## GW - 001

# AREA OF CONCERN (AOC)

## SEEPS



SUSANA MARTINEZ Governor

JOHN A. SANCHEZ Lieutenant Governor

#### NEW MEXICO ENVIRONMENT DEPARTMENT

#### Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303 Phone (505) 476-6000 Fax (505) 476-6030 www.nmenv.state.nm.us



DAVE MARTIN Secretary

RAJ SOLOMON, P.E Deputy Secretary

#### **CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

June 29, 2011

Randy Schmaltz Health, Safety, Environmental, and Regulatory Director Western Refining, Southwest, Inc. Bloomfield Refinery P.O. Box 159 Bloomfield, New Mexico 87413

#### RE: RESPONSE TO UPDATED SUMMARY REPORT ON NEWLY SURFACED GROUNDWATER EAST FORK AREA WESTERN REFINING SOUTHWEST INC., BLOOMFIELD REFINERY EPA ID# NMD089416416 HWB-WRB-MISC

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has reviewed Western Refining Southwest, Inc., Bloomfield Refinery (Western) *Updated Summary Report on Newly Surfaced Groundwater East Fork Area* letter dated June 21, 2011. The letter summarizes the monitoring activities conducted in this area since discovery of the seep and requests to no longer sample this area.

NMED approves Western's request to no longer sample the "newly surfaced groundwater" in the East Fork area. Western must continue to inspect the seep for changes in flow rate and evidence of petroleum hydrocarbons on a monthly basis. Western must contact NMED and OCD within three business days if the volume of water significantly increases or if there is evidence of hydrocarbons in this area to determine a course of action.

Randy Schmaltz June 29, 2011 Page 2 of 2

If you have any questions regarding this letter, please contact David Cobrain of my staff at (505) 476-6055.

Sincerely,

5

John E. Kieling *'J* Acting Chief Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
L. Tsinnajinne, NMED HWB
C. Chavez, OCD
K. Robinson, Western Refining Company
A. Hains, Western Refining Company
File: HWB-WRB-MISC and Reading File 2011



.

June 21, 2011



WNR

2011 JUN 22 A 10: 3-1

John E. Kieling, Acting Bureau Chief New Mexico Environment Department Hazardous Waste Bureau 2905 Rodeo Park Drive East, Building 1 Santa Fe, NM 87505

 UPS Tracking #:
 1ZF9F6470190155127

 UPS Tracking #:
 1ZF9F6470192387534

#### RE: Updated Summary Report on Newly Surfaced Groundwater East Fork Area Western Refining Southwest, Inc. – Bloomfield Refinery EPA ID# NMD089416416

Western Refining Southwest, Inc. – Bloomfield Refinery (Western) is providing New Mexico Environment Department Hazardous Waste Bureau (NMED) and New Mexico Oil Conservation Division (NMOCD) a summary of the activities performed and recommendations proposed pertaining to the East Fork area as directed by NMED in the *Response to Newly Surfaced Groundwater Summary* letter dated March 2, 2011. In addition to a summary of the most recent monitoring activities performed in this area, " this letter report also includes a brief summary explaining when the newly surface groundwater was discovered at the East Fork area and activities performed following its discovery prior to 2011. A more detailed account of activities performed and data collected prior to 2011 is provided in the *Newly Surfaced Groundwater Data Summary Report* dated February 11, 2011.

#### **Activities Performed Prior to 2011**

On Wednesday, May 19<sup>th</sup>, 2010 during a bi-monthly visual inspection of the area north of the Refinery, Western personnel identified a new area where groundwater had surfaced. This new area is located north of the raw water ponds within an arroyo along the north side of the Hammond Ditch. Western has identified this area as the "East Fork" area based on its location within the arroyo. **Figure 1** includes an aerial photo identifying the approximate location of the East Fork area.

In May 2010, groundwater samples were collected at the East Fork area upon discovery of the newly surfaced groundwater and analyzed for benzene, toluene, ethyl benzene, total xylenes (BTEX), and methyl tert-butyl ether (MTBE) via EPA Method 8260. Analytical results indicated detected concentrations of benzene ranging between 0.110 milligrams per liter (mg/L) and 0.167 mg/L. Analytical results for all other analytes were non-detect.

Although the origin of the impacted surfaced groundwater was unknown, Western voluntarily took immediate steps to capture the surfacing groundwater at the East Fork area. The voluntary measures performed included installation of a catchment system that consisted of a trough and pump used to transport the captured groundwater at the East Fork area to the Refinery's wastewater treatment system.

Samples were collected from the East Fork area on a weekly basis from May 26, 2010 through July 8, 2010. The samples were analyzed for BTEX and MTBE via EPA method 8260. Samples collected on June 3, 2010 were also analyzed for total petroleum hydrocarbons - diesel range organics (TPH-DRO), gasoline range organics (TPH-GRO), and motor oil range organics (TPH-MRO) via EPA Method 8015B. During the seven week sampling period, detected benzene concentration gradually decreased over time from 0.167 mg/L to 0.002 mg/L. All other analytes remained non-detect throughout the seven week sampling period.

In compliance with the NMED letter dated July 30, 2010, four additional samples were collected spanning a period that included prior to and while the Hammond Ditch was operational. One East Fork area sample was collected one week before the Hammond Ditch was brought on-line for the season. Additional samples were collected two weeks, six weeks, and ten weeks after the Irrigation Ditch Company discontinued releasing water to the Hammond Ditch. All samples were analyzed for BTEX and MTBE via EPA Method 8260, and General Chemistry (major cations/anions, nitrates/nitrites, carbonate) via EPA Method 300.0. Samples collected six weeks after the Hammond Ditch was taken off-line and were also analyzed for TPH-GRO, TPH-DRO, and TPH-MRO via EPA Method 8015.

#### **Activities Performed in 2011**

On April 4, 2011, one week prior to the Hammond Ditch being placed into service, a sample was collected at the East Fork area and sent to Hall Analytical Laboratory for analysis. The sample was analyzed for BTEX and MTBE via EPA Method 8260, TPH-GRO, TPH-DRO, and TPH-MRO via EPA Method 8015.

One May 23, 2011, six weeks after the Hammond Ditch was brought on-line, another East Fork area sample was collected and sent to Hall Analytical Laboratory for analysis. The sample was analyzed for BTEX and MTBE via EPA Method 8260, TPH-GRO, TPH-DRO, and TPH-MRO via EPA Method 8015.

Field flow measurements were also collected from Outfall #3 on April 4, 2011 and May 23, 2011. Using a graduated container and a stopwatch, Western personnel determined the flow from Outfall #3 was approximately 5 gpm (as measured on April 4, 2011), and approximately 80 gpm (as measured on May 23, 2011). It was also noted that the flow rate at the East Fork area did not noticeably change between the time period of when the Hammond Ditch was off-line and after operation of the ditch commenced.

A summary of the analytical results is provided in **Table 1**. A copy of the analytical reports is provided in **Attachment A**.

#### Conclusions and Recommendations

Analytical results for samples collected at the East Fork area in April and May 2011 were non-detect for all analytes, which is consist with all sample collected at the East For area since October 2010. Prior to October 2010, detected benzene concentrations have been below the respective screening level of 0.005 mg/L since June 16, 2010.

Flow measurements collected at Outfall #3 indicate that the flow rate at this location has a direct correlation with the operation of the Hammond Ditch. Water from Outfall #3 is fed directly from a pipe connected to the French drain system located underneath the Hammond Ditch. Obvious cracks in the concrete lining of the Hammond Ditch as seen by Western personnel in the field are likely the contributors to the higher flow rates through the French drain system when the Hammond Ditch is operational (between April 15th and October 15<sup>th</sup> of each year). Flow observed at the East Fork area appears to not be affected by the operation of the Hammond Ditch. Previous flow rates measured at the East Fork area, as reported in the February 11, 2011 report submitted by Western, are approximately 1.4 gpm both prior to and during operation of the Hammond Ditch.

To date, the origin of the groundwater at the East Fork area is unknown. Based on analytical results from samples collected at the East Fork area since June 2010, the newly surface water at this location provides no harmful threat to the environment. Based on the information submitted in this updated summary report, it is requested that Western have no further obligation to continue sampling the East Fork area.

If you have any questions or would like to discuss this report in more detail, please do not hesitate to contact me at your convenience.

Sincerely,

Health, Safety, Environmental, and Regulatory Director Western Refining Southwest, Inc. – Bloomfield Refinery

Cc: D. Cobrain (NMED) H. Petrie (NMED) C. Chavez (OCD) A. Hains (WNR)

## TABLES

## TABLE 1 • East Fork Analytical Summary

Screening Level> (mg/L)	0.005 <sup>(2)</sup>	0.75 <sup>(3)</sup>	0.7 (2)	0.62 <sup>(3)</sup>	0.012 <sup>(1)</sup>				1.6 <sup>(3)</sup>	250 <sup>(3)</sup>		-		600 <sup>(3)</sup>						
Sampling Event	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	MRO (mg/L)	GRO (mg/L)	Fluoride (mg/L)	Chloride (mg/L)	Bromide (mg/L)	Nitrate/ Nitrite (mg/L)	Phosphorus (mg/L)	Sulfate (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)	Carbon Dioxide (mg/L)	Alkalinity (mg/L)
5/23/2011 (6 wks on-line)	<0.001	<0.001	<0.001	<0.002	<0 001	<0.20	<2.5	<0 050	NA	NA	NA	NA	NA	'NA	NA	NA	NA	NA.	NA	NA
4/4/2011 (1 wk before shut off)	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<2.5	<0 050	NA	· NA	NA	NA	NA	NA	· NA	NA	NA	NA	NA .	NA
12/20/2010 (10 wks after shut off)	<0.001	<0.001	<0.001	<0.002	<0.001	NA	NA	. NA	0.41	12	NA	<1.0	<0 50	74	63	17	1.8	53	250	250
- 11/22/2010 (6 wks after shut off)	<0.001	<0.001	<0.001	<0.002	<0 001	<0.20	<2.5	<0.05	0 44	12	0.14	<1.0	<0.50	75	65	. 17	. 14	53	250	250
10/27/2010 (2 wks after shut off)	<0.001	<0.001	<0.001	<0.0015	<0.001	NA	NA	NA	0.45	12	NA	<1.0	<0.50	90	69	18	1.9	55	250	250
10/06/2010 (1 wk before shut off)	<0.001	<0.001	<0.001	<0.002	<0 001	NA	ŅA	NA	0.47	13	0.11	<1.0	<0.50	110 -	73	19	1.9	57	250	250
7/8/2010	~0.002	<0.001	<0 001	<0.002	<0.001	NA	NA	NA	NA	NĂ	.NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7/1/2010	0.0023	<0.001	<0 001	<0 002	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA .
6/29/2010	0 0016	<0 001	<0.001	<0.002	<0 001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/16/2010	0.0034	<0.001	<0.001	<0.002	<0 001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA ,	NA	NA	NA	NA	NA
6/8/2010	0.0052	<0.001	<0.001	<0 002	<0.001	. NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/3/2010	0.0096-	<0.001	<0.001	<0 002	<0 001	<0 20	<2 5	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/26/2010 (5)	0.167	<0.002	<0.002	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/26/2010	0.12	<0.001	<0.001	<0.002	<0.001	NA	NA	NA	NA	NA	NA	NA	ŅA	NA	NA	NA	NA	NA	NA	NA
5/19/2010	0.11	<0.001	<0 001	<0.002	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA <sup>° .</sup>

#### Notes:

(1) EPA Regional Screening Level (April 2009) - EPA Regional Screening Level Tap Water

(2) EPA - Regional Screening Level (April 2009) - MCL

(3) NMED WQCC Standards - Title 20 Chapter 6 Part 2 - 20.6.2.3101 Standards for Groundwater of 10,000 mg/L TDS Concentration or Less.

(4) NMED TPH Screening Guidelines October 2006 - #3 and #6 fuel oil.

(5) Split sample analyzed by Envirotech Analytical Labororatory.

NA - No Analysis mg/L = milligrams per liter MTBE = methyl tert-butyl ether DRO = Diesel Range Organics GRO = Gasoline Range Organics MRO = Motor Oil Range Organics

All samples were submitted to Hall Environmental Analytical Laboratory in Albuquerque, NM with the exception of the split sample collected on 5/26/2011.

#### **FIGURES**

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FIGURE 1 East Fork Area Location Map



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ATTACHMENT A

### AIIACHMENIA.



#### **COVER LETTER**

Tuesday, April 19, 2011

Kelly Robinson Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4166 FAX (505) 632-3911

RE: Drainage North of TK#38

Dear Kelly Robinson:

Order No.: 1104194

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/5/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

CLIENT:	Western Refining South	hwest, Inc.		Client Sample ID: Collection Date:			x .
Lab Order:	1104194		•	Col	lection Date:	4/4/2011 8:	40:00 AM
Project:	Drainage North of TK#	38		Da	ate Received:	4/5/2011	
Lab ID:	1104194-01			•	Matrix:	AQUEOUS	<b>,</b>
Analyses	· · ·	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD	8015B: DIESEL RANGE		· · · · · · · · · · · · · · · · · · ·				Analyst: JB
Diesel Range O	rganics (DRO)	ND	0.20		mg/L	1	4/9/2011 7:08:01 PM
Motor Oll Range	Organics (MRO)	ND	2.5		mg/L	1	4/9/2011 7:08:01 PM
Surr: DNOP		117	95.2-140		%REC	1	4/9/2011 7:08:01 PM
EPA METHOD	8015B: GASOLINE RANG	E					Analyst: NSB
Gasoline Range	Organics (GRO)	ND	0.050		mg/L	1	4/13/2011 5:25:44 PM
Surr: BFB		103	79.4-132		%REC	1	4/13/2011 5:25:44 PM
EPA METHOD (	3260: VOLATILES SHORT	LIST					Analyst: RAA
Benzene		ND	1.0		µg/L	1	4/14/2011 8:22:17 PM
Toluene		ND	1.0		µg/L	1	4/14/2011 8:22:17 PM
Ethylbenzene	,	ND	1.0	,	µg/L	1	4/14/2011 8:22:17 PM
Methyl tert-butyl	ether (MTBE)	ND	1.0		µg/L	1	4/14/2011 8:22:17 PM
Xylenes, Total		ND	2.0		µg/L	1	4/14/2011 8:22:17 PM
Surr: 1,2-Dich	loroethane-d4	113	65.8-138	-	%REC	1	4/14/2011 8:22:17 PM
Surr: 4-Bromo	fluorobenzene	127	72,7-128		%REC	1	4/14/2011 8:22:17 PM
Surr: Dibromo	fluoromethane	109	69-135		%REC	1	4/14/2011 8:22:17 PM
Surr: Toluene-	d8	112	86.1-134	•	%REC	1	4/14/2011 8:22:17 PM

#### Hall Environmental Analysis Laboratory, Inc.

Date: 19-Apr-11

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

J Analyte detected below quantitation limits

NC Non-Chlorinated

PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Page 1 of 2

1

CLIENT: Lab Order: Project: Lab ID:	Western Refinir 1104194 Drainage North 1104194-02	ng Southwest, Inc. of TK#38		Client Sample II Collection Date Date Received Matrix	e:	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD	8260: VOLATILES	SHORT LIST	·	, ,		Analyst: RAA
Benzene		· ND	1.0	µg/L	1	4/14/2011 8:48:21 PM
Toluene		ND	1.0	μg/L	. 1	4/14/2011 8:48:21 PM
Ethylbenzene		ND	1.0	µg/L	1	4/14/2011 8:48:21 PM
Methyl tert-butyl	l ether (MTBE) .	ND	1.0	µg/L	1	4/14/2011 8:48:21 PM
Xylenes, Total		ND	2.0	µg/L −	1	4/14/2011 8:48:21 PM
Surr: 1,2-Dict	nlorcethane-d4	106	65.8-138	%REC	1	4/14/2011 8:48:21 PM
Surr: 4-Brome	ofluorobenzene	. 117	72.7-128	%REC	1	4/14/2011 8:48:21 PM
Surr: Dibromo	ofluoromethane	109	69-135	%REC	1	4/14/2011 8:48:21 PM

86.1-134

%REC

111

Hall Environmental Analysis Laboratory, Inc.

Date: 19-Apr-11

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4/14/2011 8:48:21 PM

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Estimated value

Surr: Toluene-d8

- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Page 2 of 2

2

## **QA/QC SUMMARY REPORT**

Client:Western ReProject:Drainage No	-	-							Work	Order:	1104194
Analyte	Result	Units	PQL	SPK Va S	SPK ref	%Rec L	owLimit H	ighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: I	Diesel Range								_		
Sample ID: MB-26321		MBLK				Batch ID:	26321	Analysis	Date:	4/9/2011	2:35:02 PN
Diesel Range Organics (DRO)	ND	mg/L	0.20							•	
Motor Oil Range Organics (MRO)	ND	mg/L	2.5								
Sample ID: LC8-26321		LCS				Batch ID:	26321	Analysis	Date:	4/9/2011	3:09:09 PN
Diesel Range Organics (DRO)	2.920	mg/L	0.20	2.5	0	117	74	157			
Sample ID: LCSD-26321		LCSD				Batch ID:	26321	Analysis	Date:	4/9/2011	3:43:14 PM
Diesel Range Organics (DRO)	2.821	mg/L	0.20	2.5	0	113	74	157	3.47	23	
Method: EPA Method 8016B: G	asoline Rar	nae ·									
Sample (D: 5ML RB		MBLK				Batch ID:	R44731	Analysis	Date:	4/13/2011	7:59:03 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Sample ID: 2.5UG GRO LCS		LCS				Batch ID:	R44731	Analysis	Date:	4/13/2011 1	1:24:51 AM
<b>Gasoline Range Organics (GRO)</b>	0.5292	mg/L	0.050	0.5	0	106	81.8	120			
Vethod: EPA Method 8260: Vo	latiles Short	List									
Sample ID: b8		MBLK				Batch ID:	R44760	Analysis	Date:	4/14/2011	2:16:45 PM
3enzene	ND	µg/Ĺ	1.0								
Foluene	ND	µg/L	1.0							×	
Ethylbenzene	ND	μg/L	1.0								
lethyl tert-butyl ether (MTBE)	ND	µg/L	1.0								
lylenes, Total	ND	µg/L	2.0								
sample (D: 100ng Ics1		LCS				Batch ID:	R44760	Analysis	Date:	4/14/2011 3	3:09:13 PM
Benzene	20.90	µg/L	1.0	20	0	104	85.2	1 <b>21</b>			
oluene	19.64	µg/L	1.0	20	0	98.2	88.3	121			

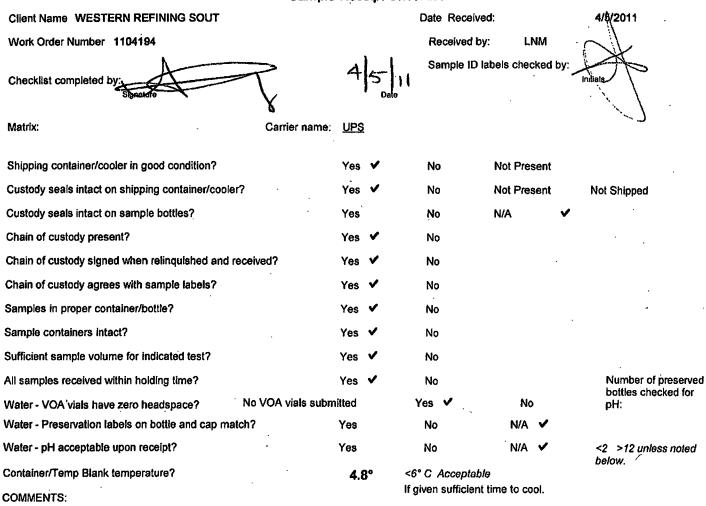
- Quailfiers:
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Page 1

#### Hall Environmental Analysis Laboratory, Inc.

#### Sample Receipt Checklist



Client contacted		Date contacted:
Contacted by:		Regarding:
Comments:	۲	•

#### **Corrective Action**

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

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#### **COVER LETTER**

Tuesday, June 07, 2011

Bob Krakow Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK# 38 5-23-11

Dear Bob Krakow:

Order No.: 1105879

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/24/2011 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag.

All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

## Hall Environmental Analysis Laboratory, Inc.

~

Date: 07-Jun-11

CLIENT: Project: Lab Order:	Western Refining So Drainage North of T 1105879	-	Work Order	Sample Summary
Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
1105879-01A	East Fork	R45631	EPA Method 8015B: Gasoline Range	5/23/2011 9:05:00 AM
1105879-01A	East Fork	R45616	EPA Method 8260: Volatiles Short List	5/23/2011 9:05:00 AM
1105879-01B	East Fork	26995	EPA Method 8015B: Diesel Range	5/23/2011 9:05:00 AM
				Ν.

