conductance	8100	0.010		µmhos/cm	1	6/1/2007
EPA METHOD 150.1: PH						Analyst: LMM
pH	6.80	0.010		pH units	1	5/25/2007

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: E300									
Sample ID: MBLK		MBLK			Batch ID: R23842		Analysis Date: 5/29/2007 3:43:27 PM		
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MBLK		MBLK			Batch ID: R23935		Analysis Date: 6/9/2007 7:41:09 PM		
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK			Batch ID: R23969		Analysis Date: 6/12/2007 8:41:53 AM		
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK			Batch ID: R24020		Analysis Date: 6/16/2007 7:39:42 AM		
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS ST300-07001		LCS			Batch ID: R23842		Analysis Date: 5/29/2007 4:00:51 PM		
Fluoride	0.4741	mg/L	0.10	94.8	90	110			
Chloride	4.787	mg/L	0.10	95.7	90	110			
Nitrate (As N)+Nitrite (As N)	3.388	mg/L	0.20	96.8	90	110			
Phosphorus, Orthophosphate (As P)	4.724	mg/L	0.50	94.5	90	110			
Sulfate	9.745	mg/L	0.50	97.4	90	110			
Sample ID: LCS ST300-07013		LCS			Batch ID: R23935		Analysis Date: 6/9/2007 7:58:33 PM		
Fluoride	0.4548	mg/L	0.10	91.0	90	110			
Chloride	4.853	mg/L	0.10	97.1	90	110			
Nitrate (As N)+Nitrite (As N)	3.472	mg/L	0.20	99.2	90	110			
Phosphorus, Orthophosphate (As P)	4.645	mg/L	0.50	92.9	90	110			
Sulfate	9.827	mg/L	0.50	98.3	90	110			
Sample ID: LCS ST300-07014		LCS			Batch ID: R23969		Analysis Date: 6/12/2007 8:59:17 AM		
Fluoride	0.4766	mg/L	0.10	95.3	90	110			
Chloride	4.786	mg/L	0.10	95.7	90	110			
Nitrate (As N)+Nitrite (As N)	3.446	mg/L	0.20	98.5	90	110			
Phosphorus, Orthophosphate (As P)	4.624	mg/L	0.50	92.5	90	110			
Sulfate	9.518	mg/L	0.50	95.2	90	110			
Sample ID: LCS ST300-07014		LCS			Batch ID: R24020		Analysis Date: 6/16/2007 7:57:07 AM		

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: E300

Sample ID: LCS ST300-07014

LCS

Batch ID: R24020 Analysis Date: 6/16/2007 7:57:07 AM

Fluoride	0.5700	mg/L	0.10	114	90	110			S
Chloride	4.770	mg/L	0.10	95.4	90	110			
Nitrate (As N)+Nitrite (As N)	3.399	mg/L	0.20	97.1	90	110			
Phosphorus, Orthophosphate (As P)	4.741	mg/L	0.50	94.8	90	110			
Sulfate	9.834	mg/L	0.50	98.3	90	110			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spiking recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8270C

Sample ID: MB-13084

MBLK

Batch ID: 13084

Analysis Date:

6/7/2007

Acenaphthene	ND	µg/L	10
Acenaphthylene	ND	µg/L	10
Aniline	ND	µg/L	20
Anthracene	ND	µg/L	10
Azobenzene	ND	µg/L	10
Benz(a)anthracene	ND	µg/L	15
Benzo(a)pyrene	ND	µg/L	10
Benzo(b)fluoranthene	ND	µg/L	15
Benzo(g,h,i)perylene	ND	µg/L	10
Benzo(k)fluoranthene	ND	µg/L	10
Benzoic acid	ND	µg/L	50
Benzyl alcohol	ND	µg/L	20
Bis(2-chloroethoxy)methane	ND	µg/L	10
Bis(2-chloroethyl)ether	ND	µg/L	15
Bis(2-chloroisopropyl)ether	ND	µg/L	15
Bis(2-ethylhexyl)phthalate	ND	µg/L	15
4-Bromophenyl phenyl ether	ND	µg/L	10
Butyl benzyl phthalate	ND	µg/L	15
Carbazole	ND	µg/L	10
4-Chloro-3-methylphenol	ND	µg/L	20
4-Chloroaniline	ND	µg/L	20
2-Chloronaphthalene	ND	µg/L	10
2-Chlorophenol	ND	µg/L	10
4-Chlorophenyl phenyl ether	ND	µg/L	15
Chrysene	ND	µg/L	15
Di-n-butyl phthalate	ND	µg/L	10
Di-n-octyl phthalate	ND	µg/L	15
Dibenz(a,h)anthracene	ND	µg/L	10
Dibenzofuran	ND	µg/L	10
1,2-Dichlorobenzene	ND	µg/L	10
1,3-Dichlorobenzene	ND	µg/L	10
1,4-Dichlorobenzene	ND	µg/L	10
3,3'-Dichlorobenzidine	ND	µg/L	15
Diethyl phthalate	ND	µg/L	10
Dimethyl phthalate	ND	µg/L	10
2,4-Dichlorophenol	ND	µg/L	10
2,4-Dimethylphenol	ND	µg/L	10
4,6-Dinitro-2-methylphenol	ND	µg/L	50
2,4-Dinitrophenol	ND	µg/L	50
2,4-Dinitrotoluene	ND	µg/L	10
2,6-Dinitrotoluene	ND	µg/L	10
Fluoranthene	ND	µg/L	10
Fluorene	ND	µg/L	10
Hexachlorobenzene	ND	µg/L	10

## Qualifiers:

E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 S Recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-I Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8270C

Sample ID: MB-13084

MBLK

Batch ID: 13084

Analysis Date:

6/7/2007

Hexachlorobutadiene	ND	µg/L	10
Hexachlorocyclopentadiene	ND	µg/L	50
Hexachloroethane	ND	µg/L	10
Indeno(1,2,3-cd)pyrene	ND	µg/L	10
Isophorone	ND	µg/L	10
2-Methylnaphthalene	ND	µg/L	10
2-Methylphenol	ND	µg/L	15
3+4-Methylphenol	ND	µg/L	20
N-Nitrosodi-n-propylamine	ND	µg/L	10
N-Nitrosodimethylamine	ND	µg/L	10
N-Nitrosodiphenylamine	ND	µg/L	10
Naphthalene	ND	µg/L	10
2-Nitroaniline	ND	µg/L	50
3-Nitroaniline	ND	µg/L	50
4-Nitroaniline	ND	µg/L	20
Nitrobenzene	ND	µg/L	10
2-Nitrophenol	ND	µg/L	15
4-Nitrophenol	ND	µg/L	50
Pentachlorophenol	ND	µg/L	50
Phenanthrene	ND	µg/L	10
Phenol	ND	µg/L	10
Pyrene	ND	µg/L	15
Pyridine	ND	µg/L	30
1,2,4-Trichlorobenzene	ND	µg/L	10
2,4,5-Trichlorophenol	ND	µg/L	10
2,4,6-Trichlorophenol	ND	µg/L	15

Sample ID: LCS-13084

LCS

Batch ID: 13084

Analysis Date:

6/7/2007

Acenaphthene	78.52	µg/L	10	78.5	11	123
4-Chloro-3-methylphenol	150.4	µg/L	20	75.2	15.4	119
2-Chlorophenol	140.8	µg/L	10	70.4	12.2	122
1,4-Dichlorobenzene	58.80	µg/L	10	58.8	16.9	100
2,4-Dinitrotoluene	61.22	µg/L	10	61.2	13	138
N-Nitrosodi-n-propylamine	68.12	µg/L	10	68.1	9.93	122
4-Nitrophenol	65.32	µg/L	50	32.7	12.5	87.4
Pentachlorophenol	151.8	µg/L	50	75.9	3.55	114
Phenol	86.48	µg/L	10	43.2	7.53	73.1
Pyrene	82.68	µg/L	15	82.7	12.6	140
1,2,4-Trichlorobenzene	57.80	µg/L	10	57.8	17.4	98.7

Sample ID: LCSD-13084

LCSD

Batch ID: 13084

Analysis Date:

6/7/2007

Acenaphthene	75.96	µg/L	10	76.0	11	123	3.31	30.5
4-Chloro-3-methylphenol	152.4	µg/L	20	76.2	15.4	119	1.28	28.6
2-Chlorophenol	135.3	µg/L	10	67.6	12.2	122	4.03	107
1,4-Dichlorobenzene	55.14	µg/L	10	55.1	16.9	100	6.42	62.1
2,4-Dinitrotoluene	63.18	µg/L	10	63.2	13	138	3.15	14.7

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: SW8270C</b>									
Sample ID: LCSD-13084		LCSD			Batch ID: 13084		Analysis Date:		6/7/2007
N-Nitrosodi-n-propylamine	63.86	µg/L	10	63.9	9.93	122	6.46	30.3	
4-Nitrophenol	70.54	µg/L	50	35.3	12.5	87.4	7.68	36.3	
Pentachlorophenol	153.5	µg/L	50	76.7	3.55	114	1.10	49	
Phenol	82.98	µg/L	10	41.5	7.53	73.1	4.13	52.4	
Pyrene	80.56	µg/L	15	80.6	12.6	140	2.60	16.3	
1,2,4-Trichlorobenzene	58.54	µg/L	10	58.5	17.4	98.7	1.27	36.4	
<b>Method: SW7470</b>									
Sample ID: MB-13077		MBLK			Batch ID: 13077		Analysis Date:		5/30/2007
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-13077		LCS			Batch ID: 13077		Analysis Date:		5/30/2007
Mercury	0.005044	mg/L	0.00020	101	80	120			
<b>Method: SW6010A</b>									
Sample ID: MB-13076		MBLK			Batch ID: 13076		Analysis Date:		6/1/2007 9:04:59 AM
Arsenic	ND	mg/L	0.020						
Barium	ND	mg/L	0.020						
Cadmium	ND	mg/L	0.0020						
Calcium	ND	mg/L	1.0						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Silver	ND	mg/L	0.0050						
Sodium	ND	mg/L	1.0						
Sample ID: LCS-13076		LCS			Batch ID: 13076		Analysis Date:		6/1/2007 9:08:02 AM
Arsenic	0.4875	mg/L	0.020	97.5	80	120			
Barium	0.4854	mg/L	0.020	97.1	80	120			
Cadmium	0.4855	mg/L	0.0020	97.1	80	120			
Calcium	50.75	mg/L	1.0	101	80	120			
Chromium	0.4941	mg/L	0.0060	98.8	80	120			
Lead	0.4788	mg/L	0.0050	95.8	80	120			
Magnesium	51.02	mg/L	1.0	102	80	120			
Potassium	53.56	mg/L	1.0	107	80	120			
Silver	0.5020	mg/L	0.0050	100	80	120			
Sodium	54.78	mg/L	1.0	110	80	120			

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R23881 Analysis Date: 6/6/2007 7:01:43 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S RPD recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R23881 Analysis Date: 6/6/2007 7:01:43 AM

4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	1.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 100ng lcs

LCS

Batch ID: R23881 Analysis Date: 6/6/2007 8:59:30 AM

Benzene	20.46	µg/L	1.0	102	82.4	128
Toluene	21.09	µg/L	1.0	105	77.2	115
Chlorobenzene	20.48	µg/L	1.0	102	78.3	117
1,1-Dichloroethene	23.61	µg/L	1.0	118	90.7	132
Trichloroethene (TCE)	19.79	µg/L	1.0	98.9	71.8	113

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Recovery outside accepted recovery limits

12/13



# Hall Environmental Analysis Laboratory, Inc.

## Sample Receipt Checklist

Client Name GIANTREFIN  
Work Order Number 0705390

Date and Time Received: 5/25/2007  
Received by TLS

Checklist completed by

Signature

Date

5/25/07

Matrix

Carrier name Client drop-off

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

Container/Temp Blank temperature?

5°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

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

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

Comments: added 1ml HNO<sub>3</sub> for acceptable pH / AT 5/25/07

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



COVER LETTER

Wednesday, December 19, 2007

Jim Lieb  
Giant Refining Company  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: Evap. Ponds #1 through #8-4 Qtr 2007

Order No.: 0711469

Dear Jim Lieb:

Hall Environmental Analysis Laboratory, Inc. received 8 sample(s) on 11/29/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,



Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-01

Client Sample ID: Pond #1  
Collection Date: 11/29/2007 8:30:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	170	10		mg/L	100	11/30/2007 9:34:45 AM
Chloride	180	1.0		mg/L	10	11/29/2007 5:10:19 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	12/8/2007 1:08:51 PM
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	11/29/2007 5:10:19 PM
Sulfate	850	10		mg/L	20	11/30/2007 9:17:21 AM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/4/2007 3:12:16 PM
Barium	0.073	0.010		mg/L	1	12/4/2007 3:12:16 PM
Cadmium	ND	0.0020		mg/L	1	12/4/2007 3:12:16 PM
Calcium	32	0.50		mg/L	1	12/4/2007 3:12:16 PM
Chromium	0.013	0.0060		mg/L	1	12/4/2007 3:12:16 PM
Copper	0.0061	0.0060		mg/L	1	12/7/2007 12:39:51 PM
Lead	ND	0.0050		mg/L	1	12/4/2007 3:12:16 PM
Magnesium	12	0.50		mg/L	1	12/4/2007 3:12:16 PM
Manganese	0.22	0.0020		mg/L	1	12/4/2007 3:12:16 PM
Potassium	71	1.0		mg/L	1	12/4/2007 3:12:16 PM
Selenium	ND	0.050		mg/L	1	12/4/2007 3:12:16 PM
Silver	ND	0.0050		mg/L	1	12/4/2007 3:12:16 PM
Sodium	530	5.0		mg/L	10	12/7/2007 2:32:56 PM
Uranium	ND	0.10		mg/L	1	12/4/2007 3:12:16 PM
Zinc	0.51	0.020		mg/L	1	12/4/2007 3:12:16 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	64	10		µg/L	10	12/7/2007 12:18:26 PM
Toluene	230	10		µg/L	10	12/7/2007 12:18:26 PM
Ethylbenzene	48	10		µg/L	10	12/7/2007 12:18:26 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2,4-Trimethylbenzene	180	10		µg/L	10	12/7/2007 12:18:26 PM
1,3,5-Trimethylbenzene	48	10		µg/L	10	12/7/2007 12:18:26 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Naphthalene	240	20		µg/L	10	12/7/2007 12:18:26 PM
1-Methylnaphthalene	360	40		µg/L	10	12/7/2007 12:18:26 PM
2-Methylnaphthalene	580	40		µg/L	10	12/7/2007 12:18:26 PM
Acetone	800	200		µg/L	20	12/10/2007 11:10:18 AM
Bromobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Bromoform	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
2-Butanone	400	100		µg/L	10	12/7/2007 12:18:26 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-01

Client Sample ID: Pond #1  
Collection Date: 11/29/2007 8:30:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 12:18:26 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 12:18:26 PM
Chloroform	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 12:18:26 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 12:18:26 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 12:18:26 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 12:18:26 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 12:18:26 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 12:18:26 PM
n-Butylbenzene	48	10		µg/L	10	12/7/2007 12:18:26 PM
n-Propylbenzene	18	10		µg/L	10	12/7/2007 12:18:26 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Styrene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 12:18:26 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 12:18:26 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 12:18:26 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-01

**Client Sample ID:** Pond #1  
**Collection Date:** 11/29/2007 8:30:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 12:18:26 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 12:18:26 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 12:18:26 PM
Xylenes, Total	310	15		µg/L	10	12/7/2007 12:18:26 PM
Surr: 1,2-Dichloroethane-d4	98.1	68.1-123		%REC	10	12/7/2007 12:18:26 PM
Surr: 4-Bromofluorobenzene	98.6	53.2-145		%REC	10	12/7/2007 12:18:26 PM
Surr: Dibromofluoromethane	102	68.5-119		%REC	10	12/7/2007 12:18:26 PM
Surr: Toluene-d8	102	64-131		%REC	10	12/7/2007 12:18:26 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	5500	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	8.47	0.1		pH units	1	11/30/2007

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-02

Client Sample ID: Pond #2  
Collection Date: 11/29/2007 8:50:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	73	2.0		mg/L	20	11/30/2007 9:52:10 AM
Chloride	1800	10		mg/L	100	11/30/2007 10:09:35 AM
Nitrate (As N)+Nitrite (As N)	ND	10		mg/L	50	12/9/2007 9:32:57 AM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	11/29/2007 5:27:44 PM
Sulfate	1100	10		mg/L	20	11/30/2007 9:52:10 AM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/4/2007 3:16:19 PM
Barium	0.043	0.010		mg/L	1	12/4/2007 3:16:19 PM
Cadmium	ND	0.0020		mg/L	1	12/4/2007 3:16:19 PM
Calcium	110	2.5		mg/L	5	12/7/2007 2:36:02 PM
Chromium	0.0071	0.0060		mg/L	1	12/4/2007 3:16:19 PM
Copper	ND	0.0060		mg/L	1	12/7/2007 12:45:22 PM
Lead	ND	0.0050		mg/L	1	12/4/2007 3:16:19 PM
Magnesium	47	0.50		mg/L	1	12/4/2007 3:16:19 PM
Manganese	0.22	0.0020		mg/L	1	12/4/2007 3:16:19 PM
Potassium	64	1.0		mg/L	1	12/4/2007 3:16:19 PM
Selenium	ND	0.050		mg/L	1	12/4/2007 3:16:19 PM
Silver	ND	0.0050		mg/L	1	12/4/2007 3:16:19 PM
Sodium	1400	25		mg/L	50	12/7/2007 2:43:08 PM
Uranium	ND	0.10		mg/L	1	12/4/2007 3:16:19 PM
Zinc	0.16	0.020		mg/L	1	12/4/2007 3:16:19 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	21	10		µg/L	10	12/7/2007 12:48:56 PM
Toluene	79	10		µg/L	10	12/7/2007 12:48:56 PM
Ethylbenzene	20	10		µg/L	10	12/7/2007 12:48:56 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2,4-Trimethylbenzene	81	10		µg/L	10	12/7/2007 12:48:56 PM
1,3,5-Trimethylbenzene	21	10		µg/L	10	12/7/2007 12:48:56 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Naphthalene	120	20		µg/L	10	12/7/2007 12:48:56 PM
1-Methylnaphthalene	220	40		µg/L	10	12/7/2007 12:48:56 PM
2-Methylnaphthalene	340	40		µg/L	10	12/7/2007 12:48:56 PM
Acetone	1200	100		µg/L	10	12/7/2007 12:48:56 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Bromoform	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
2-Butanone	180	100		µg/L	10	12/7/2007 12:48:56 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-02

Client Sample ID: Pond #2  
Collection Date: 11/29/2007 8:50:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 12:48:56 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 12:48:56 PM
Chloroform	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 12:48:56 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 12:48:56 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 12:48:56 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 12:48:56 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 12:48:56 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 12:48:56 PM
n-Butylbenzene	23	10		µg/L	10	12/7/2007 12:48:56 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Styrene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 12:48:56 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 12:48:56 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 12:48:56 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-02

**Client Sample ID:** Pond #2  
**Collection Date:** 11/29/2007 8:50:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 12:48:56 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 12:48:56 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 12:48:56 PM
Xylenes, Total	130	15		µg/L	10	12/7/2007 12:48:56 PM
Surr: 1,2-Dichloroethane-d4	104	68.1-123		%REC	10	12/7/2007 12:48:56 PM
Surr: 4-Bromofluorobenzene	98.2	53.2-145		%REC	10	12/7/2007 12:48:56 PM
Surr: Dibromofluoromethane	97.2	68.5-119		%REC	10	12/7/2007 12:48:56 PM
Surr: Toluene-d8	111	64-131		%REC	10	12/7/2007 12:48:56 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	9400	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH *	7.96	0.1		pH units	1	11/30/2007

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-03

Client Sample ID: Pond #3  
Collection Date: 11/29/2007 9:10:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	62	2.0		mg/L	20	11/30/2007 10:26:59 AM
Chloride	2000	10		mg/L	100	11/30/2007 10:44:24 AM
Nitrate (As N)+Nitrile (As N)	ND	4.0		mg/L	20	12/13/2007 8:35:22 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	11/29/2007 6:02:32 PM
Sulfate	1100	10		mg/L	20	11/30/2007 10:26:59 AM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/4/2007 5:23:28 PM
Barium	0.033	0.010		mg/L	1	12/4/2007 5:23:28 PM
Cadmium	ND	0.0020		mg/L	1	12/4/2007 5:23:28 PM
Calcium	93	0.50		mg/L	1	12/4/2007 5:23:28 PM
Chromium	0.0078	0.0060		mg/L	1	12/4/2007 5:23:28 PM
Copper	ND	0.0060		mg/L	1	12/7/2007 12:49:28 PM
Lead	ND	0.0050		mg/L	1	12/4/2007 5:23:28 PM
Magnesium	55	0.50		mg/L	1	12/4/2007 5:23:28 PM
Manganese	0.30	0.0020		mg/L	1	12/4/2007 5:23:28 PM
Potassium	78	1.0		mg/L	1	12/4/2007 5:23:28 PM
Selenium	ND	0.050		mg/L	1	12/4/2007 5:23:28 PM
Silver	ND	0.0050		mg/L	1	12/4/2007 5:23:28 PM
Sodium	1600	25		mg/L	50	12/7/2007 3:53:45 PM
Uranium	ND	0.10		mg/L	1	12/4/2007 5:23:28 PM
Zinc	0.094	0.020		mg/L	1	12/4/2007 5:23:28 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Toluene	25	10		µg/L	10	12/7/2007 1:19:25 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2,4-Trimethylbenzene	27	10		µg/L	10	12/7/2007 1:19:25 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Naphthalene	52	20		µg/L	10	12/7/2007 1:19:25 PM
1-Methylnaphthalene	99	40		µg/L	10	12/7/2007 1:19:25 PM
2-Methylnaphthalene	160	40		µg/L	10	12/7/2007 1:19:25 PM
Acetone	930	100		µg/L	10	12/7/2007 1:19:25 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Bromoform	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 1:19:25 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-03

Client Sample ID: Pond #3  
Collection Date: 11/29/2007 9:10:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	110	100		µg/L	10	12/7/2007 1:19:25 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 1:19:25 PM
Chloroform	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 1:19:25 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 1:19:25 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 1:19:25 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 1:19:25 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 1:19:25 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 1:19:25 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Styrene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 1:19:25 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 1:19:25 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 1:19:25 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-03

**Client Sample ID:** Pond #3  
**Collection Date:** 11/29/2007 9:10:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 1:19:25 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 1:19:25 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 1:19:25 PM
Xylenes, Total	38	15		µg/L	10	12/7/2007 1:19:25 PM
Surr: 1,2-Dichloroethane-d4	103	68.1-123		%REC	10	12/7/2007 1:19:25 PM
Surr: 4-Bromofluorobenzene	97.5	53.2-145		%REC	10	12/7/2007 1:19:25 PM
Surr: Dibromofluoromethane	108	68.5-119		%REC	10	12/7/2007 1:19:25 PM
Surr: Toluene-d8	110	64-131		%REC	10	12/7/2007 1:19:25 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	9800	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	7.71	0.1		pH units	1	11/30/2007

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-04

**Client Sample ID:** Pond #4  
**Collection Date:** 11/29/2007 9:30:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	61	2.0		mg/L	20	11/30/2007 11:01:48 AM
Chloride	2000	10		mg/L	100	12/3/2007 11:09:14 AM
Nitrate (As N)+Nitrite (As N)	ND	4.0		mg/L	20	12/18/2007 7:27:09 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	11/29/2007 6:37:21 PM
Sulfate	1100	10		mg/L	20	11/30/2007 11:01:48 AM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/4/2007 5:27:20 PM
Barium	0.035	0.010		mg/L	1	12/4/2007 5:27:20 PM
Cadmium	ND	0.0020		mg/L	1	12/4/2007 5:27:20 PM
Calcium	96	0.50		mg/L	1	12/4/2007 5:27:20 PM
Chromium	0.0080	0.0060		mg/L	1	12/4/2007 5:27:20 PM
Copper	ND	0.0060		mg/L	1	12/7/2007 12:53:33 PM
Lead	ND	0.0050		mg/L	1	12/4/2007 5:27:20 PM
Magnesium	56	0.50		mg/L	1	12/4/2007 5:27:20 PM
Manganese	0.31	0.0020		mg/L	1	12/4/2007 5:27:20 PM
Potassium	82	1.0		mg/L	1	12/4/2007 5:27:20 PM
Selenium	ND	0.050		mg/L	1	12/4/2007 5:27:20 PM
Silver	ND	0.0050		mg/L	1	12/4/2007 5:27:20 PM
Sodium	1700	25		mg/L	50	12/7/2007 3:50:40 PM
Uranium	ND	0.10		mg/L	1	12/4/2007 5:27:20 PM
Zinc	0.092	0.020		mg/L	1	12/4/2007 5:27:20 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Toluene	11	10		µg/L	10	12/7/2007 1:49:53 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2,4-Trimethylbenzene	13	10		µg/L	10	12/7/2007 1:49:53 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Naphthalene	29	20		µg/L	10	12/7/2007 1:49:53 PM
1-Methylnaphthalene	62	40		µg/L	10	12/7/2007 1:49:53 PM
2-Methylnaphthalene	92	40		µg/L	10	12/7/2007 1:49:53 PM
Acetone	800	100		µg/L	10	12/7/2007 1:49:53 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Bromoform	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 1:49:53 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-04

Client Sample ID: Pond #4  
Collection Date: 11/29/2007 9:30:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	110	100		µg/L	10	12/7/2007 1:49:53 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 1:49:53 PM
Chloroform	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 1:49:53 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 1:49:53 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 1:49:53 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 1:49:53 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 1:49:53 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 1:49:53 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Styrene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 1:49:53 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 1:49:53 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 1:49:53 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-04

**Client Sample ID:** Pond #4  
**Collection Date:** 11/29/2007 9:30:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 1:49:53 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 1:49:53 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 1:49:53 PM
Xylenes, Total	ND	15		µg/L	10	12/7/2007 1:49:53 PM
Surr: 1,2-Dichloroethane-d4	94.6	68.1-123		%REC	10	12/7/2007 1:49:53 PM
Surr: 4-Bromofluorobenzene	102	53.2-145		%REC	10	12/7/2007 1:49:53 PM
Surr: Dibromofluoromethane	99.4	68.5-119		%REC	10	12/7/2007 1:49:53 PM
Surr: Toluene-d8	106	64-131		%REC	10	12/7/2007 1:49:53 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	9800	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	7.73	0.1		pH units	1	11/30/2007

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-05

Client Sample ID: Pond #5  
Collection Date: 11/29/2007 9:50:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	47	2.0		mg/L	20	11/30/2007 12:11:26 PM
Chloride	3000	10		mg/L	100	11/30/2007 12:28:51 PM
Nitrate (As N)+Nitrite (As N)	ND	4.0		mg/L	20	12/18/2007 9:11:35 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	11/29/2007 7:12:10 PM
Sulfate	1300	10		mg/L	20	11/30/2007 12:11:26 PM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/4/2007 5:31:15 PM
Barium	0.054	0.010		mg/L	1	12/4/2007 5:31:15 PM
Cadmium	ND	0.0020		mg/L	1	12/4/2007 5:31:15 PM
Calcium	150	2.5		mg/L	5	12/7/2007 2:57:20 PM
Chromium	0.0074	0.0060		mg/L	1	12/4/2007 5:31:15 PM
Copper	ND	0.0060		mg/L	1	12/7/2007 12:57:39 PM
Lead	ND	0.0050		mg/L	1	12/4/2007 5:31:15 PM
Magnesium	79	0.50		mg/L	1	12/4/2007 5:31:15 PM
Manganese	0.43	0.0020		mg/L	1	12/4/2007 5:31:15 PM
Potassium	110	5.0		mg/L	5	12/7/2007 2:57:20 PM
Selenium	ND	0.050		mg/L	1	12/4/2007 5:31:15 PM
Silver	ND	0.0050		mg/L	1	12/4/2007 5:31:15 PM
Sodium	2200	25		mg/L	50	12/7/2007 3:03:13 PM
Uranium	ND	0.10		mg/L	1	12/4/2007 5:31:15 PM
Zinc	0.084	0.020		mg/L	1	12/4/2007 5:31:15 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Toluene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Naphthalene	ND	20		µg/L	10	12/7/2007 2:20:18 PM
1-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 2:20:18 PM
2-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 2:20:18 PM
Acetone	220	100		µg/L	10	12/7/2007 2:20:18 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Bromoform	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 2:20:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-05

**Client Sample ID:** Pond #5  
**Collection Date:** 11/29/2007 9:50:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 2:20:18 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 2:20:18 PM
Chloroform	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 2:20:18 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 2:20:18 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 2:20:18 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 2:20:18 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 2:20:18 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 2:20:18 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Styrene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 2:20:18 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 2:20:18 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 2:20:18 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-05

**Client Sample ID:** Pond #5  
**Collection Date:** 11/29/2007 9:50:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 2:20:18 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 2:20:18 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 2:20:18 PM
Xylenes, Total	ND	15		µg/L	10	12/7/2007 2:20:18 PM
Surr: 1,2-Dichloroethane-d4	101	68.1-123		%REC	10	12/7/2007 2:20:18 PM
Surr: 4-Bromofluorobenzene	102	53.2-145		%REC	10	12/7/2007 2:20:18 PM
Surr: Dibromofluoromethane	105	68.5-119		%REC	10	12/7/2007 2:20:18 PM
Surr: Toluene-d8	104	64-131		%REC	10	12/7/2007 2:20:18 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	12000	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	7.70	0.1		pH units	1	11/30/2007

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-06

**Client Sample ID:** Pond #6  
**Collection Date:** 11/29/2007 10:10:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	31	1.0		mg/L	10	11/29/2007 8:39:12 PM
Chloride	8000	50		mg/L	500	12/3/2007 11:26:39 AM
Nitrate (As N)+Nitrite (As N)	26	10		mg/L	50	12/9/2007 9:50:21 AM
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	11/29/2007 8:39:12 PM
Sulfate	3100	25		mg/L	50	11/30/2007 12:46:15 PM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	12/7/2007 1:19:40 PM
Barium	0.094	0.010		mg/L	1	12/7/2007 1:19:40 PM
Cadmium	ND	0.0020		mg/L	1	12/7/2007 1:19:40 PM
Calcium	500	5.0		mg/L	10	12/7/2007 3:06:15 PM
Chromium	ND	0.0060		mg/L	1	12/7/2007 1:19:40 PM
Copper	ND	0.0060		mg/L	1	12/7/2007 1:19:40 PM
Lead	ND	0.0050		mg/L	1	12/7/2007 1:19:40 PM
Magnesium	210	5.0		mg/L	10	12/7/2007 3:06:15 PM
Manganese	0.96	0.0020		mg/L	1	12/7/2007 1:19:40 PM
Potassium	230	10		mg/L	10	12/7/2007 3:06:15 PM
Selenium	ND	0.050		mg/L	1	12/7/2007 1:19:40 PM
Silver	ND	0.0050		mg/L	1	12/7/2007 1:19:40 PM
Sodium	5500	50		mg/L	100	12/7/2007 3:47:37 PM
Uranium	ND	0.10		mg/L	1	12/11/2007 11:32:53 AM
Zinc	0.028	0.020		mg/L	1	12/7/2007 1:19:40 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Toluene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Naphthalene	ND	20		µg/L	10	12/7/2007 2:50:45 PM
1-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 2:50:45 PM
2-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 2:50:45 PM
Acetone	ND	100		µg/L	10	12/7/2007 2:50:45 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Bromoform	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 2:50:45 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-06

**Client Sample ID:** Pond #6  
**Collection Date:** 11/29/2007 10:10:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 2:50:45 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 2:50:45 PM
Chloroform	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 2:50:45 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 2:50:45 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 2:50:45 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 2:50:45 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 2:50:45 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 2:50:45 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Styrene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 2:50:45 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 2:50:45 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 2:50:45 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-06

**Client Sample ID:** Pond #6  
**Collection Date:** 11/29/2007 10:10:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 2:50:45 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 2:50:45 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 2:50:45 PM
Xylenes, Total	ND	15		µg/L	10	12/7/2007 2:50:45 PM
Surr: 1,2-Dichloroethane-d4	96.1	68.1-123		%REC	10	12/7/2007 2:50:45 PM
Surr: 4-Bromofluorobenzene	97.8	53.2-145		%REC	10	12/7/2007 2:50:45 PM
Surr: Dibromofluoromethane	98.6	68.5-119		%REC	10	12/7/2007 2:50:45 PM
Surr: Toluene-d8	104	64-131		%REC	10	12/7/2007 2:50:45 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	14000	0.010		µmhos/cm	1	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	7.46	0.1		pH units	1	11/30/2007

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-07

**Client Sample ID:** Pond #7  
**Collection Date:** 11/29/2007 10:30:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	51	20		mg/L	200	11/30/2007 1:21:04 PM
Chloride	69000	200		mg/L	2000	12/3/2007 11:44:03 AM
Nitrate (As N)+Nitrite (As N)	ND	100		mg/L	500	12/9/2007 12:27:04 PM
Phosphorus, Orthophosphate (As P)	ND	100		mg/L	200	11/30/2007 1:21:04 PM
Sulfate	14000	250		mg/L	500	11/30/2007 1:38:28 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.20		mg/L	10	12/7/2007 3:13:25 PM
Barium	0.10	0.10		mg/L	10	12/7/2007 3:13:25 PM
Cadmium	ND	0.020		mg/L	10	12/7/2007 3:13:25 PM
Calcium	800	5.0		mg/L	10	12/7/2007 3:13:25 PM
Chromium	ND	0.060		mg/L	10	12/7/2007 3:13:25 PM
Copper	ND	0.060		mg/L	10	12/7/2007 3:13:25 PM
Lead	ND	0.050		mg/L	10	12/7/2007 3:13:25 PM
Magnesium	1400	25		mg/L	50	12/7/2007 3:17:35 PM
Manganese	7.1	0.020		mg/L	10	12/7/2007 3:13:25 PM
Potassium	1500	50		mg/L	50	12/7/2007 3:17:35 PM
Selenium	ND	0.50		mg/L	10	12/7/2007 3:13:25 PM
Silver	ND	0.050		mg/L	10	12/7/2007 3:13:25 PM
Sodium	41000	250		mg/L	500	12/7/2007 3:56:39 PM
Uranium	ND	1.0		mg/L	10	12/11/2007 12:06:09 PM
Zinc	ND	0.20		mg/L	10	12/7/2007 3:13:25 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Toluene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Naphthalene	ND	20		µg/L	10	12/7/2007 3:21:18 PM
1-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 3:21:18 PM
2-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 3:21:18 PM
Acetone	ND	100		µg/L	10	12/7/2007 3:21:18 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Bromoform	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 3:21:18 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-07

Client Sample ID: Pond #7  
Collection Date: 11/29/2007 10:30:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 3:21:18 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 3:21:18 PM
Chloroform	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 3:21:18 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 3:21:18 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 3:21:18 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 3:21:18 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 3:21:18 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 3:21:18 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Styrene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 3:21:18 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 3:21:18 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 3:21:18 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