Page1 of 1

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Project:	Drainage North	of TK# 38 5-23-11		Date Receiv	ed: 5/24/201	l
Lab ID:	1105879-01			Mat	rix: AQUEOU	JS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD	8015B: DIESEL RA	NGE	·	т		Analyst: JB
Diesel Range O	Irganics (DRO)	ND	0.20	mg/L	1	6/1/2011 4:39:13 AM
Motor Oil Range	e Organics (MRO)	ND	2.5	mg/L	1	6/1/2011 4:39:13 AM
Surr: DNOP		118	95.2-140	%REC	1	<del>6</del> /1/2011 4:39:13 AM
EPA METHOD	8015B: GASOLINE	RANGE				Analyst: NSE
Gasoline Range	e Organics (GRO)	ND	0.050	mg/L	1	5/27/2011 6:44:44 PM
Surr: BFB		96.9	79.4-132	%REC	1	5/27/2011 6:44:44 PM
EPA METHOD	B260: VOLATILES	SHORT LIST			<b>٦</b>	Analyst: RAA
Benzene		ND	1.0	µg/L	1	5/26/2011 8:04:39 PM
Toluene		ND	1.0	µg/L	, 1	5/26/2011 8:04:39 PM
Ethylbenzene		ND	1.0	µg/L	1	5/26/2011 8:04:39 PM
Methyl tert-butyl	ether (MTBE)	ND	1.0	µg/L	1	5/26/2011 8:04:39 PM
Xylenes, Total		ND	2.0	hð/r	1	5/26/2011 8:04:39 PM
Surr: 1,2-Dich	lóroethane-d4	115	65.8-138	%REC	1	5/26/2011 8:04:39 PM
Surr: 4-Brome	ofluorobenzene	103	72.7-128	%REC	1	5/26/2011 8:04:39 PM
Surr: Dibromo	ofluoromethane	112	69-135	%REC	1	5/26/2011 8:04:39 PM
Surr: Toluene	-d8	126	86.1-134	%REC	1	5/26/2011 8:04:39 PM

#### Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

1105879

CLIENT:

Lab Order:

Qualifiers:

. Value exceeds Maximum Contaminant Level

Ε Estimated value

Analyte detected below quantitation limits J

NC Non-Chlorinated

PQL Practical Quantitation Limit

Analyte detected in the associated Method Blank В

Н Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

Not Detected at the Reporting Limit ND

Spike recovery outside accepted recovery limits S

Page 1 of 1

Date: 07-Jun-11

Client Sample ID: East Fork Collection Date: 5/23/2011 9:05:00 AM

### **QA/QC SUMMARY REPORT**

1	fining South orth of TK#		l						Work	Order:	1105879
Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec L	.owLimit Hi	ighLimit 🤤	%RPD	RPDLimit	Qual
Method: EPA Method 8015B:	Diesel Range										
Sample ID: 1105879-01BMSD		MSD		•		Batch ID:	26995	Analysis	Date:	6/1/2011	5:47:31 AM
Diesel Range Organics (DRO) Sample ID: MB-26995	2.754	mg/L MBLK	0.20	2.5	0	110 Batch ID:	71 <b>26995</b>	161 Analysis	9.99 Date:	23 6/1/2011	2:56:54 AM
Diesel Range Organics (DRO)	ND	mg/L	0.20				•				
Motor Oil Range Organics (MRO)	ND	mg/L	2.5		• -	- •	<del>د</del>				
Sample ID: LCS-26995		LCS				Batch ID:	26995	Analysis	Date:	6/ <b>1</b> /2011	3:30:58 AM
Diesel Range Organics (DRO)	2.799	mg/L	0.20	2.5	0	112	74	157			
Sample ID: LCSD-26995		LCSD				Batch ID:	26995	Analysis i	Date:	6/1/2011	4:05:06 AM
Diesel Range Organics (DRO)	2,704	mg/L	0.20	2.5	o	108	74	157	3.43	23	
Sample ID: 1105879-01BMS		MS	0.20		•	Batch ID:	26995	Analysis I			5:13:22 AM
Diesel Range Organics (DRO)	3.043	mg/L	0.20	2.5	0	122	71	161			
Method: EPA Method 8015B: (	Gasoline Ran	ae					*,				•
Sample ID: 6ML RB		MBLK			•	Batch ID:	R45631	Analysis I	Date:	5/27/2011	9:43:09 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Sample ID: 2.5UG GRO LCS		LCS				Batch ID:	R45631	Analysis I	Date:	5/27/2011	7:44:57 PM
Gasoline Range Organics (GRO)	0.5246	mg/L	0.050	0.5	0	105	81.8	120			
Sample ID: 2.5UG GRO LCSD		LCSD			-	Batch ID:	R45631	Analysis I	Date:	5/27/2011	8:15:05 PM
Gasoline Range Organics (GRO)	0.5274	mg/L	0.050	0.5	0	105	81.8	•	0.532	17.1	
Method: EPA Method 8260: Vo	latiles Short	List					_				
Sample ID: 5mi-rb		MBLK				Batch ID:	R45616	Analysis I	Date:	5/26/2011 9	9:37:51 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			•					
Xylenes, Total	ND ·	µg/L	2.0								
Sample ID: 100ng Ics		LÇS		,		Batch ID:	R45616	Analysis [	Date:	5/26/2011 10	):30:58 AM
Benzene	21.65	µg/L	1.0	20	0	108	85.2	121			
Toluene	20.60	µg/L	1.0	20	0	103	88.3	121			

Qualifiers:

Е Estimated value

Analyte detected below quantitation limits J

Not Detected at the Reporting Limit ND

Holding times for preparation or analysis exceeded Н

Non-Chlorinated NC

R RPD outside accepted recovery limits Page 1

## Hall Environmental Analysis Laboratory, Inc.

Sam	ble Receipt C	Checklist		
Client Name WESTERN REFINING SOUT		Date Receiv	ved:	5/24/2011
Work Order Number 1105879	20	Received I	by: MMG	
Checklist completed by:		Sample ID 24/11	labels checked by: _	Initials
Matrix: Carrier nam	ie: <u>UPS</u>			
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 🗖		Number of preserved
Water - VOA vials have zero headspace? No VOA vials su	Ibmitted	Yes 🗹	No 🗔	bottles checked for pH:
Water - Preservation labels on bottle and cap match?	Yes 🗌	No 🗖	N/A 🗹	•
Water - pH acceptable upon receipt?	Yes 🗌	No 🗌	N/A 🗹	<2 >12 unless noted
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Container/Temp Blank temperature?	1.9°	<6° C Accepta		below.
				below.
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Container/Temp Blank temperature?		<6° C Accepta		below.
Container/Temp Blank temperature?	1.9° 	<6° C Accepta If given sufficien		below. 
Container/Temp Blank temperature? COMMENTS: 	1.9° 	<6° C Accepta If given sufficien	nt time to cool.	below.
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Container/Temp Blank temperature? COMMENTS: Co	1.9° 	<6° C Accepta If given sufficien	nt time to cool.	below.

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Client: W	103 f	-NT	Zefining	X Standard Project Name	D Rush						AN	AĽ	YS	SIS	5 L	AE	80				
	~		UN 87413	DRAi UH-92 Project #:	North of 7	K# 38 5-	·)3-1[			Hawi 505-3	dins M		Albi	uque	erque		M 87				
			32- <del>4203</del> 4135 32-39//	Project Mana	ger:			<del>〕</del>	only)			A				uest	$\triangleleft$				
QA/QC Pac	rd	<u> </u>	Level 4 (Full Validation)			305_		ŢMB's (8021)	(Gas o	(Gas/lang				2, PO4, S	2 PCB'	WIBE					
	•		•	Sampler:	Wes-	E No		: + TME	+ MTBE + TPH (Gas	8015B ( 418.1)	504.1)	PAH)	צ	IO3.NO	908 / se	BIEX	OA)	2			or N)
Date 1	ype) Time	Matrix	Sample Request ID	Sample Temperature					BTEX + MTBE	TPH Method 8015B	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO <sub>3</sub> ,NO <sub>2</sub> ,PO <sub>4</sub> ,SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA) BIEX	8270 (Semi-VOA)	DRO 8015 B			Air Bubbles (Y or N)
5-23-11 0	105	Hao	EAST Fork	3-10A	HCI	1021			_ <b>)</b>	Ć						X					
		1	<u>k</u> n	1-500ml	Amber	<u>†                                    </u>				+-	<u> </u>							시	-		+
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Date: Time: Relinquished by: 5-13-11 3:00 Robat Krakow Date: Time: Relinquished by:				Received by: Date Time				Remarks:													

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

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## RECEIVED OOD

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February 11, 2011

Ms. Hope Monzeglio New Mexico Environmental Department Hazardous Waste Bureau 2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303

Mr. Carl Chavez State of New Mexico Oil Conservation Division 1220 South Saint Francis Drive Santa Fe, NM 87505

Certified Mail: 7010 1870 0000 0709 4594 7010 1870 0000 0709 4600

Re: Western Refining Southwest, Inc. – Bloomfield Refinery Newly Surfaced Groundwater Data Summary

Dear Ms. Monzeglio and Mr. Chavez:

Western Refining Southwest, Inc. – Bloomfield Refinery (Bloomfield) is providing New Mexico Environmental Department (NMED) and New Mexico Oil Conservation Division (NMOCD) a summary of the activities performed and data collected to date that pertains to the newly surfaced groundwater location identified in May 2010.

#### **Discovery Summary**

On Wednesday, May 19<sup>th</sup> 2010 during the bi-monthly visual inspections of the area north of the Refinery, Bloomfield identified a new area where groundwater had surfaced. This new area is located north of the raw water ponds within an arroyo along the north side of the Hammond Ditch. Bloomfield has identified this area as the "East Fork" area based on its location within the arroyo. **Figure 1** includes an aerial photo identifying the approximate location of the East Fork area.

A sample of the surface water was collected on the day of discovery and analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl tert-butyl ether (MTBE) by EPA method 8260. The results were received on May 26, 2010 and indicated a detected benzene concentration of 110 ug/L. All other analytes were non-detect. Bloomfield collected confirmation split samples on May 26, 2010 which were sent to Envirotech Analytical Laboratory (Envirotech) and Hall Environmental Analysis Laboratory (HEAL) for BTEX analysis. The split samples from Envirotech and HEAL detected benzene concentrations of 167 ug/L and 120 ug/L, respectively. All other analytes for the two split samples were non-detect.

On June 1, 2010 following receipt of the confirmation sample results, Bloomfield notified NMED Hazardous Waste Bureau and NMOCD via e-mail of the recent developments regarding discovery of the new surface water in the East Fork area and immediate actions taken upon discovery.

#### **Response Action Taken**

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Immediately following confirmation of the benzene results, Bloomfield installed a catchment system to catch the surfacing groundwater at the East Fork area. The system consists of a trough and pump, which transports the captured groundwater to the Refinery's waste water treatment system. The catchment system remained operational from the first week of June 2010 until after receipt of the NMED letter dated July 30, 2010 that granted approval to cease pumping.

Surfaced groundwater samples were collected at the East Fork area on a weekly basis from May 26, 2010 through July 8, 2010. The samples were analyzed for BTEX and MTBE by EPA Method 8260. At NMED's request as stated in an e-mail from Hope Monzeglio dated June 3, 2010, samples collected on June 3, 2010 were also analyzed for diesel range organics (TPH-DRO), gasoline range organics (TPH-GRO), and motor oil range organics (TPH-MRO) by EPA Method 8015B.

In compliance with the NMED letter dated July 30, 2010, Western personnel collected one surface water sample the week before the irrigation ditch company turned off the water to the Hammond Ditch; as well as collected one surface water sample at two, six, and ten weeks after the irrigation ditch company discontinued releasing water to the Hammond Ditch. Samples were analyzed for BTEX and MTBE using EPA Method 8260 and General Chemistry EPA Method 300.0 (major cations/anions, nitrates/nitrites, carbonate). The surface water sample collected at the six week interval included analysis for GRO, DRO, and MRO using EPA Method 8015. **Table 1** provides a summary of the analytical results collected to-date. A copy of the respective analytical reports is provided in **Attachment A**.

In addition, Western personnel collected groundwater elevation measurements from monitoring wells MW-1, MW-50, and MW-51 at the specified intervals. Elevation measurements can be found in **Table 2**. A synopsis of the elevation measurements is presented in **Figure 2**. This data demonstrates that the groundwater elevation of the upgradient wells show little fluctuation relative to Hammond Ditch operations.

The source of the surfaced groundwater at the East Fork area is still not explicitly known. During visual inspection of the possible sources in the area, cracks were evident in the concrete lining of the Hammond Ditch. It is possible that these cracks in the ditch liner may be a significant hydraulic contributor to groundwater in this area.

By using a graduated cylinder and stopwatch, Western personnel measured the flow from the East Fork catchment the day before the irrigation ditch company turned off the water to the Hammond Ditch and again twelve days after canal shut off occurred. On October 14, 2010 the flow was at 1000 mls per 11 seconds or 1.4 gpm. On October 27, 2010 the flow was recorded at 1000mls per 11 seconds or 1.4 gpm. This

data illustrates in that 12 day time period the East Fork is not affected by Hammond Ditch operations.

Using the same measurement methods, Western personnel determined the flow from Outfall #3 the day before the irrigation ditch company shut off the canal (October 14, 2010)and again three days after canal shut off (October 18, 2010). Flows decreased from 75 gpm on October 14, 2010 to 5 gpm on October 18, 2010.

By comparing the data from Outfall #3 and the East Fork, there is a direct correlation to Hammond Ditch operation and flow at Outfall #3 and possibly to the East Fork. Outfall #3 is taking the water directly from a pipe connected to the French Drain underneath Hammond Ditch whereas water flowing to the East Fork must travel through the soil profile before daylighting.

#### **Proposed Actions**

A ARCING

The benzene concentrations at the newly identified groundwater surface location (East Fork area) have progressively decreased since May 26, 2010. Detected benzene concentrations have been below the WQCC screening level of 10 ug/L since June 3<sup>rd</sup>, 2010, and below the EPA Maximum Contaminant Level (MCL) of 5 ug/L since June 16<sup>th</sup>, 2010 (Refer to **Table 1** for the analytical summary trend).

Bloomfield proposes to collect one surface water sample from the East Fork and flow measurements from Outfall #3 and the East Fork one week before water is let into Hammond Ditch and a follow up sample and flow measurements six weeks after ditch operations commence. Samples will be analyzed for BTEX and MTBE using EPA Method 8260 and for gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) using EPA Method 8015.

If you have any questions or would like to further discuss this topic, please contact me at (505) 632-4171.

Shincerety

Uames R. Schmaltz Environmental Manager Western Refining Southwest, Inc. Bloomfield Refinery

cc: Allen Hains – Western Refining El Paso

## FIGURES

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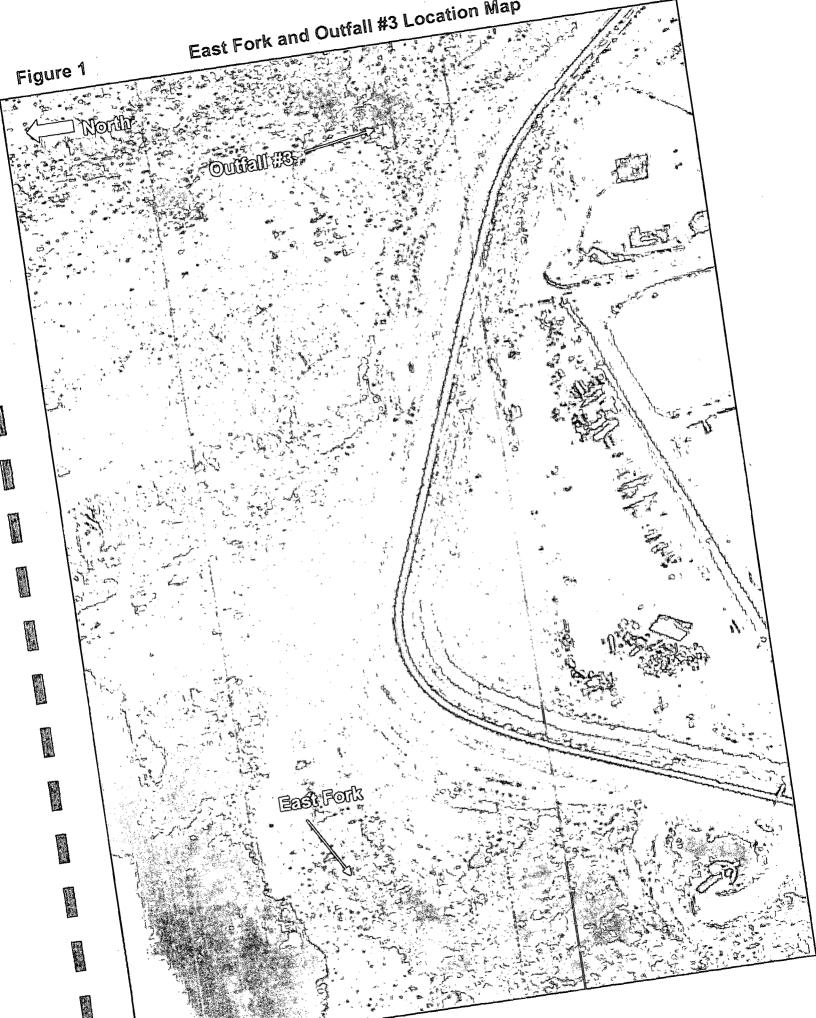
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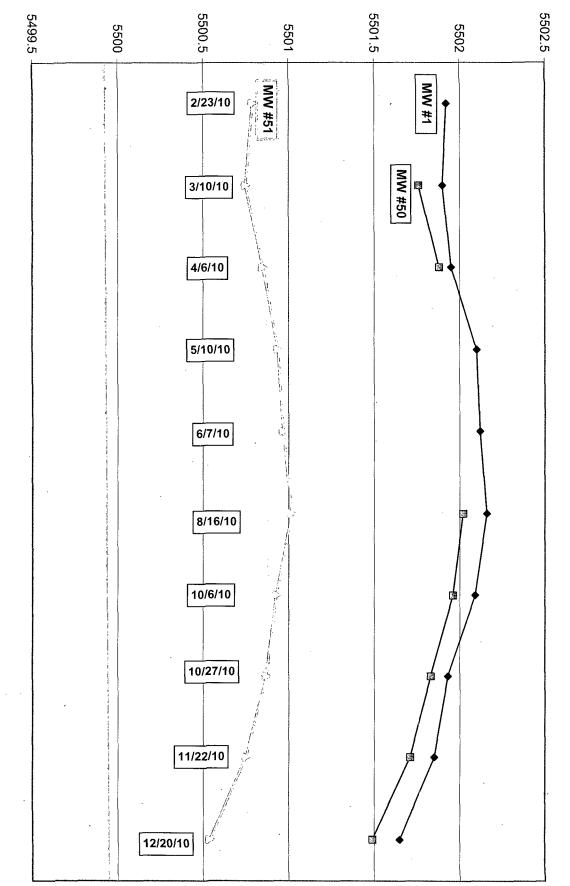
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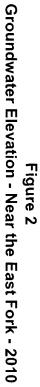
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5/19/2010	5/26/2010	5/26/2010 (5)	6/3/2010	6/8/2010	6/16/2010	6/25/2010	7/1/2010	7/8/2010	10/06/2010 (1 wk before shut off)	10/27/2010 (2 wks after shut off)	11/22/2010 (6 wks after shut off)	12/20/2010 (10 wks after shut off)	Sampling Event	Screening Level (mg/L)	
0.11	0.12	0.167	0.0096	0.0052	0.0034	0.0016	0.0023	0.002	<0.001	<0.001	<0.001	<0.001	Benzene (mg/L)	0.005(2)	
<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Toluene (mg/L)	0.75 (3)	
<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	Ethylbenzene (mg/L)	0.7 (2)	
<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0015	<0.002	<0.002	Xylene (mg/L)	0.62 (3)	
<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MTBE (mg/L)	0.012 (1)	
NA	NA	NA	<0.20	NA	NA	NA	NA	NA	NA	NA	<0.20	NA	DRO (mg/L)	0.2 (4)	
NA	NA	NA	<0.05	NA	NA	NA	NA	NA	NA	NA	<0.05	NA	GRO (mg/L)		_
NA	NA	NA	<2.5	NA	NA	NA	NA	NA	NA	NA	<2.5	NA	MRO (mg/L)		ast Forl
NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47	0.45	0.44	0.41	Fluoride (mg/L)	1.6 (3)	Table 1 k Analytica
NA	NA	NA	NA	NA	NA	NA	NA	NA	13	12	12	12	Chloride (mg/L)	250 (3)	Table 1 East Fork Analytical Monitoring
NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	0.14	NA	Bromide (mg/L)		oring
NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0	<1.0	<1.0	<1.0	Nitrate/ Nitrite (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.50	<0.50	<0.50	<0.50	P (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	110	90	75	74	Sulfate (mg/L)	600(3)	
NA	NA	NA	NA	NA	NA	NA	NA	NA .	73	69	65	63	Calcium (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	19	18	17	17	Mg (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9	1.9	·1.4	1.8	K (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	57	55	53	53	Sodium (mg/L)		
NA	NA	NA	NA	NA	NA	NA	NA	NA	250	250	250	250	CO2 (mg/L)		
NA	NA	NA	N	NA	NA	NA	NA	NA	250	250	250	250	ALK (mg/L)		

(1) EPA Regional Screening Level (April 2009) - EPA Regional Screening Level Tap Water
 (2) EPA - Regional Screening Level (April 2009) - MCL
 (3) NMED WQCC Standards - Title 20 Chapter 6 Part 2 - 20.6.2.3101 Standards for Groundwater of 10,000 mg/L TDS Concentration or Less.
 (4) NMED TPH Screening Guidelines October 2006 - unknown oil.
 (5) Split sample analyzed by Envirotech Analytical Labororatory.
 NA - No Analysis

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いい時			Groundwater	TABLE Elevation Me		ummary - Ne	ear East Fork A	rea		
	Well ID	Monitoring Event	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation		
		10 weeks after S/O	12/20/2010	5519.21	21.56	NPP	17.56	5501.65		hut
at a she		6 weeks after S/O	11/22/2010	5519.21	21.56	NPP	17.36	5501.85	}	Hammond Ditch Shut Off
		2 weeks after S/O	10/27/2010	5519.21	21.56	NPP	17.28	5501.93		Dit
and the second		1 week before S/O	10/6/2010	5519.21	21.56	NPP	17.12	5502.09		l tch
18	<u>-1</u>	3rd QTR	8/16/2010	5519.21	21.56	NPP	17.05	5502.16		Hammond Ditch Operating
and a set	MW-1	5th Month	6/7/2010	5519.21	21.56	NPP	17.09	5502.12		nmor
2		4th Month	5/10/2010	5519.21	21.56	NPP	17.11	5502.10	IJ	Han (
et vojam ,		2nd QTR (3rd M)	4/6/2010	.5519.21	21.56	NPP	17.26	5501.95		nd
Contract of		1st QTR (2nd M)	3/10/2010	5519.21	21.56	NPP	17.31	5501.90		Hammond Ditch Shut Off
構力		1st Month	2/23/2010	5519.21	21.56	NPP	17.29	5501.92		Ha Dit
Alexandre	1.1	10 weeks	12/20/2010	5518.79	22.14	NPP	17.30	5501.49		t g
1		after S/O 6 weeks after S/O	11/22/2010	5518.79	22.14	NPP	17.08	5501.71		Hammond Ditch Shut Off
a san		2 weeks after S/O	10/27/2010	5518.79	22.14	NPP	16.96	5501.83		Harr Ditcl
		1 week	10/6/2010	5518.79	22.14	NPP	16.83	5501.96	Б	c <del>,</del>
	20	before S/O 3rd QTR	8/16/2010	5518.79	22.14	NPP	16.77	5502.02		Hammond Ditch Operating
	MW-50	5th Month	NA	5518.79	22.14	NA	NA	NA		mmond Di Operating
1.200 (2004)		4th Month	NA	5518.79	22.14	NA	NA	NA	IJ	Ham O
Æ		2nd QTR (3rd M)	4/6/2010	5518.79	22.14	NPP	16.91	5501.88	٦	nt og
S. Mary		1st QTR (2nd M)	3/10/2010	5518.79	22.14	NPP	17.03	5501.76		Hammond Ditch Shut Off
.TREE		1st Month	NA	5518.79	22.14	NA	NA	NA		Har Dito
		10 weeks	12/20/2010	5515.58	22.18	NPP	15.04	5500.54		ρţ
1. 1. A. A.		after S/O 6 weeks after S/O	11/22/2010	5515.58	22.18	NPP	14.83	5500.75		Hammond Ditch Shut Off
		2 weeks after S/O	10/27/2010	5515.58	22.18	NPP	14.71	5500.87		Han Ditc
1. A. B.		1 week before S/O	10/6/2010	5515.58	22.18	NPP	14.65	5500.93	5	Ċ
	-51	3rd QTR	8/16/2010	5515.58	22.18	NPP	14.56	5501.02		d Dit ting
R.C Linton	MW-51	5th Month	6/7/2010	5515.58	22.18	NPP	14.61	5500.97		Hammond Ditch Operating
44		4th Month	5/10/2010	5515.58	22.18	NPP	14.64	5500.94	IJ	Ham O
and the second sec		2nd QTR (3rd M)	4/6/2010	5515.58	22.18	NPP	14.73	5500.85	٦	nt ut
Maria		1st QTR (2nd M)	3/10/2010	5515.58	22.18	NPP	14.83	5500.75	}	Hammond Ditch Shut Off
THE PARTY		1st Month	2/23/2010	5515.58	22.18	NPP	14.79	5500.79		Ditc
a state of the			S/O - Shut Of NA - not appli			nth Fluid Coll	ection Activities	• • • • • • • • • • • • • • • • • • •	•	

## ATTACHMENT A Analytical Reports

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#### **COVER LETTER**

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Tuesday, May 25, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: 5-19-10 Drainage North of TK#38

Order No.: 1005560

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 5/20/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

O ( Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901

AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

CLIENT: Project:	Lab Order: 1005560							
Lab ID:	1005560-01				Collection D	ate: 5/19/2	010 2:15:00 PM	
<b>Client Sample ID:</b>	West Fork				Ma	trix: AQUE	OUS	
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed	
EPA METHOD 826	0: VOLATILES SHO	DRT LIST					Analyst: HL	
Benzene		ND	1.0		µg/L	1	5/20/2010 5:23:50 PM	
Toluene		ND	1.0		µg/L	1	5/20/2010 5:23:50 PM	
Ethylbenzene	ND	1.0		µg/L	1	5/20/2010 5:23:50 PM		
Methyl tert-butyl eth	ND	1.0		µg/L `	1	5/20/2010 5:23:50 PM		
Xylenes, Total		ND	2.0		µg/L	1	5/20/2010 5:23:50 PM	
Lab ID:	1005560-02	· · · · ·		(	Collection D	ate: 5/19/20	010 2:25:00 PM	
<b>Client Sample ID:</b>				Mat	trix: AQUE	OUS		
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed	
EPA METHOD 826	0: VOLATILES SHO	ORT LIST	· · · · ·				Analyst: HL	
Benzene		110	5.0		µg/L	5	5/21/2010 6:03:59 PM	
Toluene		, ND	, <b>1.0</b>		µg/L	1	5/20/2010 6:52:11 PM	
Ethylbenzene		ND	1.0		µg/L	1	5/20/2010 6:52:11 PM	
Methyl tert-butyl eth	ND	1.0		µg/L	1	5/20/2010 6:52:11 PM		

2.0

µg/L

ND

#### Hall Environmental Analysis Laboratory, Inc.

Qua	lifiers:	

Xylenes, Total

- Value exceeds Maximum Contaminant Level ۰ Ε Estimated value
- Analyte detected below quantitation limits J

Non-Chlorinated NC

PQL Practical Quantitation Limit

В Analyte detected in the associated Method Blank

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Date: 25-May-10

Н Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

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

5/20/2010 6:52:11 PM

BORNE PE

## QA/QC SUMMARY REPORT

	efining South ainage North								Work	Order:	1005560
Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: V	olatiles Shor										•
Sample ID: 1005560-01a msd		MSD				Batch ID:	R38830	Analys	sis Date:	5/20/2010	6:22:54 PN
Benzene	20.31	µg/L	1.0	20	0	102	72.4	126	0.138	20	
Toluene	21.54	μg/L	1.0	20	0	108	79.2	115	1.72	20	
Sample ID: 5ml rb		MBLK				Batch ID:	R38830	Analys	is Date:	5/20/2010	B:45:56 AN
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								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ml rb		MBLK				Batch ID:	R38844	Anaiys	is Date:	5/21/2010	3:57:02 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						•		•
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 5ml rb		MBLK				Batch ID:	R38830	Analys	is Date:	5/20/2010	3:45:56 AN
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								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100ng lcs		LCS				Batch ID:	R38830	Analys	is Date:	5/20/2010 10	):54:22 AN
	20.06	μg/L	1.0	20	0	100	82.4	116			
Benzene	22.33	µg/L	1.0	20	0,	112	89.5	123			
Toluene	22.00	LCS	1.0	20	0,	Batch ID:	R38844	-	is Date:	5/21/2010 10	19.50 AN
Sample ID: 100ng ics	10.00				•			•	is Date.	J/2 1/2010 10	. 13.30 AN
Benzene	18.82	µg/L	1.0	20	0	94.1	82.4	116			
Toluene	21.74	µg/L	1.0	20	0	109 Detate ID:	89.5	123		-	
Sample ID: 100ng ics		LCS				Batch ID:	R38830	•	is Date:	5/20/2010 10	:54:22 AN
Benzene	20.06	, μg/L	1.0	20	0	100	82.4	116			
Toluene	22.33	µg/L	1.0	20	0	112	89.5	123			
Sample ID: 1005560-01a ms		MS				Batch ID:	R38830	Analys	is Date:	5/20/2010 5	5:53:38 PM
Benzene	20.28	µg/L	1.0	20	0	101	72.4	126			
Toluene	21.91	µg/L	1.0	20	0	110	79.2	115			

Estimated value Analyte detected below quantitation limits

Qualifiers:

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ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Page 1

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Sa	mple Receipt Ch	ecklist			
		Date Receive	ed:	5/20/2010	
Work Order Number 1005560		Received b	y: TLS	$\Delta$	
Checklist completed by:	5720 Date	Sample ID I	abels checked by:	Initials	
Matrix: Carrier n	ame: <u>UPS</u>				
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 \Box			
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 🗌		Number of	
Water - VOA vials have zero headspace? No VOA vials	s submitted	Yes 🗹	No 🗔 🗉	bottles cheo pH:	ked for
Water - Preservation labels on bottle and cap match?	Yes 🗌	No 🗌	N/A 🗹		
Water - pH acceptable upon receipt?	Yes 🗌	No 🗌	N/A 🗹	<2 >12 unles	ss noted
Container/Temp Blank temperature?	<b>4.0</b> °	<6° C Acceptat		below.	
COMMENTS:		If given sufficien	t time to cool.		
	····· ···· ···· ···· ···· ···· ···· ····	······ ······ ······ ······ ·····			
Client contacted Date contacted	:	Pers	ion contacted		
Contacted by: Regarding:					
Comments:					<u></u>
					<u> </u>
	· · · · · · · · · · · · · · · · · · ·		······		····
Corrective Action					
		<u> </u>			

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10-1-10-1		HALL ENVIRONMENTAL ANALYSTS LABORATOR		7109	22.				·													
2.457.34g	1		www.hallenvironmental.com	- Albuquerque, NM 87109	505-345-4107	est	ton	0 38 V		_	AOV) 80828 -ime2) 0728				 				 			
			mente	erune	505-3	Redu					ioitea9 1808									·		
建塑料			Viron	nonql	Fax	alysis R	(*(	05'*00	<sup>4'z</sup> ON <sup>"e</sup>		RCRA 8 Mei ID, F) anoina	·					 		 			
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でである	1		MMMM	4901 Hawkins NE	345-3975						edb (Metho								 		: [	
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P.K.		Use C		4901	Tel						BTEX + MTI				 		 		 		irks:	1
a Table		JT									BTEX + MTI				 		 		 		Remarks	
この 田田 南市 の		· · · ·	5-19-10	TX# 38						HO H	HEALAND	_	7	r			~	_			Date Time	Date Time
	me:	🗆 Rush		North of T	1		er:	·	4 4 B	stature:	Preservative	HCI	Hel		 						0100	
the tracks	Turn-Around Time:	K Standard	Project Name:	DRAINAGE	Project #:		Project Manager:		Sampler: Cri	Sample Tempe	Container P Type and #	3-VOA	3-104								Received by:	Received by
	lecord	Client: Western Refining		Mailing Address: 井 50 C.R. 4 タタの	δ	505-632-4161	- 1 1	C Level 4 (Full Validation)			Matrix Sample Request ID	Hue West Fork	H20 FAST FORK								V ( Best A Blow	Reinquished by:
	n-of	5		#:55	Sloomfiel	205	20	je:		<u>)</u>					 		 	-	 _			Relin
304 A.S.	hai	Wes		) Addre	NOO	# 73	or Fax#	QA/QC Package:	Accreditation	) (Typ∈	Цще	2:15	2:35									Time:
Bo the Sec		Client:		Mailing	A	Phone #:	email c	QA/QC Packa	Accreditati	□ EDD (Type)	Date	5-19-10	0-4-5							Date:	5-19-D	Date:

	HALL ENVIRONMENTAL
ŀ	ANALYSIS LABORATORY

### COVER LETTER

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CONTENSION

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Sectors:

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Wednesday, June 02, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 5-26-10

Dear Cindy Hurtado:

Order No.: 1005835

Hall Environmental Analysis Laboratory, Inc. received 4 sample(s) on 5/27/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

	estern Refining So ainage North of T					La	b Orde	er: 1005835
Lab ID:	1005835-01	<u></u>		(	Collect	ion Date:	5/26/2	010 1:05:00 PM
Client Sample ID:	West Fork					Matrix:	AQUE	OUS
Analyses		Result	POL	Qual	Units		DF	Date Analyzed
EPA METHOD 8260:							<u></u>	Analyst: DAN
Benzene	VOLATILES STR	ND	1.0		µg/L		1	5/28/2010 10:37:23 AM
Toluene		ND	1.0		µg/L		1	5/28/2010 10:37:23 AM
Ethylbenzene		ND	1.0		µg/L		1	5/28/2010 10:37:23 AM
Methyl tert-butyl ether		· ND	1.0		µg/L		1	5/28/2010 10:37:23 AM
Xylenes, Total	((((())))))))))))))))))))))))))))))))))	ND	2.0		µg/L		1	5/28/2010 10:37:23 AM
Lab ID:	1005835-02			. (	Collect	ion Date:	5/26/2	010 12:50:00 PM
Client Sample ID:	East Fork					Matrix:	AOUE	OUS
Analyses		Result	ρη	Qual	Linite		DF	Date Analyzed
				Quai				
EPA METHOD 8260:	VOLATILES SHO						40	Analyst: DAN
Benzene		· 120	10		µg/L		10	5/28/2010 11:05:28 AM
Toluene		ND	1.0		µg/L		1	5/28/2010 11:33:35 AM
Ethylbenzene		ND	1.0		µg/L		1	5/28/2010 11:33:35 AM
Methyl tert-butyl ether (	MiB⊨)	ND	1.0		µg/L		1 1	5/28/2010 11:33:35 AM
Xylenes, Total		ND	2.0		µg/L		I	5/28/2010 11:33:35 AM
Lab ID:	005835-03			(	Collect	ion Date:	5/26/20	010 12:30:00 PM
Client Sample ID: (	Outfall #2		•			Matrix:	AQUE	OUS
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8260:	VOLATILES SHO	RTLIST						Analyst: DAM
Benzene		ND	· 1.0		µg/L		1	5/28/2010 12:30:03 PM
Toluene		ND	1.0		µg/L		1	5/28/2010 12:30:03 PM
Ethylbenzene		ND	1.0		µg/L		1	5/28/2010 12:30:03 PM
Methyl tert-butyl ether (	MTBE)	ND	1.0		µg/L		1	5/28/2010 12:30:03 PM
Xylenes, Total		ND	2.0		µg/L		1	5/28/2010 12:30:03 PM
Lab ID: 1	005835-04			(	Collecti	on Date:	5/26/20	010 12:15:00 PM
Client Sample ID: N	AW-51					Matrix:	AQUE	ous
Analyses		Result	PQL	Qual	Units		DF	Date Analyzed
EPA METHOD 8260: 1	OLATILES SHO	RT LIST						Analyst: DAM
Benzene		6400	100		µg/L		100	5/28/2010 9:24:16 PM
Toluene		220	100		µg/L		100	5/28/2010 9:24:16 PM
Ethylbenzene		250	100		µg/L		100	5/28/2010 9:24:16 PM
Methyl tert-butyl ether (	MTBE)	ND	1.0		µg/L		1	5/28/2010 12:57:13 PM
Xylenes, Total		1800	200		µg/L	•	100	5/28/2010 9:24:16 PM
Ovalifiers: * Vali	ie exceeds Maximum	Conteminent Level			B Ana	lyte detected	in the as	sociated Method Blank
•	mated value	Contaminant Peacl						tion or analysis exceeded
	ive detected below q	antitation limite				kimum Cont		•
	-Chlorinated	wintfattyn Millis				Detected at		
				11	- 110L	Doteotou at	reput	cepted recovery limits

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Date: 02-Jun-10

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# **QA/QC SUMMARY REPORT**

**Client:** Western Refining Southwest, Inc. **Project:** Drainage North of TK#38 5-26-10 Work Order: 1005835 PQL SPK Va SPK ref %Rec LowLimit HighLimit Analyte Result Units %RPD **RPDLimit Qual** EPA Method 8260: Volatiles Short List Method: Sample ID: 5ml rb MBLK Batch ID: R38998 Analysis Date: 5/28/2010 8:44:54 AM ND μg/L 1.0 Benzene ND Toluene µg/L 1.0 µg/L 1.0 Ethylbenzene ND Methyl tert-butyl ether (MTBE) ND µg/L 1.0 ND µg/L 2.0 Xylenes, Total Batch ID: Analysis Date: R38998 Sample ID: 100ng ics LCS 5/28/2010 9:41:09 AM 21.46 μg/L 1.0 20 0 107 82.4 116 Benzene 89.5 23.42 µg/L 1.0 20 0 117 123 Toluene

#### Qualifiers:

No we do

4 a. A. C.

E Estimated value

- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

3

	Sample	e Receipt C	hecklist		
Client Name WESTERN REFINING SOUT	$\overline{}$		Date Receive	d:	5/27/2010
Work Order Number 1005835			Received by	: ARS	$\mathcal{D}_{\mathbf{r}}$
Checklist completed by:	Ą	5/2=   Date	Sample ID la	ibels checked by:	initiais
Matrix:	Carrier name:	UPS			
Shipping container/cooler in good condition?	•	Yes 🗹	No 🗌	Not Present	ł
Custody seals intact on shipping container/coo	ler?	Yes 🗹		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	t 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 🗌		Number of preserved
Water - VOA vials have zero headspace?	No VOA vials subr	nitted 🗌	Yes 🗹	No 🗔	bottles checked for pH:
Water - Preservation labels on bottle and cap n	natch?	Yes 🗌	No 🗌	N/A 🗹	
Water - pH acceptable upon receipt?		Yes 🗌	No 🗌	N/A 🔽	<2 >12 unless noted
Container/Temp Blank temperature?		<b>6.7°</b>	<6° C Acceptabl		below.
COMMENTS:			If given sufficient	time to cool.	
•					
,					
Client contacted	Date contacted:		Perso	on contacted	
Contacted by:	Regarding:				
Comments:					
					-
					····
			•		
Corrective Action				· · · · · · · · · · · · · · · · · · ·	

With a Ares all 2013 23 A STATE Sec. 25. and a state of the Same Sec. N. Marco 「「「「「「」」 1. + A. M. S. Same Series Mark Mark T. M. T. 14. M.S. 19:28.7 (P.)

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P. Date

		ANALYSIS LABORATORY	a di	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107		5,800 705''00	(1.8 (1.7 (1.7 (1.7 (1.7 (1.7 (1.7 (1.7 (1.7	03 t 49 1 203 t 203 t 200 200 200 200 200 200 200 200 200 20	TPH Method TPH (Method EDB (Method B310 (PNA o Anions (F,Cl, Anions (F,Cl, 32508 (VOA) 32508 (VOA) 32570 (Semi-Y			X	×				narks: Please ce results to Kelly Robinson		
Tum-Around Time:	KStandard C Rush		¢	Project #			(1208) (		Temperature / 7	Container Preservative Type and # Type BTEX + MTE Type	-	3-VOA HC/ 2	3-VOA ACI 3	3-10A HC/ Y		· · · · · · · · · · · · · · · · · · ·		by: Date Time Ren	Received by Date Time to Shall	1
Chain-of-Custody Record			Vailing Address: # 50 7 P 4 900		Phone #: 535 ~ 632 - 4161	a4: 505-632- 3911	2A/QC Package: X Standard □ Level 4 (Full Validation)	Accreditation	EDD (Type)	Date Time Matrix Sample Request ID		1 12150 EASTFORK	out fall # 2	1 12:15 1 MW-51				)ate: Time: Relinquished by: 36-10 3,00 (John Knlor		

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#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Western Refining	Project #:	96012-0009
Sample ID:	West Fork	Date Reported:	05-31-10
Chain of Custody:	9482	Date Sampled:	05-26-10
Laboratory Number:	54454	Date Received:	05-26-10
Sample Matrix:	Aqueous	Date Analyzed:	05-27-10
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	1.9	1	0.2
Toluene	ND	. <b>1</b>	0.2
Ethylbenzene	ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1

#### **Total BTEX**

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ND - Parameter not detected at the stated detection limit.

Surrogate Reco	veries:	Parameter	Percent Recovery
	· · · · · · · · · · · · · · · · · · ·	fluorobenzene	107 %
		1,4-difluorobenzene	98.3 %
		4-bromochlorobenzene	97.7 %
References:	Method 50 December	30B, Purge-and-Trap, Test Methods for Evalua 1996.	ting Solid Waste, SW-846, USEPA,
		21B, Aromatic and Halogenated Volatiles by G ation and/or Electrolytic Conductivity Detectors	
Comments:	Drainage	North of TK #38	
1			
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Analyst



### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS

Client:	Western Refining	Project #:	96012-0009
Sample ID:	East Fork	Date Reported:	05-31-10
Chain of Custody:	9482	Date Sampled:	05-26-10
Laboratory Number:	54455	Date Received:	05-26-10
Sample Matrix:	Aqueous	Date Analyzed:	05-27-10
Preservative:	Cool	Analysis Requested:	BTEX
Condition:	Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	167	1	0.2
Toluene	ND	1	0.2
Ethylbenzene	, ND	1	0.2
p,m-Xylene	ND	1	0.2
o-Xylene	ND	1	0.1

### **Total BTEX**

167

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	113 %
	1,4-difluorobenzene	101 %
	4-bromochlorobenzene	122 %

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: Drainage North of TK #38

Analyst

Review



#### EPA METHOD 8021 AROMATIC VOLATILE ORGANICS QUALITY ASSURANCE REPORT

Client: Sample ID: Laboratory Number: Sample Matrix: Preservative: Condition:	N/A 0528BBLK QA/QC 54454 Aqueous N/A N/A		Project #: Date Reported: Date Sampled: Date Received: Date Analyzed: Analysis:		N/A 05-20-10 N/A N/A 05-27-10 BTEX
Gallbretion and Detection/Elmiter(ug/E):	er and example in the	C_CallRF Accept Ra	XiDiff. Nge (0 - 15%)	Banke Conc	Detect: Limit
Benzene	1.2445E+006	1.2483E+006	0.30%	ND	0.2
Toluene	8.0034E+005	8.0275E+005	0.30%	ND	0.2
Ethylbenzene	6.5663E+005	6.5860E+005	0.30%	ND	0.2
p,m-Xylene	1.8965E+006	1.9022E+006	0.30%	ND	0.2
o-Xylene	6.2516E+005	6.2705E+005	0.30%	ND	0.1
Duplicane Conc. (UG/L) Benzene Toluene Ethylbenzene p,m-Xylene o-Xylene	1.9 ND ND ND ND ND	1.8 ND ND ND ND ND ND	0.0% 0.0% 0.0% 0.0% 0.0% 0.0%	0 - 30% 0 - 30% 0 - 30% 0 - 30% 0 - 30% 0 - 30%	
Spike(Conc_(ug/L))	Sample	Amount Spiked	Spiked Sample	%iRecovery	
Benzene	1.9	50.0	55.7	107%	39 - 150
Toluene	ND	50.0	56.2	112%	46 - 148
Ethylbenzene	ND	50.0	52.4	105%	32 - 160
p,m-Xylene	ND	100	118	118%	46 - 148
o-Xylene	ND	50.0	53.8	108%	46 - 148

ND - Parameter not detected at the stated detection limit.

References:

Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996. Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments:

QA/QC for Samples 54454 and 54455.

Analyst

Review

client: Westery PefiniN9	Project Name / Location:	Location: North	or TK# 30	+ 30				ANALYS	- F	IALYSI	ANALYSIS / PARAMETERS	AMET	ERS				
1	Sampler Name:					(310)											
Client Phone No.:	Client No.: Client No.:	1 0	B			3 poqtəl	podteM)	s borttak sisteM 8	noinA \	a/H Hiw		(1.811	BOIF		10-0-	e Intact	
Sample No./ Sample Sample Identification Date Time	ple Lab No.	1	Sample Matrix	No. Volume Preservative of Hgd, Hd	Preservativ Hyd, Ho				noiteO		HA	4) H9T	CHLOF			Sample Sample	
0	5 54454	Soil Solid	ge	3-V0A					)		<u> </u>					15	· · · · · · · · · · · · · · · · · · ·
EAST FORK 5-26-00 12:50	\$ 54455	Soi) Salid	1 7	3-WA	×		*									$\times$	1
		Soil Solid	1				<u> </u>										1
		Solit Solid	Sludge Aqueous														
		Soil	Sludge Aqueous			 											1
		Soil Solid	Sludge Aqueous								 		-				1
		Solid	Sludge Aqueous										<u> </u>	<u> </u>			1
		Soil Solid	Sludge Aqueous														
		Soli Solid	Sludge Aqueous								 						
		Solid Solid	Sludge Aqueous														
Refinquished by: (Signature).			Date 5-26-70	Time 4:05		Received by: (Signature)		<u>Je</u>	45					Date 4:05		Time 5-216-110	<u></u>
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Relinquished by: (Signature)					Receiv	Received by: (Signature)	Signatu	re)									
			m	envirotech Analytical Laboratory	<b>IVITOTECH</b> Analytical Laboratory	o t €	or at O	<b>≤ 2</b>						_			···
	5796 US	Highway	5796 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • lab @envIrotech-inc.com	gton, NM 87.	401 • 505-6	332-0615	• lab@	anvirotect	l-inc.cor	_	ļ		A	ACCENT Printing • Form 28-0807	inting • For	m 28-080	
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### COVER LETTER

Friday, June 11, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 6/3/10

Dear Cindy Hurtado:

Order No.: 1006193

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 6/4/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com

CLIENT:	Western Refining S	outhwest, Inc.		Client Sample ID	: East Fork	
Lab Order:	1006193			Collection Date	e: 6/3/2010	1:20:00 PM
Project:	Drainage North of T	F <b>K#38</b> 6/3/10		Date Received	<b>1:</b> 6/4/2010	
Lab ID:	1006193-01			Matrix	: AQUEOL	JS
Analyses		Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD	8015B: DIESEL RANG	E				Analyst: JB
Diesel Range O	rganics (DRO)	ND	0.20	mg/L	1	6/10/2010 12:59:10 PM
Motor Oll Range	Organics (MRO)	ND	<b>2</b> .5	mg/L	1	6/10/2010 12:59:10 PM
Surr: DNOP		137	82-162	%REC	1	6/10/2010 12:59:10 PM
EPA METHOD	8015B: GASOLINE RA	NGE				Analyst: NSB
Gasoline Range	Organics (GRO)	ND	0.050	mg/L	1	6/10/2010 1:27:25 PM
Surr: BFB		93.0	55.2-107	%REC	1	6/10/2010 1:27:25 PM
EPA METHOD	3260: VOLATILES SHO	ORT LIST				Analyst: HL
Benzene		9.6	1.0	µg/L	1	6/8/2010 2:57:30 PM
Toluene		ND	1.0	µg/L	· 1	6/8/2010 2:57:30 PM
Ethylbenzene		ND	1.0	µg/L	1	6/8/2010 2:57:30 PM
Methyl tert-butyl	ether (MTBE)	ND	1.0	µg/L	· <b>1</b> ·	6/8/2010 2:57:30 PM
Xylenes, Total		ND	2.0	µg/L	1	6/8/2010 2:57:30 PM
Surr: 1,2-Dich	loroethane-d4	85.0	54.6-141	%REC	1	6/8/2010 2:57:30 PM
Surr: 4-Bromo	ofluorobenzene	99.3	60.1-133	%REC	1	6/8/2010 2:57:30 PM
Surr: Dibromo	fluoromethane	91.3	7 <b>8.5-13</b> 0	%REC	1	6/8/2010 2:57:30 PM
Surr: Toluene	-d8	102	79.5-126	%REC	1	6/8/2010 2:57:30 PM