<b>CLIENT:</b>	Giant Refining Company	<b>Client Sample ID:</b>	Pond #7
<b>Lab Order:</b>	0711469	<b>Collection Date:</b>	11/29/2007 10:30:00 AM
<b>Project:</b>	Evap. Ponds #1 through #8-4 Qtr 2007	<b>Date Received:</b>	11/29/2007
<b>Lab ID:</b>	0711469-07	<b>Matrix:</b>	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 3:21:18 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 3:21:18 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 3:21:18 PM
Xylenes, Total	ND	15		µg/L	10	12/7/2007 3:21:18 PM
Surr: 1,2-Dichloroethane-d4	101	68.1-123		%REC	10	12/7/2007 3:21:18 PM
Surr: 4-Bromofluorobenzene	109	53.2-145		%REC	10	12/7/2007 3:21:18 PM
Surr: Dibromofluoromethane	101	68.5-119		%REC	10	12/7/2007 3:21:18 PM
Surr: Toluene-d8	105	64-131		%REC	10	12/7/2007 3:21:18 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	180000	0.10		µmhos/cm	10	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	7.22	0.1		pH units	1	11/30/2007

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-08

Client Sample ID: Pond #8  
Collection Date: 11/29/2007 10:50:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	94	50		mg/L	500	11/30/2007 2:13:17 PM
Chloride	200000	500		mg/L	5000	12/3/2007 12:01:28 PM
Nitrate (As N)+Nitrite (As N)	ND	200		mg/L	1000	12/9/2007 6:15:17 PM
Phosphorus, Orthophosphate (As P)	ND	250		mg/L	500	11/30/2007 2:13:17 PM
Sulfate	28000	250		mg/L	500	11/30/2007 2:13:17 PM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	1.0		mg/L	5	12/11/2007 10:20:03 AM
Barium	ND	0.50		mg/L	5	12/11/2007 10:20:03 AM
Cadmium	ND	0.10		mg/L	5	12/11/2007 10:20:03 AM
Calcium	580	25		mg/L	5	12/11/2007 10:20:03 AM
Chromium	ND	0.30		mg/L	5	12/11/2007 10:20:03 AM
Copper	ND	0.30		mg/L	5	12/11/2007 10:20:03 AM
Lead	ND	0.25		mg/L	5	12/11/2007 10:20:03 AM
Magnesium	11000	250		mg/L	50	12/11/2007 10:24:15 AM
Manganese	120	1.0		mg/L	50	12/11/2007 10:24:15 AM
Potassium	16000	500		mg/L	50	12/11/2007 10:24:15 AM
Selenium	ND	2.5		mg/L	5	12/11/2007 10:20:03 AM
Silver	ND	0.25		mg/L	5	12/11/2007 10:20:03 AM
Sodium	120000	1000		mg/L	200	12/11/2007 3:26:30 PM
Uranium	ND	5.0		mg/L	5	12/11/2007 10:20:03 AM
Zinc	ND	1.0		mg/L	5	12/11/2007 10:20:03 AM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Toluene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Ethylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Naphthalene	ND	20		µg/L	10	12/7/2007 3:51:55 PM
1-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 3:51:55 PM
2-Methylnaphthalene	ND	40		µg/L	10	12/7/2007 3:51:55 PM
Acetone	100	100		µg/L	10	12/7/2007 3:51:55 PM
Bromobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Bromochloromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Bromodichloromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Bromoform	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Bromomethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
2-Butanone	ND	100		µg/L	10	12/7/2007 3:51:55 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Dec-07

CLIENT: Giant Refining Company  
Lab Order: 0711469  
Project: Evap. Ponds #1 through #8-4 Qtr 2007  
Lab ID: 0711469-08

Client Sample ID: Pond #8  
Collection Date: 11/29/2007 10:50:00 AM  
Date Received: 11/29/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Carbon disulfide	ND	100		µg/L	10	12/7/2007 3:51:55 PM
Carbon Tetrachloride	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Chlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Chloroethane	ND	20		µg/L	10	12/7/2007 3:51:55 PM
Chloroform	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Chloromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
2-Chlorotoluene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
4-Chlorotoluene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
cis-1,2-DCE	ND	10		µg/L	10	12/7/2007 3:51:55 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	12/7/2007 3:51:55 PM
Dibromochloromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Dibromomethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Dichlorodifluoromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,1-Dichloroethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,1-Dichloroethene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2-Dichloropropane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,3-Dichloropropane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
2,2-Dichloropropane	ND	20		µg/L	10	12/7/2007 3:51:55 PM
1,1-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Hexachlorobutadiene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
2-Hexanone	ND	100		µg/L	10	12/7/2007 3:51:55 PM
Isopropylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
4-Isopropyltoluene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	12/7/2007 3:51:55 PM
Methylene Chloride	ND	30		µg/L	10	12/7/2007 3:51:55 PM
n-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
n-Propylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
sec-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Styrene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
tert-Butylbenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	12/7/2007 3:51:55 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	12/7/2007 3:51:55 PM
trans-1,2-DCE	ND	10		µg/L	10	12/7/2007 3:51:55 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 19-Dec-07

**CLIENT:** Giant Refining Company  
**Lab Order:** 0711469  
**Project:** Evap. Ponds #1 through #8-4 Qtr 2007  
**Lab ID:** 0711469-08

**Client Sample ID:** Pond #8  
**Collection Date:** 11/29/2007 10:50:00 AM  
**Date Received:** 11/29/2007  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2-Trichloroethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Trichloroethene (TCE)	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Trichlorofluoromethane	ND	10		µg/L	10	12/7/2007 3:51:55 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	12/7/2007 3:51:55 PM
Vinyl chloride	ND	10		µg/L	10	12/7/2007 3:51:55 PM
Xylenes, Total	ND	15		µg/L	10	12/7/2007 3:51:55 PM
Surr: 1,2-Dichloroethane-d4	99.8	68.1-123		%REC	10	12/7/2007 3:51:55 PM
Surr: 4-Bromofluorobenzene	106	53.2-145		%REC	10	12/7/2007 3:51:55 PM
Surr: Dibromofluoromethane	102	68.5-119		%REC	10	12/7/2007 3:51:55 PM
Surr: Toluene-d8	110	64-131		%REC	10	12/7/2007 3:51:55 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: LMM
Specific Conductance	780000	1.0		µmhos/cm	100	11/30/2007
<b>SM4500-H+B: PH</b>						Analyst: LMM
pH	5.49	0.1		pH units	1	11/30/2007

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

HALL ENVIRONMENTAL  
attn ANDY FREEMAN  
4901 HAWKINS NE, SUITE D  
ALBUQUERQUE NM 87109-4372

Explanation of codes	
B	Analyte Detected in Method Blank
E	Result is Estimated
H	Analyzed Out of Hold Time
N	Tentatively Identified Compound
S	Subcontracted
1-9	See Footnote

STANDARD

Assalgal Analytical Laboratories, Inc.

## Certificate of Analysis

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: HALL ENVIRONMENTAL  
Project: 0711469  
Order: 07110847 HAL03 Receipt: 11-29-07

William P. Blava: President of Assalgal Analytical Laboratories, Inc.

Sample: 0711469-01D POND#1 Collected: 11-29-07 8:30:00 By:  
Matrix: AQUEOUS

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-001A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.15	C-004	Chemical Oxygen Demand	878	mg/L	1	10		12-07-07	12-07-07

Sample: 0711469-01E POND#1 Collected: 11-29-07 8:30:00 By:  
Matrix: AQUEOUS

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-002A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.12	10-26-4	Biochemical Oxygen Demand	783	mg/L	1	2	1	11-30-07	12-05-07

Sample: 0711469-01F POND#1 Collected: 11-29-07 8:30:00 By:  
Matrix: AQUEOUS SR8307

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-003A			EPA 1603					By: FAS		
EC07103	BT.2007.797.12		E. coli	727	CFU/100 ml	91	1		11-29-07	11-30-07

Assaigal Analytical Laboratories, Inc.

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**Project: **0711469**Order: **07110847 HAL03** Receipt: **11-29-07**Sample: **0711469-02D POND#2**Collected: **11-29-07 8:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-004A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.16	C-004	Chemical Oxygen Demand	561	mg/L	1	10		12-07-07	12-07-07

Sample: **0711469-02E POND#2**Collected: **11-29-07 8:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-005A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.13	10-26-4	Biochemical Oxygen Demand	302	mg/L	1	2	1	11-30-07	12-05-07

Sample: **0711469-02F POND#2**Collected: **11-29-07 8:50:00** By:Matrix: **AQUEOUS**

SR8308

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-006A			EPA 1603					By: FAS		
EC07103	BT.2007.797.13		E. coli	63.1	CFU/100 ml	9	1		11-29-07	11-30-07

Sample: **0711469-03D POND#3**Collected: **11-29-07 9:10:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-007A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.17	C-004	Chemical Oxygen Demand	463	mg/L	1	10		12-07-07	12-07-07

Sample: **0711469-03E POND#3**Collected: **11-29-07 9:10:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-008A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.14	10-26-4	Biochemical Oxygen Demand	209	mg/L	1	2	1	11-30-07	12-05-07

Assalgal Analytical Laboratories, Inc.

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**Project: **0711469**Order: **07110847 HAL03**Receipt: **11-29-07**Sample: **0711469-03F POND#3**Collected: **11-29-07 9:10:00** By:Matrix: **AQUEOUS**

SR8309

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-009A		EPA 1603						By: FAS		
EC07103	BT.2007.797.14		E. coli	27.0	CFU/100 ml	9	1		11-29-07	11-30-07

Sample: **0711469-04D POND#4**Collected: **11-29-07 9:30:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-010A		EPA 410.1 Chemical Oxygen Demand						By: FAS		
WCOD07071	WC.2007.3140.18	C-004	Chemical Oxygen Demand	512	mg/L	1	10		12-07-07	12-07-07

Sample: **0711469-04E POND#4**Collected: **11-29-07 9:30:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-011A		EPA 405.1 Biochemical Oxygen Demand						By: NJL		
BOD07145	WC.2007.3118.15	10-26-4	Biochemical Oxygen Demand	163	mg/L	1	2	1	11-30-07	12-05-07

Sample: **0711469-04F POND#4**Collected: **11-29-07 9:30:00** By:Matrix: **AQUEOUS**

SR8310

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-012A		EPA 1603						By: FAS		
EC07103	BT.2007.797.16		E. coli	18.0	CFU/100 ml	9	1		11-29-07	11-30-07

Sample: **0711469-05D POND#5**Collected: **11-29-07 9:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-013A		EPA 410.1 Chemical Oxygen Demand						By: FAS		
WCOD07071	WC.2007.3140.19	C-004	Chemical Oxygen Demand	488	mg/L	1	10		12-07-07	12-07-07

Assaigal Analytical Laboratories, Inc.

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**Project: **0711469**Order: **07110847 HAL03**Receipt: **11-29-07**Sample: **0711469-05E POND#5**Collected: **11-29-07 9:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-014A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.16	10-26-4	Biochemical Oxygen Demand	103	mg/L	1	2	1	11-30-07	12-05-07

Sample: **0711469-05F POND#5**Collected: **11-29-07 9:50:00** By:Matrix: **AQUEOUS**

SR8311

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-015A			EPA 1603					By: FAS		
EC07103	BT.2007.797.17		E. coli	ND	CFU/100 ml	10	1		11-29-07	11-30-07

Sample: **0711469-06D POND#6**Collected: **11-29-07 10:10:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-016A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.20	C-004	Chemical Oxygen Demand	927	mg/L	1	10		12-07-07	12-07-07

Sample: **0711469-06E POND#6**Collected: **11-29-07 10:10:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-017A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.17	10-26-4	Biochemical Oxygen Demand	47.8	mg/L	1	2	1	11-30-07	12-05-07

Sample: **0711469-06F POND#6**Collected: **11-29-07 10:10:00** By:Matrix: **AQUEOUS**

SR8312

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-018A			EPA 1603					By: FAS		
EC07103	BT.2007.797.18		E. coli	ND	CFU/100 ml	10	1		11-29-07	11-30-07

Assalgal Analytical Laboratories, Inc.

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**Project: **0711469**Order: **07110847 HAL03**Receipt: **11-29-07**Sample: **0711469-07D POND#7**Collected: **11-29-07 10:30:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-019A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.23	C-004	Chemical Oxygen Demand	4390	mg/L	10	10		12-07-07	12-07-07

Sample: **0711469-07E POND#7**Collected: **11-29-07 10:30:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-020A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.18	10-26-4	Biochemical Oxygen Demand	Less Than 64.0	mg/L	1	2		11-30-07	12-05-07

Sample: **0711469-07F POND#7**Collected: **11-29-07 10:30:00** By:Matrix: **AQUEOUS**

SR8313

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-021A			EPA 1603					By: FAS		
EC07103	BT.2007.797.20		E. coli	ND	CFU/100 ml	10	1		11-29-07	11-30-07

Sample: **0711469-08D POND#8**Collected: **11-29-07 10:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-022A			EPA 410.1 Chemical Oxygen Demand					By: FAS		
WCOD07071	WC.2007.3140.24	C-004	Chemical Oxygen Demand	2200	mg/L	100	10		12-07-07	12-07-07

Sample: **0711469-08E POND#8**Collected: **11-29-07 10:50:00** By:Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-023A			EPA 405.1 Biochemical Oxygen Demand					By: NJL		
BOD07145	WC.2007.3118.19	10-26-4	Biochemical Oxygen Demand	Less Than 64.0	mg/L	1	2	1	11-30-07	12-05-07



Assaigal Analytical Laboratories, Inc.

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**  
 Project: **0711469**  
 Order: **07110847 HAL03** Receipt: **11-29-07**

Sample: **0711469-08F POND#8** Collected: **11-29-07 10:50:00** By:  
 Matrix: **AQUEOUS** SR8314

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
07110847-024A		EPA 1603						By: FAS		
EC07103	BT.2007.797.21		E. coli	ND	CFU/100 ml	10	1		11-29-07	11-30-07

Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or footnotes will appear below.

Analytical results are not corrected for method blank or field blank contamination.

The Laboratory Control Spike and the Laboratory Control Spike Duplicate recoveries for the Biochemical Oxygen Demand (BOD) batch of samples, analyzed for this work order, were 118% and 120% respectively. These recoveries are above the QC acceptance limits of 84.8-115.4%. Therefore, the above BOD data may be potentially negatively biased to that extent. This should be taken into account when evaluating the data.

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: EPA Method 300.0: Anions</b>									
<b>Sample ID: MBLK</b>		<b>MBLK</b>			<b>Batch ID: R26303</b>	<b>Analysis Date: 11/30/2007 8:42:32 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK</b>		<b>MBLK</b>			<b>Batch ID: R26322</b>	<b>Analysis Date: 12/3/2007 10:34:25 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK 112907A</b>		<b>MBLK</b>			<b>Batch ID: R26325</b>	<b>Analysis Date: 11/29/2007 6:26:12 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK</b>		<b>MBLK</b>			<b>Batch ID: R26422</b>	<b>Analysis Date: 12/8/2007 10:14:20 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK</b>		<b>MBLK</b>			<b>Batch ID: R26424</b>	<b>Analysis Date: 12/9/2007 8:58:08 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK-B</b>		<b>MBLK</b>			<b>Batch ID: R26509</b>	<b>Analysis Date: 12/12/2007 2:48:24 PM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: MBLK</b>		<b>MBLK</b>			<b>Batch ID: R26528</b>	<b>Analysis Date: 12/13/2007 5:47:28 AM</b>			
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
<b>Sample ID: LCS</b>		<b>LCS</b>			<b>Batch ID: R26303</b>	<b>Analysis Date: 11/30/2007 8:59:57 AM</b>			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: LCS	LCS				Batch ID: R26303	Analysis Date: 11/30/2007 8:59:57 AM			
Fluoride	0.5036	mg/L	0.10	101	90	110			
Chloride	4.732	mg/L	0.10	94.6	90	110			
Nitrate (As N)+Nitrite (As N)	3.372	mg/L	0.20	96.3	90	110			
Phosphorus, Orthophosphate (As P)	4.790	mg/L	0.50	95.8	90	110			
Sulfate	9.653	mg/L	0.50	96.5	90	110			
Sample ID: LCS	LCS				Batch ID: R26322	Analysis Date: 12/3/2007 2:03:20 PM			
Fluoride	0.4937	mg/L	0.10	98.7	90	110			
Chloride	4.728	mg/L	0.10	94.6	90	110			
Nitrate (As N)+Nitrite (As N)	3.334	mg/L	0.20	95.3	90	110			
Phosphorus, Orthophosphate (As P)	4.739	mg/L	0.50	94.8	90	110			
Sulfate	9.740	mg/L	0.50	97.4	90	110			
Sample ID: LCS ST300-07069 1	LCS				Batch ID: R26326	Analysis Date: 11/29/2007 1:58:51 PM			
Fluoride	0.5369	mg/L	0.10	107	90	110			
Chloride	4.981	mg/L	0.10	99.6	90	110			
Nitrate (As N)+Nitrite (As N)	3.506	mg/L	0.20	100	90	110			
Phosphorus, Orthophosphate (As P)	5.022	mg/L	0.50	100	90	110			
Sulfate	10.13	mg/L	0.50	101	90	110			
Sample ID: LCS	LCS				Batch ID: R26422	Analysis Date: 12/8/2007 10:31:44 AM			
Fluoride	0.5389	mg/L	0.10	108	90	110			
Chloride	5.032	mg/L	0.10	101	90	110			
Nitrate (As N)+Nitrite (As N)	3.452	mg/L	0.20	98.6	90	110			
Phosphorus, Orthophosphate (As P)	5.024	mg/L	0.50	100	90	110			
Sulfate	10.13	mg/L	0.50	101	90	110			
Sample ID: LCS	LCS				Batch ID: R26424	Analysis Date: 12/9/2007 9:15:33 AM			
Fluoride	0.5482	mg/L	0.10	110	90	110			
Chloride	5.061	mg/L	0.10	101	90	110			
Nitrate (As N)+Nitrite (As N)	3.609	mg/L	0.20	103	90	110			
Phosphorus, Orthophosphate (As P)	5.086	mg/L	0.50	102	90	110			
Sulfate	10.26	mg/L	0.50	103	90	110			
Sample ID: LCS-B	LCS				Batch ID: R26509	Analysis Date: 12/12/2007 3:05:49 PM			
Fluoride	0.5220	mg/L	0.10	104	90	110			
Chloride	4.936	mg/L	0.10	98.7	90	110			
Nitrate (As N)+Nitrite (As N)	3.436	mg/L	0.20	98.2	90	110			
Phosphorus, Orthophosphate (As P)	5.200	mg/L	0.50	104	90	110			
Sulfate	10.05	mg/L	0.50	100	90	110			
Sample ID: LCS	LCS				Batch ID: R26528	Analysis Date: 12/13/2007 6:04:52 AM			
Fluoride	0.5272	mg/L	0.10	105	90	110			
Chloride	4.947	mg/L	0.10	98.9	90	110			
Nitrate (As N)+Nitrite (As N)	3.458	mg/L	0.20	98.8	90	110			
Phosphorus, Orthophosphate (As P)	4.793	mg/L	0.50	95.9	90	110			
Sulfate	9.960	mg/L	0.50	99.6	90	110			
Sample ID: LCS 12/17/07	LCS				Batch ID: R26586	Analysis Date: 12/18/2007 7:16:00 AM			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 300.0: Anlons

Sample ID: LCS 12/17/07

LCS

Batch ID: R26586 Analysis Date: 12/18/2007 7:16:00 AM

Fluoride	0.5806	mg/L	0.10	116	90	110			S
Chloride	5.268	mg/L	0.10	105	90	110			
Nitrate (As N)+Nitrite (As N)	3.692	mg/L	0.20	105	90	110			
Phosphorus, Orthophosphate (As P)	5.255	mg/L	0.50	105	90	110			
Sulfate	10.55	mg/L	0.50	106	90	110			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA 6010B: Total Recoverable Metals

Sample ID: MB-14537

MBLK

Batch ID: 14537 Analysis Date: 12/4/2007 2:43:13 PM

Arsenic	ND	mg/L	0.020
Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0020
Calcium	ND	mg/L	0.50
Chromium	ND	mg/L	0.0060
Lead	ND	mg/L	0.0050
Magnesium	ND	mg/L	0.50
Manganese	ND	mg/L	0.0020
Potassium	ND	mg/L	1.0
Selenium	ND	mg/L	0.050
Silver	ND	mg/L	0.0050
Sodium	ND	mg/L	0.50
Uranium	ND	mg/L	0.10
Zinc	ND	mg/L	0.020

Sample ID: MB-14537

MBLK

Batch ID: 14537 Analysis Date: 12/7/2007 12:22:59 PM

Copper	ND	mg/L	0.0060
Zinc	ND	mg/L	0.020

Sample ID: MB-14575

MBLK

Batch ID: 14575 Analysis Date: 12/10/2007 5:00:51 PM

Barium	ND	mg/L	0.010
Cadmium	ND	mg/L	0.0020
Calcium	ND	mg/L	0.50
Chromium	ND	mg/L	0.0060
Copper	ND	mg/L	0.0060
Lead	ND	mg/L	0.0050
Magnesium	ND	mg/L	0.50
Manganese	ND	mg/L	0.0020
Potassium	ND	mg/L	1.0
Silver	ND	mg/L	0.0050
Sodium	ND	mg/L	0.50
Zinc	ND	mg/L	0.020

Sample ID: LCS-14537

LCS

Batch ID: 14537 Analysis Date: 12/4/2007 2:46:18 PM

Arsenic	0.5153	mg/L	0.020	103	80	120
Barium	0.4883	mg/L	0.010	97.7	80	120
Cadmium	0.4914	mg/L	0.0020	98.3	80	120
Calcium	49.74	mg/L	0.50	99.5	80	120
Chromium	0.4930	mg/L	0.0060	98.6	80	120
Lead	0.4864	mg/L	0.0050	97.3	80	120
Magnesium	50.03	mg/L	0.50	100	80	120
Manganese	0.4889	mg/L	0.0020	97.8	80	120
Potassium	52.72	mg/L	1.0	105	80	120
Selenium	0.4904	mg/L	0.050	98.1	80	120
Silver	0.5037	mg/L	0.0050	101	80	120
Sodium	52.75	mg/L	0.50	105	80	120

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals									
Sample ID: LCS-14537		LCS							
					Batch ID: 14537		Analysis Date: 12/4/2007 2:46:18 PM		
Uranium	0.4453	mg/L	0.10	89.1	80	120			
Zinc	0.4908	mg/L	0.020	98.2	80	120			
Sample ID: LCS-14537		LCS							
					Batch ID: 14537		Analysis Date: 12/7/2007 12:25:59 PM		
Copper	0.5327	mg/L	0.0060	107	80	120			
Zinc	0.4807	mg/L	0.020	96.1	80	120			
Sample ID: LCS-14575		LCS							
					Batch ID: 14575		Analysis Date: 12/10/2007 5:03:55 PM		
Barium	0.4876	mg/L	0.010	97.5	80	120			
Cadmium	0.4986	mg/L	0.0020	99.7	80	120			
Calcium	51.71	mg/L	0.50	103	80	120			
Chromium	0.4976	mg/L	0.0060	99.5	80	120			
Copper	0.5129	mg/L	0.0060	103	80	120			
Lead	0.4877	mg/L	0.0050	97.5	80	120			
Magnesium	52.67	mg/L	0.50	105	80	120			
Manganese	0.4903	mg/L	0.0020	98.1	80	120			
Potassium	56.24	mg/L	1.0	112	80	120			
Silver	0.5066	mg/L	0.0050	101	80	120			
Sodium	54.84	mg/L	0.50	110	80	120			
	0.4809	mg/L	0.020	96.2	80	120			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26402 Analysis Date: 12/6/2007 11:33:13 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Propylbenzene	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26402 Analysis Date: 12/6/2007 11:33:13 AM

4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethene (TCE)	ND	µg/L	1.0
1,1,1-Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 5mL rb

MBLK

Batch ID: R26434 Analysis Date: 12/7/2007 11:17:24 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0

## Qualifiers:

E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26434 Analysis Date: 12/7/2007 11:17:24 AM

Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,1-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropane	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
1,1,1-Trichloroethane	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26434 Analysis Date: 12/7/2007 11:17:24 AM

Xylenes, Total ND µg/L 1.5

Sample ID: 5mL rb

MBLK

Batch ID: R26460 Analysis Date: 12/10/2007 8:31:36 AM

Benzene ND µg/L 1.0

Toluene ND µg/L 1.0

Ethylbenzene ND µg/L 1.0

Methyl tert-butyl ether (MTBE) ND µg/L 1.0

1,2,4-Trimethylbenzene ND µg/L 1.0

1,3,5-Trimethylbenzene ND µg/L 1.0

1,2-Dichloroethane (EDC) ND µg/L 1.0

1,2-Dibromoethane (EDB) ND µg/L 1.0

Naphthalene ND µg/L 2.0

1-Methylnaphthalene ND µg/L 4.0

2-Methylnaphthalene ND µg/L 4.0

Acetone ND µg/L 10

Bromobenzene ND µg/L 1.0

Bromochloromethane ND µg/L 1.0

Bromodichloromethane ND µg/L 1.0

Chloroform ND µg/L 1.0

Bromomethane ND µg/L 1.0

2-Butanone ND µg/L 10

Carbon disulfide ND µg/L 10

Carbon Tetrachloride ND µg/L 1.0

Chlorobenzene ND µg/L 1.0

Chloroethane ND µg/L 2.0

Chloroform ND µg/L 1.0

Chloromethane ND µg/L 1.0

2-Chlorotoluene ND µg/L 1.0

4-Chlorotoluene ND µg/L 1.0

cis-1,2-DCE ND µg/L 1.0

cis-1,3-Dichloropropene ND µg/L 1.0

1,2-Dibromo-3-chloropropane ND µg/L 2.0

Dibromochloromethane ND µg/L 1.0

Dibromomethane ND µg/L 1.0

1,2-Dichlorobenzene ND µg/L 1.0

1,3-Dichlorobenzene ND µg/L 1.0

1,4-Dichlorobenzene ND µg/L 1.0

Dichlorodifluoromethane ND µg/L 1.0

1,1-Dichloroethane ND µg/L 1.0

1,1-Dichloroethene ND µg/L 1.0

1,2-Dichloropropane ND µg/L 1.0

1,3-Dichloropropane ND µg/L 1.0

2,2-Dichloropropane ND µg/L 2.0

1,1-Dichloropropene ND µg/L 1.0

1,3-Cyclohexadiene ND µg/L 1.0

## Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Company  
 Project: Evap. Ponds #1 through #8-4 Qtr 2007

Work Order: 0711469

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26460 Analysis Date: 12/10/2007 8:31:36 AM

2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 100ng Ics

LCS

Batch ID: R26402 Analysis Date: 12/6/2007 1:44:35 PM

Benzene	19.82	µg/L	1.0	99.1	72.4	126
Toluene	20.06	µg/L	1.0	100	79.2	115
Chlorobenzene	19.39	µg/L	1.0	96.9	83.1	111
1,1-Dichloroethene	19.83	µg/L	1.0	99.2	81.4	122
Trichloroethene (TCE)	15.37	µg/L	1.0	76.8	64.4	118

Sample ID: 100ng Ics

LCS

Batch ID: R26434 Analysis Date: 12/7/2007 10:49:10 AM

Benzene	18.78	µg/L	1.0	93.9	72.4	126
Toluene	20.31	µg/L	1.0	102	79.2	115
Chlorobenzene	19.97	µg/L	1.0	99.9	83.1	111
1,1-Dichloroethene	19.77	µg/L	1.0	98.8	81.4	122
Trichloroethene (TCE)	15.20	µg/L	1.0	76.0	64.4	118

Sample ID: 100ng Ics

LCS

Batch ID: R26460 Analysis Date: 12/10/2007 10:11:15 AM

Benzene	18.85	µg/L	1.0	94.2	72.4	126
Toluene	19.28	µg/L	1.0	96.4	79.2	115
Chlorobenzene	19.01	µg/L	1.0	95.0	83.1	111
1,1-Dichloroethene	19.12	µg/L	1.0	95.6	81.4	122
Trichloroethene (TCE)	15.38	µg/L	1.0	76.9	64.4	118

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

# all Environmental Analysis Laboratory, Inc.

## Sample Receipt Checklist

Client Name **GIANTREFIN**

Date Received:

11/29/2007

Work Order Number **0711469**

Received by: **TLS**

Checklist completed by:

Signature

Date

Sample ID labels checked by

Initials

Matrix

Carrier name Client drop-off

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

Container/Temp Blank temperature?

3°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

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

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

Comments: \_\_\_\_\_

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

**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

4901 Hawkins NE, Suite D  
Albuquerque, New Mexico 87109  
Tel. 505.345.3975 Fax 505.345.4107  
[www.hallenvirromental.com](http://www.hallenvirromental.com)

## ANALYSIS REQUEST

8270 (Semi-VOA)  
 8260B (VOA)  
 8081 Pesticides / PCB's (8082)  
 Anions (F, Cl, NO<sub>2</sub>, NO<sub>3</sub>, PO<sub>4</sub>, SO<sub>4</sub>)  
~~Trace~~ Metals  
 WACC total  
 E. coli, Bacteria  
 Enumerated

BTEX + MTBE + TMB's (8021)	
BTEX + MTBE + TPH (Gasoline Only)	
TPH Method 8015B (Gas/Diesel)	
TPH (Method 418.1)	
EDB (Method 504.1)	
EDC (Method 8021)	
8310 (PNA or PAH)	

	X	x	x	X	x	x	x	X
	X	Y	X	Y	X	X	Y	X
	X	Y	Y	Y	X	X	X	X
	X	Y	Y	X	X	X	Y	X
	X	X	X	X	X	X	X	X

[illegible]

Remarks: Gen Chem = Cations, anions, pH, and Conductivity



## COVER LETTER

Tuesday, June 19, 2007

Ed Riege  
Giant Refining Co  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: GWM-1 Annual 2007

Order No.: 0705390

Dear Ed Riege:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/25/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: KS
Fluoride	1.9	0.10		mg/L	1	5/29/2007 5:45:18 PM
Chloride	1800	10		mg/L	100	6/16/2007 11:08:38 AM
Nitrate (As N)+Nitrite (As N)	ND	2.0		mg/L	10	6/13/2007 9:04:06 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	5/29/2007 5:45:18 PM
Sulfate	120	2.5		mg/L	5	5/29/2007 6:02:42 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: IC
Mercury	ND	0.00020		mg/L	1	5/30/2007
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: NMO
Arsenic	0.081	0.020		mg/L	1	6/1/2007 10:39:23 AM
Barium	0.44	0.020		mg/L	1	6/1/2007 10:39:23 AM
Cadmium	ND	0.0020		mg/L	1	6/1/2007 10:39:23 AM
Calcium	360	100		mg/L	100	6/1/2007 11:45:59 AM
Chromium	ND	0.0060		mg/L	1	6/1/2007 10:39:23 AM
Lead	ND	0.0050		mg/L	1	6/1/2007 10:39:23 AM
Magnesium	87	1.0		mg/L	1	6/1/2007 10:39:23 AM
Potassium	3.7	1.0		mg/L	1	6/1/2007 10:39:23 AM
Selenium	ND	0.050		mg/L	1	6/1/2007 1:54:30 PM
Silver	ND	0.0050		mg/L	1	6/1/2007 10:39:23 AM
Sodium	1300	100		mg/L	100	6/1/2007 11:45:59 AM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: BL
Acenaphthene	ND	10		µg/L	1	6/7/2007
Acenaphthylene	ND	10		µg/L	1	6/7/2007
Aniline	ND	20		µg/L	1	6/7/2007
Anthracene	ND	10		µg/L	1	6/7/2007
Azobenzene	ND	10		µg/L	1	6/7/2007
Benz(a)anthracene	ND	15		µg/L	1	6/7/2007
Benzo(a)pyrene	ND	10		µg/L	1	6/7/2007
Benzo(b)fluoranthene	ND	15		µg/L	1	6/7/2007
Benzo(g,h,i)perylene	ND	10		µg/L	1	6/7/2007
Benzo(k)fluoranthene	ND	10		µg/L	1	6/7/2007
Benzoic acid	ND	50		µg/L	1	6/7/2007
Benzyl alcohol	ND	20		µg/L	1	6/7/2007
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	6/7/2007
Bis(2-chloroethyl)ether	ND	15		µg/L	1	6/7/2007
Bis(2-chloroisopropyl)ether	ND	15		µg/L	1	6/7/2007
Bis(2-ethylhexyl)phthalate	ND	15		µg/L	1	6/7/2007
4-Bromophenyl phenyl ether	ND	10		µg/L	1	6/7/2007
Butyl benzyl phthalate	ND	15		µg/L	1	6/7/2007

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: BL
Carbazole	ND	10		µg/L	1	6/7/2007
4-Chloro-3-methylphenol	ND	20		µg/L	1	6/7/2007
4-Chloroaniline	ND	20		µg/L	1	6/7/2007
2-Chloronaphthalene	ND	10		µg/L	1	6/7/2007
2-Chlorophenol	ND	10		µg/L	1	6/7/2007
4-Chlorophenyl phenyl ether	ND	15		µg/L	1	6/7/2007
Chrysene	ND	15		µg/L	1	6/7/2007
Di-n-butyl phthalate	ND	10		µg/L	1	6/7/2007
Di-n-octyl phthalate	ND	15		µg/L	1	6/7/2007
Dibenz(a,h)anthracene	ND	10		µg/L	1	6/7/2007
Dibenzofuran	ND	10		µg/L	1	6/7/2007
1,2-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
1,3-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
1,4-Dichlorobenzene	ND	10		µg/L	1	6/7/2007
3,3'-Dichlorobenzidine	ND	15		µg/L	1	6/7/2007
Diethyl phthalate	ND	10		µg/L	1	6/7/2007
Dimethyl phthalate	ND	10		µg/L	1	6/7/2007
2,4-Dichlorophenol	ND	10		µg/L	1	6/7/2007
2,4-Dimethylphenol	ND	10		µg/L	1	6/7/2007
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	6/7/2007
2,4-Dinitrophenol	ND	50		µg/L	1	6/7/2007
2,4-Dinitrotoluene	ND	10		µg/L	1	6/7/2007
2,6-Dinitrotoluene	ND	10		µg/L	1	6/7/2007
Fluoranthene	ND	10		µg/L	1	6/7/2007
Fluorene	ND	10		µg/L	1	6/7/2007
Hexachlorobenzene	ND	10		µg/L	1	6/7/2007
Hexachlorobutadiene	ND	10		µg/L	1	6/7/2007
Hexachlorocyclopentadiene	ND	50		µg/L	1	6/7/2007
Hexachloroethane	ND	10		µg/L	1	6/7/2007
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	6/7/2007
Isophorone	ND	10		µg/L	1	6/7/2007
2-Methylnaphthalene	ND	10		µg/L	1	6/7/2007
2-Methylphenol	ND	15		µg/L	1	6/7/2007
3+4-Methylphenol	ND	20		µg/L	1	6/7/2007
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	6/7/2007
N-Nitrosodimethylamine	ND	10		µg/L	1	6/7/2007
N-Nitrosodiphenylamine	ND	10		µg/L	1	6/7/2007
Naphthalene	ND	10		µg/L	1	6/7/2007
2-Nitroaniline	ND	50		µg/L	1	6/7/2007
3-Nitroaniline	ND	50		µg/L	1	6/7/2007
4-Nitroaniline	ND	20		µg/L	1	6/7/2007

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: BL
Nitrobenzene	ND	10		µg/L	1	6/7/2007
2-Nitrophenol	ND	15		µg/L	1	6/7/2007
4-Nitrophenol	ND	50		µg/L	1	6/7/2007
Pentachlorophenol	ND	50		µg/L	1	6/7/2007
Phenanthrene	ND	10		µg/L	1	6/7/2007
Phenol	ND	10		µg/L	1	6/7/2007
Pyrene	ND	15		µg/L	1	6/7/2007
Pyridine	ND	30		µg/L	1	6/7/2007
1,2,4-Trichlorobenzene	ND	10		µg/L	1	6/7/2007
2,4,5-Trichlorophenol	ND	10		µg/L	1	6/7/2007
2,4,6-Trichlorophenol	ND	15		µg/L	1	6/7/2007
Surr: 2,4,6-Tribromophenol	78.5	16.6-150		%REC	1	6/7/2007
Surr: 2-Fluorobiphenyl	68.6	19.6-134		%REC	1	6/7/2007
Surr: 2-Fluorophenol	46.9	9.54-113		%REC	1	6/7/2007
Surr: 4-Terphenyl-d14	74.5	22.7-145		%REC	1	6/7/2007
Surr: Nitrobenzene-d5	68.3	14.6-134		%REC	1	6/7/2007
Surr: Phenol-d5	38.0	10.7-80.3		%REC	1	6/7/2007
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Benzene	16	10		µg/L	10	6/6/2007 2:13:58 PM
Toluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Ethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Methyl tert-butyl ether (MTBE)	230	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,4-Trimethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Naphthalene	ND	20		µg/L	10	6/6/2007 2:13:58 PM
1-Methylnaphthalene	ND	40		µg/L	10	6/6/2007 2:13:58 PM
2-Methylnaphthalene	ND	40		µg/L	10	6/6/2007 2:13:58 PM
Acetone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Bromobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromochloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromodichloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromoform	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Bromomethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Butanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Carbon disulfide	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Carbon Tetrachloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chloroethane	ND	20		µg/L	10	6/6/2007 2:13:58 PM

Qualifiers:  
\* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
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RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
Chloroform	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Chloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Chlorotoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Chlorotoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
cis-1,2-DCE	ND	10		µg/L	10	6/6/2007 2:13:58 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Dibromochloromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Dibromomethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Dichlorodifluoromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloroethene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2-Dichloropropane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,3-Dichloropropane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2,2-Dichloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
1,1-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Hexachlorobutadiene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
2-Hexanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Isopropylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Isopropyltoluene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	6/6/2007 2:13:58 PM
Methylene Chloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
n-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
n-Propylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
sec-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Styrene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
tert-Butylbenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
trans-1,2-DCE	ND	10		µg/L	10	6/6/2007 2:13:58 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Trichloroethene (TCE)	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Trichlorofluoromethane	ND	10		µg/L	10	6/6/2007 2:13:58 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 19-Jun-07

CLIENT: Giant Refining Co  
Lab Order: 0705390  
Project: GWM-1 Annual 2007  
Lab ID: 0705390-01

Client Sample ID: GWM-1  
Collection Date: 5/24/2007 9:04:00 AM  
Date Received: 5/25/2007  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: SMP
1,2,3-Trichloropropane	ND	20		µg/L	10	6/6/2007 2:13:58 PM
Vinyl chloride	ND	10		µg/L	10	6/6/2007 2:13:58 PM
Xylenes, Total	ND	15		µg/L	10	6/6/2007 2:13:58 PM
Surr: 1,2-Dichloroethane-d4	114	76.6-113	S	%REC	10	6/6/2007 2:13:58 PM
Surr: 4-Bromofluorobenzene	122	77-117	S	%REC	10	6/6/2007 2:13:58 PM
Surr: Dibromofluoromethane	113	72.3-121		%REC	10	6/6/2007 2:13:58 PM
Surr: Toluene-d8	108	73-113		%REC	10	6/6/2007 2:13:58 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: LMM
Specific Conductance	8100	0.010		µmhos/cm	1	6/1/2007
EPA METHOD 150.1: PH						Analyst: LMM
pH	6.80	0.010		pH units	1	5/25/2007

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: E300									
Sample ID: MBLK		MBLK							
Batch ID: R23842									Analysis Date: 5/29/2007 3:43:27 PM
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MBLK		MBLK							
Batch ID: R23935									Analysis Date: 6/9/2007 7:41:09 PM
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK							
Batch ID: R23969									Analysis Date: 6/12/2007 8:41:53 AM
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK							
Batch ID: R24020									Analysis Date: 6/16/2007 7:39:42 AM
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS ST300-07001		LCS							
Batch ID: R23842									Analysis Date: 5/29/2007 4:00:51 PM
Fluoride	0.4741	mg/L	0.10	94.8	90	110			
Chloride	4.787	mg/L	0.10	95.7	90	110			
Nitrate (As N)+Nitrite (As N)	3.388	mg/L	0.20	96.8	90	110			
Phosphorus, Orthophosphate (As P)	4.724	mg/L	0.50	94.5	90	110			
Sulfate	9.745	mg/L	0.50	97.4	90	110			
Sample ID: LCS ST300-07013		LCS							
Batch ID: R23935									Analysis Date: 6/9/2007 7:58:33 PM
Fluoride	0.4548	mg/L	0.10	91.0	90	110			
Chloride	4.853	mg/L	0.10	97.1	90	110			
Nitrate (As N)+Nitrite (As N)	3.472	mg/L	0.20	99.2	90	110			
Phosphorus, Orthophosphate (As P)	4.645	mg/L	0.50	92.9	90	110			
Sulfate	9.827	mg/L	0.50	98.3	90	110			
Sample ID: LCS ST300-07014		LCS							
Batch ID: R23969									Analysis Date: 6/12/2007 8:59:17 AM
Fluoride	0.4766	mg/L	0.10	95.3	90	110			
Chloride	4.786	mg/L	0.10	95.7	90	110			
Nitrate (As N)+Nitrite (As N)	3.446	mg/L	0.20	98.5	90	110			
Phosphorus, Orthophosphate (As P)	4.624	mg/L	0.50	92.5	90	110			
Sulfate	9.518	mg/L	0.50	95.2	90	110			
Sample ID: LCS ST300-07014		LCS							
Batch ID: R24020									Analysis Date: 6/16/2007 7:57:07 AM

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: E300									
Sample ID: LCS ST300-07014		LCS	Batch ID: R24020		Analysis Date: 6/16/2007 7:57:07 AM				
Fluoride	0.5700	mg/L	0.10	114	90	110			S
Chloride	4.770	mg/L	0.10	95.4	90	110			
Nitrate (As N)+Nitrite (As N)	3.399	mg/L	0.20	97.1	90	110			
Phosphorus, Orthophosphate (As P)	4.741	mg/L	0.50	94.8	90	110			
Sulfate	9.834	mg/L	0.50	98.3	90	110			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8270C									
Sample ID: MB-13084	MBLK		Batch ID: 13084		Analysis Date: 6/7/2007				
Acenaphthene	ND	µg/L	10						
Acenaphthylene	ND	µg/L	10						
Aniline	ND	µg/L	20						
Anthracene	ND	µg/L	10						
Azobenzene	ND	µg/L	10						
Benz(a)anthracene	ND	µg/L	15						
Benzo(a)pyrene	ND	µg/L	10						
Benzo(b)fluoranthene	ND	µg/L	15						
Benzo(g,h,i)perylene	ND	µg/L	10						
Benzo(k)fluoranthene	ND	µg/L	10						
Benzoic acid	ND	µg/L	50						
Benzyl alcohol	ND	µg/L	20						
Bis(2-chloroethoxy)methane	ND	µg/L	10						
Bis(2-chloroethyl)ether	ND	µg/L	15						
Bis(2-chloroisopropyl)ether	ND	µg/L	15						
Bis(2-ethylhexyl)phthalate	ND	µg/L	15						
4-Bromophenyl phenyl ether	ND	µg/L	10						
Butyl benzyl phthalate	ND	µg/L	15						
Carbazole	ND	µg/L	10						
4-Chloro-3-methylphenol	ND	µg/L	20						
4-Chloroaniline	ND	µg/L	20						
2-Chloronaphthalene	ND	µg/L	10						
2-Chlorophenol	ND	µg/L	10						
4-Chlorophenyl phenyl ether	ND	µg/L	15						
Chrysene	ND	µg/L	15						
Di-n-butyl phthalate	ND	µg/L	10						
Di-n-octyl phthalate	ND	µg/L	15						
Dibenz(a,h)anthracene	ND	µg/L	10						
Dibenzofuran	ND	µg/L	10						
1,2-Dichlorobenzene	ND	µg/L	10						
1,3-Dichlorobenzene	ND	µg/L	10						
1,4-Dichlorobenzene	ND	µg/L	10						
3,3'-Dichlorobenzidine	ND	µg/L	15						
Diethyl phthalate	ND	µg/L	10						
Dimethyl phthalate	ND	µg/L	10						
2,4-Dichlorophenol	ND	µg/L	10						
2,4-Dimethylphenol	ND	µg/L	10						
4,6-Dinitro-2-methylphenol	ND	µg/L	50						
2,4-Dinitrophenol	ND	µg/L	50						
2,4-Dinitrotoluene	ND	µg/L	10						
2,6-Dinitrotoluene	ND	µg/L	10						
Fluoranthene	ND	µg/L	10						
Fluorene	ND	µg/L	10						
Hexachlorobenzene	ND	µg/L	10						

## Qualifiers:

- |   |  |    |  |
|---|--|----|--|
| E | Value above quantitation range             | H  | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit                |
| R | RPD outside accepted recovery limits       | S  | Recovery outside accepted recovery limits          |

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-I Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8270C

Sample ID: MB-13084

MBLK

Batch ID: 13084

Analysis Date:

6/7/2007

Hexachlorobutadiene	ND	µg/L	10
Hexachlorocyclopentadiene	ND	µg/L	50
Hexachloroethane	ND	µg/L	10
Indeno(1,2,3-cd)pyrene	ND	µg/L	10
Isophorone	ND	µg/L	10
2-Methylnaphthalene	ND	µg/L	10
2-Methylphenol	ND	µg/L	15
3+4-Methylphenol	ND	µg/L	20
N-Nitrosodi-n-propylamine	ND	µg/L	10
N-Nitrosodimethylamine	ND	µg/L	10
N-Nitrosodiphenylamine	ND	µg/L	10
Naphthalene	ND	µg/L	10
2-Nitroaniline	ND	µg/L	50
3-Nitroaniline	ND	µg/L	50
4-Nitroaniline	ND	µg/L	20
Nitrobenzene	ND	µg/L	10
2-Nitrophenol	ND	µg/L	15
4-Nitrophenol	ND	µg/L	50
Pentachlorophenol	ND	µg/L	50
Phenanthrene	ND	µg/L	10
Phenol	ND	µg/L	10
Pyrene	ND	µg/L	15
Pyridine	ND	µg/L	30
1,2,4-Trichlorobenzene	ND	µg/L	10
2,4,5-Trichlorophenol	ND	µg/L	10
2,4,6-Trichlorophenol	ND	µg/L	15

Sample ID: LCS-13084

LCS

Batch ID: 13084

Analysis Date:

6/7/2007

Acenaphthene	78.52	µg/L	10	78.5	11	123
4-Chloro-3-methylphenol	150.4	µg/L	20	75.2	15.4	119
2-Chlorophenol	140.8	µg/L	10	70.4	12.2	122
1,4-Dichlorobenzene	58.80	µg/L	10	58.8	16.9	100
2,4-Dinitrotoluene	61.22	µg/L	10	61.2	13	138
N-Nitrosodi-n-propylamine	68.12	µg/L	10	68.1	9.93	122
4-Nitrophenol	65.32	µg/L	50	32.7	12.5	87.4
Pentachlorophenol	151.8	µg/L	50	75.9	3.55	114
Phenol	86.48	µg/L	10	43.2	7.53	73.1
Pyrene	82.68	µg/L	15	82.7	12.6	140
1,2,4-Trichlorobenzene	57.80	µg/L	10	57.8	17.4	98.7

Sample ID: LCSD-13084

LCSD

Batch ID: 13084

Analysis Date:

6/7/2007

Acenaphthene	75.96	µg/L	10	76.0	11	123	3.31	30.5
4-Chloro-3-methylphenol	152.4	µg/L	20	76.2	15.4	119	1.28	28.6
2-Chlorophenol	135.3	µg/L	10	67.6	12.2	122	4.03	107
1,4-Dichlorobenzene	55.14	µg/L	10	55.1	16.9	100	6.42	62.1
2,4-Dinitrotoluene	63.18	µg/L	10	63.2	13	138	3.15	14.7

## Qualifiers:

- |   |  |    |  |
|---|--|----|--|
| E | Value above quantitation range             | H  | Holding times for preparation or analysis exceeded |
| J | Analyte detected below quantitation limits | ND | Not Detected at the Reporting Limit                |
| R | RPD outside accepted recovery limits       | S  | Sample recovery outside accepted recovery limits   |

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: SWB270C</b>									
Sample ID: LCSD-13084		LCSD			Batch ID: 13084		Analysis Date:		6/7/2007
N-Nitrosodi-n-propylamine	63.86	µg/L	10	63.9	9.93	122	6.46	30.3	
4-Nitrophenol	70.54	µg/L	50	35.3	12.5	87.4	7.68	36.3	
Pentachlorophenol	153.5	µg/L	50	76.7	3.55	114	1.10	49	
Phenol	82.98	µg/L	10	41.5	7.53	73.1	4.13	52.4	
Pyrene	80.56	µg/L	15	80.6	12.6	140	2.60	16.3	
1,2,4-Trichlorobenzene	58.54	µg/L	10	58.5	17.4	98.7	1.27	36.4	
<b>Method: SW7470</b>									
Sample ID: MB-13077		MBLK			Batch ID: 13077		Analysis Date:		5/30/2007
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-13077		LCS			Batch ID: 13077		Analysis Date:		5/30/2007
Mercury	0.005044	mg/L	0.00020	101	80	120			
<b>Method: SW6010A</b>									
Sample ID: MB-13076		MBLK			Batch ID: 13076		Analysis Date:		6/1/2007 9:04:59 AM
Arsenic	ND	mg/L	0.020						
Barium	ND	mg/L	0.020						
Cadmium	ND	mg/L	0.0020						
Calcium	ND	mg/L	1.0						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Silver	ND	mg/L	0.0050						
Sodium	ND	mg/L	1.0						
Sample ID: LCS-13076		LCS			Batch ID: 13076		Analysis Date:		6/1/2007 9:08:02 AM
Arsenic	0.4875	mg/L	0.020	97.5	80	120			
Barium	0.4854	mg/L	0.020	97.1	80	120			
Cadmium	0.4855	mg/L	0.0020	97.1	80	120			
Calcium	50.75	mg/L	1.0	101	80	120			
Chromium	0.4941	mg/L	0.0060	98.8	80	120			
Lead	0.4788	mg/L	0.0050	95.8	80	120			
Magnesium	51.02	mg/L	1.0	102	80	120			
Potassium	53.56	mg/L	1.0	107	80	120			
Silver	0.5020	mg/L	0.0050	100	80	120			
Sodium	54.78	mg/L	1.0	110	80	120			

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
 Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R23881

Analysis Date:

6/6/2007 7:01:43 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0

## Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Giant Refining Co  
Project: GWM-1 Annual 2007

Work Order: 0705390

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: SW8260B

Sample ID: 5ml rb

MBLK

Batch ID: R23881 Analysis Date: 6/6/2007 7:01:43 AM

4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	1.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 100ng lcs

LCS

Batch ID: R23881 Analysis Date: 6/6/2007 8:59:30 AM

Benzene	20.46	µg/L	1.0	102	82.4	128
Toluene	21.09	µg/L	1.0	105	77.2	115
Chlorobenzene	20.48	µg/L	1.0	102	78.3	117
1,1-Dichloroethene	23.61	µg/L	1.0	118	90.7	132
Trichloroethene (TCE)	19.79	µg/L	1.0	98.9	71.8	113

## Qualifiers:

E Value above quantitation range  
J Analyte detected below quantitation limits  
R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
S Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name GIANTREFIN

Date and Time Received:

5/25/2007

Work Order Number 0705390

Received by TLS

Checklist completed by

Signature

Date

5/25/07

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 ☐

Container/Temp Blank temperature?

5°

4° C ± 2 Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

added 1ml HNO3 for acceptable pH / AT 5/25/07

Corrective Action





## COVER LETTER

Monday, January 21, 2008

Jim Lieb  
Western Refining Southwest, Gallup  
Rt. 3 Box 7  
Gallup, NM 87301

TEL: (505) 722-3833

FAX (505) 722-0210

RE: 2007 Annual GW Samples

Order No.: 0801006

Dear Jim Lieb:

Hall Environmental Analysis Laboratory, Inc. received 20 sample(s) on 1/2/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager  
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425  
AZ license # AZ0682  
ORELAP Lab # NM100001



**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Project:** 2007 Annual GW Samples  
**Lab Order:** 0801006

**CASE NARRATIVE**

Analytical Comments for METHOD 8015GRO\_W, SAMPLE 0801006-10A: Elevated surrogate due to matrix interference. Analytical Comments for METHOD 8260\_W, SAMPLE 0801006-18a: Sample had sheen. Analytical Comments for METHOD 8260\_W, SAMPLE 0801006-19a: Sample had sheen.

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-01

Client Sample ID: OW-11  
 Collection Date: 12/27/2007 9:15:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 7470: MERCURY</b>						
Mercury	ND	0.00020		mg/L	1	Analyst: SLB 1/3/2008 3:08:19 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						
Arsenic	ND	0.020		mg/L	1	Analyst: TES 1/15/2008 4:43:21 PM
Barium	ND	0.010		mg/L	1	1/15/2008 4:43:21 PM
Cadmium	ND	0.0020		mg/L	1	1/15/2008 4:43:21 PM
Calcium	11	0.50		mg/L	1	1/15/2008 4:43:21 PM
Chromium	ND	0.0060		mg/L	1	1/15/2008 4:43:21 PM
Copper	ND	0.0060		mg/L	1	1/15/2008 4:43:21 PM
Iron	ND	0.050		mg/L	1	1/15/2008 4:43:21 PM
Lead	ND	0.0050		mg/L	1	1/15/2008 4:43:21 PM
Magnesium	1.3	0.50		mg/L	1	1/15/2008 4:43:21 PM
Manganese	0.016	0.0020		mg/L	1	1/15/2008 4:43:21 PM
Potassium	1.6	1.0		mg/L	1	1/15/2008 4:43:21 PM
Selenium	ND	0.050		mg/L	1	1/15/2008 4:43:21 PM
Silver	ND	0.0050		mg/L	1	1/15/2008 4:43:21 PM
Sodium	690	5.0		mg/L	10	1/18/2008 6:21:32 PM
Uranium	0.22	0.10		mg/L	1	1/15/2008 4:43:21 PM
Zinc	ND	0.020		mg/L	1	1/15/2008 4:43:21 PM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						
Benzene	ND	1.0		µg/L	1	Analyst: BDH 1/7/2008 3:57:39 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 3:57:39 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 3:57:39 PM
Acetone	ND	10		µg/L	1	1/7/2008 3:57:39 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 3:57:39 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 3:57:39 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-01

Client Sample ID: OW-11  
Collection Date: 12/27/2007 9:15:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Chloroethane	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 3:57:39 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 3:57:39 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 3:57:39 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-01

**Client Sample ID:** OW-11  
**Collection Date:** 12/27/2007 9:15:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 3:57:39 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 3:57:39 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 3:57:39 PM
Surr: 1,2-Dichloroethane-d4	113	68.1-123		%REC	1	1/7/2008 3:57:39 PM
Surr: 4-Bromofluorobenzene	118	53.2-145		%REC	1	1/7/2008 3:57:39 PM
Surr: Dibromofluoromethane	110	68.5-119		%REC	1	1/7/2008 3:57:39 PM
Surr: Toluene-d8	114	64-131		%REC	1	1/7/2008 3:57:39 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

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# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-02

Client Sample ID: OW-12  
Collection Date: 12/27/2007 11:45:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 4:25:51 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 4:25:51 PM
Acetone	ND	10		µg/L	1	1/7/2008 4:25:51 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 4:25:51 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 4:25:51 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-02

Client Sample ID: OW-12  
Collection Date: 12/27/2007 11:45:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
2-Hexanone	ND	10		µg/L	1	1/7/2008 4:25:51 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 4:25:51 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 4:25:51 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 4:25:51 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 4:25:51 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 4:25:51 PM
Surr: 1,2-Dichloroethane-d4	119	68.1-123		%REC	1	1/7/2008 4:25:51 PM
Surr: 4-Bromofluorobenzene	114	53.2-145		%REC	1	1/7/2008 4:25:51 PM
Surr: Dibromofluoromethane	112	68.5-119		%REC	1	1/7/2008 4:25:51 PM
Surr: Toluene-d8	115	64-131		%REC	1	1/7/2008 4:25:51 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-03

Client Sample ID: OW-13  
 Collection Date: 12/27/2007 2:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Methyl tert-butyl ether (MTBE)	1.3	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 4:53:54 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 4:53:54 PM
Acetone	ND	10		µg/L	1	1/7/2008 4:53:54 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 4:53:54 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 4:53:54 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-03

**Client Sample ID:** OW-13  
**Collection Date:** 12/27/2007 2:30:00 PM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
2-Hexanone	ND	10		µg/L	1	1/7/2008 4:53:54 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 4:53:54 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 4:53:54 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 4:53:54 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 4:53:54 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 4:53:54 PM
Surr: 1,2-Dichloroethane-d4	118	68.1-123		%REC	1	1/7/2008 4:53:54 PM
Surr: 4-Bromofluorobenzene	112	53.2-145		%REC	1	1/7/2008 4:53:54 PM
Surr: Dibromofluoromethane	113	68.5-119		%REC	1	1/7/2008 4:53:54 PM
Surr: Toluene-d8	113	64-131		%REC	1	1/7/2008 4:53:54 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-04

Client Sample ID: OW-14  
Collection Date: 1/1/2008 2:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	14	5.0		µg/L	5	1/10/2008 1:56:18 PM
Toluene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Ethylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Methyl tert-butyl ether (MTBE)	920	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2,4-Trimethylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,3,5-Trimethylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Naphthalene	ND	10		µg/L	5	1/10/2008 1:56:18 PM
1-Methylnaphthalene	27	20		µg/L	5	1/10/2008 1:56:18 PM
2-Methylnaphthalene	ND	20		µg/L	5	1/10/2008 1:56:18 PM
Acetone	ND	50		µg/L	5	1/10/2008 1:56:18 PM
Bromobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Bromochloromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Bromodichloromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Brombform	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Bromomethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
2-Butanone	ND	50		µg/L	5	1/10/2008 1:56:18 PM
Carbon disulfide	ND	50		µg/L	5	1/10/2008 1:56:18 PM
Carbon Tetrachloride	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Chlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Chloroethane	ND	10		µg/L	5	1/10/2008 1:56:18 PM
Chloroform	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Chloromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
2-Chlorotoluene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
4-Chlorotoluene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
cis-1,2-DCE	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	1/10/2008 1:56:18 PM
Dibromochloromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Dibromomethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2-Dichlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,3-Dichlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,4-Dichlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Dichlorodifluoromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1-Dichloroethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1-Dichloroethene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2-Dichloropropane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,3-Dichloropropane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
2,2-Dichloropropane	ND	10		µg/L	5	1/10/2008 1:56:18 PM
1,1-Dichloropropene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Hexachlorobutadiene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-04

Client Sample ID: OW-14  
Collection Date: 1/1/2008 2:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
2-Hexanone	ND	50		µg/L	5	1/10/2008 1:56:18 PM
Isopropylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
4-Isopropyltoluene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
4-Methyl-2-pentanone	ND	50		µg/L	5	1/10/2008 1:56:18 PM
Methylene Chloride	ND	15		µg/L	5	1/10/2008 1:56:18 PM
n-Butylbenzene	52	5.0		µg/L	5	1/10/2008 1:56:18 PM
n-Propylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
sec-Butylbenzene	5.7	5.0		µg/L	5	1/10/2008 1:56:18 PM
Styrene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
tert-Butylbenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	1/10/2008 1:56:18 PM
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
trans-1,2-DCE	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1,1-Trichloroethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,1,2-Trichloroethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Trichloroethene (TCE)	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Trichlorofluoromethane	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
1,2,3-Trichloropropane	ND	10		µg/L	5	1/10/2008 1:56:18 PM
Vinyl chloride	ND	5.0		µg/L	5	1/10/2008 1:56:18 PM
Xylenes, Total	ND	7.5		µg/L	5	1/10/2008 1:56:18 PM
Surr: 1,2-Dichloroethane-d4	99.1	68.1-123		%REC	5	1/10/2008 1:56:18 PM
Surr: 4-Bromofluorobenzene	103	53.2-145		%REC	5	1/10/2008 1:56:18 PM
Surr: Dibromofluoromethane	102	68.5-119		%REC	5	1/10/2008 1:56:18 PM
Surr: Toluene-d8	100	64-131		%REC	5	1/10/2008 1:56:18 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-05

Client Sample ID: OW-29  
 Collection Date: 12/28/2007 12:00:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Methyl tert-butyl ether (MTBE)	4.3	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 5:52:22 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 5:52:22 PM
Acetone	ND	10		µg/L	1	1/7/2008 5:52:22 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 5:52:22 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 5:52:22 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit



## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-05

Client Sample ID: OW-29  
 Collection Date: 12/28/2007 12:00:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
2-Hexanone	ND	10		µg/L	1	1/7/2008 5:52:22 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 5:52:22 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 5:52:22 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 5:52:22 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 5:52:22 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 5:52:22 PM
Surr: 1,2-Dichloroethane-d4	120	68.1-123		%REC	1	1/7/2008 5:52:22 PM
Surr: 4-Bromofluorobenzene	102	53.2-145		%REC	1	1/7/2008 5:52:22 PM
Surr: Dibromofluoromethane	113	68.5-119		%REC	1	1/7/2008 5:52:22 PM
Surr: Toluene-d8	108	64-131		%REC	1	1/7/2008 5:52:22 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-06

Client Sample ID: OW-30  
 Collection Date: 12/28/2007 2:25:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Methyl tert-butyl ether (MTBE)	290	5.0		µg/L	5	1/10/2008 1:25:46 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2-Dichloroethane (EDC)	1.2	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 6:20:27 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 6:20:27 PM
Acetone	ND	10		µg/L	1	1/7/2008 6:20:27 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 6:20:27 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 6:20:27 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-06

Client Sample ID: OW-30  
 Collection Date: 12/28/2007 2:25:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
2-Hexanone	ND	10		µg/L	1	1/7/2008 6:20:27 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 6:20:27 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 6:20:27 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 6:20:27 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 6:20:27 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 6:20:27 PM
Surr: 1,2-Dichloroethane-d4	119	68.1-123		%REC	1	1/7/2008 6:20:27 PM
Surr: 4-Bromofluorobenzene	105	53.2-145		%REC	1	1/7/2008 6:20:27 PM
Surr: Dibromofluoromethane	112	68.5-119		%REC	1	1/7/2008 6:20:27 PM
Surr: Toluene-d8	113	64-131		%REC	1	1/7/2008 6:20:27 PM

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-07

Client Sample ID: MW-1  
Collection Date: 12/29/2007 9:10:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2008 11:41:00 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2008 11:41:00 AM
Surr: DNOP	114	58-140		%REC	1	1/3/2008 11:41:00 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/4/2008 7:35:37 PM
Surr: BFB	102	79.2-121		%REC	1	1/4/2008 7:35:37 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	0.89	0.10		mg/L	1	1/3/2008 3:14:37 PM
Chloride	53	1.0		mg/L	10	1/3/2008 3:32:02 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 10:01:17 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 3:14:37 PM
Sulfate	170	5.0		mg/L	10	1/3/2008 3:32:02 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:10:05 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	1/14/2008 8:41:01 AM
Barium	ND	0.020		mg/L	1	1/14/2008 8:41:01 AM
Cadmium	ND	0.0020		mg/L	1	1/14/2008 8:41:01 AM
Calcium	1.9	1.0		mg/L	1	1/14/2008 8:41:01 AM
Chromium	ND	0.0060		mg/L	1	1/14/2008 8:41:01 AM
Lead	ND	0.0050		mg/L	1	1/14/2008 8:41:01 AM
Magnesium	ND	1.0		mg/L	1	1/14/2008 8:41:01 AM
Potassium	ND	1.0		mg/L	1	1/14/2008 8:41:01 AM
Selenium	ND	0.050		mg/L	1	1/14/2008 8:41:01 AM
Silver	ND	0.0050		mg/L	1	1/14/2008 8:41:01 AM
Sodium	230	10		mg/L	10	1/14/2008 12:17:02 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	0.020	0.020		mg/L	1	1/12/2008 3:23:29 PM
Barium	ND	0.020		mg/L	1	1/12/2008 3:23:29 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:23:29 PM
Calcium	3.2	1.0		mg/L	1	1/12/2008 3:23:29 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 3:23:29 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 3:23:29 PM
Iron	0.092	0.050		mg/L	1	1/12/2008 3:23:29 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:23:29 PM
Magnesium	ND	1.0		mg/L	1	1/12/2008 3:23:29 PM
Manganese	0.018	0.0020		mg/L	1	1/12/2008 3:23:29 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-07

Client Sample ID: MW-1  
Collection Date: 12/29/2007 9:10:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Potassium	ND	1.0		mg/L	1	1/12/2008 3:23:29 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 3:23:29 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:23:29 PM
Sodium	280	5.0		mg/L	5	1/15/2008 11:25:26 AM
Uranium	ND	0.10		mg/L	1	1/12/2008 3:23:29 PM
Zinc	ND	0.050		mg/L	1	1/12/2008 3:23:29 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-07

Client Sample ID: MW-1  
Collection Date: 12/29/2007 9:10:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	51.7	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	62.6	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	40.0	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	89.6	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	57.8	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	28.6	10.7-80.3		%REC	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-07

Client Sample ID: MW-1  
Collection Date: 12/29/2007 9:10:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 6:48:28 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 6:48:28 PM
Acetone	ND	10		µg/L	1	1/7/2008 6:48:28 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 6:48:28 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 6:48:28 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-07

Client Sample ID: MW-1  
Collection Date: 12/29/2007 9:10:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 6:48:28 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 6:48:28 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 6:48:28 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 6:48:28 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 6:48:28 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 6:48:28 PM
Surr: 1,2-Dichloroethane-d4	120	68.1-123		%REC	1	1/7/2008 6:48:28 PM
Surr: 4-Bromofluorobenzene	110	53.2-145		%REC	1	1/7/2008 6:48:28 PM
Surr: Dibromofluoromethane	110	68.5-119		%REC	1	1/7/2008 6:48:28 PM
Surr: Toluene-d8	117	64-131		%REC	1	1/7/2008 6:48:28 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1100	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.89	0.1		pH units	1	1/2/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-08

Client Sample ID: MW-4  
Collection Date: 12/29/2007 4:00:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2008 12:11:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2008 12:11:58 PM
Surr: DNOP	111	58-140		%REC	1	1/3/2008 12:11:58 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/4/2008 8:35:45 PM
Surr: BFB	104	79.2-121		%REC	1	1/4/2008 8:35:45 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	0.42	0.10		mg/L	1	1/3/2008 3:49:27 PM
Chloride	17	0.10		mg/L	1	1/3/2008 3:49:27 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 12:03:07 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 3:49:27 PM
Sulfate	160	5.0		mg/L	10	1/3/2008 4:06:52 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:11:50 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	1/14/2008 8:45:11 AM
Barium	ND	0.020		mg/L	1	1/14/2008 8:45:11 AM
Cadmium	ND	0.0020		mg/L	1	1/14/2008 8:45:11 AM
Calcium	1.9	1.0		mg/L	1	1/14/2008 8:45:11 AM
Chromium	ND	0.0060		mg/L	1	1/14/2008 8:45:11 AM
Lead	ND	0.0050		mg/L	1	1/14/2008 8:45:11 AM
Magnesium	ND	1.0		mg/L	1	1/14/2008 8:45:11 AM
Potassium	ND	1.0		mg/L	1	1/14/2008 8:45:11 AM
Selenium	ND	0.050		mg/L	1	1/14/2008 8:45:11 AM
Silver	ND	0.0050		mg/L	1	1/14/2008 8:45:11 AM
Sodium	250	10		mg/L	10	1/14/2008 12:20:05 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 3:27:36 PM
Barium	0.021	0.020		mg/L	1	1/12/2008 3:27:36 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:27:36 PM
Calcium	1.9	1.0		mg/L	1	1/12/2008 3:27:36 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 3:27:36 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 3:27:36 PM
Iron	ND	0.050		mg/L	1	1/12/2008 3:27:36 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:27:36 PM
Magnesium	ND	1.0		mg/L	1	1/12/2008 3:27:36 PM
Manganese	0.0052	0.0020		mg/L	1	1/12/2008 3:27:36 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-08

Client Sample ID: MW-4  
Collection Date: 12/29/2007 4:00:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Potassium	ND	1.0		mg/L	1	1/12/2008 3:27:36 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 3:27:36 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:27:36 PM
Sodium	320	5.0		mg/L	5	1/15/2008 11:28:22 AM
Uranium	ND	0.10		mg/L	1	1/12/2008 3:27:36 PM
Zinc	ND	0.050		mg/L	1	1/12/2008 3:27:36 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: MW-4

Lab Order: 0801006

Collection Date: 12/29/2007 4:00:00 PM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-08

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	14.8	16.6-150	S	%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	72.6	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	48.5	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	88.7	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	69.5	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	35.8	10.7-80.3		%REC	1	1/9/2008

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: MW-4

Lab Order: 0801006

Collection Date: 12/29/2007 4:00:00 PM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-08

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC

## EPA METHOD 8260B: VOLATILES

Analyst: BDH

Benzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 7:16:29 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 7:16:29 PM
Acetone	ND	10		µg/L	1	1/7/2008 7:16:29 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 7:16:29 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 7:16:29 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-08

Client Sample ID: MW-4  
 Collection Date: 12/29/2007 4:00:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 7:16:29 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 7:16:29 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 7:16:29 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 7:16:29 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 7:16:29 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 7:16:29 PM
Surr: 1,2-Dichloroethane-d4	118	68.1-123		%REC	1	1/7/2008 7:16:29 PM
Surr: 4-Bromofluorobenzene	97.4	53.2-145		%REC	1	1/7/2008 7:16:29 PM
Surr: Dibromofluoromethane	118	68.5-119		%REC	1	1/7/2008 7:16:29 PM
Surr: Toluene-d8	113	64-131		%REC	1	1/7/2008 7:16:29 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1200	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.63	0.1		pH units	1	1/2/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-09

Client Sample ID: MW-5  
Collection Date: 12/29/2007 12:45:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2008 12:42:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2008 12:42:51 PM
Surr: DNOP	119	58-140		%REC	1	1/3/2008 12:42:51 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/4/2008 9:05:54 PM
Surr: BFB	101	79.2-121		%REC	1	1/4/2008 9:05:54 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	0.91	0.10		mg/L	1	1/3/2008 4:24:17 PM
Chloride	85	1.0		mg/L	10	1/3/2008 4:41:41 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 12:20:32 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 4:24:17 PM
Sulfate	180	5.0		mg/L	10	1/3/2008 4:41:41 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:13:37 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	1/14/2008 8:49:18 AM
Barium	ND	0.020		mg/L	1	1/14/2008 8:49:18 AM
Cadmium	ND	0.0020		mg/L	1	1/14/2008 8:49:18 AM
Calcium	1.4	1.0		mg/L	1	1/14/2008 8:49:18 AM
Chromium	ND	0.0060		mg/L	1	1/14/2008 8:49:18 AM
Lead	ND	0.0050		mg/L	1	1/14/2008 8:49:18 AM
Magnesium	ND	1.0		mg/L	1	1/14/2008 8:49:18 AM
Potassium	ND	1.0		mg/L	1	1/14/2008 8:49:18 AM
Selenium	ND	0.050		mg/L	1	1/14/2008 8:49:18 AM
Silver	ND	0.0050		mg/L	1	1/14/2008 8:49:18 AM
Sodium	240	10		mg/L	10	1/14/2008 12:23:07 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 3:31:44 PM
Barium	ND	0.020		mg/L	1	1/12/2008 3:31:44 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:31:44 PM
Calcium	1.5	1.0		mg/L	1	1/12/2008 3:31:44 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 3:31:44 PM
Copper	ND	0.0080		mg/L	1	1/12/2008 3:31:44 PM
Iron	ND	0.050		mg/L	1	1/12/2008 3:31:44 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:31:44 PM
Magnesium	ND	1.0		mg/L	1	1/12/2008 3:31:44 PM
Manganese	0.0045	0.0020		mg/L	1	1/12/2008 3:31:44 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: MW-5