Date: 11-Jun-10

### Hall Environmental Analysis Laboratory, Inc.

Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

J Analyte detected below quantitation limits

NC Non-Chlorinated

PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND

Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Page 1 of 1

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# QA/QC SUMMARY REPORT

Project: Drainage No	fining South orth of TK#						Work	Order: 1006193
Analyte	Result	Units	PQL	SPK Va SPK	ef %RecL	.owLimit Hi	ghLimit %RPD	RPDLimit Qual
Method: EPA Method 8015B: D Sample ID: MB-22560	Diesel Range	MBLK			Batch ID:	22560	Analysis Date:	6/10/2010 9:35:54 AN
Diesel Range Organics (DRO)	ND	mg/L	0.20					
Motor Oil Range Organics (MRO) Sample ID: LCS-22560	ND	mg/L LCS	2.5		Batch ID:	22560	Analysis Date:	6/10/2010 10:09:45 AN
Diesel Range Organics (DRO) Sample ID: LCSD-22560	3.750	mg/L LCSD	0.20	2.5 0.177	) 143 Batch ID:	74 <b>22560</b>	157 Analysis Date:	6/10/2010 10:43:52 AN
Diesel Range Organics (DRO)	3.569	mg/L	0.20	2.5 0.177	136	74	157 4.96	23
Method: EPA Method 8015B; G Sample ID: 5ML RB	basonne Ran	MBLK			Batch ID:	R39200	Analysis Date:	6/10/2010 9:35:51 AN
Gasoline Range Organics (GRO) Sample ID: 2.5UG GRO LCS	ND	mg/L LCS	0.050		Batch ID:	R39200	Analysis Date:	6/10/2010 6:45:23 PM
	ND 0.4882	-	0.050	0.5	Batch ID: 97.6	<b>R39200</b> 77.8	Analysis Date: 124	6/10/2010 6:45:23 PN
Sample ID: 2.5UG GRO LCS	0.4882	LCS mg/L		0.5			•	6/10/2010 6:45:23 PN
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO)	0.4882	LCS mg/L		0.5			•	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo	0.4882	LCS mg/L		0.5	97.6	77.8	124	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Wethod: EPA Method 8260: Vo Sample ID: 5ml rb	0.4882 Matiles Short	LCS mg/L List MBLK	0.050	0.5	97.6	77.8	124	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo Sample ID: 6ml rb Benzene	0.4882 Matiles Short ND	LCS mg/L List MBLK µg/L	0.050	0.5	97.6	77.8	124	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo Sample ID: 6ml rb Benzene Foluene	0.4882 Matiles Short ND ND	LCS mg/L List MBLK µg/L µg/L	0.050 1.0 1.0	0.5	97.6	77.8	124	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo Sample ID: 6ml rb Benzene Foluene Ethylbenzene	0.4882 Natiles Short ND ND ND	LCS mg/L List MBLK µg/L µg/L µg/L	0.050 1.0 1.0 1.0	0.5	97.6	77.8	124	
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo Sample ID: 6ml rb Genzene Foluene Ethylbenzene Methyl tert-butyl ether (MTBE)	0.4882 ND ND ND ND ND ND	LCS mg/L List MBLK μg/L μg/L μg/L μg/L	0.050 1.0 1.0 1.0 1.0	0.5	97.6	77.8	124	6/10/2010 6:45:23 PM 6/8/2010 8:42:02 AM 6/8/2010 9:53:19 AM
Sample ID: 2.5UG GRO LCS Gasoline Range Organics (GRO) Method: EPA Method 8260: Vo Sample ID: 6ml rb Benzene Foluene Ethylbenzene Methyl tert-bulyl ether (MTBE) Kylenes, Total	0.4882 ND ND ND ND ND ND	LCS mg/L List MBLK µg/L µg/L µg/L µg/L µg/L	0.050 1.0 1.0 1.0 1.0	20	97.6 Batch ID: Batch ID:	77.8 R39141	124 Analysis Date:	6/8/2010 8:42:02 AN

Qualifiers:

E Estimated value J Analyte detected

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

	Sample Receipt (	Checklist		
Client Name WESTERN REFINING SOUT		Date. Received:		6/4/2010
Work Order Number 1008193		Received by:	TLS	AT
	10	Sample ID labe	Is checked by:	
Checklist completed by:	Dat	9 - S		IIIUBIO
Matrix:	Carrier name: UPS			
Shipping container/cooler in good condition?	Yes 🗹	No 🗌 🛛 N	ot Present	
Custody seals intact on shipping container/cooler?	Yes 🗹	. No 🗖 🛛 N	ot 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 rece	ived? 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 🗌		Number of preserved
Water - VOA vials have zero headspace? N	o VOA vials submitted 📋	Yes 🗹	No 🗔	bottles checked for pH:
Water - Preservation labels on bottle and cap match	? Yes 🗌	No 🗔	N/A 🗹	
Water - pH acceptable upon receipt?	Yes 🗋	No 🗔	N/A 🗹	<2 >12 unless noted
Container/Temp Blank temperature?	9.5°	<6° C Acceptable		below.
COMMENTS:		If given sufficient tim	e to cool.	
				x
Client contacted Date	contacted:	Person	contacted	
Contacted by: Reg	arding:			
2			· .	
Comments:				
	······			
Corrective Action				
	······································			

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		www.nailenvironmental.com 4901 Hawkins NF _ Alburustance MM		1el. 505-345-3975 Fax 505-345- Analvsis Reditest	( ə	səi()\s	) (Ca		08 14 F 14 S 10 10 10 10 10 10 10 10 10 10 10 10 10	ТЕХ + МТЕ PH Method PH Method PH (Method PH (PNA of PA 0 PA 0 PA 0 PA 0 PA 0 PA 0 PA 0 PA 0	4 3 4 L	X	· · ·					ks:	
Turn-Around Time:	K Standard 🗆 Rush	 )	27 - 27 - 27 - 27 - 27 - 27 - 27 - 27 -			1208)		K Sester Levio Andread F		Preservative Type 1003/03	3	1-250 Amber 231						Received by: Date Time Remarks	Received by Date Time
Chainof-Custody Record	T	Mailing Address: 井ちの イア チテアの		- 6:32 - 4/6/	1	QA/QC Package: of Standard Control of A Vender Standard		D Other	EDD (Type)	Date Time Matrix Sample Request ID	-3-10 1:20 HaD EAST FORK	-3-10 11:20 HaO EAST Fork						10 3: 0 Octenthale	kelinquished by:



### COVER LETTER

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Wednesday, June 16, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 6-8-10

Dear Cindy Hurtado:

Order No.: 1006309

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/9/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

	Western Refining Sou Drainage North of TK					Lab Ord	er: 1006309
Lab ID:	1006309-01				Collection Da	te: 6/8/20	010 2:25:00 PM
Client Sample ID:	MW-1			•	Matr	ix: AQUI	EOUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 826	0: VOLATILES SHOR	TLIST					Analyst: BDH
Benzene		ND	1.0		µg/L	1	6/10/2010 7:47:50 PM
Toluene		ND	1.0		µg/L	1 -	6/10/2010 7:47:50 PM
Ethylbenzene		ND	1.0		µg/L	1	6/10/2010 7:47:50 PM
Methyl tert-butyl eth	er (MTBE)	ND	1.0		µg/L	1	6/10/2010 7:47:50 PM
Xylenes, Total		ND	2.0		µg/L	1	6/10/2010 7:47:50 PM
Lab ID:	1006309-02				Collection Da	te: 6/8/20	10 2: <b>40:</b> 00 PM
Client Sample ID:	Fresh Water Pond				Matr	ix: AQUE	EOUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 826	0: VOLATILES SHOR	T LIST					Analyst: BDH
Benzene		ND	1.0		µg/L	1	6/10/2010 8:16:06 PM
Toluene		ND	1.0		µg/L	1	6/10/2010 8:16:06 PM
Ethylbenzene		ND	1.0		µg/L	1	6/10/2010 8:16:06 PM
Methyl tert-butyl eth	er (MTBE)	ND	1.0		µg/L	1	6/10/2010 8:16:06 PM
Xylenes, Total		ND	2.0		µg/L	1	6/10/2010 8:16:06 PM
Lab ID:	1006309-03	· · · · · · · · · · · · · · · · · · ·			Collection Da	te: 6/8/20	10 2:50:00 PM
Client Sample ID:	East Fork				Matr	ix: AQUE	EOUS
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 826	0: VOLATILES SHOR	T LIST					Analyst: MMS
Benzene		5.2	1.0		µg/L	1	6/11/2010 2:29:29 PM
Toluene		ND	1.0		hð\r	1	6/11/2010 2:29:29 PM
Ethylbenzene		ND	1.0		µg/L	1	6/11/2010 2:29:29 PM
Methyl tert-butyl eth	er (MTBE)	ND	1.0		µg/L	1	6/11/2010 2:29:29 PM
Xylenes, Total		ND	2.0		µg/L	1	6/11/2010 2:29:29 PM

Date: 16-Jun-10

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Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

J Analyte detected below quantitation limits

NC Non-Chlorinated

PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits age 1 of 1

# QA/QC SUMMARY REPORT

 Western Refining Southwest, Inc.

 Project:
 Drainage North of TK#38 6-8-10
 Work Order: 1006309

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

 Method:
 EPA Method 8260: Volatiles Short List

	Sample ID: b2		MBLK				Batch ID:	R39204	Analysis Date:	6/10/2010 11:34:40 AM
	Benzene	ND	µg/L	1.0						
	Toluene	ND	µg/L	1.0						
	Ethylbenzene	ND	µg/L	1.0						
5	Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0						
	Xylenes, Total	ND	µg/L	2.0						
	Sample ID: 100ng Ics		LCS				Batch ID:	R39204	Analysis Date:	6/10/2010 11:06:25 AM
	Benzene	19.88	µg/L	1.0	20	0	99.4	82.4	116	
100	Toluene	19.09	µg/L	1.0	20	0	95.5	89.5	123	· · ·

Lualifiers:

J

E Estimated value

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

	Sample	Rece	eipt Ch	necklist			
Client Name WESTERN REFINING SOUT				Date Recei	ved:		6/9/2010
Work Order Number 1006309				Received	by: AR	S	$\wedge$
Checklist completed by:		ě	e   9 Date	Sample ID	) labels check	ked by:	Initials
Matrix:	Carrier name:	<u>UPS</u>					
Shipping container/cooler in good condition?		Yes		No 🗌	Not Pres	ent 🗌	
Custody seals intact on shipping container/coo	oler?	Yès		No 🗌	Not Prese	ent 🗌	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	d 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 🗌			Number of preserved
Water - VOA vials have zero headspace?	No VOA vials subn	nitted		Yes 🗹	No	· []	bottles checked for pH:
Water - Preservation labels on bottle and cap r	match?	Yes l		No 🗌	N/A		
Water - pH acceptable upon receipt?		Yes		No 🗌	N/A		<2 >12 unless noted
Container/Temp Blank temperature?		8.3°	) et	<6° C Accepta			below.
COMMENTS:				If given sufficie	ent time to con	ol.	
•			,				
Client contacted	Date contacted:			Pe	rson contacte	ed	
Contacted by:	Regarding:						
Comments:							
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	······································						
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Corrective Action	· · · · · · · · · · · · · · · · · · ·						
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# Hall Environmental Analysis Laboratory, Inc.

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and the second				4901			( <b>ʎ</b>  เ	to seĐ	) H9T	+ 3	BTEX + MTB					 				narks:	
and an	Turn-Around Time:			North			Project Manager:	1208)		temberature	vative terms to the second								4	10:15 b 910	Received by: V Date Time
and are recently approved recently frames	Chain-of-Custody Record	Client: Western Refiniug		Mailing Address: #-50 CR 4990	Bloomfield, NM B7413	Phone #: 505-632-4161	email or Fax#: 505-632-39//	QA/QC Package: 文 Standard	D Other	ype)	Date Time Matrix Sample Request ID	6-8-20 3:25 Hav MW-1	2:40 Had Fresh water POND	1 2:50 H20 EAST FORK					Date: Time: Relinquished by:	20;2 D	



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### COVER LETTER

Friday, June 25, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 6/16/10

Dear Cindy Hurtado:

Order No.: 1006609

10/17

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 6/17/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com

CLIENT: Western Refining Southwest, Inc. Lab Ord **Project:** Lab ID:

Date: 25-Jun-10

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6/23/2010 8:53:52 PM

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Client Sample ID: East Fork

Lab Order:	1006609			Collection Da	te: 6/16/201	0 3:10:00 PM	
Project:	Drainage North o	f TK <b>#38 6/16/10</b>		Date Receive	ed: 6/17/2010	0	
Lab ID:	1006609-01			Matr	ix: AQUEOU	JS	
Analyses		Result	PQL Q	ual Units	DF	Date Analyzed	
EPA METHOD	8260: VOLATILES S	HORT LIST			<u></u>	Analyst: HL	-
Benzene	x	3.4	1.0	µg/L	1	6/23/2010 8:53:52 PM	
Toluene		ND	1.0	µg/L	1	6/23/2010 8:53:52 PM	
Ethylbenzene		ND	1.0	µg/L	1	6/23/2010 8:53:52 PM	
Methyl tert-buty	/l ether (MTBE)	ND	1.0	μg/L	1	6/23/2010 8:53:52 PM	

2.0

µg/L

ND

Qualifiers:

Value exceeds Maximum Contaminant Level \*

Estimated value Ε

Xylenes, Total

J Analyte detected below quantitation limits

NC Non-Chlorinated

PQL Practical Quantitation Limit

в Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits Page 1 of 1

## QA/QC SUMMARY REPORT

Western Refining Southwest, Inc. .ient: Drainage North of TK#38 6/16/10 **Project:** Work Order: 1006609 Analyte Result Units PQL SPK Va SPK ref %Rec LowLimit HighLimit %RPD RPDLimit Qual EPA Method 8260: Volatiles Short List Method: Sample ID: 1008609-01a msd Batch ID: R39454 6/23/2010 9:49:10 PM MSD Analysis Date: Benzene 23.61 µg/L 1.0 20 3.38 101 72.4 126 3.44 20 Toluene 21.40 µg/L 1.0 20 0 107 79.2 115 0.200 20 MBLK Batch ID: R39454 Analysis Date: Sample ID: b6 6/23/2010 10:44:23 PM Benzene µg/L ND 1.0 Toluene ND µg/L 1.0 Ethylbenzene ND µg/L 1.0 Methyl tert-butyl ether (MTBE) ND µg/L 1.0 ND µg/L 2.0 Xylenes, Total MBLK Batch ID: R39454 Sample ID: 5ml rb Analysis Date: 6/23/2010 9:38:36 AM Benzene ND µg/L 1.0 ND µg/L 1.0 Toluene Ethylbenzene ND µg/L 1.0 Methyl tert-butyl ether (MTBE) ND µg/L 1.0 Xylenes, Total ND µg/L 2.0 Sample ID: 100ng ics\_b LCS Batch ID: R39454 Analysis Date: 6/23/2010 11:39:28 PM Benzene 18.87 µg/L 1.0 20 0 94.4 82.4 116 20.66 µg/L 1.0 20 0 103 89.5 123 Toluene LCS Batch ID: R39454 Analysis Date: Sample ID: 100ng ICB 6/23/2010 11:07:02 AM enzene 19.41 µg/L 1.0 20 0 97.0 82.4 116 20.35 µg/Ŀ 1.0 20 0 102 89.5 123 Toluene Sample ID: 1006609-01a ms MS Batch ID: R39454 Analysis Date: 6/23/2010 9:21:36 PM Benzene 22.81 µg/L 1.0 20 3.38 97.2 72.4 126 21.36 µg/L 1.0 20 0 107 79.2 115 Toluene

Qualifiers:

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- E Estimated value
  - Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

Hall E	Environmental	Analysis	Laboratory,	inc
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	Sample	Rec	eipt	Checklis	t				
Client Name WESTERN REFINING SOUT				Date	Received	f:		6/17/2010	
Work Order Number 1006609				Re	eceived by:	TL	S	An	
Checklist completed by:			وا		mple ID Ial	bels checl	ked by:	Initials	
Matrix:	Carrier name:	UPS	è						
- Shipping container/cooler in good condition?		Yes	V	No		Not Pres	ent 🗌		
Custody seals intact on shipping container/coo	lier?	Yes		No		Not Pres	ent 🗌	Not Shipped	
Custody seals intact on sample bottles?		Yes	$\checkmark$	No		N/A			
Chain of custody present?		Yes	$\checkmark$	No					
Chain of custody signed when relinquished and	d 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					preserved
Water - VOA vials have zero headspace?	No VOA vials subm	itted		Yes		No		bottles che pH:	ecked for
Water - Preservation labels on bottle and cap n	natch?	Yes		No		N/A			
Water - pH acceptable upon receipt?		Yes		No		N/A	$\checkmark$	<2 >12 uni below.	ess noted
Container/Temp Blank temperature?		5.	3°		Acceptable			DeiDw.	
COMMENTS:				If given	sufficient f	time to co	ol.		
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Client contacted	Date contacted:				Perso	n contacte	ed		
Contacted by:	Regarding:								
Comments:									
Comments.					•				
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Client: WESTERN Refining	Ern R	e Civing		j≸_Standard	lard	🗆 Rush					HALL	₩ ≯ 			HALL ENVIRONMENTAL ANALYSTS LABORATORY			
				Project Name:	ame:			N, N			VANAAL 1	i <b>r i</b>		WWW hallenvironmental com				
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Phone #: 5	ĭ	1914-0						×				Anal	/sis Re	Analysis Request	San a start	1	-	
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∆A\OC Package: ≸્Standard		Level 4 (Full Validation)	/alidation)											FAIN				
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Date Time	e Matrix	Sample Request ID	· ·	Container Type and #	ter Pre d #	eservative Type	HE C		BTEX + MTE BTEX + MTE	bortaM HqT	EDB (Method	o ANG) 0158 900 8 Met	Anions (F,Cl) 8081 Pesticio	AOV) 80828	-im92) 0728		) səldduð tif	
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lf necessar	y, samples subr	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report	tal may be subco	ontracted to ot	her accredite	d laboratories.	This serves a	s notice of this	possibility.	Any sub-o	ontracted de	tta will be	clearly no	tated on th	e analytical re	sport.	7	



COVER LETTER

Thursday, July 08, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK #38 6/24/10

Dear Cindy Hurtado:

Order No.: 1006905

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 6/25/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

1/11xt

61 Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com 

 CLIENT:
 Western Refining Southwest, Inc.
 Client Sample ID:
 East Fork

 Lab Order:
 1006905
 Collection Date:
 6/29/2010 2:45:00 PM

 Project:
 Drainage North of TK #38 6/24/10
 Date Received:
 6/25/2010

 Lab ID:
 1006905-01
 Matrix:
 AQUEOUS

 Analyses
 Result
 PQL
 Qual
 Units
 DF
 Date Anse

Date: 08-Jul-10

### Hall Environmental Analysis Laboratory, Inc.

Lab ID: 1006905-01		·		. noobot	
Analyses	Result	PQL Quai	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES S	HORT LIST				Analyst: HL
Benzene	1.6	1.0	µg/L	1 '	7/7/2010 7:27:01 AM
Toluene	ND	1.0	µg/L	1	7/7/2010 7:27:01 AM
Ethylbenzene	ND	1.0	µg/L	1	7/7/2010 7:27:01 AM
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1	7/7/2010 7:27:01 AM
Xylenes, Total	ND	2.0	µg/L	. 1	7/7/2010 7:27:01 AM
Surr: 1,2-Dichloroethane-d4	95.6	73.1-133	%REC	1	7/7/2010 7:27:01 AM
Surr: 4-Bromofluorobenzene	110	82.9-140	%REC	1	7/7/2010 7:27:01 AM
Surr: Dibromofluoromethane	99.2	79.2-119	%REC	1	7/7/2010 7:27:01 AM
Surr: Toluene-d8	101	84.4-118	%REC	1	7/7/2010 7:27:01 AM

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Page 1 of 1

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# QA/QC SUMMARY REPORT

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Western Refining Southwest, Inc.

Project: Drainage N	orth of TK #	¥38 6/24/10							Work	Order:	1006905
Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: V	olatiles Shor	t List				-					
Sample ID: 1006905-01a msd		MSD			•	Batch ID:	R39668	Analys	is Date:	7/7/2010	8:22:12 AN
Benzene	21.60	μg/L	1.0	20	1.63	99.8	71.2	127	7.27	20	
Toluene	20.59	µg/L	1.0	20	D	103	90.2	127	1.67	20	•
Sample ID: b6		MBLK				Batch ID:	R39668	Analys	is Date:	7/6/2010 1	0:43:45 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								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100ng lcs_b		LCS				Batch ID:	R39668	Analys	is Date:	7/6/2010 1	1:38:43 PM
Benzene	19.14	·μg/L	1.0	20	0	95.7	82.4	116			
Toluene	20.73	µg/L	1.0	20	0	104	89.5	123			
Sample ID: 1006905-01a ms		MS		•		Batch ID:	R39668	Analys	is Date:	7/7/2010	7:54:38 AM
Benzene	20.08	μg/L	1.0	20	1.63	92.3	71.2	127			
Toluene	20.25	µg/L	1.0	20	0	101	90.2	127			

Qualifiers:

Ε Estimated value

Analyte detected below quantitation limits J

ND Not Detected at the Reporting Limit Н Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

Sample	Receipt C	hecklist		
Client Name WESTERN REFINING SOUT	•	Date Received	ł:	6/25/2010
Work Order Number 1006905		Received by	TLS	
Checklist completed by:	e 2 Date	Sample ID la	bels checked by:	Initials
Matrix: Carrier name	UPS			
Shipping container/cooler in good condition?	Yes 🗹	No 🗌	Not Present	1
Custody seals intact on shipping container/cooler?	Yes 🗹	No 🗆	Not Present	Not Shipped
Custody seals intact on sample bottles?	Yes 🗹	No 🗔	N/A	l
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/bottls?	Yes 🗹	No 🗌		
Sample containers intact?	Yes 🗹	No 🗌		
Sufficient sample volume for indicated test?	Yes 🗹	No 🗔		
All samples received within holding time?	Yes 🗹	No 🗔		Number of preserved
Water - VOA vials have zero headspace? No VOA vials subr	mitted 🗌	Yes 🗹	No 🗌	bottles checked for pH:
Water - Preservation labels on bottle and cap match?	Yes	No 🗌	N/A 🗹	
Water - pH acceptable upon receipt?	Yes 🗋	No 🗌	N/A 🗹	<2 >12 unless noted
Container/Temp Blank temperature?	9.6°	<6° C Acceptabl		below.
		If given sufficient	time to cool.	•
COMMENTS:		lf given sufficient		
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# Hall Environmental Analysis Laboratory, Inc.

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	Chain-of-Custody Record	Client Western Reciving	!	50	Blockfield, NM	505-631-416	email or Fax#: 505-632-39			D Other		Matrix	H=O					,						-1	Relinquished by	Relinquished by:
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Tuesday, July 13, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 7-1-10

Dear Cindy Hurtado:

Order No.: 1007081

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 7/2/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com

Date: 13-Jul-10

CLIENT:	Western Refining Southwest, Inc.	Client Sample ID:	East Fork
Lab Order:	1007081	<b>Collection Date:</b>	7/1/2010 2:30:00 PM
Project:	Drainage North of TK#38 7-1-10	Date Received:	7/2/2010
Lab ID:	1007081-01	Matrix:	AQUEOUS

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SI	HORT LIST			· · ·	Analyst: HL
Benzene	2.3	1.0	µg/L	1	7/8/2010 11:54:58 PM
Toluene	ND	1.0	µg/L	1	7/8/2010 11:54:58 PM
Ethylbenzene	ND	1.0	µg/L	· 1	7/8/2010 11:54:58 PM
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1	7/8/2010 11:54:58 PM
Xylenes, Total	ND	2.0	µg/L	1	7/8/2010 11:54:58 PM
Surr: 1,2-Dichloroethane-d4	99.7	54.6-141	%REC	1	7/8/2010 11:54:58 PM
Surr: 4-Bromofiuorobenzene	116	60.1-133	%REC	1	7/8/2010 11:54:58 PM
Surr: Dibromofluoromethane	<b>1</b> 01	78.5-130	%REC	1	7/8/2010 11:54:58 PM
Surr: Toluene-d8	111	79.5-126	%REC	1	7/8/2010 11:54:58 PM

Qualifiers:

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- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit

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S Spike recovery outside accepted recovery limits

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# QA/QC SUMMARY REPORT

Western Refining Southwest, Inc. .ent: **Project:** Drainage North of TK#38 7-1-10

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Project: Drainage N	North of TK#	38 7-1-10			•			Work	Order:	1007081
Analyte	Result	Units	PQL	SPK Va SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: V	olatiles Shor	t List								
Sample ID: 5ml rb		MBLK			Batch ID:	R39704	Analys	is Date:	7/8/2010	8:57:37 AN
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							
Xylenes, Total	ND	µg/L	2.0							
Sample ID: b5		MBLK			Batch (D:	R39704	Analys	is Date:	7/8/2010	9:09:52 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							
Xylenes, Total	ND	µg/L	2.0							
Sample ID: 100ng lcs		LCS			Batch ID:	R39704	Analys	is Date:	7/8/2010 1	0:20:21 AM
Benzene	21.06	µg/L	1.0	20 0	105	82.4	116			
Toluene	21.60	µg/L	1.0	20 0	108	89.5	123			
Sample ID: 100ng lcs_b		LCS			Batch ID:	R39704	· Analys	is Date:	7/8/2010 1	0:04:52 PM
Benzene	20.44	µg/L	1.0	20 0	102	82.4	116			
Toluene	21.56	µg/L	1.0	20 0	108	89.5	123			

ualifiers:

J

Ε Estimated value

Analyte detected below quantitation limits

Not Detected at the Reporting Limit ND

Н Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

	Sample	Rece	eipt Che	əcklist		
Client Name WESTERN REFINING SOUT	,			Date, Received	i:	7/2/2010
Work Order Number 1007081	NO			Received by:	DAM	lanc
Checklist completed by:	1 <u>7</u> 0	<u>}</u>	⇒/2 Date	//Sample ID lai	bels checked b	
Matrix:	Carrier name:	<u>UPS</u>				
Shipping container/cooler in good condition?		Yes		No 🗔	Not Present	
Custody seals intact on shipping container/cool	er?	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 🗔		Number of preserved
Water - VOA vials have zero headspace?	No VOA vials subm	itted		Yes 🗹	No 🗌	bottles checked for pH:
Water - Preservation labels on bottle and cap m	atch?	Yes		No 🗌	N/A	
Water - pH acceptable upon receipt?		Yes		No 🗌	N/A 🗌	<2 >12 unless noted
Container/Temp Blank temperature?		2.	1°	<6° C Acceptable	9	below.
COMMENTS:				If given sufficient	time to cool.	
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Client contacted	Date contacted:			Perso	n contacted	
Contacted by:	Regarding:					
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Corrective Action	· · · · · · · · · · · · · · · · · · ·			·····		
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Thursday, July 15, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38 7-8-10

Dear Cindy Hurtado:

Order No.: 1007281

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 7/9/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com

CLIENT: Western Refining Southwest, Inc. 1007281 Lab Order: **Project:** Drainage North of TK#38 7-8-10 1007281-01 Lab ID:

Date: 15-Jul-10

Client Sample ID: East Fork Collection Date: 7/8/2010 2:15:00 PM Date Received: 7/9/2010 Matrix: AQUEOUS

Result	PQL	Qual	Units	DF	Date Analyzed
HORT LIST					Analyst: MMS
2.0	1.0		µg/L	1	7/13/2010 5:51:44 PM
ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
ND	2.0		µg/L	1	7/13/2010 5:51:44 PM
88.4	54.6-141		%REC	1	7/13/2010 5:51:44 PM
91.1	60.1-133		%REC	1	7/13/2010 5:51:44 PM
140	78.5-130	S	%REC	1	7/13/2010 5:51:44 PM
97.7	79.5-126		%REC	1	7/13/2010 5:51:44 PM
	HORT LIST 2.0 ND ND ND 88.4 91.1 140	HORT LIST 2.0 1.0 ND 1.0 ND 1.0 ND 1.0 ND 2.0 88.4 54.6-141 91.1 60.1-133 140 78.5-130	HORT LIST 2.0 1.0 ND 1.0 ND 1.0 ND 1.0 ND 2.0 88.4 54.6-141 91.1 60.1-133 140 78.5-130 S	HORT LIST 2.0 1.0 µg/L ND 1.0 µg/L ND 1.0 µg/L ND 2.0 µg/L 88.4 54.6-141 %REC 91.1 60.1-133 %REC 140 78.5-130 \$ %REC	2.0         1.0         μg/L         1           ND         2.0         μg/L         1           88.4         54.6-141         %REC         1           91.1         60.1-133         %REC         1           140         78.5-130         S         %REC         1

#### Qualifiers:

Value exceeds Maximum Contaminant Level ۰

Ε Estimated value

Analyte detected below quantitation limits 1

NC Non-Chlorinated

PQL Practical Quantitation Limit

В Analyte detected in the associated Method Blank

Н Holding times for preparation or analysis exceeded

MCL Maximum Contaminant Level

ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits Page 1 of 1

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	Client: Project:	Western Refi Drainage Nor	-								Work	Order:	1007281
	Analyte		Result	Units	PQL	SPK Va	SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Quai
「		lethod 8260: Vol 281-01a msd	atiles Shor	t List MSD				Batch ID:	R39786	Analys	is Date:	7/13/2010	6:48:17 PM
5.	Benzene	э	14.46	µg/L	1.0	20	2.025	62.2	72.4	126	12.3	20	S
	Toluene		14.76	µg/L	1.0	20	0	73.8	79.2	115	10.9	20	S
3	Sample ID: 1007	281-01a ms		MS			•	Batch ID:	R39786	Analys	is Date:	7/13/2010	6:20:03 PM
	Benzene		16.35	µg/L	1.0	20	2.025	71.6	72.4	126			s
A Maria	Toluene		16.46	µg/L	1.0	20	. 0	82.3	79.2	115			

# **QA/QC SUMMARY REPORT**

#### Qualifiers:

Estimated value Е

Analyte detected below quantitation limits J

Not Detected at the Reporting Limit ND

- Н Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Page 1

)

Work Order Number 1007281       Peceived by:       TLS         Checklist completed by:       Sample ID labels checked by:       Image         Matrix:       Carrier name:       Greyhound         Shipping container/cooler in good condition?       Yes       No       Not Present       Image         Custody seals intact on shipping container/cooler?       Yes       No       Not Present       Image         Custody seals intact on shipping container/cooler?       Yes       No       No       Not Shipped         Custody seals intact on sample bottles?       Yes       No       No       Not Shipped         Chain of custody grees with sample labels?       Yes       No       O       Samples in proper container/cottle?       Yes       No         Sufficient sample volume for indicated test?       Yes       No       No       Number of preserved bottles checked for pt:         Sufficient sample volume for indicated test?       Yes       No       No       pt:         Water - VA viats have zero headspace?       No VOA vials submitted       Yes       No       N/A       Image         Water - Praservation labels on bottle and cap match?       Yes       No       N/A       Image       >12 unless noted         Container/Temp Blank temperature?       11.9°       -6° C Accepita		Sample	Rece	eipt Ch	ecklist			
Checklist completed by:	Client Name WESTERN REFINING SOUT				Date Receiv	ed:		7/9/2010
Checklist completed by:           Bigenue         Carrier name:         Gray during           Matrix:         Carrier name:         Gray during           Shipping container/cooler in good condition?         Yes         No         Not Present         Interest in Good condition?           Custody seals intact on shipping container/cooler?         Yes         No         Not Present         Interest in Good condition?           Custody seals intact on shipping container/cooler?         Yes         No         Not Present         Interest in Good condition?           Catal of custody present?         Yes         No         No         No         Interest in Good condition?           Chain of custody present?         Yes         No         No         Interest in Good condition?         Yes           Samples in proper container/bottle?         Yes         No         Interest in Good condition?         Yes         No         Interest in Good condition?           Sufficient sample volume for indicated test?         Yes         No         Interest in Good condition?         Interest in Good condition?         Yes         No         No         Present container/Condition?         Yes	Work Order Number 1007281				Received b	y: TLS		
Structure tormbotics       Suprement       Image: Carrier name: Careformal         Matrix:       Carrier name: Careformal         Shipping container/coder in good condition?       Yes       No       Not Present       Image: Careformal         Custody seals infact on shipping container/cooler?       Yes       No       Not Present       Image: Careformal         Custody seals infact on sample bottles?       Yes       No       No       Not Present       Image: Careformal         Chain of custody geness with sample labels?       Yes       No       Image: Careformal       No       Image: Careformal         Samples in proper container/cottle?       Yes       No       Image: Careformal       Number of preserved bottles of custody geness with sample labels?       Yes       No       Image: Careformal       Number of preserved bottles of custody upper container/cottle?       Yes       No       Image: Careformal       Number of preserved bottles of core custody within holding time?       Yes       No       Number of preserved bottles of core custody within holding time?       Yes       No       NiA       Zer       >12 unless noted bottles of core custody core within tholding time?       Yes       No       NiA       Zer       >12 unless noted bottles of core custod for preserved bottles of core custod for preserved in the custod custod for preserved in the custod custof for preserved in tholing time?       Yes <td< td=""><td>10</td><td></td><td></td><td></td><td>Sample ID</td><td>labels checked</td><td>-</td><td></td></td<>	10				Sample ID	labels checked	-	
Shipping container/cooler in good condition?       Yes       No       Not Present       Not Shipped         Custedy seals intact on shipping container/cooler?       Yes       No       Not Present       Not Shipped         Custedy seals intact on sample bottles?       Yes       No       No       NA       Image: Shipping container/cooler?         Custedy seals intact on sample bottles?       Yes       No       No       NA       Image: Shipping container/cooler?         Chain of custedy agrees with sample labels?       Yes       No       No       No         Samples in proper container/tottle?       Yes       No       No       Number of preserved bottles?         Sufficient sample volume for indicated test?       Yes       No       No       Number of preserved bottles?         Sufficient sample solume for indicated test?       Yes       No       No       pt:         Water - VOA viabs have zero headspace?       No VOA vials submitted       Yes       No       pt:         Water - VOA viabs have zero headspace?       No VOA vials submitted       Yes       No       N/A       Q         Container/Temp Bank temperature?       Yes       No       N/A       Q       >12 unless noted bolow.         Container/Temp Bank temperature?       Date contacted:       Person contacted<				Date	1110	-		initials .
Shipping container/cooler in good condition?       Yes       No       Not Present       Not Shipped         Custedy seals intact on shipping container/cooler?       Yes       No       Not Present       Not Shipped         Custedy seals intact on sample bottles?       Yes       No       No       NA       Image: Shipping container/cooler?         Custedy seals intact on sample bottles?       Yes       No       No       NA       Image: Shipping container/cooler?         Chain of custedy agrees with sample labels?       Yes       No       No       No         Samples in proper container/tottle?       Yes       No       No       Number of preserved bottles?         Sufficient sample volume for indicated test?       Yes       No       No       Number of preserved bottles?         Sufficient sample solume for indicated test?       Yes       No       No       pt:         Water - VOA viabs have zero headspace?       No VOA vials submitted       Yes       No       pt:         Water - VOA viabs have zero headspace?       No VOA vials submitted       Yes       No       N/A       Q         Container/Temp Bank temperature?       Yes       No       N/A       Q       >12 unless noted bolow.         Container/Temp Bank temperature?       Date contacted:       Person contacted<		0		a	•			
Custody seals infact on shipping container/cooler?       Yes       No       No       Not Present       Not Shipped         Custody seals infact on sample bottles?       Yes       No       N/A       Image: Shipping container/cooler?       Yes       No       No       No       No       Shipped       Image: Shipping container/cooler?       Yes       No       Image: Shipping container/cooler?       No       Image: Shipping container/cooler?       No       No       Number of preserved bottles container/cooler?       No       No       No       Image: Shipping container?       No       No       No       No       No       No       Ditte: checked for preserved bottles checked for preserved in helds on bottle and cap match?       Yes       No       No       NA       Image: checked for checked for checked for checked for preserved checked for checked for checked for checked for check	Matrix:	Camer name:	Grey	nouna				
Custody seals intact on sample bottles? Yes I No NIA Chain of custody present? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chain of custody agrees with sample labels? Yes No Chainer? Y	Shipping container/cooler in good condition?	,	Yes		No 🗀	Not Present		
Chain of custody present? Yes 🗭 No 🗌  Chain of custody signed when relinquished and received? Yes 🗭 No 🗌  Chain of custody agrees with sample labels? Yes 🗭 No 🗌  Samples in proper container/bottle? Yes 🗭 No 🗌  Samples in proper container/bottle? Yes 🗭 No 🗌  Samples roceived within holding time? Yes 🗭 No 🗌  All samples received within holding time? Yes 🗭 No 🗌 Number of preserved bottles checked for PH:: Water - VOA vials have zero headspace? No VOA viale submitted 🔄 Yes 🗭 No 🗌 N/A 🗹 Water - Preservation labels on bottle and cap match? Yes 🖉 No 🗌 N/A 🗹 Water - Preservation labels on bottle and cap match? Yes 📄 No 🗌 N/A $\checkmark$								

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QA/QC Package:	gge:		□ Leve	14 (Full \	Level 4 (Full Validation)						1208)	no seð	Sei(1/SE	5			NTR&			·····
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□ EDD (Type)	)e)					Sample Ter	e Tempel	ature			+ 31	+ 3		09				AO\		K OL
Date		Matrix	Sam	Iple Re	Sample Request ID	Container Type and #		Preservative Type			THE + MTB	BTEX + MTB	Perfection TPH (Method	EDB (Method	0 ANG) 0168	Anions (F,Cl,	(AOV) 80828	/-im92) 0728		lir Bubbles ()
78-10 215	C H20	0	EAST	Thork	V	3-16A	1 49	fc/						3				3		₹
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Date: Time: -8-10 330P		Reiniquished by:	in the second se	Hunt	what	Received by:	Iby:		Date	LOVO VOVO		Remarks:		-		-				
Date: Time:	Reling	Relinquished by:	pł:			Received by	R			Time	1								·	
If necess:	ary, samples	s submit	ted to Hall	Environmen	If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any	ontracted to	other accrec	ited laborator	ies. This ser	ves as notice o	of this poss	ibility. Any	sub-con	racted dat	a will be o	learly no	tated on th	ie analytical	renort	

#### HALL ENVIRONMENTAL ANALYSIS LABORATORY

### COVER LETTER

Wednesday, October 27, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK #38

Dear Cindy Hurtado:

Order No.: 1010563

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 10/6/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

Date: 28-Oct-10

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CLIENT: Project: Lab Order:	Western Refining So Drainage North of T 1010563	-	Work Order S	Sample Summary
Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
1010563-01A	East Fork	R41532	EPA Method 8260: Volatiles Short List	10/6/2010 8:45:00 AM
1010563-01B	East Fork	R41620	EPA Method 300.0: Anions	10/6/2010 8:45:00 AM
1010563-01B	East Fork	R41594	EPA Method 300.0: Anions	10/6/2010 8:45:00 AM
1010563-01B	East Fork	R41585	SM 2320B: Alkalinity	10/6/2010 8:45:00 AM
1010563-01B	East Fork	R41535	EPA Method 300.0: Anions	10/6/2010 8:45:00 AM
1010563-01B	East Fork	R41535	EPA Method 300.0: Anions	10/6/2010 8:45:00 AM
1010563-01C	East Fork	24117	EPA 6010B: Total Recoverable Metals	10/6/2010 8:45:00 AM

Page1 of 1

CLIENT:	Western Refining Sc	outhwest, Inc.		Clier	t Sample ID:	East Fork	
Lab Order:	1010563		•	Co	llection Date:	10/6/2010 8	:45:00 AM
Project:	Drainage North of T	K #38		D	ate Received:	10/6/2010	
Lab ID:	1010563-01				Matrix:	AQUEOUS	
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD	300.0: ANIONS						Analyst: SRM
Fluoride		0.47	0.10		mg/L	1	10/13/2010 4:56:42 PM
Chloride		13	0.50		mg/L	1	10/13/2010 4:56:42 PM
Bromide		0.11	0.10		mg/L	1	10/16/2010 8:58:39 PM
Nitrate (As N)+N	Nitrite (As N)	ND	1.0		mg/L	5	10/18/2010 4:33:35 PM
Phosphorus, Or	thophosphate (As P)	ND	0.50	н	mg/L	1	10/13/2010 4:56:42 PM
Sulfate		110	10		mg/L	20	10/13/2010 5:14:07 PM
EPA 6010B: TC	TAL RECOVERABLE	METALS					Analyst: SNV
Calcium		73	1.0		mg/L	1	10/17/2010 4:59:03 PM
Magnesium		19	1.0		mg/L	1	10/17/2010 4:59:03 PM
Potassium		1.9	1.0		mg/L	1	10/17/2010 4:59:03 PM
Sodium		57	1.0		mg/L	1	10/17/2010 4:59:03 PM
	8260: VOLATILES SHO	ORT LIST					Analyst: MMS
Benzene		ND	1.0		μg/L	1	10/13/2010 10:05:24 PM
Toluene		ND	1.0		µg/L	1	10/13/2010 10:05:24 PM
Ethylbenzene		ND	1.0		µg/L	1	10/13/2010 10:05:24 PM
Methyl tert-butyl	ether (MTBE)	ND	1.0		µg/L	1	10/13/2010 10:05:24 PM
Xylenes, Total		ND	2.0		µg/L	1	10/13/2010 10:05:24 PM
Surr: 1,2-Dich	nloroethane-d4	91.9	54.6-141		%REC	1	10/13/2010 10:05:24 PM
Surr: 4-Bromo	ofluorobenzene	89.4	60.1-133		%REC	1	10/13/2010 10:05:24 PM
Surr: Dibromo	ofluoromethane	105	78.5-130		%REC	1	10/13/2010 10:05:24 PM
Surr: Toluene	e-d8	99.5	79.5-126		%REC	1	10/13/2010 10:05:24 PM
SM 2320B: ALK	(ALINITY						Analyst: IC
Alkalinity, Total	(As CaCO3)	250	20		mg/L CaCO3	1	10/14/2010 5:09:00 PM
Carbonate		ND	2.0		mg/L CaCO3	1	10/14/2010 5:09:00 PM
Bicarbonate		250	20		mg/L CaCO3		10/14/2010 5:09:00 PM

Date: 28-Oct-10

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits
- Page 1 of 1

1010563

Lab Order:

28-Oct-10

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				L				
<b>Client:</b>	Western Refining Southwest, Inc.	outhwest, Inc.				DATI	DATES REPORT	DRT
Project:	Drainage North of TK #38	K #38						
Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Instrument Run JD QC Batch ID Prep Date	QC Batch ID	Prep Date	Analysis Date
1010563-01A	East Fork	10/6/2010 8:45:00 AM	Aqueous	EPA Method 8260: Volatiles Short List	VAL_101013A	R41532		10/13/2010
1010563-01B				EPA Method 300.0: Anions	ORION_101018A	R41620		10/18/2010
				EPA Method 300.0: Anions	ORION_101015B	R41594		10/16/2010
				EPA Method 300.0: Anions	TRITON_101013A	R41535		10/13/2010
				EPA Method 300.0: Anions	TRITON_101013A	R41535		10/13/2010
				SM 2320B: Alkalinity	<b>OSEIDON_101014</b> .	R41585		10/14/2010
1010563-01C				EPA 6010B: Total Recoverable Metals	ISIS_101017A	24117	10/14/2010	10/17/2010

Page 1 of 1

Same Series **Client:** 

Bromide

Sulfate

Fluoride

Chloride

Sample ID: LCS

Nitrate (As N)+Nitrite (As N)

Phosphorus, Orthophosphate (As P)

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Western Refining Southwest, Inc.

Project: Drainage Nor	-		· · · ·	· ·				Work	Order:	1010563
Analyte	Result	Units	PQL	SPK Va SPK ref	%Rec L	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Ani	ons					•				
Sample ID: MB		MBLK			Batch ID:	R41535	Analysis	s Date:	10/13/2010 1	1:08:35 AN
Fluoride	ND	mg/L	0.10						1	
Chloride	ND	mg/L	0.50							
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:	R41535	Analysis	s Date:	10/14/2010	2:48:39 AN
Fluoride	ND	mg/L	0.10							
Chloride	ND	mg/L	0.50							
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:	R41594	Analysis	s Date:	10/16/2010 1	1:52:46 PN
Fluoride	ND	mg/L	0.10							
Chloride	ND	mg/L	0.50							
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:	R41620	Analysis	s Date:	10/18/2010 1	1:20:10 AN
Fluoride	ND	mg/L	0.10							
Chloride	ND	mg/L	0.50							
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:	R41535	Analysis	s Date:	10/13/2010 1	1:25:59 AN
Fluoride	0,5051	mg/L	0.10	0.5 0	101	90	110			

-5	Qualifiers:				<u> </u>		
-	Chloride	4.902	mg/L	0.50	5	0	98.0
ういない	Fluoride	0.5353	m <b>g/L</b>	0.10	0.5	0	107
×3	Sample ID: LCS		LCS				Batch ID:
	Sulfate	10.53	mg/L	0.50	10	0	105
N HALL	Phosphorus, Orthophosphate (As P)	5.249	mg/L	0.50	. 5	0	105
100	Nitrate (As N)+Nitrite (As N)	3.737	mg/L	0.20	3.5	0	107
	Bromide	2.654	mg/L	0.10	2.5	0	106

2.501

3.517

5.097

10.07

0.5473

5.219

mg/L

mg/L

mg/L

mg/L

LCS

mg/L

mg/L

0.10

0.20

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0.50

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0.50

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5

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Batch ID:

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90

R41594

R41535

110

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Analysis Date:

Ε Estimated value

J

- Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

Н Holding times for preparation or analysis exceeded

NC Non-Chlorinated

RPD outside accepted recovery limits R

10/14/2010 3:06:04 AM

Analysis Date: 10/17/2010 12:10:11 AM

**Client:** 

Western Refining Southwest, Inc.