Lab Order: 0801006

Collection Date: 12/29/2007 12:45:00 PM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-09

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Potassium	ND	1.0		mg/L	1	1/12/2008 3:31:44 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 3:31:44 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:31:44 PM
Sodium	290	5.0		mg/L	5	1/15/2008 11:31:18 AM
Uranium	ND	0.10		mg/L	1	1/12/2008 3:31:44 PM
Zinc	ND	0.050		mg/L	1	1/12/2008 3:31:44 PM

<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-09

Client Sample ID: MW-5  
Collection Date: 12/29/2007 12:45:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	15.9	16.6-150	S	%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	83.2	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	55.2	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	112	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	79.3	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	39.4	10.7-80.3		%REC	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-09

Client Sample ID: MW-5  
Collection Date: 12/29/2007 12:45:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 7:44:34 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 7:44:34 PM
Acetone	ND	10		µg/L	1	1/7/2008 7:44:34 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 7:44:34 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 7:44:34 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: MW-5

Lab Order: 0801006

Collection Date: 12/29/2007 12:45:00 PM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-09

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 7:44:34 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 7:44:34 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 7:44:34 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 7:44:34 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 7:44:34 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 7:44:34 PM
Surr: 1,2-Dichloroethane-d4	114	68.1-123		%REC	1	1/7/2008 7:44:34 PM
Surr: 4-Bromofluorobenzene	105	53.2-145		%REC	1	1/7/2008 7:44:34 PM
Surr: Dibromofluoromethane	108	68.5-119		%REC	1	1/7/2008 7:44:34 PM
Surr: Toluene-d8	112	64-131		%REC	1	1/7/2008 7:44:34 PM

## EPA 120.1: SPECIFIC CONDUCTANCE

Analyst: NSB

Specific Conductance	1200	0.010	µmhos/cm	1	1/2/2008
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## SM4500-H+B: PH

Analyst: NSB

pH	8.93	0.1	pH units	1	1/2/2008
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Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-10

Client Sample ID: SMW-2  
Collection Date: 1/1/2008 10:30:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 504.1: EDB</b>						Analyst: JAT
1,2-Dibromoethane	ND	0.010		µg/L	1	1/8/2008 1:51:37 PM
Surr: 1,2,3-Trichloropropane	122	54.9-135		%REC	1	1/8/2008 1:51:37 PM
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2008 1:13:49 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2008 1:13:49 PM
Surr: DNOP	114	58-140		%REC	1	1/3/2008 1:13:49 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	0.69	0.050		mg/L	1	1/7/2008 1:23:17 PM
Surr: BFB	143	79.2-121	S	%REC	1	1/7/2008 1:23:17 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	0.36	0.10		mg/L	1	1/3/2008 11:28:18 AM
Chloride	2000	10		mg/L	100	1/9/2008 2:25:18 PM
Nitrate (As N)+Nitrite (As N)	ND	2.0		mg/L	10	1/4/2008 9:02:32 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 11:28:18 AM
Sulfate	1600	50		mg/L	100	1/9/2008 2:25:18 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:15:24 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	1/14/2008 11:13:08 AM
Barium	ND	0.020		mg/L	1	1/14/2008 11:13:08 AM
Cadmium	ND	0.0020		mg/L	1	1/14/2008 11:13:08 AM
Calcium	190	100		mg/L	100	1/14/2008 12:27:50 PM
Chromium	ND	0.0060		mg/L	1	1/14/2008 11:13:08 AM
Lead	ND	0.0050		mg/L	1	1/14/2008 11:13:08 AM
Magnesium	64	1.0		mg/L	1	1/14/2008 11:13:08 AM
Potassium	1.1	1.0		mg/L	1	1/14/2008 11:13:08 AM
Selenium	ND	0.050		mg/L	1	1/14/2008 11:13:08 AM
Silver	ND	0.0050		mg/L	1	1/14/2008 11:13:08 AM
Sodium	1700	100		mg/L	100	1/14/2008 12:27:50 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 3:50:24 PM
Barium	ND	0.020		mg/L	1	1/12/2008 3:50:24 PM
Beryllium	ND	0.0030		mg/L	1	1/12/2008 3:50:24 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:50:24 PM
Calcium	200	5.0		mg/L	5	1/15/2008 11:38:30 AM
Chromium	0.055	0.0060		mg/L	1	1/12/2008 3:50:24 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-10

Client Sample ID: SMW-2  
Collection Date: 1/1/2008 10:30:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Cobalt	ND	0.0060		mg/L	1	1/15/2008 11:34:14 AM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:50:24 PM
Magnesium	69	1.0		mg/L	1	1/12/2008 3:50:24 PM
Nickel	0.026	0.010		mg/L	1	1/12/2008 3:50:24 PM
Potassium	1.1	1.0		mg/L	1	1/12/2008 3:50:24 PM
Selenium	ND	0.25		mg/L	5	1/15/2008 11:38:30 AM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:50:24 PM
Sodium	2200	50		mg/L	50	1/15/2008 11:44:14 AM
Vanadium	ND	0.050		mg/L	1	1/12/2008 3:50:24 PM
Zinc	ND	0.050		mg/L	1	1/12/2008 3:50:24 PM

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Methyl tert-butyl ether (MTBE)	9.9	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 8:43:21 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 8:43:21 PM
Acetone	ND	10		µg/L	1	1/7/2008 8:43:21 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 8:43:21 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 8:43:21 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-10

Client Sample ID: SMW-2  
 Collection Date: 1/1/2008 10:30:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 8:43:21 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 8:43:21 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 8:43:21 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 8:43:21 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 8:43:21 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 8:43:21 PM
Surr: 1,2-Dichloroethane-d4	119	68.1-123		%REC	1	1/7/2008 8:43:21 PM
Surr: 4-Bromofluorobenzene	107	53.2-145		%REC	1	1/7/2008 8:43:21 PM
Surr: Dibromofluoromethane	109	68.5-119		%REC	1	1/7/2008 8:43:21 PM
Surr: Toluene-d8	114	64-131		%REC	1	1/7/2008 8:43:21 PM

## EPA 120.1: SPECIFIC CONDUCTANCE

Analyst: NSB

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

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**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-10

**Client Sample ID:** SMW-2  
**Collection Date:** 1/1/2008 10:30:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						
Specific Conductance	9200	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						
pH	7.29	0.1		pH units	1	1/2/2008

Analyst: NSB

Analyst: NSB

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

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# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-11

**Client Sample ID:** SMW-4  
**Collection Date:** 12/29/2007 10:15:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 504.1: EDB</b>						Analyst: JAT
1,2-Dibromoethane	ND	0.010		µg/L	1	1/8/2008 2:09:37 PM
Surr: 1,2,3-Trichloropropane	115	54.9-135		%REC	1	1/8/2008 2:09:37 PM
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/3/2008 2:14:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/3/2008 2:14:39 PM
Surr: DNOP	121	58-140		%REC	1	1/3/2008 2:14:39 PM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/5/2008 12:39:02 AM
Surr: BFB	99.6	79.2-121		%REC	1	1/5/2008 12:39:02 AM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	1.4	0.10		mg/L	1	1/3/2008 4:59:06 PM
Chloride	60	1.0		mg/L	10	1/3/2008 5:51:20 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 12:37:56 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 4:59:06 PM
Sulfate	180	5.0		mg/L	10	1/3/2008 5:51:20 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:17:12 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: NMO
Arsenic	ND	0.020		mg/L	1	1/14/2008 11:18:58 AM
Barium	ND	0.020		mg/L	1	1/14/2008 11:18:58 AM
Cadmium	ND	0.0020		mg/L	1	1/14/2008 11:18:58 AM
Calcium	3.6	1.0		mg/L	1	1/14/2008 11:18:58 AM
Chromium	ND	0.0060		mg/L	1	1/14/2008 11:18:58 AM
Lead	ND	0.0050		mg/L	1	1/14/2008 11:18:58 AM
Magnesium	ND	1.0		mg/L	1	1/14/2008 11:18:58 AM
Potassium	ND	1.0		mg/L	1	1/14/2008 11:18:58 AM
Selenium	ND	0.050		mg/L	1	1/14/2008 11:18:58 AM
Silver	ND	0.0050		mg/L	1	1/14/2008 11:18:58 AM
Sodium	260	10		mg/L	10	1/14/2008 12:30:56 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 3:54:44 PM
Barium	0.024	0.020		mg/L	1	1/12/2008 3:54:44 PM
Beryllium	ND	0.0030		mg/L	1	1/12/2008 3:54:44 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:54:44 PM
Calcium	4.6	1.0		mg/L	1	1/12/2008 3:54:44 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 3:54:44 PM

**Qualifiers:**  
 \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-11

Client Sample ID: SMW-4  
Collection Date: 12/29/2007 10:15:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Cobalt	ND	0.0060		mg/L	1	1/15/2008 11:47:07 AM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:54:44 PM
Magnesium	1.2	1.0		mg/L	1	1/12/2008 3:54:44 PM
Nickel	ND	0.010		mg/L	1	1/12/2008 3:54:44 PM
Potassium	ND	1.0		mg/L	1	1/12/2008 3:54:44 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 3:54:44 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:54:44 PM
Sodium	340	5.0		mg/L	5	1/15/2008 11:51:07 AM
Vanadium	ND	0.050		mg/L	1	1/12/2008 3:54:44 PM
Zinc	ND	0.050		mg/L	1	1/12/2008 3:54:44 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 9:39:46 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 9:39:46 PM
Acetone	ND	10		µg/L	1	1/7/2008 9:39:46 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 9:39:46 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 9:39:46 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-11

Client Sample ID: SMW-4  
Collection Date: 12/29/2007 10:15:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 9:39:46 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 9:39:46 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 9:39:46 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 9:39:46 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 9:39:46 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 9:39:46 PM
Surr: 1,2-Dichloroethane-d4	113	68.1-123		%REC	1	1/7/2008 9:39:46 PM
Surr: 4-Bromofluorobenzene	104	53.2-145		%REC	1	1/7/2008 9:39:46 PM
Surr: Dibromofluoromethane	111	68.5-119		%REC	1	1/7/2008 9:39:46 PM
Surr: Toluene-d8	112	64-131		%REC	1	1/7/2008 9:39:46 PM

## EPA 120.1: SPECIFIC CONDUCTANCE

Analyst: NSB

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

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**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-11

**Client Sample ID:** SMW-4  
**Collection Date:** 12/29/2007 10:15:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1300	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.34	0.1		pH units	1	1/2/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

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## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

<b>CLIENT:</b>	Western Refining Southwest, Gallup	<b>Client Sample ID:</b>	BW-1C
<b>Lab Order:</b>	0801006	<b>Collection Date:</b>	12/31/2007 10:30:00 AM
<b>Project:</b>	2007 Annual GW Samples	<b>Date Received:</b>	1/2/2008
<b>Lab ID:</b>	0801006-12	<b>Matrix:</b>	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	2.6	0.10		mg/L	1	1/3/2008 6:08:44 PM
Chloride	35	0.10		mg/L	1	1/3/2008 6:08:44 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 12:55:20 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 6:08:44 PM
Sulfate	270	5.0		mg/L	10	1/3/2008 6:26:08 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:19:00 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 3:58:52 PM
Barium	0.023	0.010		mg/L	1	1/12/2008 3:58:52 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 3:58:52 PM
Calcium	3.6	0.50		mg/L	1	1/12/2008 3:58:52 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 3:58:52 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 3:58:52 PM
Iron	ND	0.050		mg/L	1	1/12/2008 3:58:52 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 3:58:52 PM
Magnesium	0.74	0.50		mg/L	1	1/12/2008 3:58:52 PM
Manganese	0.010	0.0020		mg/L	1	1/12/2008 3:58:52 PM
Potassium	ND	1.0		mg/L	1	1/12/2008 3:58:52 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 3:58:52 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 3:58:52 PM
Sodium	360	2.5		mg/L	5	1/15/2008 11:54:00 AM
Uranium	ND	0.10		mg/L	1	1/12/2008 3:58:52 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 3:58:52 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-12

Client Sample ID: BW-1C  
Collection Date: 12/31/2007 10:30:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-12

Client Sample ID: BW-1C  
Collection Date: 12/31/2007 10:30:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	13.9	16.6-150	S	%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	89.8	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	62.1	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	81.8	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	88.1	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	44.2	10.7-80.3		%REC	1	1/9/2008

<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 10:08:01 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 10:08:01 PM
Acetone	ND	10		µg/L	1	1/7/2008 10:08:01 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 10:08:01 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 10:08:01 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-12

**Client Sample ID:** BW-1C  
**Collection Date:** 12/31/2007 10:30:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 10:08:01 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 10:08:01 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 10:08:01 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** BW-1C**Lab Order:** 0801006**Collection Date:** 12/31/2007 10:30:00 AM**Project:** 2007 Annual GW Samples**Date Received:** 1/2/2008**Lab ID:** 0801006-12**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 10:08:01 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 10:08:01 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 10:08:01 PM
Surr: 1,2-Dichloroethane-d4	114	68.1-123		%REC	1	1/7/2008 10:08:01 PM
Surr: 4-Bromofluorobenzene	107	53.2-145		%REC	1	1/7/2008 10:08:01 PM
Surr: Dibromofluoromethane	111	68.5-119		%REC	1	1/7/2008 10:08:01 PM
Surr: Toluene-d8	113	64-131		%REC	1	1/7/2008 10:08:01 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1400	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.50	0.1		pH units	1	1/2/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

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## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-13

Client Sample ID: BW-2A  
 Collection Date: 12/31/2007 12:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	1.3	0.10		mg/L	1	1/3/2008 6:43:33 PM
Chloride	42	1.0		mg/L	10	1/3/2008 7:00:58 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 1:12:45 PM
Phosphorus, Orthophosphate (As P)	0.70	0.50	H	mg/L	1	1/3/2008 6:43:33 PM
Sulfate	7.7	0.50		mg/L	1	1/3/2008 6:43:33 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:26:21 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:03:01 PM
Barium	0.18	0.010		mg/L	1	1/12/2008 4:03:01 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:03:01 PM
Calcium	11	0.50		mg/L	1	1/12/2008 4:03:01 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:03:01 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:03:01 PM
Iron	0.70	0.050		mg/L	1	1/12/2008 4:03:01 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:03:01 PM
Magnesium	3.9	0.50		mg/L	1	1/12/2008 4:03:01 PM
Manganese	0.22	0.0020		mg/L	1	1/12/2008 4:03:01 PM
Potassium	ND	1.0		mg/L	1	1/12/2008 4:03:01 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:03:01 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:03:01 PM
Sodium	380	2.5		mg/L	5	1/15/2008 11:56:55 AM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:03:01 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 4:03:01 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-13

Client Sample ID: BW-2A  
Collection Date: 12/31/2007 12:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-13

Client Sample ID: BW-2A  
 Collection Date: 12/31/2007 12:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	17.3	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	81.9	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	49.8	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	67.4	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	77.2	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	36.3	10.7-80.3		%REC	1	1/9/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Toluene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Naphthalene	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 10:36:17 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2008 10:36:17 PM
Acetone	ND	10		µg/L	1	1/7/2008 10:36:17 PM
Bromobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Bromochloromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Bromoform	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Bromomethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
2-Butanone	ND	10		µg/L	1	1/7/2008 10:36:17 PM
Carbon disulfide	ND	10		µg/L	1	1/7/2008 10:36:17 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

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## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-13

Client Sample ID: BW-2A  
 Collection Date: 12/31/2007 12:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Chloroethane	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
Chloroform	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Chloromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Dibromomethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
2-Hexanone	ND	10		µg/L	1	1/7/2008 10:36:17 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2008 10:36:17 PM
Methylene Chloride	ND	3.0		µg/L	1	1/7/2008 10:36:17 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Styrene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-13

Client Sample ID: BW-2A  
 Collection Date: 12/31/2007 12:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2008 10:36:17 PM
Vinyl chloride	ND	1.0		µg/L	1	1/7/2008 10:36:17 PM
Xylenes, Total	ND	1.5		µg/L	1	1/7/2008 10:36:17 PM
Surr: 1,2-Dichloroethane-d4	119	68.1-123		%REC	1	1/7/2008 10:36:17 PM
Surr: 4-Bromofluorobenzene	107	53.2-145		%REC	1	1/7/2008 10:36:17 PM
Surr: Dibromofluoromethane	109	68.5-119		%REC	1	1/7/2008 10:36:17 PM
Surr: Toluene-d8	114	64-131		%REC	1	1/7/2008 10:36:17 PM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1400	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	7.76	0.1		pH units	1	1/2/2008

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-14

Client Sample ID: BW-2B  
Collection Date: 12/31/2007 2:00:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	1.8	0.10		mg/L	1	1/3/2008 7:18:23 PM
Chloride	30	0.10		mg/L	1	1/3/2008 7:18:23 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 1:30:09 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 7:18:23 PM
Sulfate	150	5.0		mg/L	10	1/3/2008 7:35:48 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:28:10 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:07:09 PM
Barium	0.070	0.010		mg/L	1	1/12/2008 4:07:09 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:07:09 PM
Calcium	16	0.50		mg/L	1	1/12/2008 4:07:09 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:07:09 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:07:09 PM
Iron	0.62	0.050		mg/L	1	1/12/2008 4:07:09 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:07:09 PM
Magnesium	3.6	0.50		mg/L	1	1/12/2008 4:07:09 PM
Manganese	0.29	0.0020		mg/L	1	1/12/2008 4:07:09 PM
Potassium	1.6	1.0		mg/L	1	1/12/2008 4:07:09 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:07:09 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:07:09 PM
Sodium	640	5.0		mg/L	10	1/15/2008 12:08:41 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:07:09 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 4:07:09 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-14

Client Sample ID: BW-2B  
 Collection Date: 12/31/2007 2:00:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-14

Client Sample ID: BW-2B  
Collection Date: 12/31/2007 2:00:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMI-VOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	24.8	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	98.8	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	63.6	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	87.1	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	92.9	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	46.2	10.7-80.3		%REC	1	1/9/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Toluene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Ethylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Naphthalene	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 12:57:39 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 12:57:39 AM
Acetone	ND	10		µg/L	1	1/8/2008 12:57:39 AM
Bromobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Bromochloromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Bromodichloromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Bromoform	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Bromomethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
2-Butanone	ND	10		µg/L	1	1/8/2008 12:57:39 AM
Carbon disulfide	ND	10		µg/L	1	1/8/2008 12:57:39 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-14

Client Sample ID: BW-2B  
Collection Date: 12/31/2007 2:00:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Chloroethane	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
Chloroform	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Chloromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
2-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
4-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
cis-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
Dibromochloromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Dibromomethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
2-Hexanone	ND	10		µg/L	1	1/8/2008 12:57:39 AM
Isopropylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/8/2008 12:57:39 AM
Methylene Chloride	ND	3.0		µg/L	1	1/8/2008 12:57:39 AM
n-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
n-Propylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
sec-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Styrene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
tert-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
trans-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-14

Client Sample ID: BW-2B  
 Collection Date: 12/31/2007 2:00:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/8/2008 12:57:39 AM
Vinyl chloride	ND	1.0		µg/L	1	1/8/2008 12:57:39 AM
Xylenes, Total	ND	1.5		µg/L	1	1/8/2008 12:57:39 AM
Surr: 1,2-Dichloroethane-d4	120	68.1-123		%REC	1	1/8/2008 12:57:39 AM
Surr: 4-Bromofluorobenzene	106	53.2-145		%REC	1	1/8/2008 12:57:39 AM
Surr: Dibromofluoromethane	112	68.5-119		%REC	1	1/8/2008 12:57:39 AM
Surr: Toluene-d8	117	64-131		%REC	1	1/8/2008 12:57:39 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	2400	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	7.77	0.1		pH units	1	1/2/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-15

**Client Sample ID:** BW-2C  
**Collection Date:** 12/31/2007 11:00:00 AM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	2.3	0.10		mg/L	1	1/3/2008 7:53:12 PM
Chloride	45	1.0		mg/L	10	1/3/2008 8:10:37 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 2:22:23 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 7:53:12 PM
Sulfate	290	5.0		mg/L	10	1/3/2008 8:10:37 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:29:58 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:12:58 PM
Barium	0.026	0.010		mg/L	1	1/12/2008 4:12:58 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:12:58 PM
Calcium	2.9	0.50		mg/L	1	1/12/2008 4:12:58 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:12:58 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:12:58 PM
Iron	0.16	0.050		mg/L	1	1/12/2008 4:12:58 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:12:58 PM
Magnesium	0.68	0.50		mg/L	1	1/12/2008 4:12:58 PM
Manganese	0.024	0.0020		mg/L	1	1/12/2008 4:12:58 PM
Potassium	ND	1.0		mg/L	1	1/12/2008 4:12:58 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:12:58 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:12:58 PM
Sodium	340	5.0		mg/L	10	1/15/2008 12:11:35 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:12:58 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 4:12:58 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-2C

Lab Order: 0801006

Collection Date: 12/31/2007 11:00:00 AM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-15

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-15

Client Sample ID: BW-2C  
Collection Date: 12/31/2007 11:00:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Penachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	22.0	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	81.5	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	49.0	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	85.3	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	75.5	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	37.3	10.7-80.3		%REC	1	1/9/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Toluene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Ethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Naphthalene	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 1:25:50 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 1:25:50 AM
Acetone	ND	10		µg/L	1	1/8/2008 1:25:50 AM
Bromobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Bromochloromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Bromodichloromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Bromoform	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Bromomethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
2-Butanone	ND	10		µg/L	1	1/8/2008 1:25:50 AM
Carbon disulfide	ND	10		µg/L	1	1/8/2008 1:25:50 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-15

Client Sample ID: BW-2C  
Collection Date: 12/31/2007 11:00:00 AM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Chloroethane	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
Chloroform	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Chloromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
2-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
4-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
cis-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
Dibromochloromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Dibromomethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
2-Hexanone	ND	10		µg/L	1	1/8/2008 1:25:50 AM
Isopropylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/8/2008 1:25:50 AM
Methylene Chloride	ND	3.0		µg/L	1	1/8/2008 1:25:50 AM
n-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
n-Propylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
sec-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Styrene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
tert-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
trans-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

<b>CLIENT:</b>	Western Refining Southwest, Gallup	<b>Client Sample ID:</b>	BW-2C
<b>Lab Order:</b>	0801006	<b>Collection Date:</b>	12/31/2007 11:00:00 AM
<b>Project:</b>	2007 Annual GW Samples	<b>Date Received:</b>	1/2/2008
<b>Lab ID:</b>	0801006-15	<b>Matrix:</b>	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/8/2008 1:25:50 AM
Vinyl chloride	ND	1.0		µg/L	1	1/8/2008 1:25:50 AM
Xylenes, Total	ND	1.5		µg/L	1	1/8/2008 1:25:50 AM
Surr: 1,2-Dichloroethane-d4	118	68.1-123		%REC	1	1/8/2008 1:25:50 AM
Surr: 4-Bromofluorobenzene	104	53.2-145		%REC	1	1/8/2008 1:25:50 AM
Surr: Dibromofluoromethane	112	68.5-119		%REC	1	1/8/2008 1:25:50 AM
Surr: Toluene-d8	112	64-131		%REC	1	1/8/2008 1:25:50 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1400	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.73	0.1		pH units	1	1/2/2008

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-16

Client Sample ID: BW-3B  
 Collection Date: 12/31/2007 3:15:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	1.6	0.10		mg/L	1	1/3/2008 8:28:02 PM
Chloride	35	0.10		mg/L	1	1/3/2008 8:28:02 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 2:39:48 PM
Phosphorus, Orthophosphate (As P)	1.1	0.50	H	mg/L	1	1/3/2008 8:28:02 PM
Sulfate	51	0.50		mg/L	1	1/3/2008 8:28:02 PM

<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:31:48 PM

<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:17:07 PM
Barium	0.099	0.010		mg/L	1	1/12/2008 4:17:07 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:17:07 PM
Calcium	9.0	0.50		mg/L	1	1/12/2008 4:17:07 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:17:07 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:17:07 PM
Iron	0.64	0.050		mg/L	1	1/12/2008 4:17:07 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:17:07 PM
Magnesium	2.9	0.50		mg/L	1	1/12/2008 4:17:07 PM
Manganese	0.13	0.0020		mg/L	1	1/12/2008 4:17:07 PM
Potassium	ND	1.0		mg/L	1	1/12/2008 4:17:07 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:17:07 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:17:07 PM
Sodium	430	5.0		mg/L	10	1/15/2008 12:14:29 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:17:07 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 4:17:07 PM

<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup Client Sample ID: BW-3B  
 Lab Order: 0801006 Collection Date: 12/31/2007 3:15:00 PM  
 Project: 2007 Annual GW Samples Date Received: 1/2/2008  
 Lab ID: 0801006-16 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-16

Client Sample ID: BW-3B  
Collection Date: 12/31/2007 3:15:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	53.0	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	87.7	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	56.3	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	74.9	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	85.9	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	41.6	10.7-80.3		%REC	1	1/9/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Toluene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Ethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Naphthalene	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 1:54:05 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 1:54:05 AM
Acetone	ND	10		µg/L	1	1/8/2008 1:54:05 AM
Bromobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Bromochloromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Bromodichloromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Bromoform	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Bromomethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
2-Butanone	ND	10		µg/L	1	1/8/2008 1:54:05 AM
Carbon disulfide	ND	10		µg/L	1	1/8/2008 1:54:05 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-3B

Lab Order: 0801006

Collection Date: 12/31/2007 3:15:00 PM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-16

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Chloroethane	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
Chloroform	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Chloromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
2-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
4-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
cis-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
Dibromochloromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Dibromomethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
2-Hexanone	ND	10		µg/L	1	1/8/2008 1:54:05 AM
Isopropylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/8/2008 1:54:05 AM
Methylene Chloride	ND	3.0		µg/L	1	1/8/2008 1:54:05 AM
n-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
n-Propylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
sec-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Styrene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
tert-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
trans-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

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# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-16

Client Sample ID: BW-3B  
 Collection Date: 12/31/2007 3:15:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/8/2008 1:54:05 AM
Vinyl chloride	ND	1.0		µg/L	1	1/8/2008 1:54:05 AM
Xylenes, Total	ND	1.5		µg/L	1	1/8/2008 1:54:05 AM
Surr: 1,2-Dichloroethane-d4	117	68.1-123		%REC	1	1/8/2008 1:54:05 AM
Surr: 4-Bromofluorobenzene	106	53.2-145		%REC	1	1/8/2008 1:54:05 AM
Surr: Dibromofluoromethane	110	68.5-119		%REC	1	1/8/2008 1:54:05 AM
Surr: Toluene-d8	114	64-131		%REC	1	1/8/2008 1:54:05 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1600	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	7.93	0.1		pH units	1	1/2/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup      **Client Sample ID:** BW-3C  
**Lab Order:** 0801006      **Collection Date:** 12/31/2007 4:40:00 PM  
**Project:** 2007 Annual GW Samples      **Date Received:** 1/2/2008  
**Lab ID:** 0801006-17      **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	1.8	0.10		mg/L	1	1/3/2008 9:37:40 PM
Chloride	38	0.10		mg/L	1	1/3/2008 9:37:40 PM
Nitrate (As N)+Nitrite (As N)	ND	1.0		mg/L	5	1/3/2008 2:57:12 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	1/3/2008 9:37:40 PM
Sulfate	300	5.0		mg/L	10	1/3/2008 9:55:04 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:33:38 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:21:19 PM
Barium	0.068	0.010		mg/L	1	1/12/2008 4:21:19 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:21:19 PM
Calcium	4.2	0.50		mg/L	1	1/12/2008 4:21:19 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:21:19 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:21:19 PM
Iron	0.14	0.050		mg/L	1	1/12/2008 4:21:19 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:21:19 PM
Magnesium	0.81	0.50		mg/L	1	1/12/2008 4:21:19 PM
Manganese	0.015	0.0020		mg/L	1	1/12/2008 4:21:19 PM
Potassium	1.1	1.0		mg/L	1	1/12/2008 4:21:19 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:21:19 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:21:19 PM
Sodium	360	2.5		mg/L	5	1/15/2008 12:19:06 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:21:19 PM
Zinc	ND	0.020		mg/L	1	1/12/2008 4:21:19 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/9/2008
Acenaphthylene	ND	10		µg/L	1	1/9/2008
Aniline	ND	10		µg/L	1	1/9/2008
Anthracene	ND	10		µg/L	1	1/9/2008
Azobenzene	ND	10		µg/L	1	1/9/2008
Benz(a)anthracene	ND	10		µg/L	1	1/9/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/9/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/9/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/9/2008
Benzoic acid	ND	20		µg/L	1	1/9/2008
Benzyl alcohol	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/9/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/9/2008

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-17

Client Sample ID: BW-3C  
Collection Date: 12/31/2007 4:40:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/9/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/9/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/9/2008
Carbazole	ND	10		µg/L	1	1/9/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/9/2008
4-Chloroaniline	ND	10		µg/L	1	1/9/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/9/2008
2-Chlorophenol	ND	10		µg/L	1	1/9/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/9/2008
Chrysene	ND	10		µg/L	1	1/9/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/9/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/9/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/9/2008
Dibenzofuran	ND	10		µg/L	1	1/9/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/9/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/9/2008
Diethyl phthalate	ND	10		µg/L	1	1/9/2008
Dimethyl phthalate	ND	10		µg/L	1	1/9/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/9/2008
2,4-Dimethylphenol	ND	10		µg/L	1	1/9/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/9/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/9/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/9/2008
Fluoranthene	ND	10		µg/L	1	1/9/2008
Fluorene	ND	10		µg/L	1	1/9/2008
Hexachlorobenzene	ND	10		µg/L	1	1/9/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/9/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/9/2008
Hexachloroethane	ND	10		µg/L	1	1/9/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/9/2008
Isophorone	ND	10		µg/L	1	1/9/2008
2-Methylnaphthalene	ND	10		µg/L	1	1/9/2008
2-Methylphenol	ND	10		µg/L	1	1/9/2008
3+4-Methylphenol	ND	10		µg/L	1	1/9/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/9/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/9/2008
Naphthalene	ND	10		µg/L	1	1/9/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-17

Client Sample ID: BW-3C  
 Collection Date: 12/31/2007 4:40:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
2-Nitroaniline	ND	10		µg/L	1	1/9/2008
3-Nitroaniline	ND	10		µg/L	1	1/9/2008
4-Nitroaniline	ND	10		µg/L	1	1/9/2008
Nitrobenzene	ND	10		µg/L	1	1/9/2008
2-Nitrophenol	ND	10		µg/L	1	1/9/2008
4-Nitrophenol	ND	10		µg/L	1	1/9/2008
Pentachlorophenol	ND	10		µg/L	1	1/9/2008
Phenanthrene	ND	10		µg/L	1	1/9/2008
Phenol	ND	10		µg/L	1	1/9/2008
Pyrene	ND	10		µg/L	1	1/9/2008
Pyridine	ND	10		µg/L	1	1/9/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/9/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/9/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/9/2008
Surr: 2,4,6-Tribromophenol	53.1	16.6-150		%REC	1	1/9/2008
Surr: 2-Fluorobiphenyl	87.9	19.6-134		%REC	1	1/9/2008
Surr: 2-Fluorophenol	46.5	9.54-113		%REC	1	1/9/2008
Surr: 4-Terphenyl-d14	72.0	22.7-145		%REC	1	1/9/2008
Surr: Nitrobenzene-d5	84.1	14.6-134		%REC	1	1/9/2008
Surr: Phenol-d5	36.4	10.7-80.3		%REC	1	1/9/2008
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Toluene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Ethylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Naphthalene	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 2:22:21 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 2:22:21 AM
Acetone	ND	10		µg/L	1	1/8/2008 2:22:21 AM
Bromobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Bromochloromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Bromodichloromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Bromoform	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Bromomethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
2-Butanone	ND	10		µg/L	1	1/8/2008 2:22:21 AM
Carbon disulfide	ND	10		µg/L	1	1/8/2008 2:22:21 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-17

Client Sample ID: BW-3C  
 Collection Date: 12/31/2007 4:40:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Chlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Chloroethane	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
Chloroform	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Chloromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
2-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
4-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
cis-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
Dibromochloromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Dibromomethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
2-Hexanone	ND	10		µg/L	1	1/8/2008 2:22:21 AM
Isopropylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/8/2008 2:22:21 AM
Methylene Chloride	ND	3.0		µg/L	1	1/8/2008 2:22:21 AM
n-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
n-Propylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
sec-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Styrene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
tert-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
trans-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-17

**Client Sample ID:** BW-3C  
**Collection Date:** 12/31/2007 4:40:00 PM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Trichlorofluoromethane	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/8/2008 2:22:21 AM
Vinyl chloride	ND	1.0		µg/L	1	1/8/2008 2:22:21 AM
Xylenes, Total	ND	1.5		µg/L	1	1/8/2008 2:22:21 AM
Surr: 1,2-Dichloroethane-d4	116	68.1-123		%REC	1	1/8/2008 2:22:21 AM
Surr: 4-Bromofluorobenzene	104	53.2-145		%REC	1	1/8/2008 2:22:21 AM
Surr: Dibromofluoromethane	110	68.5-119		%REC	1	1/8/2008 2:22:21 AM
Surr: Toluene-d8	116	64-131		%REC	1	1/8/2008 2:22:21 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	1500	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.59	0.1		pH units	1	1/2/2008

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

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# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-18

Client Sample ID: EP-2 Inlet  
 Collection Date: 1/1/2008 12:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	150	10		mg/L	10	1/4/2008 6:43:32 AM
Motor Oil Range Organics (MRO)	ND	50		mg/L	10	1/4/2008 6:43:32 AM
Surr: DNOP	0	58-140	S	%REC	10	1/4/2008 6:43:32 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	2.6	1.0		mg/L	20	1/7/2008 2:23:45 PM
Surr: BFB	121	79.2-121		%REC	20	1/7/2008 2:23:45 PM
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Benzene	130	5.0		µg/L	5	1/8/2008 3:21:02 AM
Toluene	260	5.0		µg/L	5	1/8/2008 3:21:02 AM
Ethylbenzene	44	5.0		µg/L	5	1/8/2008 3:21:02 AM
Methyl tert-butyl ether (MTBE)	5.2	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2,4-Trimethylbenzene	170	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,3,5-Trimethylbenzene	47	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2-Dichloroethane (EDC)	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2-Dibromoethane (EDB)	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Naphthalene	250	100		µg/L	50	1/8/2008 2:11:20 PM
1-Methylnaphthalene	460	200		µg/L	50	1/8/2008 2:11:20 PM
2-Methylnaphthalene	750	200		µg/L	50	1/8/2008 2:11:20 PM
Acetone	ND	50		µg/L	5	1/8/2008 3:21:02 AM
Bromobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Bromochloromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Bromodichloromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Bromoform	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Bromomethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
2-Butanone	ND	50		µg/L	5	1/8/2008 3:21:02 AM
Carbon disulfide	140	50		µg/L	5	1/8/2008 3:21:02 AM
Carbon Tetrachloride	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Chlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Chloroethane	ND	10		µg/L	5	1/8/2008 3:21:02 AM
Chloroform	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Chloromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
2-Chlorotoluene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
4-Chlorotoluene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
cis-1,2-DCE	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
cis-1,3-Dichloropropene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2-Dibromo-3-chloropropane	ND	10		µg/L	5	1/8/2008 3:21:02 AM
Dibromochloromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Dibromomethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2-Dichlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,3-Dichlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-18

Client Sample ID: EP-2 Inlet  
Collection Date: 1/1/2008 12:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,4-Dichlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Dichlorodifluoromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1-Dichloroethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1-Dichloroethene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2-Dichloropropane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,3-Dichloropropane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
2,2-Dichloropropane	ND	10		µg/L	5	1/8/2008 3:21:02 AM
1,1-Dichloropropene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Hexachlorobutadiene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
2-Hexanone	ND	50		µg/L	5	1/8/2008 3:21:02 AM
Isopropylbenzene	6.3	5.0		µg/L	5	1/8/2008 3:21:02 AM
4-Isopropyltoluene	7.0	5.0		µg/L	5	1/8/2008 3:21:02 AM
4-Methyl-2-pentanone	ND	50		µg/L	5	1/8/2008 3:21:02 AM
Methylene Chloride	ND	15		µg/L	5	1/8/2008 3:21:02 AM
n-Butylbenzene	44	5.0		µg/L	5	1/8/2008 3:21:02 AM
n-Propylbenzene	19	5.0		µg/L	5	1/8/2008 3:21:02 AM
sec-Butylbenzene	7.1	5.0		µg/L	5	1/8/2008 3:21:02 AM
Styrene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
tert-Butylbenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1,1,2-Tetrachloroethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1,2,2-Tetrachloroethane	ND	10		µg/L	5	1/8/2008 3:21:02 AM
Tetrachloroethene (PCE)	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
trans-1,2-DCE	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
trans-1,3-Dichloropropene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2,3-Trichlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2,4-Trichlorobenzene	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1,1-Trichloroethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,1,2-Trichloroethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Trichloroethene (TCE)	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Trichlorofluoromethane	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
1,2,3-Trichloropropane	ND	10		µg/L	5	1/8/2008 3:21:02 AM
Vinyl chloride	ND	5.0		µg/L	5	1/8/2008 3:21:02 AM
Xylenes, Total	260	7.5		µg/L	5	1/8/2008 3:21:02 AM
Surr: 1,2-Dichloroethane-d4	112	68.1-123		%REC	5	1/8/2008 3:21:02 AM
Surr: 4-Bromofluorobenzene	109	53.2-145		%REC	5	1/8/2008 3:21:02 AM
Surr: Dibromofluoromethane	110	68.5-119		%REC	5	1/8/2008 3:21:02 AM
Surr: Toluene-d8	106	64-131		%REC	5	1/8/2008 3:21:02 AM

## SM 2540C: TDS

Analyst: TAF

Total Dissolved Solids	2200	400	mg/L	1	1/3/2008
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Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

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## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-19

Client Sample ID: EP-1 Inlet  
 Collection Date: 1/1/2008 11:30:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015B: DIESEL RANGE</b>						Analyst: SCC
Diesel Range Organics (DRO)	91	10		mg/L	10	1/4/2008 7:10:57 AM
Motor Oil Range Organics (MRO)	ND	50		mg/L	10	1/4/2008 7:10:57 AM
Surr: DNOP	0	58-140	S	%REC	10	1/4/2008 7:10:57 AM
<b>EPA METHOD 8015B: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	2.2	0.50		mg/L	10	1/7/2008 3:23:46 PM
Surr: BFB	118	79.2-121		%REC	10	1/7/2008 3:23:46 PM
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Fluoride	190	10		mg/L	100	1/9/2008 2:42:43 PM
Chloride	170	0.50		mg/L	5	1/3/2008 11:10:53 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	1/3/2008 11:10:53 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/3/2008 11:10:53 AM
Sulfate	730	10		mg/L	20	1/3/2008 9:26:28 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	0.00022	0.00020		mg/L	1	1/3/2008 3:35:29 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:25:32 PM
Barium	0.067	0.010		mg/L	1	1/12/2008 4:25:32 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:25:32 PM
Calcium	45	0.50		mg/L	1	1/12/2008 4:25:32 PM
Chromium	0.010	0.0060		mg/L	1	1/12/2008 4:25:32 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:25:32 PM
Iron	4.1	0.50		mg/L	10	1/15/2008 12:27:58 PM
Lead	ND	0.0050		mg/L	1	1/12/2008 4:25:32 PM
Magnesium	14	0.50		mg/L	1	1/12/2008 4:25:32 PM
Manganese	0.11	0.0020		mg/L	1	1/12/2008 4:25:32 PM
Potassium	51	1.0		mg/L	1	1/12/2008 4:25:32 PM
Selenium	ND	0.050		mg/L	1	1/12/2008 4:25:32 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:25:32 PM
Sodium	530	5.0		mg/L	10	1/15/2008 12:27:58 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:25:32 PM
Zinc	0.59	0.020		mg/L	1	1/12/2008 4:25:32 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	50		µg/L	1	1/10/2008
Acenaphthylene	ND	50		µg/L	1	1/10/2008
Aniline	ND	50		µg/L	1	1/10/2008
Anthracene	ND	50		µg/L	1	1/10/2008
Azobenzene	ND	50		µg/L	1	1/10/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-19

Client Sample ID: EP-1 Inlet  
 Collection Date: 1/1/2008 11:30:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Benz(a)anthracene	ND	50		µg/L	1	1/10/2008
Benzo(a)pyrene	ND	50		µg/L	1	1/10/2008
Benzo(b)fluoranthene	ND	50		µg/L	1	1/10/2008
Benzo(g,h,i)perylene	ND	50		µg/L	1	1/10/2008
Benzo(k)fluoranthene	ND	50		µg/L	1	1/10/2008
Benzoic acid	140	100		µg/L	1	1/10/2008
Benzyl alcohol	ND	50		µg/L	1	1/10/2008
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	1/10/2008
Bis(2-chloroethyl)ether	ND	50		µg/L	1	1/10/2008
Bis(2-chloroisopropyl)ether	ND	50		µg/L	1	1/10/2008
Bis(2-ethylhexyl)phthalate	ND	50		µg/L	1	1/10/2008
4-Bromophenyl phenyl ether	ND	50		µg/L	1	1/10/2008
Butyl benzyl phthalate	ND	50		µg/L	1	1/10/2008
Carbazole	ND	50		µg/L	1	1/10/2008
4-Chloro-3-methylphenol	ND	50		µg/L	1	1/10/2008
4-Chloroaniline	ND	50		µg/L	1	1/10/2008
2-Chloronaphthalene	ND	50		µg/L	1	1/10/2008
2-Chlorophenol	ND	50		µg/L	1	1/10/2008
4-Chlorophenyl phenyl ether	ND	50		µg/L	1	1/10/2008
Chrysene	ND	50		µg/L	1	1/10/2008
Di-n-butyl phthalate	ND	50		µg/L	1	1/10/2008
Di-n-octyl phthalate	ND	50		µg/L	1	1/10/2008
Dibenz(a,h)anthracene	ND	50		µg/L	1	1/10/2008
Dibenzofuran	ND	50		µg/L	1	1/10/2008
1,2-Dichlorobenzene	ND	50		µg/L	1	1/10/2008
1,3-Dichlorobenzene	ND	50		µg/L	1	1/10/2008
1,4-Dichlorobenzene	ND	50		µg/L	1	1/10/2008
3,3'-Dichlorobenzidine	ND	50		µg/L	1	1/10/2008
Diethyl phthalate	ND	50		µg/L	1	1/10/2008
Dimethyl phthalate	ND	50		µg/L	1	1/10/2008
2,4-Dichlorophenol	ND	50		µg/L	1	1/10/2008
2,4-Dimethylphenol	310	50		µg/L	1	1/10/2008
4,6-Dinitro-2-methylphenol	ND	50		µg/L	1	1/10/2008
2,4-Dinitrophenol	ND	100		µg/L	1	1/10/2008
2,4-Dinitrotoluene	ND	50		µg/L	1	1/10/2008
2,6-Dinitrotoluene	ND	50		µg/L	1	1/10/2008
Fluoranthene	ND	50		µg/L	1	1/10/2008
Fluorene	74	50		µg/L	1	1/10/2008
Hexachlorobenzene	ND	50		µg/L	1	1/10/2008
Hexachlorobutadiene	ND	50		µg/L	1	1/10/2008
Hexachlorocyclopentadiene	ND	50		µg/L	1	1/10/2008
Hexachloroethane	ND	50		µg/L	1	1/10/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EP-1 Inlet

Lab Order: 0801006

Collection Date: 1/1/2008 11:30:00 AM

Project: 2007 Annual GW Samples

Date Received: 1/2/2008

Lab ID: 0801006-19

Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	1/10/2008
Isophorone	ND	50		µg/L	1	1/10/2008
2-Methylnaphthalene	690	50		µg/L	1	1/10/2008
2-Methylphenol	2200	500		µg/L	10	1/11/2008
3+4-Methylphenol	3500	500		µg/L	10	1/11/2008
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	1/10/2008
N-Nitrosodimethylamine	ND	50		µg/L	1	1/10/2008
N-Nitrosodiphenylamine	ND	50		µg/L	1	1/10/2008
Naphthalene	240	50		µg/L	1	1/10/2008
2-Nitroaniline	ND	50		µg/L	1	1/10/2008
3-Nitroaniline	ND	50		µg/L	1	1/10/2008
4-Nitroaniline	ND	50		µg/L	1	1/10/2008
Nitrobenzene	ND	50		µg/L	1	1/10/2008
2-Nitrophenol	ND	50		µg/L	1	1/10/2008
4-Nitrophenol	ND	50		µg/L	1	1/10/2008
Pentachlorophenol	ND	50		µg/L	1	1/10/2008
Phenanthrene	210	50		µg/L	1	1/10/2008
Phenol	4100	500		µg/L	10	1/11/2008
Pyrene	ND	50		µg/L	1	1/10/2008
Pyridine	ND	50		µg/L	1	1/10/2008
1,2,4-Trichlorobenzene	ND	50		µg/L	1	1/10/2008
2,4,5-Trichlorophenol	ND	50		µg/L	1	1/10/2008
2,4,6-Trichlorophenol	ND	50		µg/L	1	1/10/2008
Surr: 2,4,6-Tribromophenol	55.0	16.6-150		%REC	1	1/10/2008
Surr: 2-Fluorobiphenyl	76.9	19.6-134		%REC	1	1/10/2008
Surr: 2-Fluorophenol	3.49	9.54-113	S	%REC	1	1/10/2008
Surr: 4-Terphenyl-d14	58.5	22.7-145		%REC	1	1/10/2008
Surr: Nitrobenzene-d5	92.8	14.6-134		%REC	1	1/10/2008
Surr: Phenol-d5	13.4	10.7-80.3		%REC	1	1/10/2008

**EPA METHOD 8260B: VOLATILES**

Analyst: BDH

Benzene	130	50		µg/L	50	1/8/2008 2:41:47 PM
Toluene	220	50		µg/L	50	1/8/2008 2:41:47 PM
Ethylbenzene	39	2.0		µg/L	2	1/8/2008 4:19:50 AM
Methyl tert-butyl ether (MTBE)	5.3	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2,4-Trimethylbenzene	83	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,3,5-Trimethylbenzene	22	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2-Dichloroethane (EDC)	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2-Dibromoethane (EDB)	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Naphthalene	200	100		µg/L	50	1/8/2008 2:41:47 PM
1-Methylnaphthalene	250	200		µg/L	50	1/8/2008 2:41:47 PM
2-Methylnaphthalene	390	200		µg/L	50	1/8/2008 2:41:47 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-19

Client Sample ID: EP-1 Inlet  
 Collection Date: 1/1/2008 11:30:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
Acetone	ND	20		µg/L	2	1/8/2008 4:19:50 AM
Bromobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Bromochloromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Bromodichloromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Bromoform	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Bromomethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
2-Butanone	ND	20		µg/L	2	1/8/2008 4:19:50 AM
Carbon disulfide	32	20		µg/L	2	1/8/2008 4:19:50 AM
Carbon Tetrachloride	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Chlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Chloroethane	ND	4.0		µg/L	2	1/8/2008 4:19:50 AM
Chloroform	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Chloromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
2-Chlorotoluene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
4-Chlorotoluene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
cis-1,2-DCE	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
cis-1,3-Dichloropropene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2-Dibromo-3-chloropropane	ND	4.0		µg/L	2	1/8/2008 4:19:50 AM
Dibromochloromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Dibromomethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2-Dichlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,3-Dichlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,4-Dichlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Dichlorodifluoromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,1-Dichloroethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,1-Dichloroethene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2-Dichloropropane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,3-Dichloropropane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
2,2-Dichloropropane	ND	4.0		µg/L	2	1/8/2008 4:19:50 AM
1,1-Dichloropropene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Hexachlorobutadiene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
2-Hexanone	ND	20		µg/L	2	1/8/2008 4:19:50 AM
Isopropylbenzene	3.3	2.0		µg/L	2	1/8/2008 4:19:50 AM
4-Isopropyltoluene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
4-Methyl-2-pentanone	ND	20		µg/L	2	1/8/2008 4:19:50 AM
Methylene Chloride	ND	6.0		µg/L	2	1/8/2008 4:19:50 AM
n-Butylbenzene	11	2.0		µg/L	2	1/8/2008 4:19:50 AM
n-Propylbenzene	8.6	2.0		µg/L	2	1/8/2008 4:19:50 AM
sec-Butylbenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Styrene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
tert-Butylbenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,1,1,2-Tetrachloroethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-19

Client Sample ID: EP-1 Inlet  
 Collection Date: 1/1/2008 11:30:00 AM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
1,1,2,2-Tetrachloroethane	ND	4.0		µg/L	2	1/8/2008 4:19:50 AM
Tetrachloroethene (PCE)	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
trans-1,2-DCE	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
trans-1,3-Dichloropropene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2,3-Trichlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2,4-Trichlorobenzene	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,1,1-Trichloroethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,1,2-Trichloroethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Trichloroethene (TCE)	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Trichlorofluoromethane	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
1,2,3-Trichloropropane	ND	4.0		µg/L	2	1/8/2008 4:19:50 AM
Vinyl chloride	ND	2.0		µg/L	2	1/8/2008 4:19:50 AM
Xylenes, Total	220	3.0		µg/L	2	1/8/2008 4:19:50 AM
Surr: 1,2-Dichloroethane-d4	92.7	68.1-123		%REC	2	1/8/2008 4:19:50 AM
Surr: 4-Bromofluorobenzene	117	53.2-145		%REC	2	1/8/2008 4:19:50 AM
Surr: Dibromofluoromethane	109	68.5-119		%REC	2	1/8/2008 4:19:50 AM
Surr: Toluene-d8	108	64-131		%REC	2	1/8/2008 4:19:50 AM
<b>EPA 120.1: SPECIFIC CONDUCTANCE</b>						Analyst: NSB
Specific Conductance	4400	0.010		µmhos/cm	1	1/2/2008
<b>SM4500-H+B: PH</b>						Analyst: NSB
pH	8.46	0.1		pH units	1	1/2/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-20

Client Sample ID: PW-3  
Collection Date: 1/1/2008 3:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: SMP
Nitrate (As N)+Nitrite (As N)	ND	0.20		mg/L	1	1/3/2008 10:53:29 AM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: SLB
Mercury	ND	0.00020		mg/L	1	1/3/2008 3:37:13 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: TES
Arsenic	ND	0.020		mg/L	1	1/12/2008 4:29:40 PM
Barium	0.014	0.010		mg/L	1	1/12/2008 4:29:40 PM
Cadmium	ND	0.0020		mg/L	1	1/12/2008 4:29:40 PM
Calcium	190	5.0		mg/L	10	1/15/2008 12:30:56 PM
Chromium	ND	0.0060		mg/L	1	1/12/2008 4:29:40 PM
Copper	ND	0.0060		mg/L	1	1/12/2008 4:29:40 PM
Iron	0.20	0.050		mg/L	1	1/12/2008 4:29:40 PM
Lead	0.0056	0.0050		mg/L	1	1/12/2008 4:29:40 PM
Magnesium	42	0.50		mg/L	1	1/12/2008 4:29:40 PM
Manganese	0.015	0.0020		mg/L	1	1/12/2008 4:29:40 PM
Potassium	1.2	1.0		mg/L	1	1/12/2008 4:29:40 PM
Selenium	ND	0.50		mg/L	10	1/15/2008 12:30:56 PM
Silver	ND	0.0050		mg/L	1	1/12/2008 4:29:40 PM
Sodium	15	0.50		mg/L	1	1/12/2008 4:29:40 PM
Uranium	ND	0.10		mg/L	1	1/12/2008 4:29:40 PM
Zinc	0.041	0.020		mg/L	1	1/12/2008 4:29:40 PM
<b>EPA METHOD 8270C: SEMIVOLATILES</b>						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	1/10/2008
Acenaphthylene	ND	10		µg/L	1	1/10/2008
Aniline	ND	10		µg/L	1	1/10/2008
Anthracene	ND	10		µg/L	1	1/10/2008
Azobenzene	ND	10		µg/L	1	1/10/2008
Benz(a)anthracene	ND	10		µg/L	1	1/10/2008
Benzo(a)pyrene	ND	10		µg/L	1	1/10/2008
Benzo(b)fluoranthene	ND	10		µg/L	1	1/10/2008
Benzo(g,h,i)perylene	ND	10		µg/L	1	1/10/2008
Benzo(k)fluoranthene	ND	10		µg/L	1	1/10/2008
Benzoic acid	ND	20		µg/L	1	1/10/2008
Benzyl alcohol	ND	10		µg/L	1	1/10/2008
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	1/10/2008
Bis(2-chloroethyl)ether	ND	10		µg/L	1	1/10/2008
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	1/10/2008
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	1/10/2008
4-Bromophenyl phenyl ether	ND	10		µg/L	1	1/10/2008
Butyl benzyl phthalate	ND	10		µg/L	1	1/10/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit



# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-20

Client Sample ID: PW-3  
Collection Date: 1/1/2008 3:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Carbazole	ND	10		µg/L	1	1/10/2008
4-Chloro-3-methylphenol	ND	10		µg/L	1	1/10/2008
4-Chloroaniline	ND	10		µg/L	1	1/10/2008
2-Chloronaphthalene	ND	10		µg/L	1	1/10/2008
2-Chlorophenol	ND	10		µg/L	1	1/10/2008
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	1/10/2008
Chrysene	ND	10		µg/L	1	1/10/2008
Di-n-butyl phthalate	ND	10		µg/L	1	1/10/2008
Di-n-octyl phthalate	ND	10		µg/L	1	1/10/2008
Dibenz(a,h)anthracene	ND	10		µg/L	1	1/10/2008
Dibenzofuran	ND	10		µg/L	1	1/10/2008
1,2-Dichlorobenzene	ND	10		µg/L	1	1/10/2008
1,3-Dichlorobenzene	ND	10		µg/L	1	1/10/2008
1,4-Dichlorobenzene	ND	10		µg/L	1	1/10/2008
3,3'-Dichlorobenzidine	ND	10		µg/L	1	1/10/2008
Diethyl phthalate	ND	10		µg/L	1	1/10/2008
Dimethyl phthalate	ND	10		µg/L	1	1/10/2008
2,4-Dichlorophenol	ND	10		µg/L	1	1/10/2008
2,4-Dimethylphenol	16	10		µg/L	1	1/10/2008
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	1/10/2008
2,4-Dinitrophenol	ND	20		µg/L	1	1/10/2008
2,4-Dinitrotoluene	ND	10		µg/L	1	1/10/2008
2,6-Dinitrotoluene	ND	10		µg/L	1	1/10/2008
Fluoranthene	ND	10		µg/L	1	1/10/2008
Fluorene	ND	10		µg/L	1	1/10/2008
Hexachlorobenzene	ND	10		µg/L	1	1/10/2008
Hexachlorobutadiene	ND	10		µg/L	1	1/10/2008
Hexachlorocyclopentadiene	ND	10		µg/L	1	1/10/2008
Hexachloroethane	ND	10		µg/L	1	1/10/2008
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	1/10/2008
Isophorone	ND	10		µg/L	1	1/10/2008
2-Methylnaphthalene	32	10		µg/L	1	1/10/2008
2-Methylphenol	210	10		µg/L	1	1/10/2008
3+4-Methylphenol	360	50		µg/L	5	1/11/2008
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	1/10/2008
N-Nitrosodimethylamine	ND	10		µg/L	1	1/10/2008
N-Nitrosodiphenylamine	ND	10		µg/L	1	1/10/2008
Naphthalene	ND	10		µg/L	1	1/10/2008
2-Nitroaniline	ND	10		µg/L	1	1/10/2008
3-Nitroaniline	ND	10		µg/L	1	1/10/2008
4-Nitroaniline	ND	10		µg/L	1	1/10/2008
Nitrobenzene	ND	10		µg/L	1	1/10/2008

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
Lab Order: 0801006  
Project: 2007 Annual GW Samples  
Lab ID: 0801006-20

Client Sample ID: PW-3  
Collection Date: 1/1/2008 3:30:00 PM  
Date Received: 1/2/2008  
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2-Nitrophenol	ND	10		µg/L	1	1/10/2008
4-Nitrophenol	ND	10		µg/L	1	1/10/2008
Pentachlorophenol	ND	10		µg/L	1	1/10/2008
Phenanthrene	17	10		µg/L	1	1/10/2008
Phenol	800	50		µg/L	5	1/11/2008
Pyrene	ND	10		µg/L	1	1/10/2008
Pyridine	ND	10		µg/L	1	1/10/2008
1,2,4-Trichlorobenzene	ND	10		µg/L	1	1/10/2008
2,4,5-Trichlorophenol	ND	10		µg/L	1	1/10/2008
2,4,6-Trichlorophenol	ND	10		µg/L	1	1/10/2008
Surr: 2,4,6-Tribromophenol	98.0	16.6-150		%REC	1	1/10/2008
Surr: 2-Fluorobiphenyl	128	19.6-134		%REC	1	1/10/2008
Surr: 2-Fluorophenol	76.5	9.54-113		%REC	1	1/10/2008
Surr: 4-Terphenyl-d14	117	22.7-145		%REC	1	1/10/2008
Surr: Nitrobenzene-d5	106	14.6-134		%REC	1	1/10/2008
Surr: Phenol-d5	64.3	10.7-80.3		%REC	1	1/10/2008

EPA METHOD 8260B: VOLATILES						Analyst: BDH
Benzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Toluene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Ethylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Naphthalene	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 3:37:39 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	1/8/2008 3:37:39 PM
Acetone	ND	10		µg/L	1	1/8/2008 3:37:39 PM
Bromobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Bromochloromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Bromodichloromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Bromoform	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Bromomethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
2-Butanone	ND	10		µg/L	1	1/8/2008 3:37:39 PM
Carbon disulfide	ND	10		µg/L	1	1/8/2008 3:37:39 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Chlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Chloroethane	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
Chloroform	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Chloromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

# Hall Environmental Analysis Laboratory, Inc.

Date: 21-Jan-08

CLIENT: Western Refining Southwest, Gallup  
 Lab Order: 0801006  
 Project: 2007 Annual GW Samples  
 Lab ID: 0801006-20

Client Sample ID: PW-3  
 Collection Date: 1/1/2008 3:30:00 PM  
 Date Received: 1/2/2008  
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BDH
2-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
4-Chlorotoluene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
cis-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
Dibromochloromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Dibromomethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
2-Hexanone	ND	10		µg/L	1	1/8/2008 3:37:39 PM
Isopropylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	1/8/2008 3:37:39 PM
Methylene Chloride	ND	3.0		µg/L	1	1/8/2008 3:37:39 PM
n-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
n-Propylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
sec-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Styrene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
tert-Butylbenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
trans-1,2-DCE	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/8/2008 3:37:39 PM
Vinyl chloride	ND	1.0		µg/L	1	1/8/2008 3:37:39 PM
Xylenes, Total	ND	1.5		µg/L	1	1/8/2008 3:37:39 PM

Qualifiers: \* Value exceeds Maximum Contaminant Level  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 MCL Maximum Contaminant Level  
 RL Reporting Limit

**Hall Environmental Analysis Laboratory, Inc.**

Date: 21-Jan-08

**CLIENT:** Western Refining Southwest, Gallup  
**Lab Order:** 0801006  
**Project:** 2007 Annual GW Samples  
**Lab ID:** 0801006-20

**Client Sample ID:** PW-3  
**Collection Date:** 1/1/2008 3:30:00 PM  
**Date Received:** 1/2/2008  
**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260B: VOLATILES</b>						Analyst: BDH
Surr: 1,2-Dichloroethane-d4	110	68.1-123		%REC	1	1/8/2008 3:37:39 PM
Surr: 4-Bromofluorobenzene	104	53.2-145		%REC	1	1/8/2008 3:37:39 PM
Surr: Dibromofluoromethane	99.7	68.5-119		%REC	1	1/8/2008 3:37:39 PM
Surr: Toluene-d8	114	64-131		%REC	1	1/8/2008 3:37:39 PM

**Qualifiers:** \* Value exceeds Maximum Contaminant Level  
E Value above quantitation range  
J Analyte detected below quantitation limits  
ND Not Detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
MCL Maximum Contaminant Level  
RL Reporting Limit

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# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-004	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008 11:00 AM
<b>Client Sample ID</b>	0801006-10B / SMW-2	<b>Sampling Time</b>	10:30 AM	<b>Extraction Date</b>	1/4/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,2-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,2-Diphenyl hydrazine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,3-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,4-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1-Methylnaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,3,5,6-Tetrachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4,5-Trichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4,6-Trichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dimethylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dinitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dinitrotoluene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,6-Dinitrotoluene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Chloronaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Chlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Methylnaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Nitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3,3'-Dichlorobenzidine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3+4-Methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Bromophenyl-phenylether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chloro-3-methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chloroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chlorophenyl-phenylether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Nitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Acenaphthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Acenaphthylene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Aniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	

### Comments:

Monday, January 21, 2008

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# Anatek Labs, Inc.

1282 Alluras Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-004	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008 11:00 AM
<b>Client Sample ID</b>	0801006-10B / SMW-2	<b>Sampling Time</b>	10:30 AM	<b>Extraction Date</b>	1/4/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzidine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo(ghi)perylene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[a]anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[a]pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[b]fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[k]fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzyl alcohol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-Chloroethoxy)methane	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-Chloroethyl)ether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-chloroisopropyl)ether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Butylbenzylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Carbazole	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Chrysene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dibenz[a,h]anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dibenzofuran	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Diethylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dimethylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Di-n-butylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Di-n-octylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Fluorene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorobutadiene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorocyclopentadiene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachloroethane	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Isophorone	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Naphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Nitrobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Nitrosodimethylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
n-Nitroso-di-n-propylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
n-Nitrosodiphenylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Pentachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Phenanthrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	

### Comments:

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-004	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008 11:00 AM
<b>Client Sample ID</b>	0801006-10B / SMW-2	<b>Sampling Time</b>	10:30 AM	<b>Extraction Date</b>	1/4/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Phenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Pyridine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,4-Dioxane	14.8	ug/L	5	1/16/2008	EMP	EPA 8270CMOD	
Benzenethiolo	0.19	ug/L	0.1	1/16/2008	EMP	EPA 8270CMOD	
Quinoline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270CMOD	

## Surrogate Data

Sample Number	Surrogate Standard	Method	Percent Recovery	Control Limits
080104017-004	2,4,6-Tribromophenol	EPA 8270C	100.7	10-123
	2-Fluorobiphenyl	EPA 8270C	97.7	18-130
	2-Fluorophenol	EPA 8270C	91.9	21-110
	Nitrobenzene-d5	EPA 8270C	121.6	25-130
	Phenol-d5	EPA 8270C	86.0	10-110
	Terphenyl-d14	EPA 8270C	115.4	10-125
	Terphenyl-d14	EPA 8270CMOD	98.1	10-125

**Comments:**

Monday, January 21, 2008

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**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-006	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-11B / SMW-4	<b>Sampling Time</b>	10:15 AM	<b>Extraction Date</b>	1/4/2008	
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,2-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,2-Diphenyl hydrazine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,3-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,4-Dichlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1-Methylnaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,3,5,6-Tetrachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4,5-Trichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4,6-Trichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dichlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dimethylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dinitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,4-Dinitrotoluene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2,6-Dinitrotoluene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Chloronaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Chlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Methylnaphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
2-Nitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3,3'-Dichlorobenzidine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3+4-Methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
3-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Bromophenyl-phenylether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chloro-3-methylphenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chloroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Chlorophenyl-phenylether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Nitroaniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
4-Nitrophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Acenaphthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Acenaphthylene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Aniline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzidine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-006	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008 11:00 AM
<b>Client Sample ID</b>	0801006-11B / SMW-4	<b>Sampling Time</b>	10:15 AM	<b>Extraction Date</b>	1/4/2008
<b>Matrix:</b>	Water				

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzo(ghi)perylene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[a]anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[a]pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[b]fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzo[k]fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Benzyl alcohol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-Chloroethoxy)methane	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-Chloroethyl)ether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bis(2-chloroisopropyl)ether	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
bls(2-Ethylhexyl)phthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Butylbenzylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Carbazole	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Chrysene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dibenz[a,h]anthracene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dibenzofuran	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Diethylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Dimethylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Di-n-butylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Di-n-octylphthalate	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Fluoranthene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Fluorene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorobutadiene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachlorocyclopentadiene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Hexachloroethane	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Isophorone	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Naphthalene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Nitrobenzene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Nitrosodimethylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
n-Nitroso-di-n-propylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
n-Nitrosodiphenylamine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Pentachlorophenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Phenanthrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Phenol	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
Pyrene	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	

### Comments:

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-006	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-11B / SMW-4	<b>Sampling Time</b>	10:15 AM	<b>Extraction Date</b>	1/4/2008	
<b>Matrix:</b>	Water					

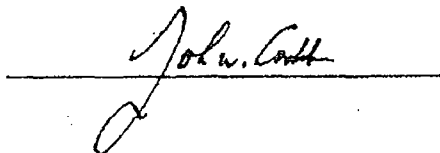
  

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Pyridine	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270C	
1,4-Dioxane	ND	ug/L	5	1/16/2008	EMP	EPA 8270CMOD	
Benzenethiolo	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270CMOD	
Quinoline	ND	ug/L	0.1	1/16/2008	EMP	EPA 8270CMOD	

## Surrogate Data

<b>Sample Number</b>	080104017-006			
Surrogate Standard	Method	Percent Recovery	Control Limits	
2,4,6-Tribromophenol	EPA 8270C	84.7	10-123	
2-Fluorobiphenyl	EPA 8270C	100.4	19-130	
2-Fluorophenol	EPA 8270C	81.3	21-110	
Nitrobenzene-d5	EPA 8270C	120.6	25-130	
Phenol-d5	EPA 8270C	75.3	10-110	
Terphenyl-d14	EPA 8270C	124.6	10-125	
Terphenyl-d14	EPA 8270CMOD	108.7	10-125	

Authorized Signature



MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

Comments:

Monday, January 21, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104018  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104018-001	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-10G / SMW-2	<b>Sampling Time</b>	10:30 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Antimony	ND	mg/L	0.001	1/8/2008	DMB	EPA 200.8	

<b>Sample Number</b>	080104018-002	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-10H / SMW-2	<b>Sampling Time</b>	10:30 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Antimony	ND	mg/L	0.001	1/8/2008	DMB	EPA 200.8	

<b>Sample Number</b>	080104018-003	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-11G / SMW-4	<b>Sampling Time</b>	10:15 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Antimony	ND	mg/L	0.001	1/8/2008	DMB	EPA 200.8	

**Comments:**

Wednesday, January 09, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

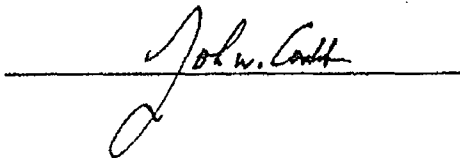
**Batch #:** 080104018  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104018-004	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-11H / SMW-4	<b>Sampling Time</b>	10:15 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Antimony	ND	mg/L	0.001	1/8/2008	DMB	EPA 200.8	

Authorized Signature



MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

Comments:

Wednesday, January 09, 2008

Page 2 of 2

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ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

<b>Sample Number</b>	080104017-001	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-07F / MW-1	<b>Sampling Time</b>	9:10 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

<b>Sample Number</b>	080104017-002	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-08F / MW-4	<b>Sampling Time</b>	4:00 PM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

<b>Sample Number</b>	080104017-003	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-09F / MW-5	<b>Sampling Time</b>	12:45 PM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

<b>Sample Number</b>	080104017-005	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-10F / SMW-2	<b>Sampling Time</b>	10:30 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0651	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

**Comments:**

Monday, January 21, 2008

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**Client:** HALL ENVIRONMENTAL ANALYSIS LAB  
**Address:** 4901 HAWKINS NE SUITE D  
ALBUQUERQUE, NM 87109  
**Attn:** ANDY FREEMAN

**Batch #:** 080104017  
**Project Name:** 0801006

## Analytical Results Report

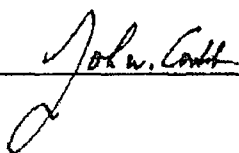
<b>Sample Number</b>	080104017-007	<b>Sampling Date</b>	12/29/2007	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-11F / SMW-4	<b>Sampling Time</b>	10:15 AM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

<b>Sample Number</b>	080104017-008	<b>Sampling Date</b>	1/1/2008	<b>Date/Time Received</b>	1/4/2008	11:00 AM
<b>Client Sample ID</b>	0801006-20E / PW-3	<b>Sampling Time</b>	3:30 PM			
<b>Matrix:</b>	Water					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/9/2008	ETL	SM4500CNE	

Authorized Signature

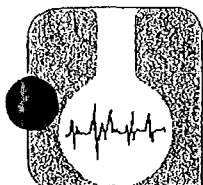


MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit

Comments:

Monday, January 21, 2008

Page 2 of 2



**ASSAIGAL  
ANALYTICAL  
LABORATORIES, INC. A WOMAN OWNED SMALL BUSINESS**

4301 Masthead NE • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259

6400 Airport, Bldg. B, Suite J • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820  
127 Eastgate Drive • Los Alamos, New Mexico 87544 • (505) 662-2558

**HALL ENVIRONMENTAL**  
attn: **ANDY FREEMAN**  
**4901 HAWKINS NE, SUITE D**  
**ALBUQUERQUE NM 87109-4372**

Explanation of codes	
B	Analyte Detected in Method Blank
E	Result is Estimated
H	Analyzed Out of Hold Time
N	Tentatively Identified Compound
S	Subcontracted
1-9	See Footnote

Assaigal Analytical Laboratories, Inc.