Project: Drainage N	orth of TK #	£38						N	/ork	Order:	1010563
Analyte	Result	Units	PQL	SPK Va S	SPK ref	%Rec L	owLimit. Hi	ghLimit %l	RPD	RPDLImit	Qual
Method: EPA Method 300.0: A	nions						044504	America De		40//7/0040 4/	
Sample ID: LCS		LCS				Batch ID:	R41594	-	i(e:	10/17/2010 1:	2:10:11 AN
Bromide	2.505	mg/L	0.10	2.5	0	100	90	110			
Nitrate (As N)+Nitrite (As N)	3.601	mg/L	0.20	3.5	0	103	90	110			
Phosphorus, Orthophosphate (As		mg/L	0.50	5	0	100	90	110			
Sulfate	10.31	mg/L	0.50	10	0	103	90	110	_		
Sample ID: LCS		LCS				Batch ID:	R41620	Analysis Da	ite:	10/18/2010 1	1:37:35 AN
Fluoride	0.5359	mg/L	0.10	0.5	0	107	90	110			
Chloride	4.960	mg/L	0.50	5	0	99.2	90	110			
Bromide	2.561	mg/L	0.10	2.5	0	102	90	110			
Nitrate (As N)+NItrite (As N)	3.637	mg/L	0.20	3.5	0	104	90	110			
Phosphorus, Orthophosphate (As	P) 5.148	mg/L	0.50	5	0	103	90	110			
Sulfate	10.44	mg/L	0.50	10	0	104	90	110		· · · · · · · · · · · · · · · · · · ·	
Method: SM 2320B: Alkalinity						D. (.). ID.	D 44 50 P	An at usin De			
Sample ID: MB-1		MBLK				Batch ID:	R41585	Analysis Da	ite:	10/14/2010	1:10:00 PN
Alkalinity, Total (As CaCO3)	ND	mg/L Ca	20								
Carbonate	ND	mg/L Ca	2.0								
Bicarbonate	ND	mg/L Ca	20								
Sample ID: MB-2		MBLK				Batch ID:	R41585	Analysis Da	i <b>te</b> :	10/14/2010 1	1:08:00 PN
Alkalinity, Total (As CaCO3)	ND	mg/L Ca	20								
Carbonate	ND	mg/L Ca	2.0						•		
Bicarbonate	ND	mg/L Ca	20								
Sample ID: LCS-1		LCS				Batch ID:	R41585	Analysis De	ite:	10/14/2010	4:16:00 PM
Alkalinity, Total (As CaCO3)	79.36	mg/L Ca	20	80	0	99.2	96.5	104			
Sample ID: LCS-2		LCS				Batch ID:	R41585	Analysis Da	ite:	10/14/2010 11	1:15:00 PM
Alkalinity, Total (As CaCO3)	80.00	mg/L Ca	20	80	0	100	96.5	104			
Method: EPA Method 8260: Vo	niatiles Short				······						
Sample ID: 1010563-01a msd		MSD				Batch ID:	R41532	Analysis Da	te:	10/13/2010 11	1:01:46 PN
Benzene	16.70	µg/L	1.0	20	0	83.5	72.4	126 3	.39	20	
Toluene	19.28	µg/L	1.0	20	0	96.4	79.2		.66	20	
Sample ID: b2		MBLK				Batch ID:	R41532	Analysis Da	te:	10/13/2010 1	1:37:25 PM
Benzene	ND	hð\r	1.0					·			
Toluene	ND	μg/L	1.0								
Ethylbenzene	ND	μg/L	1.0								
Methyl tert-butyl ether (MTBE)	ND	μg/L	1.0			•					
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100ng lcs		LCS				Batch ID:	R41532	Analysis Da	te:	10/13/2010 12	:41:50 PM
Benzene	19.37	μg/L	1.0	20	0	96.8	82.4	116			
Toluene	19.37	μg/L μg/L	1.0	20	0	96.3	89.5	123			
Sample ID: 1010563-01a ms	10.20	MS	1.9	20	v	Batch ID:	R41532		to <sup>.</sup>	10/13/2010 10	-33-30 DM
-	47 67		4.0	~~	•				.0.		.55.59 F 14
Benzene	17.27	µg/L	1.0	20	0	86.4	72.4	126			
Toluene	20.61	µg/L	1.0	20	0	103	79.2	115			

Qualifiers:

Ε Estimated value

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

Holding times for preparation or analysis exceeded Н

NC Non-Chlorinated

R RPD outside accepted recovery limits Page 2

3.81.88 **Client:** 

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### Western Refining Southwest, Inc.

ないない	Project:	Drainage	North of TK	#38							Work	Order:	1010563
ÿ	Analyte		Result	Units	PQL	SPK Va	a SPK ref	%Rec Lo	owLimit Hi	ghLimit	%RPD	RPDLimit	Qual
1.00	Method: Sample ID	EPA 6010B: Total : MB-24117	Recoverable M	etals MBLK				Batch ID:	24117	Analys	is Date:	10/17/2010	4:34:57 PM
	Calcium		ND	mg/L	1.0								
1. M.S.	Magnesium	ו	ND	mg/L	1.0								
	Potassium		ND	mg/L	1.0								
	Sodium		ND	mg/L	1.0								
à	Sample ID	: LCS-24117		LCS				Batch ID:	24117	Analysi	is Date:	10/17/2010	4:37:55 PM
A LOAD LOCAL	Calcium		52.61	mg/L	1.0	50	0	105	80	120			
	Magneslum	ı	53.22	mg/L	1.0	50	0	106	80	120			
35	Potassium		55.24	mg/L	1.0	50	0.0943	110	80	120			
2 : 19 19: 2	Sodium		56.26	mg/L	1.0	50	0.4958	112	80	120			
84.1	Sample ID:	: LCS-24117		LCS				Batch ID:	24117	Analys	is Date:	10/17/2010	4:41:05 PM
	Calcium		52.48	mg/L	1.0	50	0	105	80	120			
· Martin	Magnesium	1	53.25	mg/L	1.0	50	0	106	80	120			
78. . v <sub>b</sub> 4	Potassium		55.39	mg/L	1.0	50	0.0943	111	80	120			
	Sodium		56.28	mg/L	1.0	50	0.4958	112	80	120			
A \$													

Qualifiers:

J

ND

- E Estimated value
  - Analyte detected below quantitation limits

Not Detected at the Reporting Limit

- Н Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

	Sample	Rec	eipt Che	CKIIST			
Client Name WESTERN REFINING SOUT				Date Receive	d:		10/6/2010
Work Order Number 1010563	$\bigcap$			Received by	: MLW		A /
Checklist completed by:	hu		10/0 Date	Sample ID la	abels checked i		AK Initials
Matrix:	Carrier name	UPS					
Shipping container/cooler in good condition?		Yes	#1	No 📲	Not Present	54	
Custody seals intact on shipping container/cooler?		Yes		No .	Not Present		Not Shipped
Custody seals intact on sample bottles?		Yes	· •	No	N/Á	<b>Y</b>	
Chain of custody present?		Yes	✓	No			
Chain of custody signed when relinquished and rece	ived?	Yes	✓	No			
Chain of custody agrees with sample labels?		Yes	<b>v</b>	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	<b>v</b>	No			Number of preserved
Water - VOA vials have zero headspace? N	o VOA vials subm	itted		Yes ⊻	No .		bottles checked for pH:
Water - Preservation labels on bottle and cap match	?	Yes	×	No	N/A		02
Water - pH acceptable upon receipt?		Yes	<b>V</b> .	No	N/A		<2)>12 unless noted
Container/Temp Blank temperature?		2.0	0° <	6° C Acceptabl	e		Selow.
COMMENTS:			lf	given sufficient	time to cool.		

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**Client contacted** 

Date contacted:

Regarding:

Person contacted

Contacted by: Comments:

Unpreserved Sample poured off & preserved w/HW03 for cations/15 10/12/10

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Carlos Salar

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1. F. F. A.

S. S. Mary

1. C. W. S.

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**Corrective Action** 

ENVTPONMENTAL	ABORATORY		109	7			TH SNR	hals	140	Minior Cati Carbowa Carbowa A Chana (		XXX	XX							-c#		Colorador A to a	91 ware -
			- Albuquerque, NM 87109	505-345-4107	Request		hone	y Kg	18	AOV) 80828 /-im92) 0728	X										Scont	بد د د	evel 4
Ş	ALL ENVIR	men	nerqu	505						8081 Pestick									-	_!`		0 -	-a
Ž		nviro	Ibndl	Fax	Analysis	(*(	DS.,Qq	'°ÔN'		RCRA 8 Met				 		 -+	_	+		- esi		יוז-גול פו י	No.
		hallei	ج ب	3	Ana			(н		o ANG) 0168						 	-+	╧╋╴	+	-15	ß	ະ ຊີ	Regulated
		WW.	4901 Hawkins NE	505-345-3975						EDB (Method			· ·	 		-+	-+	-+-	+	100		جر جر ب	leg
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			0 H	Tel. 50		( ə१	səiŪ\zs	ອ) ສອ	108	PPH Method									+	-	¢.	•	5
			49	Ĕ						etex + Mte									$\Box$	Remarks:		ć	z
<b></b>	 			<b>-</b>		(	1208) ह	NBNT	:E +	BTEX + MT8				 		$ \rightarrow $	_		$\perp$	Re		·	-
ne:	🗆 Rush		Dreivege North of TK#38			er.		<u> </u>		Preservative Type	Hc1 -1		12SO4 -1							L Date Time	SOUTION AND ALLO LAD	Date	
Tum-Around Time:	X Standard	Project Name:	Drainage	Project #: /		Project Manage		Sampler. 730	(C. 1961 - 1971 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 1972 - 19	Container Pr Type and #	3-VOA	1-50ml	1-250 1							Received by:	molinal	Received by:	
Chain-of-Custody Record	Client: WESTERN REPINING		Mailing Address: #50 CR 499	Bloomfield, N.M. 87413	6.32-1	email or Fax# <u>5o5-633-39//</u>	ackage: Art 0/27110 ard A Level 4 (Full Validation)	Diher		Matrix Sample Request ID	8:45 Had EAST Fork									Time: Relinquished by:	a lobert hakon	Relinquished by.	
ຽ			Mailing Ad	Bloom	Phone #:	email or F	QA/QC Package:	Accreditation	D EDD (Tvpe)	Date	10-6-10 8									Date: Tim	0-6-10 3	Date: Tin	<b></b>



#### COVER LETTER

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Wednesday, November 17, 2010

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK#38

Dear Cindy Hurtado:

Order No.: 1011023

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 10/28/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting' limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

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Date: 17-Nov-10

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CLIENT: Project: Lab Order:	Western Refining So Drainage North of T. 1011023	•	Work Order Sample Sum				
Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date			
1011023-01A	East Fork	R41901	EPA Method 8260B: VOLATILES	10/27/2010 1:50:00 AM			
1011023-02A	East Fork	R42078	EPA Method 300.0: Anions	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	R42058	EPA Method 300.0: Anions	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	R42058	EPA Method 300.0: Anions	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	R42014	SM 2320B: Alkalinity	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	24359	SM2540C MOD: Total Dissolved Solids	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	R41917	EPA Method 300.0: Anions	11/1/2010 1:15:00 PM			
1011023-02A	East Fork	R41917	EPA Method 300.0: Anions	11/1/2010 1:15:00 PM			
1011023-02B	East Fork	24431	EPA 6010B: Total Recoverable Metals	11/1/2010 1:15:00 PM			

Page1 of 1

Hall Envi	conmental Analysis Laborau	ory, me.	·····
CLIENT:	Western Refining Southwest, Inc.	<u>Client Sample ID:</u>	East Fork
Lab Order:	1011023		10/27/2010 1:50:00 AM
Project:	Drainage North of TK#38	Date Received:	10/28/2010
Lab ID:	1011023-01	Matrix:	AQUEOUS

Date: 17-Nov-10

### Hall Environmental Analysis Laboratory, Inc.

**PQL** Qual Units DF Result **Date Analyzed** Analyses EPA METHOD 8260B: VOLATILES Analyst: MMS 1 11/2/2010 5:41:36 AM ND 1.0 µg/L Benzene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM Toluene µg/L 1 11/2/2010 5:41:36 AM Ethylbenzene ND 1.0 11/2/2010 5:41:36 AM Methyl tert-butyl ether (MTBE) ND 1.0 µg/L 1 1.0 11/2/2010 5:41:36 AM 1,2,4-Trimethylbenzene ND µg/L 1 1,3,5-Trimethylbenzene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM 1.0 µg/L 11/2/2010 5:41:36 AM 1,2-Dichloroethane (EDC) ND 1 ND 1.0 µg/L 1 11/2/2010 5:41:36 AM 1,2-Dibromoethane (EDB) 2.0 1 11/2/2010 5:41:36 AM ND µg/L Naphthalene ND 4.0 µg/L 1 11/2/2010 5:41:36 AM 1-Methylnaphthalene µg/L 11/2/2010 5:41:36 AM ND 4.0 1 2-Methyinaphthalene Acetone ND 10 µg/L 1 11/2/2010 5:41:36 AM ND 1.0 1 11/2/2010 5:41:36 AM µg/L Bromobenzene Bromodichloromethane ND 1.0 µg/L 1 11/2/2010 5:41:36 AM ND 1.0 µg/L 11/2/2010 5:41:36 AM 1 Bromoform 3.0 Bromomethane ND µg/L 1 11/2/2010 5:41:36 AM 2-Butanone ND 10 µg/L 1 11/2/2010 5:41:36 AM ND 10 µg/L 1 11/2/2010 5:41:36 AM Carbon disulfide 11/2/2010 5:41:36 AM Carbon Tetrachloride ND 1.0 µg/L 1 Chlorobenzene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM Chloroethane ND 2.0 µg/L 1 11/2/2010 5:41:36 AM ND 1.0 1 11/2/2010 5:41:36 AM Chloroform µg/L Chloromethane ND 3.0 μg/L 1 11/2/2010 5:41:36 AM 1,0 µg/L 2-Chlorotoluene ND 1 11/2/2010 5:41:36 AM 4-Chlorotoluene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM cis-1,2-DCE ND 1.0 µg/L 1 11/2/2010 5:41:36 AM cis-1,3-Dichloropropene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM µg/L 1,2-Dibromo-3-chioropropane ND 2.0 1 11/2/2010 5:41:36 AM Dibromochloromethane ND 1.0 µg/L 1 11/2/2010 5:41:36 AM ND 1.0 µg/L 1 11/2/2010 5:41:36 AM Dibromomethane ND 1.0 1,2-Dichlorobenzene µg/L 1 11/2/2010 5:41:36 AM ND 1.3-Dichlorobenzene 1.0  $\mu g/L$ 1 11/2/2010 5:41:36 AM ND 1.0 µg/L 1 1,4-Dichlorobenzene 11/2/2010 5:41:36 AM ND 1.0 1 11/2/2010 5:41:36 AM Dichlorodifluoromethane µg/L ND 1.0 1,1-Dichloroethane µg/L 1 11/2/2010 5:41:36 AM ND 1,1-Dichloroethene 1.0 µg/L 1 11/2/2010 5:41:36 AM µg/L 1,2-Dichloropropane ND 1.0 1 11/2/2010 5:41:36 AM 1,3-Dichloropropane ND 1.0 µg/L 1 11/2/2010 5:41:36 AM ND 2.0 µg/L 1 11/2/2010 5:41:36 AM 2,2-Dichloropropane ND 1.0 1,1-Dichloropropene µg/L 1 11/2/2010 5:41:36 AM Hexachlorobutadiene ND 1.0 µg/L 1 11/2/2010 5:41:36 AM

Qualifiers:

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- Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated

PQL Practical Quantitation Limit

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit

S Spike recovery outside accepted recovery limits

Page 1 of 3

Date: 17-Nov-10

CLIENT:	Western Refining Southwest, In	10.	Client Sample ID:		
Lab Order:	1011023		<b>Collection Date:</b>	10/27/2010 1:50:00	AM
Project:	Dusing and Marth of TV 470		Date Received:	10/28/2010	
Lab ID:	1011023-01		Matrix:	AQUEOUS	

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
2-Hexanone	ND	10		µg/L	1	11/2/2010 5:41:36 AM
Isopropylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
4-Isopropyitoluene	ND	1.0		hð\r	1	11/2/2010 5:41:36 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	11/2/2010 5:41:36 AM
Methylene Chloride	ND	3.0		µg/L	1	11/2/2010 5:41:38 AM
n-Butylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:38 AM
n-Propylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
sec-Butylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Styrene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
tert-Butylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/2/2010 5:41:38 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
trans-1,2-DCE	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/2/2010 5:41:36 AM
Vinyl chloride	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Xylenes, Total	ND	1.5		µg/L	· 1	11/2/2010 5:41:36 AM
Surr: 1,2-Dichloroethane-d4	98.5	77.7-113		%REC	1	11/2/2010 5:41:36 AM
Surr: 4-Bromofluorobenzene	105	76.4-106		%REC	i	11/2/2010 5:41:36 AM
Surr: Dibromofluoromethane	103	91.6-125		%REC	1	11/2/2010 5:41:36 AM
Surr: Toluene-d8	91.9	92.3-107	S	%REC	1	11/2/2010 5:41:36 AM

Qualifiers:

- \* Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

CLIENT: Lab Order: Project:	Western Refining So 1011023 Drainage North of T	i a		Co	nt Sample ID: llection Date: ate Received:	11/1/201	) 1:15:00 PM
Lab ID:	1011023-02			_		AQUEOU	
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD	300.0: ANIONS						Analyst: SRM
Fluoride		0.45	0.10		mg/L	1	11/10/2010 2:53:41 AM
Chloride		12	0.50		mg/L	1	11/10/2010 2:53:41 AM
Nitrate (As N)+N	Nitrite (As N)	ND	1.0		mg/L	5	11/11/2010 8:21:24 AM
Phosphorus, Or	thophosphate (As P)	ND	0.50	н	mg/L	1	11/10/2010 2:53:41 AM
Sulfate		90	10		mg/L	20	11/10/2010 3:11:06 AM
EPA 6010B: TO	TAL RECOVERABLE	METALS					Analyst: RAGS
Calcium		69	1. <b>0</b>		mg/L	1	11/9/2010 11:25:39 AM
Magnesium		18	1.0		mg/L	1	11/9/2010 11:25:39 AM
Potassium		1.9	1.0		mg/L	<u>1</u>	11/9/2010 11:25:39 AM
Sodium		55	1.0		mg/L	1	11/9/2010 11:25:39 AM
SM 2320B: ALH	ALINITY						Analyst: IC
Alkalinity, Total	(As CaCO3)	250	20		mg/L CaCO3	1	11/5/2010 6:45:00 PM
Carbonate	· ·	ND	2.0		mg/L CaCO3	1	11/5/2010 6:45:00 PM
Bicárbonate		250	20		mg/L CaCO3	1	11/5/2010 6:45:00 PM

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Date: 17-Nov-10

#### Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits
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Page 3 of 3

17-Nov-10

Lab Order:	1011023					-		
<b>Client:</b>	Western Refining Southwest, Inc.	outhwest, Inc.				DATI	DATES REPORT	<b>JRT</b>
Project:	Drainage North of TK#38	K#38						
Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Iustrument Run ID QC Batch ID Frep Date 👔 Analysis Date	QC Batch ID	Prep Date 👔	Analysis Date
1011023-01A	East Fork	10/27/2010 1:50:00 AM	Aqueous	EPA Method 8260B: VOLATILES	JEPTUNE_101101/ R41901	R41901		0102/2/11
1011023-02A		M1/1/2010 1:15:00 PM		EPA Method 300.0: Anions	ORION_101110A	R42078		11/11/2010
				EPA Method 300.0: Anions	TRITON_101109B	R42058		0102/01/11
				EPA Method 300.0: Anions	TRIFON_101109B	R42058		11/10/2010
				SM 2320B: Alkalinity	OSEIDON_101105.	R42014		11/5/2010
1011023-02B				EPA 6010B: Total Recoverable Metals	ISIS_101109A	2443]	11/8/2010	0102/6/11

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Client:

Western Refining Southwest, Inc. Drainage North of TK#38

Project: Work Order: 1011023 Analyte PQL SPK Va SPK ref %Rec LowLimit HighLimit %RPD RPDLimit Qual Result Units EPA Method 300.0: Anions Method: Sample ID: MB MBLK Batch ID: R42058 Analysis Date: 11/9/2010 9:05:29 PM ND mg/L 0.10 Fluoride Chloride 0,50 ND mg/L ND 0.20 Nitrate (As N)+Nitrite (As N) mg/L ND 0.50 Phosphorus, Orthophosphate (As P) mg/L Sulfate ND mg/L 0.50 Sample ID: MB MBLK Batch ID: R42078 Analysis Date: 11/10/2010 1:46:57 PM Fluoride ND mg/L 0.10 ND mg/L 0.50 Chloride Nitrate (As N)+Nitrite (As N) ND 0.20 mg/L 0.50 Phosphorus, Orthophosphate (As P) ND mg/L 0.50 Sulfate ND mg/L Batch ID: MBLK R42078 Analysis Date: 11/11/2010 5:27:15 AM Sample ID: MB 0.10 Fluoride ND mg/L ND 0.50 Chloride mg/L Nitrate (As N)+Nitrite (As N) ND mg/L 0.20 Phosphorus, Orthophosphate (As P) ND mg/L 0.50 Sulfate ND 0.50 mg/L Sample ID: LCS Batch ID: R42058 Analysis Date: 11/9/2010 9:22:53 PM LCS Fluoride 0.5225 0.10 0.5 0 105 90 110 mg/L Chloride 4.863 mg/L 0.50 5 0 97.3 90 110 90 3.5 0 99.2 Nitrate (As N)+Nitrite (As N) 3.472 mg/L 0.20 110 90 Phosphorus, Orthophosphate (As P) 4.956 ma/L 0.50 5 0 99.1 110 9A 0.50 0 98.2 110 Sulfate 9.815 mg/L 10 Sample ID: LCS LCS Batch ID: R42078 Analysis Date: 11/10/2010 2:04:21 PM 90 Fluoride 0.5167 mg/L 0.10 0.5 0 103 110 Chloride 4,999 100 90 110 mg/L 0.50 5 Ð 3.606 0.20 3.5 Ô 103 90 110 Nitrate (As N)+Nitrite (As N) mg/L 0.50 101 ٩n 110 Phosphorus, Orthophosphate (As P) 5.056 5 0 mg/L Sulfate 10.06 101 90 mg/L 0.50 10 0 110 Sample ID: LCS LCS Batch ID: R42078 Analysis Date: 11/11/2010 5:44:40 AM Fluoride 0.4941 0.10 0 98.8 90 110 mg/L 0.5 90 Chloride 4.921 0.50 0 98.4 110 mg/L 5 Nitrate (As N)+Nitrite (As N) 3.550 mg/L 0.20 3.5 0 101 90 110 Phosphorus, Orthophosphate (As P) 5.045 mg/L 0.50 5 0 101 90 110 0 Sulfate 10.25 mg/L 0.50 10 103 90 110 Method: SM 2320B: Alkalinity MBLK Batch ID: R42014 Analysis Date: Sample ID: MB 11/5/2010 4:50:00 PM mg/L Ca Alkalinity, Total (As CaCO3) ND 20 Carbonate ND mg/L Ca 2.0 Bicarbonate ND mg/L Ca 20 Sample ID: LCS LCS Batch ID: R42014 Analysis Date: 11/5/2010 4:56:00 PM Alkalinity, Total (As CaCO3) 79.48 mg/L Ca 20 80 0 99.4 96.5 104

Qualifiers:

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E Estimated value

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits

NC Non-Chlorinated

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# **QA/QC SUMMARY REPORT**

	tefining South North of TK#						Work	Order:	1011023
Analyte	Result	Units	PQL	SPK Va SPK ref	%Rec Lo	owLimit Hig	ghLimit ···· %RPD	RPDLimit	Quai
Method: EPA Method 8260B	: VOLATILES			······	, <u>Ma</u>				······
Sample ID: b6		MBLK			Batch ID:	R41901	Analysis Date:	11/1/2010	4:25:32 PN
Benzens	NÐ	µg/L	1.0		÷				
Toluens	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-Methyinaphthalene	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	3.0						
2-Butanone	ND	μg/L	10						
Carbon disulfide	ND	μg/L	10						
Carbon Tetrachloride	ND	µg/L	1.0						
Chlorobenzene	ND	μ <b>g</b> /L	1.0						
Chloroethane	ND	μg/L	2.0						
Chioroform	ND	μg/L	1.0						
	ND		3.0						
Chloromethane		µg/L							
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						
I,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						
I,1-Dichloropropene	ND	µg/L	1.0						
Hexachlorobutadiene	ND	µg/L	1.0						
2-Hexanone	ND	µg/L	10	•					
sopropylbenzene	ND	µg/L	1.0						
l-Isopropyltoluene	ND	µg/L	1.0						

Qualifiers:

E Estimated value

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

**Client:** 

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1. S. S. S.