STANDARD

**Certificate of Analysis**

All samples are reported on an "as received" basis, unless otherwise noted (i.e. - Dry Weight).

Client: **HALL ENVIRONMENTAL**  
Project: **0801006**  
Order: **08010028 HAL03** Receipt: **01-03-08**

*William P. Bava*  
William P. Bava: President of Assaigal Analytical Laboratories, Inc.

Sample: **0801006-18C EP-2 INLET** Collected: **01-01-08 12:30:00** By:  
Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
08010028-001A			EPA 410.1 Chemical Oxygen Demand					By: NJL		
WCQD07078	WC.2008.60.6	C-004	Chemical Oxygen Demand	1000	mg/L	1	10		01-08-08	01-09-08

Sample: **0801006-18D EP-2 INLET** Collected: **01-01-08 12:30:00** By:  
Matrix: **AQUEOUS**

QC Group	Run Sequence	CAS #	Analyte	Result	Units	Dilution Factor	Detection Limit	Code	Prep Date	Run Date
08010028-002A			EPA 405.1 Biochemical Oxygen Demand					By: MJN		
3OD08002	WC.2008.58.6	10-28-4	Biochemical Oxygen Demand	798	mg/L	1	2		01-03-08	01-08-08

Unless otherwise noted, all samples were received in acceptable condition and all sampling was performed by client or client representative. Sample result of ND indicates Not Detected, ie result is less than the sample specific Detection Limit. Sample specific Detection Limit is determined by multiplying the sample Dilution Factor by the listed Reporting Detection Limit. All results relate only to the items tested. Any miscellaneous workorder information or footnotes will appear below.

Analytical results are not corrected for method blank or field blank contamination.

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: 0801006-07c msd		MSD							
Fluoride	1.427	mg/L	0.10	107	80	120	0	20	
Phosphorus, Orthophosphate (As P)	5.286	mg/L	0.50	106	80	120	0	20	
Sample ID: 0801006-12c msd		MSD							
Fluoride	3.014	mg/L	0.10	85.6	80	120	0.116	20	
Phosphorus, Orthophosphate (As P)	5.333	mg/L	0.50	107	80	120	0.266	20	
Sample ID: MB		MBLK							
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK							
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK							
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: MB		MBLK							
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.10						
Nitrogen, Nitrate (As N)	ND	mg/L	0.10						
Nitrate (As N)+Nitrite (As N)	ND	mg/L	0.20						
Phosphorus, Orthophosphate (As P)	ND	mg/L	0.50						
Sulfate	ND	mg/L	0.50						
Sample ID: LCS		LCS							
Fluoride	0.5463	mg/L	0.10	109	90	110			
Chloride	4.906	mg/L	0.10	98.1	90	110			
Nitrogen, Nitrate (As N)	2.465	mg/L	0.10	98.6	90	110			
Nitrate (As N)+Nitrite (As N)	3.483	mg/L	0.20	99.5	90	110			
Phosphorus, Orthophosphate (As P)	4.853	mg/L	0.50	97.1	90	110			
Sulfate	9.774	mg/L	0.50	97.7	90	110			
Sample ID: LCS		LCS							
Fluoride	0.5408	mg/L	0.10	108	90	110			

## Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
<b>Method: EPA Method 300.0: Anions</b>									
Sample ID: LCS		LCS			Batch ID: R26794		Analysis Date: 1/4/2008 5:35:26 AM		
Chloride	5.147	mg/L	0.10	103	90	110			
Nitrogen, Nitrate (As N)	2.574	mg/L	0.10	103	90	110			
Nitrate (As N)+Nitrite (As N)	3.602	mg/L	0.20	103	90	110			
Phosphorus, Orthophosphate (As P)	5.187	mg/L	0.50	104	90	110			
Sulfate	10.34	mg/L	0.50	103	90	110			
Sample ID: LCS		LCS			Batch ID: R26827		Analysis Date: 1/8/2008 6:28:28 AM		
Fluoride	0.5250	mg/L	0.10	105	90	110			
Chloride	4.865	mg/L	0.10	97.3	90	110			
Nitrogen, Nitrate (As N)	2.476	mg/L	0.10	99.0	90	110			
Nitrate (As N)+Nitrite (As N)	3.512	mg/L	0.20	100	90	110			
Phosphorus, Orthophosphate (As P)	4.836	mg/L	0.50	96.7	90	110			
Sulfate	9.701	mg/L	0.50	97.0	90	110			
Sample ID: LCS		LCS			Batch ID: R26844		Analysis Date: 1/9/2008 3:34:57 PM		
Chloride	5.388	mg/L	0.10	108	90	110			
Nitrate (As N)+Nitrite (As N)	3.837	mg/L	0.20	110	90	110			
Phosphorus, Orthophosphate (As P)	5.465	mg/L	0.50	109	90	110			
Sample ID: 0801006-07c ms		MS			Batch ID: R26784		Analysis Date: 1/3/2008 10:29:53 PM		
Fluoride	1.399	mg/L	0.10	102	80	120			
Phosphorus, Orthophosphate (As P)	5.251	mg/L	0.50	105	80	120			
Sample ID: 0801006-12c ms		MS			Batch ID: R26784		Analysis Date: 1/3/2008 11:04:42 PM		
Fluoride	3.011	mg/L	0.10	84.9	80	120			
Phosphorus, Orthophosphate (As P)	5.319	mg/L	0.50	106	80	120			
<b>Method: EPA Method 504.1: EDB</b>									
Sample ID: MB-14818		MBLK			Batch ID: 14818		Analysis Date: 1/8/2008 12:57:04 PM		
1,2-Dibromoethane	ND	µg/L	0.010						
Sample ID: LCS-14818		LCS			Batch ID: 14818		Analysis Date: 1/8/2008 1:15:12 PM		
1,2-Dibromoethane	0.1100	µg/L	0.010	110	70	130			
Sample ID: LCSD-14818		LCSD			Batch ID: 14818		Analysis Date: 1/8/2008 1:33:23 PM		
1,2-Dibromoethane	0.1200	µg/L	0.010	120	70	130	8.70	13.5	
<b>Method: EPA Method 8015B: Diesel Range</b>									
Sample ID: MB-14780		MBLK			Batch ID: 14780		Analysis Date: 1/3/2008 8:36:20 AM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-14780		LCS			Batch ID: 14780		Analysis Date: 1/3/2008 9:06:59 AM		
Diesel Range Organics (DRO)	5.571	mg/L	1.0	111	74	157			
Sample ID: LCSD-14780		LCSD			Batch ID: 14780		Analysis Date: 1/3/2008 9:37:43 AM		
Diesel Range Organics (DRO)	6.056	mg/L	1.0	121	74	157	8.33	23	

## Modifiers:

E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8015B: Gasoline Range

Sample ID: 5ML RB MBLK

Batch ID: R26789 Analysis Date: 1/4/2008 10:03:32 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 5ML RB-B MBLK

Batch ID: R26807 Analysis Date: 1/7/2008 10:22:44 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS-R LCS

Batch ID: R26807 Analysis Date: 1/7/2008 11:53:01 AM

Gasoline Range Organics (GRO) 0.4696 mg/L 0.050 88.7

80 115

Sample ID: 2.5UG GRO LCSD-R LCSD

Batch ID: R26807 Analysis Date: 1/7/2008 12:23:10 PM

Gasoline Range Organics (GRO) 0.4606 mg/L 0.050 86.9 80 115 1.94 8.39

## Qualifiers:

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-14786

MBLK

Batch ID: 14786 Analysis Date:

1/9/2008

Acenaphthene	ND	µg/L	10
Acenaphthylene	ND	µg/L	10
Aniline	ND	µg/L	10
Anthracene	ND	µg/L	10
Azobenzene	ND	µg/L	10
Benz(a)anthracene	ND	µg/L	10
Benzo(a)pyrene	ND	µg/L	10
Benzo(b)fluoranthene	ND	µg/L	10
Benzo(g,h,i)perylene	ND	µg/L	10
Benzo(k)fluoranthene	ND	µg/L	10
Benzoic acid	ND	µg/L	20
Benzyl alcohol	ND	µg/L	10
Bis(2-chloroethoxy)methane	ND	µg/L	10
Bis(2-chloroethyl)ether	ND	µg/L	10
Bis(2-chloroisopropyl)ether	ND	µg/L	10
Bis(2-ethylhexyl)phthalate	ND	µg/L	10
4-Bromophenyl phenyl ether	ND	µg/L	10
Butyl benzyl phthalate	ND	µg/L	10
Carbazole	ND	µg/L	10
1-Chloro-3-methylphenol	ND	µg/L	10
4-Chloroaniline	ND	µg/L	10
2-Chloronaphthalene	ND	µg/L	10
2-Chlorophenol	ND	µg/L	10
4-Chlorophenyl phenyl ether	ND	µg/L	10
Chrysene	ND	µg/L	10
Di-n-butyl phthalate	ND	µg/L	10
Di-n-octyl phthalate	ND	µg/L	10
Dibenz(a,h)anthracene	ND	µg/L	10
Dibenzofuran	ND	µg/L	10
1,2-Dichlorobenzene	ND	µg/L	10
1,3-Dichlorobenzene	ND	µg/L	10
1,4-Dichlorobenzene	ND	µg/L	10
3,3'-Dichlorobenzidine	ND	µg/L	10
Diethyl phthalate	ND	µg/L	10
Dimethyl phthalate	ND	µg/L	10
2,4-Dichlorophenol	ND	µg/L	10
2,4-Dimethylphenol	ND	µg/L	10
4,6-Dinitro-2-methylphenol	ND	µg/L	10
2,4-Dinitrophenol	ND	µg/L	20
2,4-Dinitrotoluene	ND	µg/L	10
2,6-Dinitrotoluene	ND	µg/L	10
Fluoranthene	ND	µg/L	10
Fluorene	ND	µg/L	10
Hexachlorobenzene	ND	µg/L	10

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-14786

MBLK

Batch ID: 14786 Analysis Date: 1/9/2008

Hexachlorobutadiene	ND	µg/L	10
Hexachlorocyclopentadiene	ND	µg/L	10
Hexachloroethane	ND	µg/L	10
Indeno(1,2,3-cd)pyrene	ND	µg/L	10
Isophorone	ND	µg/L	10
2-Methylnaphthalene	ND	µg/L	10
2-Methylphenol	ND	µg/L	10
3+4-Methylphenol	ND	µg/L	10
N-Nitrosodi-n-propylamine	ND	µg/L	10
N-Nitrosodimethylamine	ND	µg/L	10
N-Nitrosodiphenylamine	ND	µg/L	10
Naphthalene	ND	µg/L	10
2-Nitroaniline	ND	µg/L	10
3-Nitroaniline	ND	µg/L	10
4-Nitroaniline	ND	µg/L	10
Nitrobenzene	ND	µg/L	10
2-Nitrophenol	ND	µg/L	10
4-Nitrophenol	ND	µg/L	10
Pentachlorophenol	ND	µg/L	10
Phenanthrene	ND	µg/L	10
Phenol	ND	µg/L	10
Pyrene	ND	µg/L	10
Pyridine	ND	µg/L	10
1,2,4-Trichlorobenzene	ND	µg/L	10
2,4,5-Trichlorophenol	ND	µg/L	10
2,4,6-Trichlorophenol	ND	µg/L	10

Sample ID: lcs-14786

LCS

Batch ID: 14786 Analysis Date: 1/9/2008

Acenaphthene	93.72	µg/L	10	93.7	11	123
4-Chloro-3-methylphenol	183.7	µg/L	10	91.9	15.4	119
2-Chlorophenol	151.8	µg/L	10	75.9	12.2	122
1,4-Dichlorobenzene	62.28	µg/L	10	62.3	16.9	100
2,4-Dinitrotoluene	94.04	µg/L	10	94.0	13	138
N-Nitrosodi-n-propylamine	78.32	µg/L	10	78.3	9.93	122
4-Nitrophenol	127.5	µg/L	10	63.7	12.5	87.4
Pentachlorophenol	173.0	µg/L	10	86.5	3.55	114
Phenol	88.98	µg/L	10	44.5	7.53	73.1
Pyrene	94.74	µg/L	10	94.7	12.6	140
1,2,4-Trichlorobenzene	60.80	µg/L	10	60.8	17.4	98.7

Sample ID: LCSD-14786

LCSD

Batch ID: 14786 Analysis Date: 1/9/2008

Acenaphthene	88.34	µg/L	10	88.3	11	123	5.91	30.5
4-Chloro-3-methylphenol	173.9	µg/L	10	87.0	15.4	119	5.48	28.6
2-Chlorophenol	172.6	µg/L	10	86.3	12.2	122	12.8	107
1,4-Dichlorobenzene	73.58	µg/L	10	73.6	16.9	100	16.6	62.1
2,4-Dinitrotoluene	85.26	µg/L	10	85.3	13	138	9.79	14.7

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8270C: Semivolatiles									
Sample ID: LCSD-14786		LCSD			Batch ID: 14786		Analysis Date:		1/9/2008
N-Nitrosodi-n-propylamine	89.10	µg/L	10	89.1	9.93	122	12.9	30.3	
4-Nitrophenol	88.32	µg/L	10	44.2	12.5	87.4	36.3	36.3	
Pentachlorophenol	144.7	µg/L	10	72.3	3.55	114	17.8	49	
Phenol	102.3	µg/L	10	51.2	7.53	73.1	13.9	52.4	
Pyrene	81.66	µg/L	10	81.7	12.6	140	14.8	16.3	
1,2,4-Trichlorobenzene	69.76	µg/L	10	69.8	17.4	98.7	13.7	36.4	

Method: EPA Method 7470: Mercury									
Sample ID: 0801006-20C MSD		MSD			Batch ID: 14781		Analysis Date:		1/3/2008 3:40:42 PM
Mercury	0.004811	mg/L	0.00020	96.2	75	125	1.01	20	
Sample ID: MB-14781		MBLK			Batch ID: 14781		Analysis Date:		1/3/2008 3:03:04 PM
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-14781		LCS			Batch ID: 14781		Analysis Date:		1/3/2008 3:04:49 PM
Mercury	0.005029	mg/L	0.00020	101	80	120			
Sample ID: 0801006-20C MS		MS			Batch ID: 14781		Analysis Date:		1/3/2008 3:38:57 PM
Mercury	0.004860	mg/L	0.00020	97.2	75	125			

Method: EPA Method 6010B: Dissolved Metals									
Sample ID: MB		MBLK			Batch ID: R26893		Analysis Date:		1/14/2008 8:17:51 AM
Arsenic	ND	mg/L	0.020						
Barium	ND	mg/L	0.020						
Cadmium	ND	mg/L	0.0020						
Calcium	ND	mg/L	1.0						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Magnesium	ND	mg/L	1.0						
Potassium	ND	mg/L	1.0						
Selenium	ND	mg/L	0.050						
Silver	ND	mg/L	0.0050						
Sodium	ND	mg/L	1.0						
Sample ID: LCS		LCS			Batch ID: R26893		Analysis Date:		1/14/2008 8:20:54 AM
Arsenic	0.4681	mg/L	0.020	93.6	80	120			
Barium	0.4717	mg/L	0.020	94.3	80	120			
Cadmium	0.4757	mg/L	0.0020	95.1	80	120			
Calcium	52.00	mg/L	1.0	103	80	120			
Chromium	0.4795	mg/L	0.0060	95.9	80	120			
Lead	0.4631	mg/L	0.0050	92.6	80	120			
Magnesium	51.75	mg/L	1.0	102	80	120			
Potassium	55.16	mg/L	1.0	100	80	120			
Selenium	0.4619	mg/L	0.050	92.4	80	120			
Silver	0.4701	mg/L	0.0050	94.0	80	120			
Sodium	54.97	mg/L	1.0	109	80	120			

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA 6010B: Total Recoverable Metals

Sample ID: 0801006-17D MSD

MSD

Batch ID: 14784

Analysis Date: 1/12/2008 4:55:47 PM

Arsenic	0.5601	mg/L	0.020	112	75	125	2.22	20
Barium	0.5957	mg/L	0.010	106	75	125	2.84	20
Cadmium	0.5464	mg/L	0.0020	109	75	125	1.76	20
Calcium	59.40	mg/L	0.50	110	75	125	2.33	20
Chromium	0.5397	mg/L	0.0060	107	75	125	1.63	20
Copper	0.5728	mg/L	0.0060	115	75	125	1.90	20
Iron	0.7385	mg/L	0.050	121	75	125	3.82	20
Lead	0.5152	mg/L	0.0050	103	75	125	2.36	20
Magnesium	57.76	mg/L	0.50	114	75	125	2.35	20
Manganese	0.5447	mg/L	0.0020	106	75	125	1.96	20
Potassium	60.60	mg/L	1.0	119	75	125	3.46	20
Selenium	0.5308	mg/L	0.050	106	75	125	0.661	20
Silver	0.5325	mg/L	0.0050	107	75	125	2.10	20
Uranium	0.4989	mg/L	0.10	99.8	75	125	1.27	20
Zinc	0.5314	mg/L	0.020	105	75	125	2.34	20

Sample ID: MB-14784

MBLK

Batch ID: 14784

Analysis Date: 1/12/2008 3:13:23 PM

Arsenic	ND	mg/L	0.020					
Barium	ND	mg/L	0.010					
Cadmium	ND	mg/L	0.0020					
Calcium	ND	mg/L	0.50					
Chromium	ND	mg/L	0.0060					
Copper	ND	mg/L	0.0060					
Iron	ND	mg/L	0.050					
Lead	ND	mg/L	0.0050					
Magnesium	ND	mg/L	0.50					
Manganese	ND	mg/L	0.0020					
Nickel	ND	mg/L	0.010					
Potassium	ND	mg/L	1.0					
Selenium	ND	mg/L	0.050					
Silver	ND	mg/L	0.0050					
Sodium	ND	mg/L	0.50					
Uranium	ND	mg/L	0.10					
Zinc	ND	mg/L	0.020					

Sample ID: LCS-14784

LCS

Batch ID: 14784

Analysis Date: 1/12/2008 3:16:26 PM

Arsenic	0.5270	mg/L	0.020	105	80	120		
Barium	0.5149	mg/L	0.010	103	80	120		
Cadmium	0.5300	mg/L	0.0020	106	80	120		
Calcium	52.93	mg/L	0.50	106	80	120		
Chromium	0.5298	mg/L	0.0060	106	80	120		
Copper	0.5290	mg/L	0.0060	106	80	120		
Iron	0.5332	mg/L	0.050	107	80	120		
Lead	0.5207	mg/L	0.0050	104	80	120		
Magnesium	54.06	mg/L	0.50	108	80	120		
Manganese	0.5153	mg/L	0.0020	103	80	120		

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA 6010B: Total Recoverable Metals

Sample ID: LCS-14784 LCS Batch ID: 14784 Analysis Date: 1/12/2008 3:16:26 PM

Nickel	0.4995	mg/L	0.010	99.9	80	120			
Potassium	57.07	mg/L	1.0	114	80	120			
Selenium	0.5506	mg/L	0.050	110	80	120			
Silver	0.5213	mg/L	0.0050	104	80	120			
Sodium	57.38	mg/L	0.50	115	80	120			
Uranium	0.4905	mg/L	0.10	98.1	80	120			
Zinc	0.5194	mg/L	0.020	104	80	120			

Sample ID: 0801006-17D MS MS Batch ID: 14784 Analysis Date: 1/12/2008 4:51:30 PM

Arsenic	0.5726	mg/L	0.020	115	75	125			
Barium	0.6129	mg/L	0.010	109	75	125			
Cadmium	0.5561	mg/L	0.0020	111	75	125			
Calcium	60.80	mg/L	0.50	113	75	125			
Chromium	0.5486	mg/L	0.0060	109	75	125			
Copper	0.5837	mg/L	0.0060	117	75	125			
Iron	0.7109	mg/L	0.050	115	75	125			
Lead	0.5274	mg/L	0.0050	105	75	125			
Magnesium	59.13	mg/L	0.50	117	75	125			
Manganese	0.5555	mg/L	0.0020	108	75	125			
Potassium	62.74	mg/L	1.0	123	75	125			
Selenium	0.5273	mg/L	0.050	105	75	125			
Silver	0.5438	mg/L	0.0050	109	75	125			
Uranium	0.5053	mg/L	0.10	101	75	125			
Zinc	0.5440	mg/L	0.020	107	75	125			

Method: SM 2540C: TDS

Sample ID: MB-14788 MBLK Batch ID: 14788 Analysis Date: 1/3/2008

Total Dissolved Solids ND mg/L 20

Sample ID: LCS-14788 LCS Batch ID: 14788 Analysis Date: 1/3/2008

Total Dissolved Solids 1020 mg/L 20 101 80 120

## Notes:

- E Value above quantitation range  
 J Analyte detected below quantitation limits  
 R RPD outside accepted recovery limits  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 0801006-07a msd

MSD

Batch ID: R26808

Analysis Date: 1/7/2008 11:32:50 PM

Benzene	21.99	µg/L	1.0	110	72.4	126	3.60	15	
Toluene	20.87	µg/L	1.0	104	79.2	115	2.75	15	
Chlorobenzene	21.00	µg/L	1.0	105	83.1	111	0.295	15	
1,1-Dichloroethene	24.46	µg/L	1.0	122	81.4	122	2.06	17.8	S
Trichloroethene (TCE)	21.26	µg/L	1.0	106	64.4	118	2.06	19.8	

Sample ID: 5mL rb

MBLK

Batch ID: R26808

Analysis Date: 1/7/2008 8:54:19 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Chlorobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits



## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26808 Analysis Date: 1/7/2008 8:54:19 AM

1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 5mL rb

MBLK

Batch ID: R26826 Analysis Date: 1/8/2008 9:58:50 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26826 Analysis Date: 1/8/2008 9:58:50 AM

Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0
1,1-Dichloroethene	ND	µg/L	1.0
1,2-Dichloropropane	ND	µg/L	1.0
1,3-Dichloropropane	ND	µg/L	1.0
2,2-Dichloropropane	ND	µg/L	2.0
1,1-Dichloropropene	ND	µg/L	1.0
Hexachlorobutadiene	ND	µg/L	1.0
2-Hexanone	ND	µg/L	10
Isopropylbenzene	ND	µg/L	1.0
4-Isopropyltoluene	ND	µg/L	1.0
4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0

## Modifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual.
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5mL rb

MBLK

Batch ID: R26826 Analysis Date: 1/8/2008 9:58:50 AM

1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: 5ml rb

MBLK

Batch ID: R26863 Analysis Date: 1/10/2008 10:31:12 AM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
Methylnaphthalene	ND	µg/L	4.0
Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromochloromethane	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0
Chloromethane	ND	µg/L	1.0
2-Chlorotoluene	ND	µg/L	1.0
4-Chlorotoluene	ND	µg/L	1.0
cis-1,2-DCE	ND	µg/L	1.0
cis-1,3-Dichloropropene	ND	µg/L	1.0
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0
Dibromochloromethane	ND	µg/L	1.0
Dibromomethane	ND	µg/L	1.0
1,2-Dichlorobenzene	ND	µg/L	1.0
1,3-Dichlorobenzene	ND	µg/L	1.0
1,4-Dichlorobenzene	ND	µg/L	1.0
Dichlorodifluoromethane	ND	µg/L	1.0
1,1-Dichloroethane	ND	µg/L	1.0

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 6ml rb

MBLK

Batch ID: R26863 Analysis Date: 1/10/2008 10:31:12 AM

1,1-Dichloroethene	ND	µg/L	1.0						
1,2-Dichloropropane	ND	µg/L	1.0						
1,3-Dichloropropane	ND	µg/L	1.0						
2,2-Dichloropropane	ND	µg/L	2.0						
1,1-Dichloropropene	ND	µg/L	1.0						
Hexachlorobutadiene	ND	µg/L	1.0						
2-Hexanone	ND	µg/L	10						
Isopropylbenzene	ND	µg/L	1.0						
4-Isopropyltoluene	ND	µg/L	1.0						
4-Methyl-2-pentanone	ND	µg/L	10						
Methylene Chloride	ND	µg/L	3.0						
n-Butylbenzene	ND	µg/L	1.0						
n-Propylbenzene	ND	µg/L	1.0						
sec-Butylbenzene	ND	µg/L	1.0						
Styrene	ND	µg/L	1.0						
tert-Butylbenzene	ND	µg/L	1.0						
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0						
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0						
Trichloroethene (PCE)	ND	µg/L	1.0						
trans-1,2-DCE	ND	µg/L	1.0						
trans-1,3-Dichloropropene	ND	µg/L	1.0						
1,2,3-Trichlorobenzene	ND	µg/L	1.0						
1,2,4-Trichlorobenzene	ND	µg/L	1.0						
1,1,1-Trichloroethane	ND	µg/L	1.0						
1,1,2-Trichloroethane	ND	µg/L	1.0						
Trichloroethene (TCE)	ND	µg/L	1.0						
Trichlorofluoromethane	ND	µg/L	1.0						
1,2,3-Trichloropropane	ND	µg/L	2.0						
Vinyl chloride	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						

Sample ID: 100ng lcs-b

LCS

Batch ID: R26808 Analysis Date: 1/7/2008 12:33:47 PM

Benzene	22.83	µg/L	1.0	114	72.4	126			
Toluene	22.03	µg/L	1.0	110	79.2	115			
Chlorobenzene	21.50	µg/L	1.0	107	83.1	111			
1,1-Dichloroethene	25.67	µg/L	1.0	128	81.4	122			S
Trichloroethene (TCE)	22.86	µg/L	1.0	114	64.4	118			

Sample ID: 100ng lcs

LCS

Batch ID: R26826 Analysis Date: 1/8/2008 12:13:56 PM

Benzene	20.80	µg/L	1.0	104	72.4	126			
Toluene	20.50	µg/L	1.0	102	79.2	115			
Chlorobenzene	21.12	µg/L	1.0	106	83.1	111			
1,1-Dichloroethene	23.99	µg/L	1.0	120	81.4	122			
Trichloroethene (TCE)	18.82	µg/L	1.0	94.1	64.4	118			

Sample ID: 100ng lcs

LCS

Batch ID: R26863 Analysis Date: 1/10/2008 12:14:39 PM

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

## QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup  
 Project: 2007 Annual GW Samples

Work Order: 0801006

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 100ng lcs

LCS

Batch ID: R26863

Analysis Date: 1/10/2008 12:14:39 PM

Benzene	19.22	µg/L	1.0	96.1	72.4	126
Toluene	18.05	µg/L	1.0	90.2	79.2	115
Chlorobenzene	19.27	µg/L	1.0	96.4	83.1	111
1,1-Dichloroethene	21.56	µg/L	1.0	108	81.4	122
Trichloroethene (TCE)	19.03	µg/L	1.0	95.2	64.4	118

Sample ID: 0801006-07a ms

MS

Batch ID: R26808

Analysis Date: 1/7/2008 11:04:34 PM

Benzene	22.80	µg/L	1.0	114	72.4	126
Toluene	21.45	µg/L	1.0	107	79.2	115
Chlorobenzene	21.06	µg/L	1.0	105	83.1	111
1,1-Dichloroethene	24.96	µg/L	1.0	125	81.4	122
Trichloroethene (TCE)	21.70	µg/L	1.0	109	64.4	118

S

## Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

# Hall Environmental Analysis Laboratory, Inc.

## Sample Receipt Checklist

Client Name GIANTREFIN

Date Received:

1/2/2008

Work Order Number 0801006

Received by: AMF

Checklist completed by:

*Janye Shomin*  
Signature

1/2/08  
Date

Sample ID labels checked by

*AS*  
Initials

Matrix

Carrier name Client drop-off

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

Container/Temp Blank temperature?

7°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding

Comments:

Added 1ml HNO<sub>3</sub> to samples SMW-2 & BW-2B for acceptable pH as 1/2-08  
Sample DW-11 had frozen 1 hr amb. and 500 uvp. pl. upon arrival. Can't run sample for 8270, anions, pH, conductivity. TS/08

Corrective Action

## HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE, Suite D  
Albuquerque, New Mexico 87109  
Tel. 505.345.3975 Fax 505.345.4107  
[www.hallenvironmental.com](http://www.hallenvironmental.com)

Project Manager: Jim Lieb  
Sampler: Steve Morris

for PAH)  
als  
NO<sub>2</sub>, NO<sub>3</sub>,  
ides / PCB's  
A)  
-VOA)

[illegible]

Remarks: Gas Chem = Cationic  
pH, and Conductivity

Remarks: Gas Chem = Cations, Anions, pH, and Conductivity.  
see sample checklist with comments.





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

Std  Level 4 

Other:

Project Name: Annual Groundwater sample 2007

Project #:

Project Manager:

Sampler: Steve Morris

Sample Temperature:

c

Number/Volume	HEAL No.	
	HgCl <sub>2</sub>	HNO <sub>3</sub>

HEAL No

201908190931

1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2

Number/Volume

Sample I.D. No.

Matrix

Date \_\_\_\_\_ Time \_\_\_\_\_

12-31-07/030	H <sub>2</sub> O	BW-1C
--------------	------------------	-------

1	1230	"	Bw-2A
---	------	---	-------

1400	"	BW-2B
------	---	-------

11	1100	"	BW-26
----	------	---	-------

1)	1515	"	BW-3B
----	------	---	-------

1140	"	RW-3C
------	---	-------

Date:	1-2-08
Time:	1025

Relinquished By: (Signature) *[Signature]*

Received By: (Signature) 11/2/08

Date:	Time:
-------	-------

Relinquished By: [Signature]

Received By: (Signature)

# ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)
BTEX + MTBE + TPH (Gasoline Only)
TPH Method 8015B (Gas/Diesel)
TPH (Method 418.1)
EDB (Method 504.1)
EDC (Method 8021)
8310 (PNA or PAH)
Metals <del>WQCC</del> <i>WQCC total</i>
Anions (F, Cl, NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup> )
8081 Pesticides / PCB's (8082)
8260B (VOA)
8270 (Semi-VOA)
<i>Gen Chem</i>

Remarks: Gen Chem = Cations, Anions, pH, + Conductivity.

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Tel. 505.345.3975 Fax 505.345.4107  
[www.hallenvironmental.com](http://www.hallenvironmental.com)

Project Name: Annual Ground-  
water Samples 2007

Project #:

Fallup NM 87301

Project Manager:

Sampler: Jim Lieb, Steve Morris

Phone #: 505 722-8333

Fax #:

[illegible]

Date: 0 Time: 2

Relinquished By: (Signature) \_\_\_\_\_

Received By: (Signature)

[illegible]

Date: \_\_\_\_\_

Time:

Relinquished By: (Signature)

Received By: (Signature)

## ANALYSIS REQUEST

[illegible]

Remarks.

TKS: Gen Chem = Catalysis, Kinetics,  
pH, and Conductivity

## 6. Recommendations Based on Groudwater Testing

### OW-11

A grab sample from OW-11 was taken on December 27, 2007. The sample was analyzed for Mercury (EPA Method 7470), Total Recoverable Metals (EPA Method 6010B), and Volatiles (EPA Method 8260B). No mercury was detected. No metals or volatiles were found at levels exceeding applicable MCLs, NM ground water, and NM TPH screening levels. In 2006, the general chemistry results showed that fluoride (2.5 mg/l) and sulfate (1,100 mg/l) were present at levels greater than the NMWQS for fluoride (1.6 mg/l) and sulfate (600 mg/l). However, these analyses could not be conducted in 2007, as the sample was frozen by the time it reached the analytical laboratory.

**RECOMMENDATION:** *Western Refining will continue to test OW-11 on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. It is imperative that analyses for Anions be conducted as some of these were elevated in 2006. In future, Western refining will conduct the annual groundwater sampling exercise earlier in the calendar year. (In 2008, sampling has been conducted in July and August.)*

### OW-12

OW-12 was sampled on December 27, 2007 and analyzed for Volatiles (EPA Method 8260B). The laboratory analyses showed all parameters at non-detectable levels.

**RECOMMENDATION:** *Western Refining will continue to monitor OW-12 on an annual basis for Volatiles.*

### OW-13

OW-13 was sampled on December 27, 2007 and analyzed for Volatiles (EPA Method 8260B). The laboratory analyses showed all parameters at non-detectable levels, except for MTBE which was detected at extremely low levels.

**RECOMMENDATION:** *Western Refining will monitor OW-13 on a quarterly basis for Volatiles. For more details see Recommendation for OW-14 and OW-30.*

### OW-14

OW-14 was sampled on 1/1/2008 and analyzed for Volatiles (EPA Method 8260B). Inclement weather prevented completion of sampling of this well within December 2007. The results **showed that Methyl Tetra-Butyl Ether (MTBE) contamination had entered the shallow perched groundwater at OW-14. The levels of MTBE were 0.92 mg/l in OW-14. This level exceeds the current U.S. EPA MCL of 0.20 mg/l and the current NM Water Quality Control Commission standard of 0.1 mg/l.** The monitoring in 2006 had also shown that MTBE contamination had entered the shallow perched groundwater at OW-14. **The monitoring of well OW-14 also found that Benzene was elevated. The benzene concentration in this sample was 0.014 mg/l, exceeding the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA MCL of 0.005 mg/l.** The highest level of Benzene in this well in 2006 was 0.0042 mg/l. Benzene had shown up at levels exceeding the NMWQS in the 2004 and 2005 samplings.

The MTBE detected in OW-14 and OW-30 appears to be migrating generally to the north (downgradient), but does not appear to be threatening any receptors at this time. Because MTBE is reportedly no longer used or stored at the refinery, the MTBE source appears to have been removed and is no longer contributing MTBE to the groundwater. However, MTBE is present in these two wells above the WQCC standard. In addition, benzene is present in OW-14 above WQCC the standard. Because the source has been removed, no receptors are immediately threatened, and the MTBE concentration in OW-14 appears to be decreasing, Western Refining recommends continued monitoring of OW-14 and OW-30 to assess the trend of the contaminants and evaluates the need for a Stage 1 Abatement Plan.

**RECOMMENDATION:** *Quarterly monitoring in OW-13, OW-14, OW-30, and OW-29 to monitor the contaminant plume and evaluate the need for abatement of the MTBE. If the source has been removed, the contaminant concentration in OW-14 should be expected to continue declining, and the concentration in OW-30 should increase slightly as the plume passes, and then also decrease. OW-29 is downgradient from OW-14 and OW-30, and can be used as a sentinel well to monitor the MTBE before it migrates off the refinery boundary. The analytical report for the groundwater sampling conducted on January 2, 2008 shows MTBE in OW-13 and OW-29, although both are below the WQCC standard. MTBE in OW-29 was at a concentration of 4.3 µg/l, whereas the standard is 100 µg/l. The MTBE detections in OW-13 and OW-29 may indicate a larger area of MTBE in groundwater than just the area around OW-14. And although 1-2 Dichloroethane (EDC) was below WQCC standard, it was detected in OW-14, and should be monitored since it is a compound commonly associated with gasoline.*

#### OW-29

OW-29 was sampled on December 27, 2007 and analyzed for Volatiles (EPA Method 8260B). The laboratory analyses showed all parameters at non-detectable levels, except for MTBE which was detected at extremely low levels.