Western Refining Southwest, Inc.

P.	roject: Drainage N	orth of TK#3	38			·	·			Work	Order:	1011023
	Analyte	Result	Units	PQL	SPK Va	SPK ref	%Reoʻl	_owLimit H	ighLimit	%RPD	RPDLimit	Qual
G	ethod: EPA Method 8260B: ample ID: b6	VOLATILES	MBLK				Batch ID:	<b>R41901</b>	Analysis	Date:	11/1/2010	4:25:32 PN
_ 4-	Methyl-2-pentanone	ND	µg/L	10								
M	ethylene Chloride	ND	µg/L	3.0								
n-	Butylbenzene	ND	μg/L	1.0								
n-	Propylbenzene	ND	µg/L	1.0								
se se	c-Butylbenzene	ND	µg/L	1.0								
se St	yrene	ND	µg/L	1.0								
	rt-Butylbenzene	ND	µg/L	1.0								
1,1	1,1,2-Tetrachloroethane	ND	µg/L	1.0			'					
1, 1,	1,2,2-Tetrachloroethane	ND	µg/L	2.0								
Te	trachioroethene (PCE)	ND	µg/L	1.0								
tra	Ins-1,2-DCE	ND	µg/L	1.0								
tra	ns-1,3-Dichloropropene	ND	µg/L	1.0								
	2,3-Trichlorobanzene	ND	µg/L	1.0								
	2,4-Trichlorobanzene	ND	µg/L	1.0								
1,1	1,1-Trichloroethane	ND	µg/L	1.0								
1,1	,2-Trichloroethane	ND	µg/L	1.0								
Tri	chloroethene (TCE)	ND	µg/L	1.0								
	chlorofluoromethane	ND	µg/L	1.0								
1,2 Vin	2,3-Trichloropropane	ND	µg/L	2.0								
Vin	yl chloride	ND	µg/L	1.0								
Xyl	lenes, Total	ND	µg/L	1.5								
-	Surr: 1,2-Dichloroethane-d4	9.787	µg/L	0	10	0	97.9	77.7	113			
	Surr: 4-Bromofluorobenzene	10.94	µg/L	0	10	0	109	76.4	106			S
	Surr: Dibromofluoromethane	10.07	μg/L	0	10	0	101	91.6	125			
_ :	Surr: Toluene-d8	9.991	µg/L	0	10	0	99.9	92.3	107			
Sa	mple ID: 100ng Ics		LCS				Batch ID:	R41901	Analysis	Date:	11/1/2010 3	3:58:01 PM
Be	nzene	18.85	µg/L	1.0	20	0	94.2	84.6	109			
	luene	21.15	µg/L	1.0	20	0	106	81	114			
Chi 1.1	lorobenzene	20.01	µg/L	1.0	20	0	100	85.2	113			
1,1	-Dichloroethene	21.46	µg/L	1.0	20	0	107	79.6	124			
Tric	chloroethene (TCE)	16.38	µg/L	1.0	20	0	81.9	78.3	102			
	Surr: 1,2-Dichloroethane-d4	9.645	µg/L	0	10	0	96.5	77.7	113			•
	Surr: 4-Bromofluorobenzene	11.27	µg/L	0	10	0	113	76.4	108			S
- e	Surr: Dibromofluoromethane	10.05	· µg/L	0	10	0	101	91.6	125			
٤	Surr: Toluene-d8	9.349	hð\r	0	10	0	93.5	92.3	107			

Qualifiers:

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- E Estimated value
  - Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

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QA/QC	SUMMARY	REPORT
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Client: Project:		Refining South North of TK#			· · ·	•				Work	Order:	1011023
Analyte	······	Result	Units	PQL	SPK V	a SPK ref	%Rec Lo	owLimit Hi	ghLimit	%RPD	RPDLimi	t Qual
Method: EPA	6010B: Total	Recoverable M	ətais									
Sample ID: MB-	24431		MBLK				Batch ID:	24431	Analys	is Date:	11/9/2010	11:16:06 AM
Calcium		ND	mg/L	1.0								
Magnesium		ND	mg/L	1.0								
Potassium		ND	mg/L	1.0								
Sodium		ND	mg/L	1.0								
Sample ID: LCS	-24431		LCS				Batch ID:	24431	Analys	is Date:	11/9/2010	(1:19:20 AM
Calcium		51.48	mg/L	1.0	50	0	103	80	120			
Magnesium		52.09	mg/L	1.0	50	0	104	80	120			
Potassium		54.75	mg/L	1.0	50	0	110	80	120			
Sodium		54.83	mg/L	1.0	50	0.0359	110	80	120			

#### Qualifiers:

E Estimated value

- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

Page 4

		Sample	Rec	eipt Ch	ecklist			
Client	Name WESTERN REFINING SOUT				Date Receive	ed:		10/28/2010
Work (	Order Number 1011023				Received by	y: LNM		
Check	list completed by:	St		Date	Sample ID             0	abels checked	by:	MG Millels
Matrix:	$\sigma$	Carrier name:	UPS	ì				
Shippir	ng container/cooler in good condition?		Yes			Not Present		
Custod	ly seals intact on shipping container/coo	ler?	Yes		No 🗖	Not Present		Not Shipped
Custod	ly seals intact on sample bottles?		Yes			N/A		
Chain d	of custody present?		Yes		No 🗔			
Chain d	of custody signed when relinquished and	received?	Yes		No 🗆			
Chain c	of custody agrees with sample labels?		Yes		No 🗌			
Sample	es in proper container/bottle?		Yes		No 🗔	·		
Sample	e containers intact?		Yes		No 🗀			
Sufficie	ant sample volume for indicated test?		Yes		No 🗔			
All sam	ples received within holding time?		Yes		No 🗔			Number of preser
	- VOA viais have zero headspace?	No VOA viais subn	nitted		Yes 🗹	No 🗀		bottles checked fo pH:
	- Preservation labels on bottle and cap n	natch?	Yes		No 🗔	N/A 🗌		$\sim N$
Water -	- pH acceptable upon receipt?		Yes	V	No 🗌	N/A 🗌		(<2) >12 unless note
	ner/Temp Blank temperature?		5.		<6° C Acceptel			below.
COMM	ENTS:		÷					
				===			==	
			•					
Client c	contacted	Date contacted:			Pers	on contacted		·
Contact	ted by:	Regarding:			•••••			
Comme	ents:	······						
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	ctive Action							

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			4901 Hawki	Tel. 505-345-3975 Fax 505-345-4107	Analysis Red	201) 201)	onseð esiDies D2,4,5C	11PH ( 188 (G 1982 1982 1982 1982 1982 1982 1987 19	+ 31 108 + 31 00 t 100 t	TH H Method TH H Method TPH Method TPH (Method TPH (M								Bemarks: 2 10/24/10 PLCH Sinding more	VOWME tor Cations/MK/Anons	This serves as notice of this possibility. Any sub-contracted data will be dearly notated on the analytical report.
Tum-Around Time:	🗙 Standard 🗆 Rush	Project Name:	DAPINAGE North of TK#38			Project Manager:		Sampler: Bob			3-164 HCI 1							Recover by: Time Date Time	Recorded by: I I Date Time	ited laboratories.
Chain-of-Custody Record	Client: Western Kefiniug		Mailing Address:#50 CR 499	Bloomfield, NM 97413	Phone # 505-632-4/6/	email or Fax#. 505-632-39//	QA/QC Package:	Accreditation	a EDD (Type)	Date Time Matrix Sample Request ID	1-27-10 1:50 Had EAST ForK	/ /					_	10 3. CO	Date: Time: Relinquished by:	If necessary, samples submitted to Hall Environmental may be subcontracted to other accred

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<b>\$</b>	Arou	Xstandard	Project Name:	DRAIDASe	Project #:		sct M		pler:		Sample: Temper	Container Type and #	1-50m	Ę											Received by:	red by	ta B
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	Chain-of-Custody Record	Client Western		Mailing Address:#50 CR 4998	Bloomfield	#	email or Fax#:	QA/QC Package:	Accreditation	ILAP	🗆 EDD (Type)	<b>–</b>						$\dashv$					$ \downarrow$		-11-10 3:00	Time:	If nece
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#### COVER LETTER,

Monday, January 03, 2011

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK #38

Order No.: 1011933

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 11/23/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109 505.345.3975 ■ Fax 505.345.4107 www.hallenvironmental.com

Date: 03-Jan-11

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CLIENT: Project: Lab Order:	Western Refining So Drainage North of T 1011933	•	Work Order Sample Summary									
Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date								
1011933-01A	East Fork	R42411	EPA Method 8015B: Gasoline Range	11/22/2010 1:30:00 PM								
1011933-01A	East Fork	R42386	EPA Method 8260: Volatiles Short List	11/22/2010 1:30:00 PM								
1011933-01B	East Fork	24676	EPA Method 8015B: Diesel Range	11/22/2010 1:30:00 PM								
1011933-01C	East Fork	24685	EPA 6010B: Total Recoverable Metals	11/22/2010 1:30:00 PM								
1011933-01D	East Fork	R42368	SM 2320B: Alkalinity	11/22/2010 1:30:00 PM								
1011933-01D	East Fork	R42328	EPA Method 300.0: Anions	11/22/2010 1:30:00 PM								
1011933-01D	East Fork	R42328	EPA Method 300.0: Anions	11/22/2010 1:30:00 PM								

CLIENT:	Western Refining So	uthwest, Inc.		Clie	nt Sample ID:	East Fork	
Lab Order:	1011933			Co	llection Date:	11/22/2010	1:30:00 PM
Project:	Drainage North of Th	<b>&lt; #38</b>		D	ate Received:	11/23/2010	
Lab ID:	1011933-01					AQUEOUS	
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD	8015B: DIESEL RANGE						Analyst: JB
Diesel Range O		ND	0.20		mg/L	1	11/30/2010 6:33:22 PM
-	e Organics (MRO)	ND	2.5		mg/L	1	11/30/2010 6:33:22 PM
Surr: DNOP	• • •	128	82-162		%REC	1	11/30/2010 6:33:22 PM
EPA METHOD	8015B: GASOLINE RAN	IGE	,				Analyst: NSI
Gasoline Range	Organics (GRO)	ND	0.050		mg/L	1	11/30/2010 1:17:37 PM
Surr: BFB		101	84.5-118		%REC	1	11/30/2010 1:17:37 PM
EPA METHOD	300.0: ANIONS						Analyst: LJE
Fluoride		0.44	0.10		mg/L	1	11/23/2010 9:03:27 PM
Chloride		12	0.50		mg/L	1	11/23/2010 9:03:27 PM
Nitrogen, Nitrite	(As N)	ND	0.10		mg/L	1	11/23/2010 9:03:27 PM
Bromide		0.14	0.10		mg/L	1	11/23/2010 9:03:27 PM
Nitrogen, Nitrate	(As N)	0.14	0.10		mg/L	1	11/23/2010 9:03:27 PM
Phosphorus, Or	thophosphate (As P)	ND	0.50		mg/L	1	11/23/2010 9:03:27 PM
Sulfate		75	10		mg/L	20	11/23/2010 9:20:52 PM
EPA 6010B: TO	TAL RECOVERABLE M	ETALS					Analyst: RA
Calcium	•	65	1. <b>0</b>		mg/L	1	12/7/2010 5:51:24 PM
Magnesium		17	1.0		mg/L	1	12/7/2010 5:51:24 PM
Potassium		1.4	1.0		mg/L	1	12/7/2010 5:51:24 PM
Sodium		53	1.0		mg/L	1	12/7/2010 5:51:24 PM
EPA METHOD 8	3260: VOLATILES SHOP	RT LIST					Analyst: RA
Benzene		ND	1.0		µg/L	1	11/29/2010 5:55:56 PN
Toluene		ND	1.0		µg/L	1	11/29/2010 5:55:56 PM
Ethylbenzene		ND	1.0		µg/L	1	11/29/2010 5:55:56 PM
Methyl tert-butyl	ether (MTBE)	ND	1.0		µg/L	1	11/29/2010 5:55:56 PN
Xylenes, Total		ND	2.0		µg/L		11/29/2010 5:55:56 PM
Surr: 1,2-Dich		101	77.7-113		%REC		11/29/2010 5:55:56 PM
	fluorobenzene	94.1	76.4-106		%REC		11/29/2010 5:55:56 PM
	fluoromethane	99.0	91.6-125		%REC		11/29/2010 5:55:56 PN
Surr: Toluene-	d8	96.6	92.3-107		%REC	1	11/29/2010 5:55:56 PM
6M 2320B: ALK							Analyst: IC
Alkalinity, Total (	As CaCO3)	250	20		mg/L CaCO3	. 1	11/24/2010 9:33:00 PN
Carbonate		ND	2.0		mg/L CaCO3	1	11/24/2010 9:33:00 PM
Bicarbonate		250	20		mg/L CaCO3	1	11/24/2010 9:33:00 PM

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Date: 03-Jan-11

Qualifiers:

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- Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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03-Jan-11

Lab Order: Client: Project:	1011933 Western Refining Southwest, Inc. Drainage North of TK #38	outhwest, Inc. IK #38				DATI	DATES REPORT	ORT
Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Instrument Run ID QC Batch ID Prep Date	QC Batch ID	Prep Date	Analysis Date
1011933-01A	East Fork	11/22/2010 1:30:00 PM	Aqueous	EPA Method 8015B: Gasoline Range	APOLLO_101130A	R42411		11/30/2010
×				EPA Method \$260: Volatiles Short List	THOR_101129A	R42386		0102/62/11
1011933-01B				EPA Method 8015B: Diesel Range	TD(17A) 2_101130/	24676	0102/62/11	11/30/2010
1011933-01C				EPA 6010B; Total Recoverable Metals	ISIS_101207B	24685	11/29/2010	0102/L/21
1011933-01D				EPA Method 300.0: Anions	ORION_101123A	R42328		11/23/2010
				EPA Method 300.0. Anions	ORION_101123A	R42328		11/23/2010
				SM 2320B: Alkalinity	OSEIDON_101124.	R42368		11/24/2010

Page 1 of 1

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. Client: Western Refining Southwest, Inc. Drainage North of TK #38

Project: Work Order: 1011933 Units PQL SPK Va SPK ref %Rec LowLimit HighLimit %RPD **RPDLimit Qual** Result Analyte EPA Method 300.0: Anions Method: MBLK Batch ID: R42328 Analysis Date: 11/23/2010 1:42:56 PM Sample ID: MB ND 0.10 mg/L Fluoride ND mg/L 0.50 Chloride ND 0.10 Nitrogen, Nitrite (As N) mg/L Bromide ND mg/L 0.10 ND mg/L 0.10 Nitrogen, Nitrate (As N) Phosphorus, Orthophosphate (As P) ND mg/L 0.50 ND mg/L 0.50 Sulfate LCS Batch ID: R42328 Analysis Date: 11/23/2010 2:00:21 PM Sample ID: LCS 105 90 110 0.5250 mg/L 0.10 0.5 ۵ Fluoride 4.906 mg/L 0.50 5 0 98.1 90 110 Chloride 1.000 0.10 100 90 mg/L 1 n 110 Nitrogen, Nitrite (As N) 2.452 mg/L 0.10 2.5 0 98.1 90 110 Bromide 2.528 0.10 2.5 0.0167 100 90 110 Nitrogen, Nitrate (As N) mg/L Phosphorus, Orthophosphate (As P) 4.861 mg/L 0.50 5 0 97.2 90 110 Sulfate 10.02 mg/L 0.50 10 0 100 90 110 1 SM 2320B: Alkalinity Method: Sample ID: MB-1 MBLK Batch ID: R42368 Analysis Date: 11/24/2010 3:14:00 PM Alkalinity, Total (As CaCO3) ND mg/L Ca 20 Carbonate ND mg/L Ca 2.0 ND mg/L Ca 20 Bicarbonate Sample ID: MB-2 MBLK Batch ID: R42368 Analysis Date: 11/24/2010 7:30:00 PM 20 ND mg/L Ca Alkalinity, Total (As CaCO3) ND mg/L Ca Carbonate 2.0 ND mg/L Ca 20 Bicarbonate Batch ID: R42368 Sample (D: LCS-1 LCS Analysis Date: 11/24/2010 3:20:00 PM 80.04 mg/L Ca 80 0 100 96.5 104 Alkalinity, Total (As CaCO3) 20 Sample ID: LCS-2 LCS Batch ID: R42368 Analysis Date: 11/24/2010 7:36:00 PM 80 Alkalinity, Total (As CaCO3) 80.56 mg/L Ca 20 0 101 96.5 104 EPA Method 8015B: Diesel Range Method: Sample ID: 1011933-01BMSD MSD Batch ID: 24676 Analysis Date: 11/30/2010 7:40:33 PM mg/L 0.20 0.107 71 2.452 2.5 93.8 **Diesel Range Organics (DRO)** 161 15.5 23 MBLK Batch ID: 24676 Sample ID: MB-24676 Analysis Date: 11/30/2010 4:51:29 PM ND mg/L 0.20 Diesel Range Organics (DRO) Motor Oil Range Organics (MRO) ND mg/L 2.5 Sample ID: LCS-24676 LCS Batch ID: 24676 Analysis Date: 11/30/2010 5:25:35 PM Diesel Range Organics (DRO) 2.822 mg/L 0.20 2.5 0.1265 108 74 157 Batch ID: LCSD 24676 Sample ID: LCSD-24676 Analysis Date: 11/30/2010 5:59:30 PM 2.833 mg/L 0.20 2.5 0.1265 108 74 Diesel Range Organics (DRO) 157 0.386 23 MS Sample ID: 1011933-01BMS Batch ID: 24676 Analysis Date: 11/30/2010 7:06:57 PM Diesel Range Organics (DRO) 2.865 0.20 0.107 110 71 161 mg/L 2.5

Qualifiers:

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ND

Seat of

- E Estimated value
  - Analyte detected below quantitation limits
  - Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

- NC Non-Chlorinated
- R RPD outside accepted recovery limits

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# QA/QC SUMMARY REPORT

	fining South orth of TK #								Work	Order:	1011933
Analyte	Result	Units	PQL	SPK V	a SPK ref	%Rec L	owLimit H	ighLimit %	6RPD	RPDLimit	Qual
Method: EPA Method 8015B:	Gasoline Ra	-									
Sample ID: 5ML RB		MBLK				Batch ID:	R42411	Analysis E	Date:	11/30/2010	8:39:20 AN
Gasoline Range Organics (GRO) Sample ID: 2.5UG GRO LCS	ND	mg/L LCS	0.050			Batch ID:	R42411	Analysis (	Date:	11/30/2010	5:08:50 PN
Gasoline Range Organics (GRO)	0.5788	mg/L	0.050	0.5	i 0	116	83.7	124			
Sample ID: 2.5UG GRO LCSD	0.0700	LCSD	0.000	0.0		Batch ID:	R42411	Analysis [	Date:	11/30/2010	5:37:42 PN
Gasoline Range Organics (GRO)	0.5414	mg/L	0.050	0.5	0	108	83.7	124	6.68	12	
Method: EPA Method 8280: V	olatiles Short	t List									
Sample ID: 5mL rb		MBLK				Batch ID:	R42386	Analysis D	)ate:	11/29/2010	8:17:42 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								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: b5		MBLK				Batch ID:	R42386	Analysis D	Date:	11/29/2010	7:41:01 PM
Benzene	NÐ	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								
Xylenes, Total	ND ·	µg/L	2.0								
Sample ID: 100ng Ics		LCS				Batch ID:	R42386	Analysis D	ate:	11/29/2010	9:10:07 AM
Benzene	18.11	μg/L	1.0	20	0	90.6	84.6	109			
Toluene	19.31	μg/L	1.0	20	0	96.6	81	114			
Sample ID: 100ng ics		LCS				Batch ID:	R42386	Analysis D	ate:	11/29/2010	8:33:29 PM
Benzene	19.11	µg/L	1.0	20	0	95.6	84.6	109			
Toluene	17.63	μg/L	1.0	20		88.1	81	114			
Method: EPA 6010B: Total Rec Sample ID: MB-24685		MBLK				Batch ID:	24685	Analysis D	ate:	12/7/2010 1	1:19:43 AM
•	ND	mg/L	1.0					-			
Calcium	ND	mg/L	1.0								
Magnesium Sample ID: MB-24685	ND	MBLK	1.0			Batch ID:	24665	Analysis D	ete.	12/7/2010	5:05:43 PM
- · · •	10		4.0				2.000		410,		0.00.101.11
Potassium	ND	mg/L mg/l	1.0								
Sodium Sample ID: LCS-24685	ND	mg/L LCS	1.0			Batch ID:	24685	Analysis D	ate:	12/7/2010 1	1:22:50 AM
-	ED 44		4.0	50	0.0700	107	80	120			
Calcium	53.44 53.73	mg/L mg/l	1.0		0.0708 0.1838	107 107	80 80	120 120			
Magnesium	53.73	mg/L	1.0	50	0.1030		24685		ata	10/7/0010	
Sample ID: LCS-24685	_	LCS			_	Batch ID:		Analysis D	ale:	12///2010	5:08:45 PM
Potassium	53.11	mg/L	1.0	50		106	80	120			
Sodium	49.28	mg/L	1.0	50	0.6185	97.3	80	120			

Qualifiers:

E Estimated value

J Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

H Holding times for preparation or analysis exceeded

NC Non-Chlorinated

R RPD outside accepted recovery limits

Page 2

Sam	ple Receipt Ch	ecklist		
Client Name WESTERN REFINING SOUT		Date Receive	d:	11/23/2010
Work Order Number 1011933		Received by	AMG	1.52
Checklist completed by: Muhub Cyci		sample ID li 3/1)	abels checked b	
Matrix: Carrier nam	ne: UPS			
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?	Үөз 🗹	No 🗔		
All samples received within holding time?	Yes 🗹	No 🗖		Number of preserved
Water - VOA vials have zero headspace? No VOA vials su Water - Preservation labels on bottle and cap match?	Ibmitted	Yes 🗹	No 🗀	bottles checked for pH:
Water - Preservation labels on bottle and cap match?	Yes 🗹	No 🗔	N/A	2-
Water - pH acceptable upon receipt?	Yes 🗖	No 🗌	N/A 🗹	2 >12 unless noted
Container/Temp Blank temperature?	4.7°	<6° C Acceptabl		below.
COMMENTS:		If given sufficient	time to cool.	
51		·		
Client contacted Date contacted:		Perso	on contacted	
Contacted by: Regarding:			_	
		44	••••••••••••••••••••••••••••••••••••••	
Comments:				
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Corrective Action				
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		01-22-11	of tk#38										-											23/1010:35	Date Time	. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report
Time:	□ Rush	ä				ager.			<u>6</u> 6		Description of the	Preservative Type	Hcl	amber	H2S24	1	#N03							= A	Ъ	accredited laboratories.
Tum-Around Time:	X Standard	Project Nam	DRAINAGE NOTIL	Project #:		Project Manager.			Sampler, b	Cruces		Container Type and #	3-VoA	1-520ml	1-350m	1-500m	1- 500m								Kecewen by:	ontracted to other a
Chain-of-Custody Record	Client WESTERN REFINING		Idress H.50 CR4990	Bloomfield, NM 87413	632-	email or Fax#: 505-633-39//	,	rd X Level 4 (Full Validation)				Time Matrix Sample Request ID	1:30 H20 EAST FORK	I Had u u	HaO " 11	2	1 1120 11 21						T	0	ie. Keinqusned by:	If necessary, samples submitted to Hall Environmental may be subcontracted to other a
Ch	Client: W€		Mailing Address.	Klee	Phone #:	email or Fi	QA/QC Package:		Accreditation			Date 1	1-32-10				-						Data Tima	0		lf neci



#### COVER LETTER

Thursday, January 06, 2011

Cindy Hurtado Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413

TEL: (505) 632-4161 FAX (505) 632-3911

RE: Drainage North of TK #38

Dear Cindy Hurtado:

Order No.: 1012812

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 12/21/2010 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology.