**RECOMMENDATION:** *Western Refining recommends monitoring OW-29 on a quarterly basis for Volatiles. For more details see recommendation for OW-14 and OW-30.*

#### OW-30

OW-30 was sampled on 1/1/2008 and analyzed for Volatiles (EPA Method 8260B). Inclement weather prevented completion of sampling of this well within December 2007. **In 2007, monitoring conducted between December 27-31, 2007 (and January 1, 2008, as inclement weather prevented completion of sampling of some wells within December 2007)) showed that Methyl Tetra-Butyl Ether (MTBE) contamination had entered the shallow perched groundwater at OW-30. The level of MTBE was 0.29 mg/l in OW-30. This level exceeds the current U.S. EPA Maximum Contaminant level (MCL) of 0.20 mg/l and the current NM Water Quality Control Commission standard of 0.1 mg/l.** The monitoring in 2006 had also shown that MTBE contamination had entered the shallow perched groundwater at OW-30. The sampling in 2007, as had been found in 2006, established that the MTBE contamination was limited in extent and had not migrated significantly to other nearby wells (OW-12 had a level of non-detect, OW-13 a level of 0.0013 mg/l, and OW-29 had a level of 0.0043 mg/l). OW-30 had no detectable levels of Benzene.

The MTBE detected in OW-14 and OW-30 appears to be migrating generally to the north (downgradient), but does not appear to be threatening any receptors at this time. Because MTBE is reportedly no longer used or stored at the refinery, the MTBE source appears to have been removed and is no longer contributing MTBE to the groundwater. However, MTBE is present in these two wells above the WQCC standard. In addition, benzene is present in OW-14 above WQCC the standard. Because the source has been removed, no receptors are immediately threatened, and the MTBE concentration in OW-14 appears to be decreasing, Western Refining recommends continued monitoring of OW-14 and OW-30 to assess the trend of the contaminants and evaluates the need for a Stage 1 Abatement Plan.

**RECOMMENDATION:** *Quarterly monitoring in OW-13, OW-14, OW-30, and OW-29 to monitor the contaminant plume and evaluate the need for abatement of the MTBE. If the source has been removed, the contaminant concentration in OW-14 should be expected to continue declining, and the concentration in OW-30 should increase slightly as the plume passes, and then also decrease. OW-29 is downgradient from OW-14 and OW-30, and can be used as a sentinel well to monitor the MTBE before it migrates off the refinery boundary. The analytical report for the groundwater sampling conducted on January 2, 2008 shows MTBE in OW-13 and OW-29, although both are below the WQCC standard. MTBE in OW-29 was at a concentration of 4.3µg/l, whereas the standard is 100µg/l. The MTBE detections in OW-13 and OW-29 may indicate a larger area of MTBE in groundwater than just the area around OW-14.*

#### **BW-1-A**

BW-1-A is a dry well and therefore was not sampled in 2007.

**RECOMMENDATION:** *Giant Gallup will continue to visually inspect BW-1-A annually for any liquids. If liquids are observed, then sampling will occur. All samples will be analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

#### **BW-1-B**

BW-1-B is a dry well and therefore was not sampled in 2007.

**RECOMMENDATION:** *Giant Gallup will continue to visually inspect BW-1-B annually for any liquids. If liquids appear, samples will be analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

#### **BW-1-C**

BW-1-C was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, metals, and General Chemistry. Lab analysis showed concentrations less than (all non-detect) the NMWQS for benzene, toluene, ethylbenzene, xylene, and MTBE. However, lab results showed fluoride (2.6 mg/l) was greater than the NMWQS (1.6 mg/l).

**RECOMMENDATION:** *Western Refining will continue to monitor BW-1-C on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

#### **BW-2-A**

BW-2-A was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, total recoverable metals, and General Chemistry. Lab results showed all parameters less than NMWQS.

**RECOMMENDATION:** *Western Refining will continue to monitor BW-2-A on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

#### **BW-2-B**

BW-2-B was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, total recoverable metals, and General Chemistry. The laboratory results showed all parameters less than NMWQS, except fluoride which was greater (1.8 mg/l) than the NMWQS (1.6 mg/l).

**RECOMMENDATION:** *Western Refining will continue to monitor BW-2-B on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

#### **BW-2-C**

BW-2-C was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. Lab results showed concentrations less than the NMWQS for all parameters except fluoride which was greater (2.3 mg/l) than the NMWQS (1.6 mg/l).

**RECOMMENDATION:** *Western Refining will continue to monitor BW-2-C on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

#### **BW-3-A**

BW-3-A was dry and therefore could not be sampled.

**RECOMMENDATION:** *Western Refining will continue to visually inspect BW-3-A for any liquids. If liquids appear, samples will be analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

#### **BW-3-B**

BW-3-B was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. Lab results showed concentrations less than the NMWQS for all parameters except fluoride which was equal (1.6 mg/l) to the NMWQS (1.6 mg/l).

**RECOMMENDATION:** *Western Refining will continue to monitor BW-3-B on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

#### **BW-3-C**

BW-3-C was sampled on December 31, 2007 and analyzed for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry. Lab results showed concentrations less than the NMWQS for all parameters except fluoride (1.9 mg/l) which was present at greater than the NMWQS (1.6 mg/l).

**RECOMMENDATION:** *Giant Gallup will continue to monitor BW-3-C on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry*

#### **GWM-1**

Western Refining conducted annual sampling of GWM-1 on May 24, 2007. The benzene concentration in this sample was 0.016 mg/l, exceeding the NM Water Quality Control Commission standard of 0.01 mg/l and the U.S. EPA Maximum Contaminant level (MCL) of 0.005 mg/l. In 2006, the benzene concentration in this sample was 0.012 mg/l. In 2005, monitoring of well GWM-1 had also shown benzene in elevated concentrations (June 2005 = 0.010 mg/l and September 2005 = 0.081 mg/l) In 2007, MTBE levels were found in GWM-1, at a concentration of 0.23 mg/l, exceeding the U.S. EPA Maximum Contaminant level (MCL) of 0.20 mg/l and the NM Water Quality Control Commission standard of 0.1 mg/l.<sup>5</sup> In 2006, the MTBE levels were found and reported as 0.16 mg/l, in 2005 as 0.17 mg/l and in 2004 as 0.048 mg/l. Arsenic was found in the May 2007 analysis of water from GWM-1 at 0.081 mg/l which exceeds the NMWQS of 0.050 mg/l.

**RECOMMENDATION:** *Western Refining will monitor GWM-1 on an annual basis for VOC, SVOC, BTEX, MTBE, Metals, and General Chemistry.*

#### Pond #1 Inlet and Pond #2 Inlet

Pond #1 and Pond #2 inlets were sampled on 1/1/2008 as a carry-over from sampling conducted between December 27-31, 2007 for VOCs, Semi-VOCs and total recoverable metals. Benzene, and 2-methylnaphthalene exceeded the NMWQS; all other parameters were less than the NMWQS. In addition, these inlets were sampled on a quarterly and a monthly basis for various parameters as required by the discharge permit.

**RECOMMENDATION:** *Western Refining will continue to monitor Pond 1 and Pond 2 inlets on a semi-annual, quarterly and monthly basis for VOCs, SVOCs and Total Recoverable Metals.*

#### Ponds 1 through 8

Ponds 1 through 8 were sampled on 11/29/2008. For Ponds 1 and 2, the locations were a significant distance away from the inlets that were sampled as a separate activity.  
(TO BE COMPLETED.)

#### PW-2

PW-2 was not required to be sampled in 2007.

**RECOMMENDATION:** *Western Refining will continue to monitor PW-2 according to the discharge plan for VOC, SVOC, Metals, Cyanide, and Nitrates. The next scheduled sampling will take place in 2008*

#### PW-3

PW-3 was sampled in 2007. All parameters are less than the applicable NMWQS and MCLs, except for 2-Methylnaphthalene which was found at 0.032 mg/l to be greater than the NMWQS of 0.03 mg/l.

**RECOMMENDATION:** *Western Refining will monitor PW-3 according to the discharge plan. Sampling will be conducted every 3 years beginning in 2006*

<sup>5</sup> In 2008, the MTBE results in GWM-1 are lesser and a level of 0.12 mg/l.

**PW-4**

PW-4 was not required to be sampled in 2006.

**RECOMMENDATION:** *Giant Gallup will continue to monitor PW-4 according to the discharge plan for VOC, SVOC, Metals, Cyanide, and Nitrates and is scheduled for sampling in 2007*

**OW-1 and OW-10**

These wells will be visually checked on a quarterly basis starting the 4<sup>th</sup> quarter of 2004. In 2006 the wells were visually inspected on March 9, June 27, July 26, and October 13.

**RECOMMENDATION:** *Giant Gallup will continue to visually inspect OW-1 and OW-10 for artesian flow quarterly*

**MW-1, MW-4, MW-5, SMW-2 AND SMW-4**

MW-1 was sampled on October 26, 2006. MW-4, MW-5, SMW-2 and SMW-4 were not required to be sampled in 2006. Lab results for MW-1 showed concentrations less than the NMWQS on all parameters.

**RECOMMENDATION:** *Giant Gallup will sample MW-1 annually. MW-4, MW-5, SMW-2 and SMW-4 will be sampled in 2007 and 2009 and biennially thereafter.*



## 7. List of Tables

- Plots of Water Table Elevations
- Volume of Product Recovered
- Well Data Summary Table
- Well Inspection Logs

## Plots of Water Table Elevations

[illegible][illegible]

# WELL PUMPING & SAMPLING LOG

17<sup>TH</sup> 13<sup>02</sup> 17<sup>TH</sup> 72<sup>22</sup> 16<sup>3</sup> 2007

WELL #	MW-1	MW-4	MW-5	SMW-2	SMW-4							
PURGE DATE	12-29	12-29	12-29	1-1	12-29							
PURGE TIME		1330	1100	0900	0930							
OVA READING												
LIQUID DEPTH	7.33	8.02	12.29	26.24	29.61							
PUMP DEPTH												
IMMISC. LAYER												
FLOW RATE												
PUMP TIME		1										

SAMPLE DAY	12-29	12-29	12-29	1-1	12-29							
SAMPLE TIME	0910	1600	1245	1030	1015							
OVA READING												
LIQUID DEPTH	7.33	8.02	12.29	26.24	29.61							
TEMP. F	56	56	56	57	56							
pH	9.06	8.62	8.84	7.50	8.46							
SP. COND.	1209	1293	1240	6620	1350							
2) TEMP. F	56	56	56	56	57							
pH	9.17	8.55	8.81	7.41	8.37							
SP. COND.	1222	1265	1221	6570	1372							
3) TEMP. F	56	56	56	56	57							
pH	9.13	8.53	8.79	7.34	8.35							
SP. COND.	1213	1253	1223	6380	1347							
4) TEMP. F	56	56	56	56	57							
pH	9.10	8.53	8.82	7.34	8.38							
SP. COND.	1200	1274	1228	6540	1344							

# WELL PUMPING & SAMPLING LOG

WELL #	OW-12	OW-13	OW-14	OW-29	OW-30	OW-11						
PURGE DATE	12-27	12-27	1-1	12/28	12/28	12-27						
PURGE TIME	1030		1330		1:30	0820						
OVA READING												
LIQUID DEPTH	49.12	24.45	27.34	21.97	26.41	21.15						
PUMP DEPTH												
IMMISC. LAYER												
FLOW RATE												
PUMP TIME												

SAMPLE DAY				12-28	12-28	12-27						
SAMPLE TIME			1430	1200	1425							
OVA READING												
LIQUID DEPTH												
TEMP. F	57	57	56	56	55	56						
pH	8.95	8.06		12.99	7.61	8.30						
SP. COND.	1216	1374		1743	1692	2844						
2) TEMP. F	56	56	56	56	55	56						
pH	9.04	7.92		9.12	7.26	8.26						
SP. COND.	1202	1349		1230	1725	2840						
3) TEMP. F	56	56	56	56	55	56						
pH	9.09	7.86		7.17	7.08	8.32						
SP. COND.	1194	1352	1	1534	1707	2838						
4) TEMP. F	57	56	56	56	55	56						
pH	9.17	7.86		7.20	7.06	8.31						
SP. COND.	1206	1355		1758	1732	2842						

# WELL PUMPING & SAMPLING LOG

WELL #	BW-1-C	BW-2-A	BW-2B	BW-2-C	BW-3-B	BW-2-C						
PURGE DATE	12-31	12-31	12-31	12-31	12-31	12-31						
PURGE TIME	0900	1200	1300	1000	1430	1545						
OVA READING												
LIQUID DEPTH	7.00	31.78	27.72	24.28	32.71	8.28						
PUMP DEPTH												
IMMISC. LAYER												
FLOW RATE												
PUMP TIME												
PUMP METHOD												
DISP. AREA												

SAMPLE DAY	12-31	12-31	12-31	12-31	12-31	12-31						
SAMPLE TIME	1030	1230	1400	11:00	1515	1640						
READING												
LIQUID DEPTH	7.00	31.78	27.72	24.28	32.71	8.28						
1) TEMP. F	56	56	56	56	56	56						
pH	8.46	7.79	7.88	8.79	8.12	8.70						
SP. COND.	1276	1261	2250	1252	1580	1444						
2) TEMP. F	56	56	56	56	56	56						
pH	8.39	7.69	7.82	8.74	8.07	8.60						
SP. COND.	1275	1260	2242	1253	1550	1460						
3) TEMP. F	56	56	56	56	56	56						
pH	8.36	7.64	7.80	8.73	8.12	8.66						
SP. COND.	1267	1278	2260	1245	1558	1452						
4) TEMP. F	56	56	56	56	56	56						
pH	8.42	7.63	7.76	8.73	8.10	8.61						
SP. COND.	1253	1273	2256	1267	1555	1448						

## WELL VOLUME SHEET

WELL	TOTAL DEPTH	DEPTH TO WATER	CAPACITY PER FOOT	ONE WELL VOLUME	THREE WELL VOLUME
MW-1	132.02		1.02		
MW-2	140.24		1.02		
MW-4	122.14		1.02		
MW-5	133.02		0.74		
SMW-1			0.163		
SMW-2	57.34		0.163		
SMW-3	45.86		0.163		
SMW-4	72.22		0.163		
SMW-5	76.22		0.163		
SMW-6	73.11		0.163		
OW-1	94.04		0.74		
OW-2	61.0		0.74		
OW-3	66.73		0.74		
OW-11	66.62		0.74		
OW-29	52.00		0.74		
OW-30	48.00		0.74		
OW-24	65.0		0.74		

TABLE 1

ELEVATION

WELL	CASING DIAMETER	T.O.C. *	B.O.C. *	CAPACITY PER FOOT	TOTAL DEPTH
MW-1	5	6878.52	6746.5	1.02	132.02
MW-2	5	6880.84	6740.6	1.02	140.24
MW-4	5	6882.54	6760.4	1.02	122.14
MW-5	4	6883.32	6750.3	0.74	133.02
SMW-1	2	6883.29	6834.20	0.163	
SMW-2	2	6884.44	6827.10	0.163	
SMW-3	2	6884.56	6838.70	0.163	45.86
SMW-4	2	6880.08	6807.80	0.163	72.22
SMW-5	2	6878.02	6801.80	0.163	76.22
SMW-6	2	6880.71	6807.60	0.163	73.11
OW-1	4	6868.00	6773.96	0.74	94.04
OW-2	4	6871.00	6810.00	0.74	61.0
OW-3	4	6876.00	6809.30	0.74	66.73
OW-11	4	6923.89	6857.27	0.74	66.62
OW-24	4	6880.00	6815.00	0.74	65.0

\* T.O.C. - Top of Casing  
B.O.C. - Bottom of Casing

\*\* Update of 1989 Sample and Analysis Plan.



Steve these are the depths for the wells

BW1a - 40  
BW1b - 65.2  
BW1c - 157

BW2a - 65  
BW2b 90.5  
BW2c - 151

BW3a - 50  
BW3b - 72  
BW3c - 155

GWM1 - 24

Attached are the well completion diagrams and the logs. The closeouts will be sent when completed.

Nathan

12-27-07

0800 OW-11 DTW 21.15  $3WV_2 = 100.94 \text{ gal}$

0915 Purged 10 gal + sampled

1030 OW-12 DTW 49.12 ft  $3WV_2 = 212.85 \text{ gal}$

Purged 50 gallons + lost suction.

1145 Sampled for 82.64

1300 OW-13 DTW 24.45 ft  $3WV_2 = 167.72$

1030 OW-29 DTW 21.79 ft  $3WV_2 = 66.66$

Water looks murky, reddish

1200 Purged + sampled

130 ~~OW~~30 DTW 20.41 ft  $3WV_2 = 47.92$

1425 purged + sampled

12-29-07

0800 MW-1 DTW 7.33 ft  $3WV_2 = 381.5 \text{ gal}$

0900 Purged 190 gallons + lost suction

0910 Sampled well

OVER

0930 SMW-4 DTW 29.61  $3WU_2 = 20.83 \text{ gal}$

1015 Purged 7 gal + lost suction  
sampled well

1100 MW-5 DTW 12.29 ft  $3WU_2 = 268 \text{ gal}$

1245 Purged + sampled well

1330 MW-4 DTW 8.02  $3WU_2 = 349.2$

12-31-07

0900 BW-1C 7.00 ft DTW  $3WU_2 = 73.35 \text{ gal}$

Purged 6 gallons + lost suction.

1030 Sampled Well

24.28

1100 BW-2C DTW 24.28  $3WU_2 = 61.97 \text{ gal}$

1100 Sampled Well

1200 BW-2A DTW 31.78 ft  $3WU_2 = 16.24 \text{ gal}$

1230 Purged 17 gal + sampled

1300 BW-2B DTW 27.72  $3WU_2 = 30.7 \text{ gal}$

Purged 18 gal + lost suction

1400 Sampled Well

→

12-31-07 Cont

1430 BW-3B DTW 32.71  $3WV_{\Delta} = 41.01 \text{ gal}$

Purged 15 gal + lost suction

1515 sampled well

1545 BW-3C DTW 8.28 ft  $3WV_{\Delta} = 71.74 \text{ gal}$

Purged 16 gal + lost suction

1640 sampled well

1-1-08

0900 SMW-2 DTW 26.24 ft  $3WV_{\Delta} = 11.74 \text{ gal}$

Purged 4 gal + lost suction

1030 sampled well

1330 OW-14 DTW 27.34  $3WV_{\Delta} = 39.20$

Purged 40 gal ~~2000~~

1430 sampled well

**Volume of Product Recovered**

# RW-1 HYDROCARBON RECOVERY LOG

2/22/05 TO 11/26/07

Date of measurement	Time	Quarter	Well #	Depth to Product (feet)	Depth to Water (feet)	Product Level Thickness (feet)	Volume of Product Bailed/ Pumped (gallons)	Water Gallons
2/22/2005	0830	1st.	RW-1	32'-5 1/2"	36'-6"	4'-0 1/2"	14	
3/2/2005	0745	1st.	RW-1	32'-5"	36'-5 1/4"	4'-0 1/4"	9	
3/8/2005	0830	1st.	RW-1	31'-11"	36'-4 1/4"	4'-5 1/4"	15	
3/9/2005	0830	1st.	RW-1	31'-11"	37'-6"	5'-7"	4	
3/11 to 3/18/05		1st.	RW-1	Started Pumping Well on 3/11/05			74	
3/18 to 3/23/05		1st.	RW-1	Continue Pumping			48	
3/23 to 4/1/05		1st.	RW-1	Continue Pumping			62	
4/1 To 4/4/05		2nd	RW-1	Pump shut down to measure well			27	
4/5/2005	11:30Hrs	2nd	RW-1	34'-9"	38'-11"	4'-2"		
4/4 TO 4/15/05	11:00Hrs	2nd	RW-1	Continue Pumping			50	
4-15 to 5-5-05	1230 Hrs	2nd	RW-1	Continue Pumping			45	154
5-5 to 6-17-05	1130 Hrs	2nd	RW-1	Continue Pumping			24	196
6/27/2005	1400 Hrs	2nd	RW-1	Pump shut down to measure well				
6/28/2005	1100 Hrs	2nd	RW-1	32' 5 1/2"	33' 3"	0' 9 1/2"		
6/28/2005		2nd	RW-1	Continue Pumping				
6/17 to 7/8/2005	1030 Hrs	2nd	RW-1	Continue Pumping			18	146
7/8 to 8/9/2005	1330 Hrs	3rd	RW-1	Continue Pumping			28	350
8/9 to 9/16/2005	1135 Hrs	3rd	RW-1	36'- 5 1/2"	36'- 6 1/2"	0' - 1"	8	240
12/5/2005	1315 Hrs	4th	RW-1	31'-11"	34'-8 1/2"	2'-9 1/2"		
12/8/2005	1400 Hrs	4th	RW-1	Start Pumping				
12/22/2005	1530 Hrs	4th	RW-1	Pulled Pump			5	120
12/29/2005	1400 Hrs	4th	RW-1	Hand Bailed			0.5	4.5
3/16/2006	1300 Hrs.	1st.	RW-1	32'-2 3/4"	34'-5 3/4"	2'-3"		
3/16/2006	1430 Hrs.	1st.	RW-1	Start Pumping				
3/23/2006	1430 Hrs.	1st.	RW-1	Shut Off Pump				
3/27/2006	1530 Hrs.	1st.	RW-1	Start Pumping				
3/31/2006	1130 Hrs.	1st.	RW-1	Continue Pumping			7	174
4/3/2006	1130 Hrs.	2nd	RW-1	Stopped Pumping			1	38
4/4/2006	1100 Hrs.	2nd	RW-1	32'-9"	33'-1"	0'-4"		
6/6/2006	1300 Hrs.	2nd	RW-1	32'-4 3/4"	34'-6 1/2"	2'-1 3/4"		
6/8/2006	1500 Hrs.	2nd	RW-1	Start Pumping ( Intermittently )				
6/29/2006	1000 Hrs.	2nd	RW-1	Stopped Pumping			8	365
7/31/2006	1145 Hrs	3rd	RW-1	33'-0 3/4"	33'-5 3/4"	0'-5"		
7/31/2006	1145 Hrs	3rd	RW-1	Start Pumping				
8/3/2006	1420 Hrs	3rd	RW-1	Stopped Pumping			2	87
8/8/2006	0900 Hrs.	3rd	RW-1	Start Pumping				
8/10/2006	1530 HRS	3rd	RW-1	Start pumping				
8/22/2006	0900 Hrs.	3rd	RW-1	Pulled pump			4.9	373
8/22/2006	0945 HRS	3rd	RW-1	33'10"	33'4"	0.6"		
12/21/2006	1555	4th	RW-1	35'2"	36'	1'1/4"	1.5	70
2/21/2007	1015	1st	RW-1	33'5"	34' 6"	1' 11"	0.625	53.5
6/5/2007	1000	2nd	RW-1	32' 5"	32' 8-1/2"	2-1/2"		
6/5/2007	1010			Hand Bailed			0.125	9
6/6/2007	840			Hand Bailed			0.25	11
6/13/2007	1400			Hand Bailed			0.25	12
6/14/2007	1040			Hand Bailed			0.125	8
7/10/2007	1008	3rd	RW-1	32'5"	32' 8-1/2"	2-1/2"	0.75	18
7/11/2007	925	3rd	RW-1	Hand Bailed			0.5	12.5
7/23/2007	1000	3RD	RW-1	Hand Bailed			0.25	5.5
11/26/2007	1050	4th	RW-1	Hand Bailed	30'9-1/8"	36' 5-3/8"	1.2	37
Total Gallons							459.975	2484

## Well Data Summary Table

Well Data Summary Table - REVISED  
2007 Annual Groundwater Discharge Report  
Giant Refining - Ciniza Refinery  
August 2008 by Gaurav Rajen

Well ID Number	Measurement Date	A Well Casing Rim Elevations (ft)	Well Casing Bottom Elevations (ft)	Total Well Depth (ft)	Depth to SPH (ft)*	B SPH Thickness (ft)	C Depth to Water (ft)	D = A - C Groundwater Elevation (ft)	= 0.8B + D Corrected Water Table Elevation (ft)**
BW-1A	13-Dec-07	6,876.73	6,836.73	40.00	na	na	dry	6,803.36	na
BW-1B	13-Dec-07	6,876.91	6,811.71	67.55	na	na	67.55	6,809.36	na
BW-1C	13-Dec-07	6,876.75	6,719.75	157.00	na	na	7.07	6,869.68	na
BW-2A	13-Dec-07	6,874.72	6,809.22	65.50	na	na	31.85	6,842.87	na
BW-2B	13-Dec-07	6,874.58	6,784.08	90.50	na	na	27.64	6,846.94	na
BW-2C	13-Dec-07	6,875.40	6,724.40	151.00	na	na	20.22	6,855.18	na
BW-3A	13-Dec-07	6,878.22	6,825.22	52.60	na	na	dry	na	na
BW-3B	13-Dec-07	6,878.79	6,803.79	75.00	na	na	32.74	6,845.05	na
BW-3C	13-Dec-07	6,878.08	6,723.08	155.00	na	na	8.29	6,869.79	na
OW-1	9-Mar-06	6,868.00	6,773.96	94.04	na	na	0.00	6,868.00	na
OW-1	27-Jun-06	6,868.00	6,773.96	94.04	na	na	0.40	6,867.60	na
OW-1	26-Jul-06	6,868.00	6,773.96	94.04	na	na	0.83	6,867.17	na
OW-1	13-Oct-06	6,868.00	6,773.96	94.04	na	na	0.25	6,867.75	na
OW-10	9-Mar-06	6,872.00	6,804.00	68.00	na	na	2.70	6,869.30	na
OW-10	27-Jun-06	6,872.00	6,804.00	68.00	na	na	3.43	6,868.57	na
OW-10	26-Jul-06	6,872.00	6,804.00	68.00	na	na	3.95	6,868.05	na
OW-10	13-Oct-06	6,872.00	6,804.00	68.00	na	na	2.90	6,869.10	na
OW-11	12-Dec-07	6,923.89	6,857.27	66.62	na	na	21.40	6,902.49	na
OW-12	12-Dec-07	6,940.43	6,795.43	145.00	na	na	49.28	6,891.15	na
OW-13	12-Dec-07	6,920.12	6,820.12	100.00	na	na	24.55	6,895.57	na
OW-14	12-Dec-07	6,926.64	6,881.64	45.00	na	na	27.41	6,899.23	na
OW-29	12-Dec-07	6,913.50	6,864.50	49.00	na	na	22.00	6,891.5	na
OW-30	12-Dec-07	6,921.60	6,873.20	48.4	na	na	26.49	6,895.11	na
MW-1	13-Dec-07	6,878.52	6,746.50	132.02	na	na	7.43	6,871.09	na
MW-4	13-Dec-07	6,882.54	6,760.40	122.14	na	na	8.10	6,874.44	na
MW-5	13-Dec-07	6,883.32	6,750.30	133.02	na	na	11.67	6,871.65	na
RW-1 (OW-27)	21-Feb-07				33.42	1.08	34.50	6,909.00	6909.864
	5-Jun-07	6,943.50			32.48	0.24	32.71	6,910.79	6910.982
	31-Jul-07				32.48	0.24	32.71	6,910.79	6910.982
	11/26/12007				30.76	5.58	36.45	6,907.05	6911.514
RW-2 (OW-28)	8-Feb-07				na	0	27.90	6,899.30	6899.3
	30-Apr-07	6,927.20			na	0	27.98	6,899.22	6899.22
	10-Jul-07				na	0	28.23	6,898.97	6898.97
	26-Nov-07				na	0	28.23	6,898.97	6898.97



Well ID Number	Measurement Date	A Well Casing Rim Elevations (ft)	Well Casing Bottom Elevations (ft)	Total Well Depth (ft)	Depth to SPH (ft)	B Thickness (ft)	C Depth to Water (ft)	D = A - C Groundwater Elevation (ft)	= 0.8B + D Corrected Water Table Elevation (ft)**
RW-5	16-Mar-06				32.58	1.08	33.00	6,909.50	6,910.364
	June 1, 2006				32.79	0.75	33.17	6,909.33	6,909.93
	26-Jul-06	6,942.50	40.00		32.90	0.33	33.31	6,909.19	6,909.454
	16-Oct-06				32.73	1.08	33.42	6,909.08	6,909.944
RW-6	17-Mar-06				32.67	1.38	33.75	6,938.85	6,939.954
	June 7, 2006				32.92	1.19	34.04	6,938.56	6,939.512
	26-Jul-06	6,972.60	38.80		33.00	0.85	34.12	6,938.48	6,939.16
	16-Oct-06				33.71	1.19	34.64	6,937.96	6,938.912
SMW-2	13-Dec-07	6,884.44	6,827.10	57.34	na	na	25.92	6,856.52	na
SMW-4	13-Dec-07	6,882.54	6,760.40	122.14	na	na	29.65	6,852.89	na
SMW-6	not sampled	6,880.71	6,807.60	73.11	na	na	not sampled	not sampled	na
GWM-1	9-Mar-06	6,912.65	6,888.95	23.7	na	na	20.25	6,892.4	na
	26-May-06	6,912.65	6,888.95	23.7	na	na	20.16	6,892.49	na
	26-Jul-06	6,912.65	6,888.95	23.7	na	na	20.72	6,891.93	na
	13-Oct-06	6,912.65	6,888.95	23.7	na	na	20.61	6,892.04	na
GWM-2	9-Mar-06	6,913.17	6,896.97	18.97	na	na	DRY	DRY	DRY
	26-May-06	6,913.17	6,896.97	18.97	na	na	DRY	DRY	DRY
	26-Jul-06	6,913.17	6,896.97	18.97	na	na	DRY	DRY	DRY
	13-Oct-06	6,913.17	6,896.97	18.97	na	na	DRY	DRY	DRY
GWM-3	9-Mar-06	6,912.65	6,896.15	17.94	na	na	DRY	DRY	DRY
	26-May-06	6,912.65	6,896.15	17.94	na	na	DRY	DRY	DRY
	26-Jul-06	6,912.65	6,896.15	17.94	na	na	DRY	DRY	DRY
	13-Oct-06	6,912.65	6,896.15	17.94	na	na	DRY	DRY	DRY

\*SPH = Separate Phase Hydrocarbons

\*\*Corrected water table elevations are only provided if SPH was detected.

na = if no SPH was detected then this is shown on the table as na (not applicable).

Water was not observed in GWM-2, and GWM-3 in 2006.

Well Closures

Well ID No.	Year Closed
OW-2	2004
OW-3	2004
OW-7	2004
OW-9	2004
OW-24	2004
SMW-1	2004
SMW-3	2004
SMW-5	2004

Well Inspection Logs

## GIANT CINIZA REFINERY

Permit Requirement: GW-032

Condition Permit ID #: OCD Sect. 9, Item 4

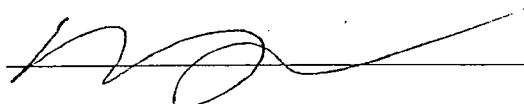
Monitoring Required: 2007 Quarterly measurement of product layer thickness and bailing of product.

Equipment Identification: RW-1, RW-2, RW-5, RW-6

<u>Date of measurement</u>	<u>Time</u>	<u>Quarter</u>	<u>Well #</u>	<u>Depth to Product (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Level Thickness (feet)</u>	<u>Volume of Product Bailed (gallons)</u>
2/21/2007	1015 hrs	1st	RW-1	33'5"	34'6"	1'1"	0.75
2/8/2007	1430 hrs	1st	RW-2	No Product	28'1"	0	0
2/13/2007	0900 hrs	1st	RW-5	32'2"	33'95"	1'.75"	3/8
2/21/2007	0950 hrs	1st	RW-6	33'31/2"	34'6"	1' 2-1/2"	3/4
6/5/2007	0840 hrs	2nd	RW-1	32'5"	32'-8-1/2"	2-1/2"	0.75
4/30/2007	1140 hrs	2nd	RW-2	No Product	28'1"	0	0
4/30/2007	1120 hrs	2nd	RW-5	33'0"	33'10"	10"	2.1/2 "
4/30/2007	1125 hrs	2nd	RW-6	34'7"	34'5"	2"	1/4
7/31/2007	1050 hrs	3rd	RW-1	32'5"	32'-8-1/2"	2-1/2"	1"
7/10/2007	0950 hrs	3rd	RW-2	No Product	27'6"	0	0
7/10/2007	1015 hrs	3rd	RW-5	33' 1-1/4"	33'11"	9-3/4"	2-1/2"
7/10/2007	1008 hrs	3rd	RW-6	33' 3-1/2"	34'7"	1'-3-1/2"	6-7/8"
11/26/2007	1050 hrs	4th	RW-1	30' 9-1/8"	36' 5-3/8"	5' 7-1/4"	1"
11/26/2007	0950 hrs	4th	RW-2	No Product	27' 7-3/4"	0	0
11/26/2007	0800 hrs	4th	RW-5	33' 1/8"	33' 10-11/16"	9-9/16"	1-3/4"
11/28/2007	810	4th	RW-6	33' 3"	34' 5-5/8"	1' 1-5/8"	4 1/2"

Name and Title of person who performed measurement:  
Cheryl Johnson (Environmental Specialist)

Signature: \_\_\_\_\_



## GIANT CINIZA REFINERY


Permit Requirement: GW-032

Condition Permit ID #: OCD Sect. 9, Item 4

Monitoring Required: Quarterly measurement of product layer thickness and bailing of product.

Equipment Identification: RW-1, RW-2, RW-5, RW-6

<u>Date of measurement</u>	<u>Time</u>	<u>Quarter</u>	<u>Well #</u>	<u>Depth to Product (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Level Thickness (feet)</u>	<u>Volume of Product Bailed (gallons)</u>
11/26/2007	1050	4th	RW-1	30' 9-1/8"	36' 5-3/8"	5' 7-1/4"	1"
11/26/2007	0950 hrs	4th	RW-2	No Product	27' 7-3/4"	0	0
11/28/2007	0800 hrs	4th	RW-5	33' 1/8"	33' 10-11/16"	9-9/16"	1-3/4"
11/28/2007	0810 hrs	4th	RW-6	33' 3"	34' 5-5/8"	1' 1-5/8"	4.5"
Name and Title of person who performed measurement: Cheryl Johnson (Environmental Specialist)							

Signature: 

CC: Ed Riege

## GIANT CINIZA REFINERY

Permit Requirement:

GW-032

Condition Permit ID # :

OCD Sect. 9, Item 4

Monitoring Required:

Quarterly measurement of product layer thickness and bailing of product.

Equipment Identification:

RW-1, RW-2, RW-5, RW-6

<u>Date of measurement</u>	<u>Time</u>	<u>Quarter</u>	<u>Well #</u>	<u>Depth to Product (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Level Thickness (feet)</u>	<u>Volume of Product Bailed (gallons)</u>
7/31/2007	1050	3rd	RW-1	32'5"	32'-8-1/2"	2-1/2"	1"
7/10/2007	950	3rd	RW-2	No Product	27'6"	0	0
7/10/2007	1015	3rd	RW-5	33' 1-1/4"	33'11"	9-3/4"	2-1/2"
7/10/2007	1008	3rd	RW-6	33' 3-1/2"	34'7"	1'-3-1/2"	6-7/8"
Name and Title of person who performed measurement: Cheryl Johnson (Environmental Specialist)							

Signature: \_\_\_\_\_

CC: Ed Riege

## GIANT CINIZA REFINERY

Permit Requirement:

GW-032

Condition Permit ID # :

OCD Sect. 9, Item 4

Monitoring Required:

Quarterly measurement of product layer thickness and bailing of product.

Equipment Identification:

RW-1, RW-2, RW-5, RW-6

<u>Date of measurement</u>	<u>Time</u>	<u>Quarter</u>	<u>Well #</u>	<u>Depth to Product (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Level Thickness (feet)</u>	<u>Volume of Product Bailed (gallons)</u>
6/5/2007	0840 hrs	2nd	RW-1	32'5"	32'-8-1/2"	2-1/2"	0.75
4/30/2007	1140 hrs	2nd	RW-2	No Product	28'1"	0	0
4/30/2007	1120 hrs	2nd	RW-5	33'0"	33'10"	10"	2 1/2
4/30/2007	1125 hrs	2nd	RW-6	34'7"	34'5"	2"	1/4
Name and Title of person who performed measurement: Cheryl Johnson (Environmental Specialist)							

Signature: \_\_\_\_\_

CC: Ed Riege

## GIANT CINIZA REFINERY

Permit Requirement:

GW-032

Condition Permit ID #:

OCD Sect. 9, Item 4

Monitoring Required:

Quarterly measurement of product layer thickness and bailing of product.

Equipment Identification:

RW-1, RW-2, RW-5, RW-6

<u>Date of measurement</u>	<u>Time</u>	<u>Quarter</u>	<u>Well #</u>	<u>Depth to Product (feet)</u>	<u>Depth to Water (feet)</u>	<u>Product Level Thickness (feet)</u>	<u>Volume of Product Bailed (gallons)</u>
2/21/2007	1015 hrs	1st	RW-1	33'5"	34'6"	1'1"	0.75
2/8/2007	1430 hrs	1st	RW-2	No Product	28'1"	0	0
2/13/2007	900hrs	1st	RW-5	32'2"	33'95"	1'.75"	3/8
2/21/2007	0950 hrs	1st	RW-6	33'31/2"	34'6"	1' 2-1/2"	3/4
Name and Title of person who performed measurement: Cheryl Johnson (Environmental Specialist)							

Signature: 

CC: Ed Riege

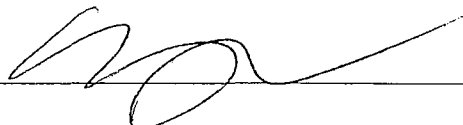


**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Check well OW-1 for artesian flow condition

Date	Time	Quarter	Depth to Water (feet)	Comments
2/2/2007	1430 hrs	1st	2"	to top of plastic casing
4/30/2007	1010	2nd	Full	to top of plastic casing
7/10/2007	915	3rd	1' 9-1/2"	to top of plastic casing
11/26/2007	1402	4th	1' 7.94"	to top of plastic casing
Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist				

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:                Check well OW-1 for artesian flow condition

Date	Time	Quarter	Depth to Water (feet)	Comments
11/26/2007	1402	4th	1' 7.94"	to top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Check well OW-1 for artesian flow condition

Date	Time	Quarter	Depth to Water (feet)	Comments
7/10/2007	915	3rd	1' 9-1/2"	to top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Check well OW-1 for artesian flow condition  
   Quarterly

Date	Time	Quarter	Depth to Water (feet)	Comments
4/30/2007	1010	2nd	Full	Casing Full of Water

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-1 WELL INSPECTION**

Permit Requirement:

OCD, Section 9, Item 4

Monitoring Requirement:

Check well OW-1 for artesian flow condition

Date	Time	Quarter	Depth to Water (feet)	Comments
2/2/2007	1430 hrs	1st	2"	to top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)\\env-share\\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-10 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on OW-10

Date	Time	Quarter	Depth to Water (feet)	Comments
1/29/2007	1335	1st	2' 7 1/2"	To top of plastic casing
4/30/2007	1000	2nd	2' 1"	To top of plastic casing
7/10/2007	906	3rd	3' 1-1/2"	To top of plastic casing
11/26/2007	1347	4th	2' 9.45"	To top of plastic casing
Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist				

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)\env-share\Wells OW-1,OW-10 GWM-1 Form

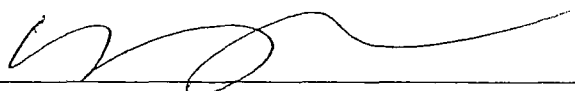
**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-10 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:                Quarterly water level on OW-10

Date	Time	Quarter	Depth to Water (feet)	Comments
11/26/2007	1347	4th	2' 9.45"	To top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-10 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on OW-10

Date	Time	Quarter	Depth to Water (feet)	Comments
7/10/2007	906	3rd	3' 1-1/2"	To top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Well; OW-1,OW-10 GWM-1 Form



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-10 WELL INSPECTION**

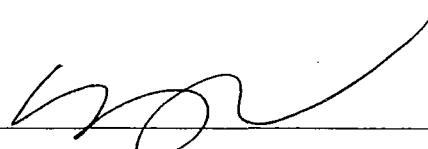
Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:                Quarterly water level on OW-10

Date	Time	Quarter	Depth to Water (feet)	Comments
4/30/2007	1000	2nd	2'- 1"	Top of Plastic Casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_



CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**OW-10 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on OW-10

Date	Time	Quarter	Depth to Water (feet)	Comments
1/29/2007	1335	1st	2'7 1/2"	To top of plastic casing

Name & Title of person who performed measurement: Cheryl Johnson, Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:                Quarterly water level on GWM-1

Date	Time	Quarter	Depth to Water (feet)	Comments
2/8/2007	1105 hrs	1st	20' 2-1/2"	To top of plastic Casing.
4/30/2007	1037	2nd	20' 2-1/2"	To top of plastic Casing.
7/10/2007	932	3rd	20' 7-1/2"	To top of plastic Casing.
9/14/2007	1500	*	20.82"	To top of plastic Casing.
11/26/2007	1414	4th	20'.56"	To top of plastic Casing.
5/24/2007	900	2nd		<b>Collected annual water samples</b>
Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist				

\* Requested another gauge check per Hope M. = NMED

Signature: \_\_\_\_\_

CC: Ed Riege.

File: (S:)\env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on GWM-1

Date	Time	Quarter	Depth to Water (feet)	Comments
11/26/2007	1414	4th	20' 56"	To top of plastic Casing.
5/24/2007	900	2nd		Collected annual water samples
Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist				

Signature: \_\_\_\_\_



CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on GWM-1

Date	Time	Quarter	Depth to Water (feet)	Comments
7/10/2007	932	3rd	20' 7-1/2"	To top of plastic Casing.
5/24/2007	900	2nd		Collected annual water samples
Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist				

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

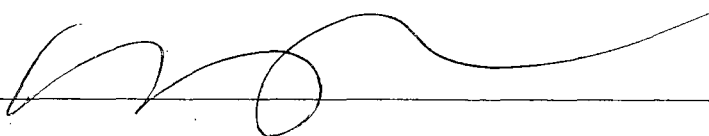
**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-1 WELL INSPECTION** (aerators)

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on GWM-1

Date	Time	Quarter	Depth to Water (feet)	Comments
4/30/2007	1037	2nd	20'-1-1/2"	Top of plastic casing
5/24/2007	9:00am	Collect Annual Water Samples		
Name & Title of person who performed measurement:				

Signature: \_\_\_\_\_



CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-1 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 4

Monitoring Requirement:              Quarterly water level on GWM-1

Date	Time	Quarter	Depth to Water (feet)	Comments
2/8/2007	1105 hrs	1st	20' 2-1/2"	To top of plastic Casing.

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_

CC: Ed Riege

File: (S:)env-share\Wells OW-1,OW-10 GWM-1 Form

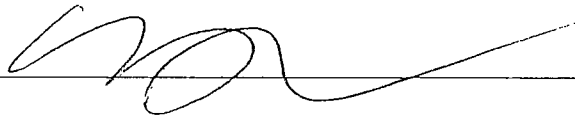
**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-2 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:                Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
2/8/2007	1100 hrs	1st	18 97'	DRY: (To top of plastic casing)
4/30/2007	1045	2nd	18 9.7	DRY: (To top of plastic casing)
7/10/2007	935	3rd	18 9.7	DRY: (To top of plastic casing)
11/26/2007	1409	4th	18 9.7	DRY: (To top of plastic casing)
Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist				

Signature: \_\_\_\_\_





**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-2 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:                Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
11/26/2007	1409	4th	18 9.7	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_

**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-2 WELL INSPECTION**

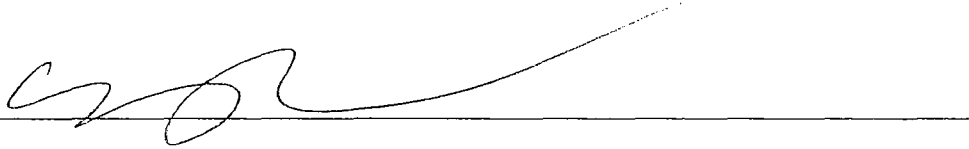
Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:                Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
7/10/2007	935	3rd	18 9.7	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-2 WELL INSPECTION**

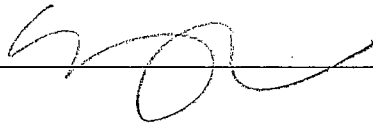
Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:              Quarterly start 2007

Date	Time	Quarter	Depth to Bottom (feet)	Comments (Dry?)
4/30/2007	1045	2nd	18 9.7	Dry

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-2 WELL INSPECTION**

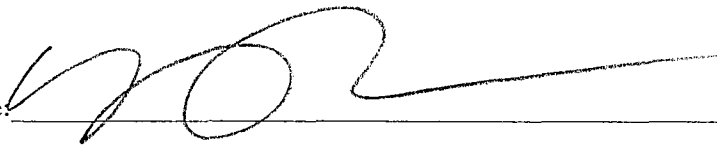
Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:              Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
2/8/2007	1100 hrs	1st	18 97	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_



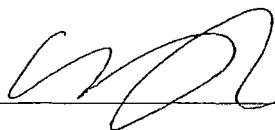
**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-3 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:              Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
2/8/2007	1100 hrs	1st	18 97	DRY: (To top of plastic casing)
4/30/2007	1048	2nd	17'94	DRY: (To top of plastic casing)
7/10/2007	926	3rd	17'94	DRY: (To top of plastic casing)
11/26/2007	1419	4th	17'94	DRY: (To top of plastic casing)
Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist				

Signature: \_\_\_\_\_



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-3 WELL INSPECTION**

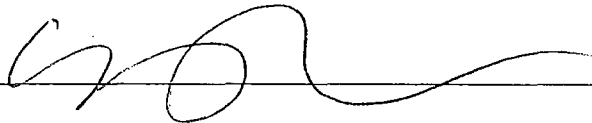
Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:              Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
11/26/2007	1419	4th	17'94	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-3 WELL INSPECTION**

Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:              Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
7/10/2007	926	3rd	17'94	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_



**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-3 WELL INSPECTION**

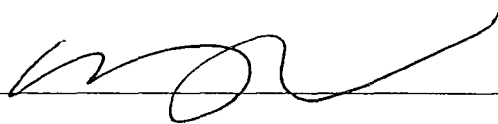
Permit Requirement:                      OCD, Section 9, Item 3

Monitoring Requirement:                Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
4/30/2007	1048	2nd	17.9' - 4	Dry

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_





**GIANT CINIZA REFINERY**  
**GROUNDWATER DISCHARGE PERMIT**  
**GWM-3 WELL INSPECTION**

Permit Requirement: OCD, Section 9, Item 3

Monitoring Requirement: Quarterly Start 2007

Date	Time	Quarter	Depth to bottom (feet)	Comments (Dry?)
2/8/2007	1011 hrs	1st	17' 94"	DRY: (To top of plastic casing)

Name & Title of person who performed measurement: Cheryl Johnson / Environmental Specialist

Signature: \_\_\_\_\_

## 8. List of Figures

- Figure 1 – Regional Map
- Figure 2 – Topographic Map of the Refinery Site
- Figure 3 – Well Locations, Z-02-180
- Figure 4 – Alluvium/Chinle Group Interface Water Piezometric Surface, Z-02-181
- Figure 5, - SPH (Separate Phase Hydrocarbon Thickness) Map, Z-02-182
- Figure 6 – Sonsela Water Piezometric Surface, Z-02-183
- Figure 7 – Isopleth of 0.005ppm Benzene, Z-02-184

### Figure 1 Regional Map

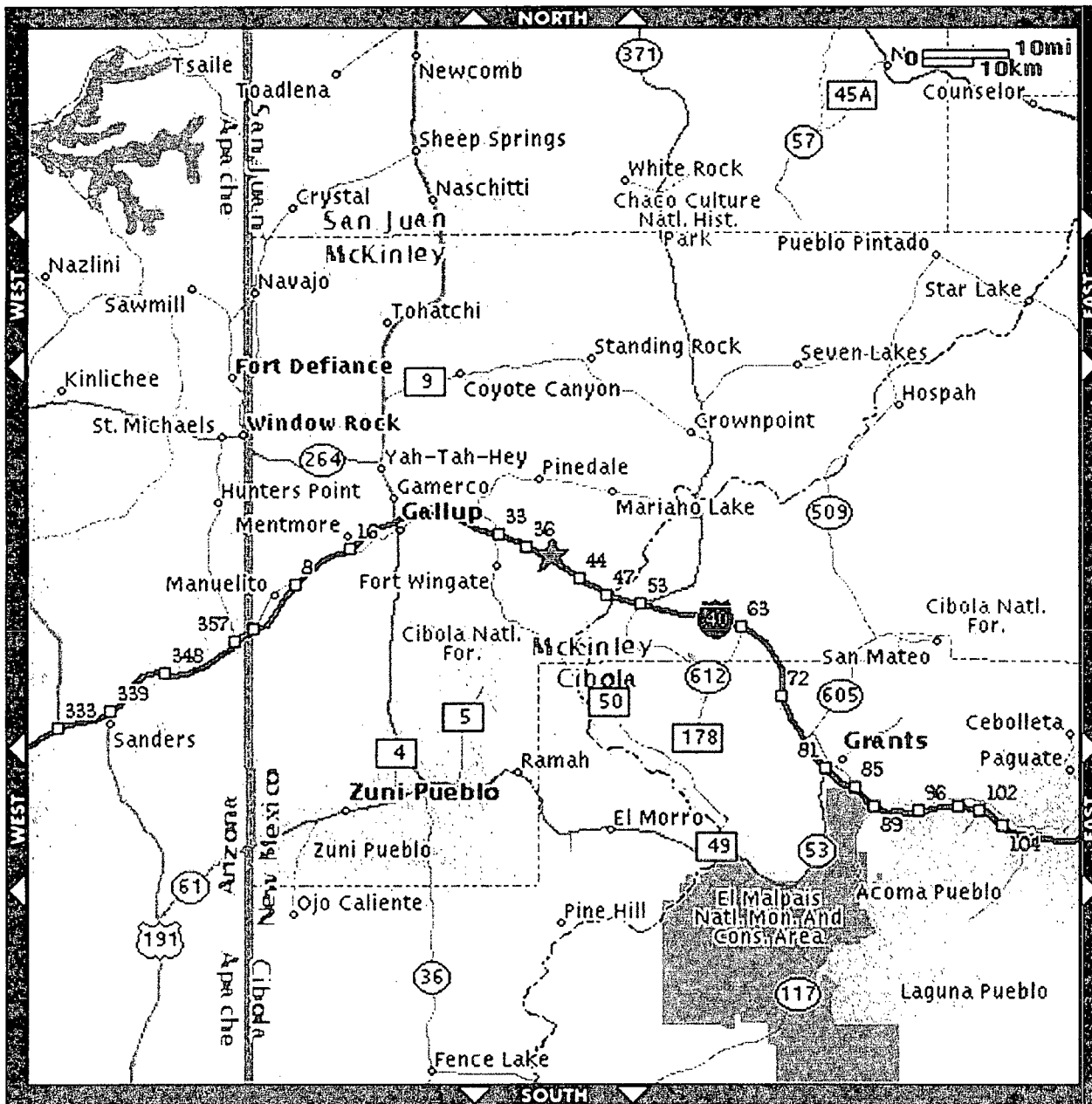
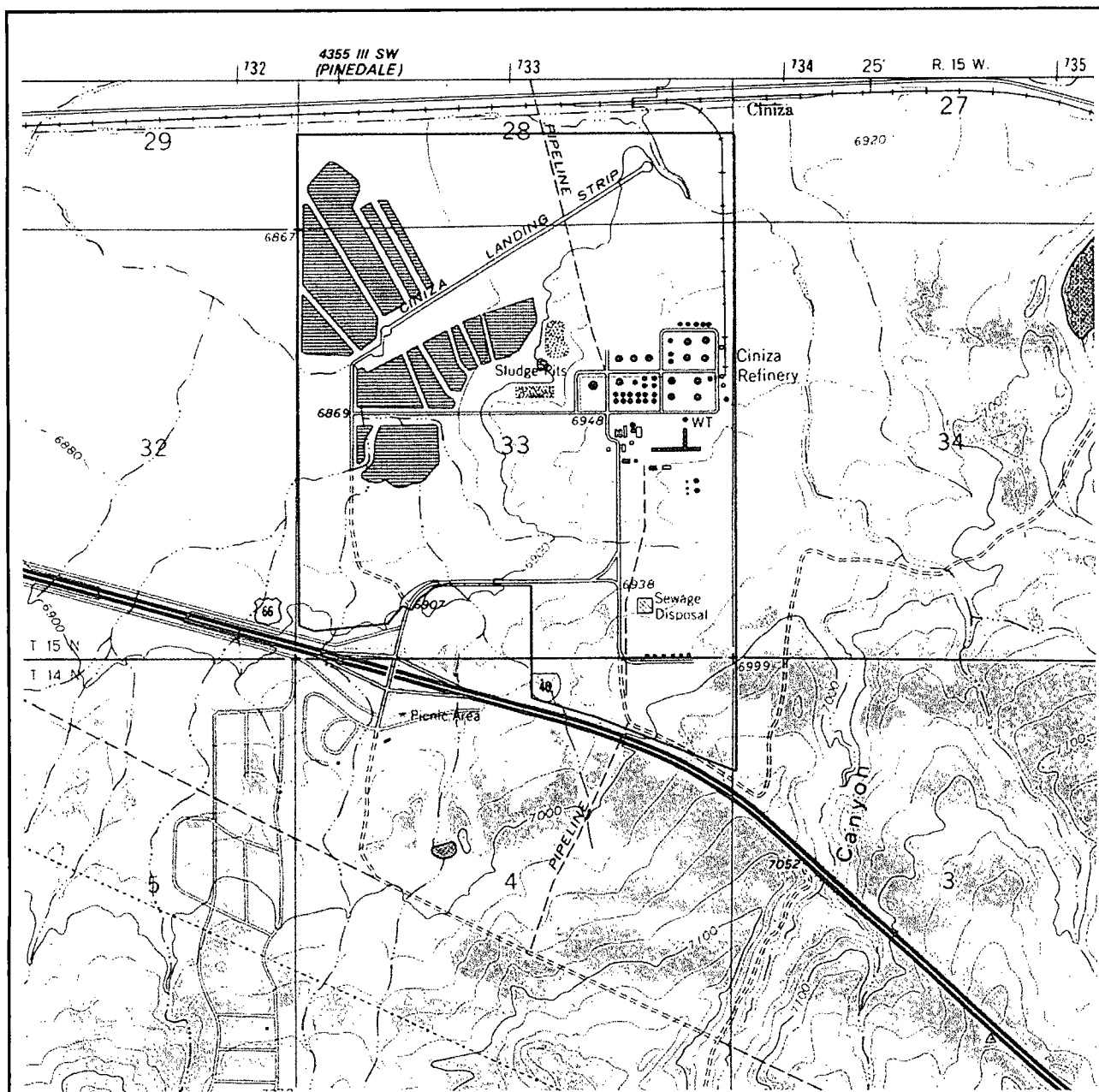


Figure 2 - Topographic Map of the Refinery Site

Locality Map  
USGS Topographical Map - Gallup Quadrangle (Revised 1980)



## Well and Boring Locations Map



**Potentiometric Elevation Map  
(Alluvium – Chinle Group Interface Water Levels)**



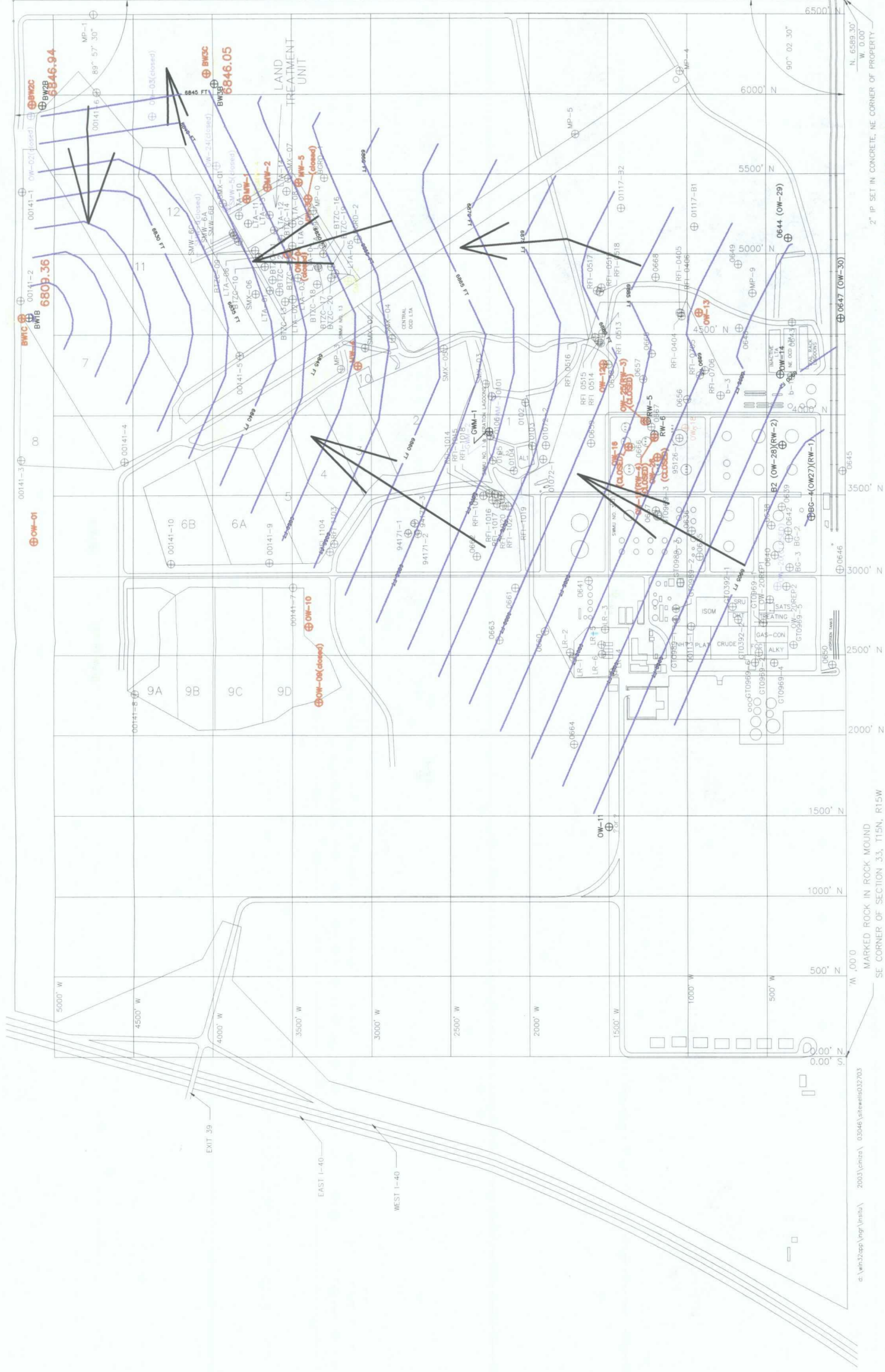


Figure 4  
Alluvium/Chinle Group Interface Water  
Piezometric Surface (December 2007)

1" = 500'  
File 06-054



Western Refinery, - Gallup Refinery  
Interstate 40, Exit 39  
Jamestown, New Mexico 87347  
Date: August 22, 2007



**Annual Product Thickness Map  
(Separate Phase Hydrocarbon Thickness)**



**Sonsela Water Piezometric Surface**



**Groundwater Elevation Map of RW-1 and Benzene Isopleth Map in Vicinity**





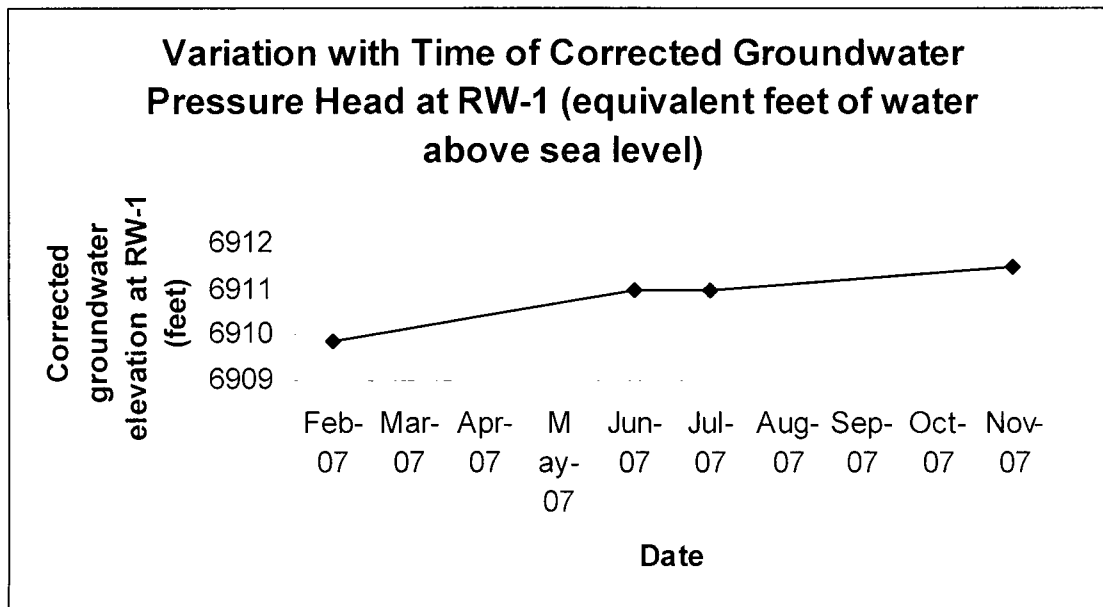


Figure 8: Variation with Time of Corrected Groundwater pressure head at RW-1 (measured height of water column plus equivalent height in terms of feet of water of the hydrocarbon column – provided in units of feet above sea level)

## **Appendix A: Gallup Field Sampling Collection and Handling Procedures**

### **Field Data Collection**

All facility monitoring wells and recovery wells were gauged in January, March, May, June, July, and October of 2007. Gallup does not have any recovery well pumps that need to be shut off and removed prior to water elevation measurements.

All water/product levels are measured to an accuracy of the nearest 0.01 foot using an electrical Conductivity based meter. After determining water levels, well volumes are calculated using the conversion factors listed (under the heading *Capacity gallons per foot*) in Table 1 in Section 7.

Generally, at least three well volumes are purged from each well prior to sampling. Wells that don't have sufficient recovery to obtain 3 well volumes are pumped until loss of suction then sampled.

Electrical Conductivity (E.C.), pH, and temperature are monitored during purging using a meter. The wells are considered satisfactorily purged when the pH, E.C., and temperatures values did not vary by more than 10 percent for at least three measurements.

Filed data and well elevations can be found in Section 8 – Well Data Summary Table.

Purged well water from wells that have shown prior contamination is collected in fifty five gallon drums. The water is treated in the refinery's waste water treatment system. Purged water from historically non-contaminated wells is drained onto the ground.

### **Sampling Equipment at Gallup**

The following sampling equipment is maintained at Gallup and used by the sampling personnel:

- Heron Instruments 100 ft. DipperT electric water depth tape complying with US GGG-T-106E, EEC Class II.
- Pall Corporation Acro 50A 0.45 micron disposable filter used with 60 ml. disposable syringe for filtering water in the field.
- Myron L Company Model DCH4 pH 4 & 10 for gain, and Hach NaCl 1990 Micro-siemens for conductivity calibration.
- Grundfos 2-inch pumps with Grundfos 115-volt AC-to-Dc converter.

### **Groundwater Elevation**

All water/product levels are measured using DipperT electric water depth tape. The technician records separate phase hydrocarbon (SPH), depth to water (DTW), and total well depth using the tape. Wash probe on DipperT electric water depth tape first with non-phosphate soap water then with deionized or distilled water before lowering into the well casing. Recovery wells with free product are checked using a reel gauge with water and hydrocarbon finding paste.

### **Water Quality/Groundwater Sampling**



Water quality parameters are measured using a meter. Electrical Conductivity, pH, and temperature are monitored during purging.

### Field Procedure for Purging Monitor Wells

In order to assure that the sample collected is representative of actual aquifer conditions, it is necessary to purge the well of stagnant water in the casing. This is accomplished by pumping three casing volumes of water from the well or until it is bailed dry, whichever occurs first. If a well can be pumped dry, it requires only that sufficient time elapse for an adequate volume of water to accumulate for the sampling event.

The casing volume is calculated according to the following formula:

$$\text{One casing volume} = L \times F \quad \text{where}$$

$L$  = Length of water column = total depth – depth to water

$F$  = gallons water per foot of well, based on the well casing diameter

$F$  is provided on the *Well Volume Sheet* for the monitoring wells at Gallup provided at the end of this appendix.

The volume to be purged from each well is determined as follows:

$$\text{Purge volume} = \text{casing volume} \times 3$$

Document the following information:

- a. The amount of water purged from each well.
- b. Weather conditions (dry or wet).
- c. Depth to Water (DTW).
- d. Purge date.
- e. Purge time.

### Well Evacuation

Before sample collection can begin, the water collected from each monitoring well must be fresh aquifer water. Well evacuation replaces stagnant well water with fresh aquifer water. The water level in the well, total depth of well and thickness of floating product (if any) will be measured using the DipperT electric water depth tape. A transparent bailer will be used to check for the presence and measure the thickness of floating product. If product is present, a ground water sample is typically not obtained.

Recovery wells are evacuated by use of an air driven pump. Wells MW-1, MW-2, MW-4, MW-5, BW-1C, BW-2A, BW-2B, BW-3B, and SMW-4 are each equipped with a dedicated electrical pump. The remaining wells were purged using a portable Grundfos pump in 2006.

In low yielding wells, the standing water will be removed until the well is essentially dry. The water level in the well will be allowed to recover until a sufficient volume is present to obtain a sample.

The first sample should be tested for pH, temperature, and specific Conductivity. Samples should then be collected and containerized in the order of the parameter's volatilization sensitivity (see *Order of Collection* below). The well should be retested for pH, temperature and specific Conductivity after sampling as a measure of purging efficiency and as a check on the stability of the water samples over time. All well evacuation information should be recorded in a log book.

## Hand Bailing

Hand bailing is only used to remove free product from recovery wells. Hand bailing is performed by lowering a Teflon™ bailer slowly into the well, allowing water to enter the bailer, and lifting the bailer out of the well. The bailer is positioned just below the top of the standing water in the well, so that the bailed product is removed from the top of the water column.

## Pumping

An electric pump is used to remove water from all wells other than recovery wells with free product in them. Wells MW-1, MW-2, MW-4, MW-5, BW-1C, BW-2A, BW-2B, BW-3B, and SMW-4 are each equipped with a dedicated electrical pump. The other wells, except for recovery wells, are pumped using a portable 2-inch Grundfos pump. During sample collection, a maximum flow rate of 100 milliliters/minute should be used. The actual flow rate should be measured using a graduated container and timed using a stop watch or a watch with a second hand. This rate can change as the water level in the well drops. The flow rate can be determined by:

$$\text{Flow rate (gpm)} = \frac{\text{volume collected (gallons)} \times 60 \text{ seconds per minute}}{\text{Time to fill container (seconds)}}$$

## Bottle Filling Procedure

If the well was not bailed dry and the water level is recovering to provide sufficient water to fill all the sample bottles, then samples should be collected immediately. If the well was completely evacuated and/or recovery is slow, wait for a sufficient volume of water to recover in the well to fill all of the sample bottles before beginning to collect samples. Do not overfill the bottles as this will dilute the preservative. When filling VOA and TOX containers, slowly fill the container until the meniscus is just above the lip of the container. Place the cap on the container and tighten. Check for air bubbles by inverting the container and tapping gently. There should be no headspace (air) in the container. If headspace is present, the sample should be discarded and the container refilled (add sufficient preservative if required by sample test).

Do not touch the inside of bottle caps or the inside of the containers. If a cap is accidentally dropped, it should be rinsed with de-ionized or distilled water followed by a rinse with the sample prior to being placed on the container. Record in the field notes whether this happens. Filled containers should be placed on ice in the coolers immediately upon collection. Replace well cap and lock the cap.

## Order of Collection

Samples should be collected in the order listed below:

Parameter	Bottle Type
Volatile Organics	VOA vials with septa cap of Teflon™
TOX	Pint amber glass with septa cap, H2SO4
TOC, Phenols, Nitrate, Ammonia	Quart glass jar, H2SO4
Extractable Organics	Quart glass jar with Teflon™ cap

Chloride and Sulfate	Quart plastic, no preservative
Cyanide	Quart glass, NaOH
Radionuclides	Quart plastic, HNO <sub>3</sub>
Metals*	Pint plastic

\* Prefiltration bottle for dissolved metals which is subsequently filtered and transferred to a pint Plastic with HNO<sub>3</sub>.

### **Filtration**

Ground water samples are filtered prior to *dissolved metals* analysis. For dissolved metals, sample water is poured into a jar and then extracted with a syringe. The syringe is then used to force the sample water through a 0.45 micron pore filter paper filter into the proper sample bottle to collect dissolved metals samples. Filtration must be performed within two hours of sample collection. Pour the filtrate into a sample bottle containing HNO<sub>3</sub> preservative.

For samples destined for *total metals* analysis, do not filter the sample, and preserve with HNO<sub>3</sub> to pH <2 in the field.

Gallup sampling personnel carry a cell phone when gathering groundwater and other water samples. While sampling procedures are generally well known and the appropriate sample bottles are ordered to match each sampling event, occasional questions do arise from unforeseen circumstances which may develop during sampling. At such times, sampling personnel contact Hall Environmental Analytical Laboratory to verify that sampling is correctly performed.

### **General Well Sampling and Sample Handling Procedures**

For safety protection and sampling purity, rubber gloves are worn and changed between each activity.

Prepare for sampling event by making out sample bottle labels and have bottles separated into plastic bags for each well to be sampled and place in ice chest ready to take into the field.

Bring along a note book and sample log.

Starting with well MW-1, document weather conditions, sample date and time.

Fill in label with location, date, time, analysis, preservative, and your name.

Start sampling by adjusting converter speed for each well.

Affix sample label and fill bottle according to lab instructions. For samples intended for VOC analysis, use bottles with septa lids, fill bottle to neck and add final amount of water with cap to form meniscus. Turn bottles upside down to examine for bubbles. If bubbles show repeat previous sentence. If no bubbles show, secure lids and pack in bubble wrap and place in cooler until sampling is completed.

Decontaminate equipment that is not dedicated for use in a particular well. Decontaminate by first washing with a non-phosphate soapy water mixture then triple rinse with distilled or deionized water.

Refrigerate completed samples until shipping to lab. Be sure to check holding times and arrange the appropriate shipping.

### **Equipment Calibration Procedures**

Myron L Digital PH and Conductivity Meter:

Conductivity Calibration:

1. Select 20 mS (micro Siemens) range. Remove bottom cover of instrument.
2. Rinse the cell cup three times with 442-15,000 standard solution and refill.
3. Press and hold the black button on instrument.
4. Adjust the calibration control the reading is correct. Discard the used solution.

pH Calibration:

1. Using pH 7 buffer, adjust "zero" control to read 7.00
2. Using pH 4 or 10 buffer, adjust "gain" control to read 4.00 or 10.00