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

Sincerely,

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901 AZ license # AZ0682 ORELAP Lab # NM100001 Texas Lab# T104704424-08-TX



4901 Hawkins NE Suite D Albuquerque, NM 87109 505.345.3975 Fax 505.345.4107 www.hallenvironmental.com

CLIENT:	Western Refining Sc	outhwest, Inc.		Clie	nt Sample ID:	East Fork					
Lab Order:	1012812			Co	llection Date:	12/20/2010 9:20:00 AM 12/21/2010					
Project:	Drainage North of T	K #38		D	ate Received:						
Lab ID:	1012812-01				Matrix:	AQUEOU	US				
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed				
EPA METHOD	300.0: ANIONS						Analyst: SRM				
Fluoride		0.41	0.10		mg/L	1	12/23/2010 2:55:02 PM				
Chloride		12	0.50		mg/L	1	12/23/2010 3:37:03 AM				
Nitrate (As N)+N	litrite (As N)	ND	1.0		mg/L	5	12/27/2010 7:34:15 PM				
Phosphorus, Or	thophosphate (As P)	ND	0.50	н	mg/L	1	12/23/2010 3:37:03 AM				
Sulfate		74	10		mg/L	20	12/23/2010 3:54:28 AM				
EPA 6010B: TO	TAL RECOVERABLE	METALS					Analyst: SNV				
Calcium	4	63	1.0		mg/L	1	1/4/2011 2:52:56 PM				
Magnesium		17	1.0		mg/L	1	1/4/2011 2:52:56 PM				
Potassium		1.8	1.0		mg/L	1	1/4/2011 2:52:56 PM				
Sodium		53	1.0		mg/L	1	1/4/2011 2:52:56 PM				
EPA METHOD 8	260: VOLATILES SHO	RT LIST					Analyst: RAA				
Benzene	x.	ND	1.0		µg/L	1	12/23/2010 8:18:20 PM				
Toluene		ND	1.0		µg/L	1	12/23/2010 8:18:20 PM				
Ethylbenzene		ND	1.0		μg/L	1.	12/23/2010 8:18:20 PM				
Methyl tert-butyl	ether (MTBE)	ND	1.0		µg/L	1	12/23/2010 8:18:20 PM				
Xylenes, Total		ND	2.0		µg/L	1	12/23/2010 8:18:20 PM				
Surr: 1,2-Dich	loroethane-d4	91.6	77.7-113		%REC	1	12/23/2010 8:18:20 PM				
Surr: 4-Bromo	fluorobenzene	113	76.4-106	S	%REC	1	12/23/2010 8:18:20 PM				
Surr: Dibromo	fluoromethane	88.8	91.6-125	S	%REC	1	12/23/2010 8:18:20 PM				
Surr: Toluene-	-d8	<b>10</b> 1	92.3-107		%REC	1	12/23/2010 8:18:20 PM				
5M 2320B: ALK	ALINITY						Analyst: IC				
Aikalinity, Total (	As CaCO3)	250	20		mg/L CaCO3	1	12/27/2010 9:11:00 PM				
Carbonate	-	ND	2.0		mg/L CaCO3	1	12/27/2010 9:11:00 PM				
Bicarbonate		250	20		mg/L CaCO3	1	12/27/2010 9:11:00 PM				

### Hall Environmental Analysis Laboratory, Inc.

Qualifiers:

\* Value exceeds Maximum Contaminant Level

E Estimated value

- J Analyte detected below quantitation limits
- NC Non-Chlorinated
- PQL Practical Quantitation Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

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Date: 06-Jan-11

## **QA/QC SUMMARY REPORT**

**Client: Project:**  Western Refining Southwest, Inc. Drainage North of TK #38

Work Order: 1012812

Analyte	Result	Units	PQL	SPK Val S	SPK ret	%Rec L	owLimit H	ghLimit %RPE	D RPDLimit Qual
Method: EPA Method 300.0: Ani Sample ID: MB	ons	MBLK				Batch ID:	R42828	Analysis Date:	12/22/2010 10:12:30 A
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.50						
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:	R42828	Analysis Date:	12/22/2010 10:41:06 P
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.50						•
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:	R42855	Analysis Date:	12/23/2010 1:27:59 P
Fluoride	ND	mg/L	0.10					•	
Chloride	ND	mg/L	0.50						
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						
	110	MBLK	0.00			Batch ID:	R42882	Analysis Date:	12/27/2010 2:38:14 P
Sample ID: ,MB						Dation ID.		Analysis Date.	12/2/12010 2.30.14 F
Fluoride	ND	mg/L	0.10						
Chloride	ND	mg/L	0.50						
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				D ( 0000	America Deter	10/00/0040 40:00-55 1
Sample ID: LCS		LCS				Batch ID:	R42828	•	12/22/2010 10:29:55 A
Fluoride	0.5095	mg/L	0.10	0.5	0	102	90	110	
Chloride	5.054	mg/L	0.50	5	0	101	90	110	
Nitrate (As N)+Nitrite (As N)	3.622	mg/L	0.20	3.5	0	103	90	110	
Phosphorus, Orthophosphate (As P)	5.185	mg/L	0.50	5	0	104	90	110	
Sulfate	10.25	mg/L	0.50	10	0	102	90	110	
Sample iD: LCS		LCS				Batch ID:	R42828	Analysis Date:	12/22/2010 10:58:31 PI
Chloride	5.161	mg/L	0.50	5	Ó	103	90	110	
Nitrate (As N)+Nitrite (As N)	3.675	mg/L	0.20	3.5	0	105	90	110	
Phosphorus, Orthophosphate (As P)	5.151	mg/L	0.50	5	0	103	90	110	
Sulfate	10.68	mg/L	0.50	10	0	107	90	110	
Sample ID: LCS		LCS				Batch ID:	R42855	Analysis Date:	12/23/2010 1:45:23 PI
Fluoride	0.5432	mg/L	0.10	0.5	0	109	90	110	
Chloride	5.134	mg/L	0.50	5	0	103	90	110	
vitrate (As N)+Nitrite (As N)	3.727	mg/L	0.20	3.5	0	106	90	110	
Phosphorus, Orthophosphate (As P)	5.329	mg/L	0.50	5	0	107	90	110	
Sulfate	10.80	mg/L	0.50	10	0	108	90	110	
Sample ID: LCS		LÇS				Batch ID:	R42882	Analysis Date:	12/27/2010 2:55:39 PM
luoride	0.5040	mg/L	0.10	0.5	0	101	90	110	
Chloride	4.908	mg/L	0.50	5	õ	98.2	90	110	

Qualiflers:

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Ε Estimated value

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit Н Holding times for preparation or analysis exceeded

NC Non-Chlorinated RPD outside accepted recovery limits

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# **QA/QC SUMMARY REPORT**

Client: Wo	estern Refi	ning Souti	hwest, Inc.									
Project: Dr	ainage Nor	th of TK	#38							Wor	k Order:	1012812
Analyte		Result	Units	PQL	SPK Val SP	PK ref	%Rec L	owLimit Hi	ghLimit	%RPE	D RPDLimit	Qual
Method: EPA Metho	d 300.0: Ani	ons				•						
Sample ID: LCS			LCS				Batch ID:	R42882	Analysi	is Date:	12/27/2010	2:55:39 PM
Nitrate (As N)+Nitrite (As	N)	3.546	mg/L	0.20	3.5	0	101	90	110			
Phosphorus, Orthophosp	ohate (As P)	4.818	mg/L	0.50	5	0	96.4	90	110			
Sulfate		9.990	mg/L	0.50	10	0	99.9	90	110		·	
Method: SM 2320B:	Aikalinity											
Sample ID: MB-1	_		MBLK				Batch ID:	R42931	Analysi	is Date:	12/27/2010	7:08:00 PM
Alkalinity, Total (As CaC	03)	ND	mg/L Ca	20								
Carbonate	·	ND	mg/L. Ca	2.0								
Bicarbonate		ND	mg/L Ca	20	,						·	
Sample ID: MB-2			MBLK				Batch ID:	R42931	Analysi	s Date:	12/28/2010	3:23:00 AM
Alkalinity, Total (As CaC	<b>D</b> 3)	ND	mg/L Ca	20								
Sarbonate		ND	mg/L Ca	2.0								
i carbonate		ND	mg/L Ca	20								
S inple ID: LCS-1			LCS				Batch ID:	R42931	Analysi	s Date:	12/27/2010	7:14:00 PM
Alk Jinity, Total (As CaC	<b>D3</b> )	80.47	mg/L Ca	20	80	0	101	96.5	104			
Saniple ID: LCS-2			LCS				Batch ID:	R42931	Analysi	s Date:	12/28/2010	3:29:00 AM
Alkalinity, Total (As CaC	<u>)</u>	80.12	mg/L Ca	20	80	0	100	96.5	104			
Method: EPA Method	8260: Vola	tiles Short	List									
Sample ID: 1012812-01			MSD				Batch ID:	R42858	Analysi	s Date:	12/23/2010	9:13:22 PM
Benzene		17.40	µg/L	1.0	20	0	87.0	73.1	117	1.04	11.3	
Toluene		19.70	µg/L	1.0	20	0	98.5	82.9	109	5.03	11.6	
Sample ID: b2			MBLK				Batch ID:	R42858	Analysis	s Date:	12/23/2010 1	):09:21 AM
Benzene		ND	µg/L	1.0								
loluene		ND	µg/L	1.0								
Ethylbenzene		ND	μg/L	1.0								
Aethyl tert-butyl ether (M	TBE)	ND	µg/L	1.0			,					
(ylenes, Total		ND	µg/L	2.0								
Sample ID: 100ng Ics			LCS				Batch ID:	R42858	Analysis	s Date:	12/23/2010 1	:25:51 AM
lenzene		18.68	µg/L	1.0	20	0	93.4	84.6	109			
oluene		21.98	μ <b>g/L</b>	1.0	20	0	110	81	114			
ample ID: 1012812-01	a ms		MS				Batch ID:	R42858	Analysis	Date:	12/23/2010 8	3:45:51 PM
lenzene		17.22	µg/L	1.0	20	0	86.1	73.1	117			
oluene		20.72	µg/L	1.0	20	0	104	82.9	109			

- Qualifiers:
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated
- R RPD outside accepted recovery limits

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# **QA/QC SUMMARY REPORT**

Client: Project:	Western Refining So Drainage North of T						•		Work	Order:	1012812
Analyte	Result	Units	PQL	SPK Val S	SPK ref	%Rec Lo	wLimit Hi	ghLimit	%RPD	RPDLImit	Quai
Method: EPA 6 Sample ID: MB-3	010B: Total Recoverable	Metals MBLK		<u></u> ,,		Batch ID:	25089	Analys	is Date:	1/4/2011	2:12:47 PM
Calcium Magnesium Potassium	ND ND ND	mg/L mg/L mg/L	1.0 1.0 1.0					, <b>.</b>			
Sodium Sample ID: LCS Calcium	ND -25069	mg/L LCS	1.0	50	0	Batch ID:	25069	Analysi	s Date:	1/4/2011	.2:16:09 PM
Magnesium Potassium Sodium	51.00 53.49 54.76 51.56	mg/L mg/L mg/L mg/L	1.0 1.0 1.0 1.0	50 50 50 50	0 0 0 0	102 107 110 103	80 80 80 80	120 120 120 120			

J

E Estimated value

Analyte detected below quantitation limits

ND Not Detected at the Reporting Limit

- H Holding times for preparation or analysis exceeded
- NC Non-Chlorinated

R RPD outside accepted recovery limits

Page 3

	Sample	Rec	eipt	Checklist			
Client Name WESTERN REFINING SOUT				Date Rec	eived:		12/21/2010
Work Order Number 1012812				Receive	d by: MMG		
Checklist completed by Signatore	T IE	2/2	21	Sample Date	ID labels checked	by:	
Matrix:	Carrier name:	UPS	È				
Shipping container/cooler in good condition?		Yes		No 🗖	Not Present		
Custody seals intact on shipping container/cool	er?	Yes	V	No 🗌	Not Present		Not Shipped
Custody seals intact on sample bottles?		Yes		No 🗌	N/A		
Chain of custody present?		Yes	V	No 🗔			
Chain of custody signed when relinquished and	received?	Yes	Y	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 🗔			Number of preserved
Water - VOA vials have zero headspace?	No VOA vials subn	nitted		Yes 🗹	No 🗆		bottles checked for pH:
Water - Preservation labels on bottle and cap m	atch?	Yes	V	No \Box	N/A 🗌		~~~~ ·
Water - pH acceptable upon receipt?		Yes		No 🗔	N/A 🗔		<2) >12 unless noted below.
Container/Temp Blank temperature?		2.	5°	<6° C Acce			Ugen.
COMMENTS:				If given suffi	cient time to cool.		
Client contacted	Date contacted:				Person contacted	•	
Contacted by:	Regarding:						·····
Comments:					· · · · · · · · · · · · · · · · · · ·		
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Corrective Action							
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## Hall Environmental Analysis Laboratory, Inc.

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# Investigation Work Plan Group 6

(AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47)

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# Bloomfield Refining Western Refining Southwest, Inc. #50 Rd 4990 Bloomfield, New Mexico 87413

# December 2009

(Revised February 2011)



404 Camp Craft Road, Austin, TX 78746 Tel: (512) 347 7588 Fax: (512) 347 8243 Internet: www.rpsgroup.com/energy





February 7, 2011

James Bearzi, Bureau Chief New Mexico Environment Department Hazardous Waste Bureau 2905 Rodeo Park Drive East, Bldg 1 Santa Fe, NM 87505

#### FedEX Tracking #: 794397781121

RE: Response to Notice of Disapproval Investigation Work Plan Group 6 (AOC NO. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47). Western Refining Southwest, Inc., Bloomfield Refinery EPA ID #NMD089416416 WRB-10-002

#### Dear Mr. Bearzi:

Western Refining Southwest, Inc., Bloomfield Refinery has prepared the following responses to your comments (dated November 8, 2010) on the referenced Investigation Work Plan. The revised Work Plan is enclosed, along with a CD containing a red-line strikeout copy noting changes from the original version (December 2009).

### Comment 1

Western discusses the facility's surface and subsurface conditions in Sections 3.1 (Surface Conditions) and Section 3.2 (Subsurface Conditions). However, these Sections do not address the conditions for subject AOCs. Western must revise these Sections to address the surface and subsurface conditions for AOCs 19, 20, and 21.

**Comment 1 Response:** Sections 3.1 and 3.2 have been revised to include additional discussion of the AOC-specific surface and subsurface conditions of the bluff area as requested. In addition, it is noted that AOC-specific information is already provided in Section 2.

### Comment 2

In Sections 4.1 (Anticipated Activities) and 5.2 (Soil Sampling), Western proposes to advance hand augured soil borings to a depth of two feet or more based on field screening at the seeps and drainage pathways leading toward the San Juan River. Western proposes to submit soil samples collected from each boring at depths of 0-0 5 feet and 1.5 to 2 feet below ground surface (bgs), and from the intervals where field screening evidence of contamination is observed for laboratory analysis. In order to determine the vertical extent of contamination, the soil sample collected from the bottom

of all sampled locations must be submitted for laboratory analysis. Western must revise the Work Plan accordingly.

**Comment 2 Response:** As described in Section 4.1, soil samples will be collected from the hand augured soil borings from the 0 to 6 inch and the 18 to 24 inch intervals, and from additional intervals determined based on field screening results. If the 18 to 24 inch interval is determined to be impacted based on field screening results, the boring will be extended and an additional sample(s) collected. As described in Section 5.1, the soil borings within the drainage pathway will be extended to the top of bedrock or to refusal but is anticipated to be less than 3 feet in depth. If bedrock or refusal is not encountered at the depth of 2 feet or less, and the soil borings are extended to a depth beyond 2 feet in depth, a soil sample will be collected from the bottom of the soil boring in order to define the vertical extent of impact. The Work Plan has been revised to clarify the collection of a sample from the total depth of the borings if extended beyond 2 feet in depth.

#### Comment 3

In Section 4.2 (Background Information Research), page 9, Western states "[d]ocuments containing the results of previous investigations and subsequent routine groundwater monitoring data from monitoring wells and the seeps were reviewed to facilitate development of this work plan. The previously collected data provide detailed information on the overall subsurface conditions, including hydrogeology and contaminant distribution within groundwater on a site-wide basis. The data collected under this scope of services will supplement the existing soil and groundwater information and provide specific information regarding contaminant occurrence and distribution within soils near the seeps." It is unclear where the previously collected data is located within this document. Western must identify where within the Work Plan the data are located, or revise the Work Plan to include the data.

**Comment 3 Response:** AOC-specific information that was used to develop the proposed field investigation consists of the construction information of the catchment basins described in Section 2 of the Work Plan. The previously collected data (i.e., hydrogeology and impacted distribution within groundwater on a site-wide basis) is not contained within this Work Plan. The information referenced within this section of the Work Plan refers to the site investigation data and groundwater data collected as part of the field work conducted under the July 2007 Order. This information is provided in the completion reports for other Work Groups previously submitted to NMED. Groundwater data is also routinely collected and reported within the Groundwater Remediation & Monitoring Reports that are submitted to NMED by April of each year.

#### Comment 4

In Section 5.2 (Soil Sampling), page 11, Western states "[s]urface soil samples (0-6") collected from the sides of the steep slopes along the drainage pathways and at the edge of catchment liners will be used to define the horizontal extent of any impacts identified in the seep faces and bottom of the drainage pathways." Western must also determine the vertical extent of contamination. Western must revise the Work Plan to

include the details for determining the vertical extent of contamination. See also Comment 2.

**Comment 4 Response:** Because very little water historically discharged and flowed within the arroyos, the extent of impact, if any, is expected to be along the center of the drainage pathways. The surface soil samples are designed to define the horizontal extent of impact within the steep sides of the drainage pathway and where water may have flowed over the edges of the catchment basin liners. As described in the second sentence of the second paragraph of Section 5.2, the surface soil sample locations will terminate at a depth of 6 inches unless extended to a deeper depth based on field screening results. If the depth is extended, additional soil samples will be collected and analyzed as described in Section 5.2.

The vertical extent of impact will be determined by installing soil borings to the top of bedrock or to refusal. These borings are located within the center of the drainage pathways where water would have the potential to infiltrate through the accumulated sediments to the top of bedrock. As described in the response to Comment 2, if bedrock or refusal is not encountered at a depth of 2 feet or less, and the soil borings are extended to a depth beyond 2 feet in depth, a soil sample will be collected from the bottom of the soil boring in order to define the vertical extent of potential impact. This Work Plan has been revised to clarify the collection of a sampled from the total depth of the borings if extended beyond 2 feet in depth.

#### Comment 6

In Section 6 (Monitoring and Sampling Program), page 20, Western states "[g]roundwater is removed from any seep where analytical results exceed any of the standards set by the Water Quality Control Commission (WQCC), the EPA Maximum Contamination Level (MCL), or the EPA Region VI Human Health Medium Specific Screening Levels (Tap Water) in the absence of a WQCC standard or MCL (NMED, 2008)." The Tap Water Screening Levels have been replaced with the EPA Regional Screening Levels (as updated). Western must revise the Work Plan to reference the EPA Regional Screening Levels (as updated) instead of the Tap Water Screening Levels.

**Comment 6 Response:** The tables have been revised to reference the EPA Regional Screening Levels for tap water (dated November 2009).

#### Comment 6

In Appendix A (Photographs), the first photograph from Google maps does not contain any cardinal directions on it. Western must revise the Work Plan to include a reference compass direction for this photograph.

**Comment 6 Response:** A north indicator has been added to the first photograph (Google Maps figure) in Appendix A. In addition, the seep locations have been annotated on the last aerial photograph within Appendix A.

In addition to the requested changes, Western would like to bring to your attention additional changes that have been made to this Work Plan after a re-review of the Group 6 Investigation Work Plan:

- Executive Summary and the Section 1 Introduction (Page 1) were revised to reflect the correct owner and operator names and the suspension of refinery operations on November 23, 2009;
- Section 2 Background (Page 4) was revised to reflect current conditions of the AOC seeps;
- Figure 2 was revised to include the lines of cross-section shown on Figures 3 and 4;
- Figure 5 was updated to reflect a more recent (August 2009) potentiometric surface map; and
- The Quality Assurance/Quality Control language was revised to reflect the changes approved for Groups 4 and 5 in Comment 8 of NMED's letter dated June 7, 2010 (Approval with Modifications, Investigation Work Plan Group 4).

If you have questions or would like to discuss the revised Work Plan, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz Environmental Manager Western Refining Southwest, Inc., Bloomfield Refinery

cc: Hope Monzeglio – NMED HWB Carl Chavez - NMOCD Dave Cobrain – NMED HWB John Kieling – NMED HWB Laurie King – EPA Region 6 Allen Hains – Western Refining El Paso Scott Crouch – RPS Austin



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### INVESTIGATION WORK PLAN Group 6

(AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47)

Bloomfield Refinery Western Refining Southwest, Inc. #50 Rd 4990 Bloomfield, New Mexico 87413

> December 2009 (Revised February 2011)

James R. Schmaltz Environmental Manager

Western Refining Southwest, Inc. Bloomfield Refinery

Mark S. Katterjohn, P.G. Senior Consultant

RPS 404 Camp Craft Rd. Austin, Texas 78746

United Kingdom | Australia | USA | Canada | Russia | Malaysia

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### **Executive Summary**

The Bloomfield Refinery, which is located in the Four Corners Area of New Mexico, has been in operation since the late 1950s. Past inspections by State and Federal environmental inspectors have identified locations where releases to the environment may have occurred. These locations are generally referred to as Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs).

Pursuant to the terms and conditions of an Order issued on July 27, 2007 by the New Mexico Environment Department (NMED) to San Juan Refining Company and Giant Industries Arizona, Inc. for the Bloomfield Refinery, this Investigation Work Plan has been prepared for the AOCs designated as Group 6. A Class I modification to the facility's RCRA permit was approved on June 10, 2008 to reflect the change in operator to Western Refining Southwest, Inc. – Bloomfield Refinery.

The planned investigation activities include collection of soil samples, which will be analyzed for potential site-related constituents. The Investigation Work Plan includes specific sampling locations, sample collection procedures, and analytical methods. The scope of the proposed investigation is based, in part, on the results of previous site investigation activities.

Group 6 covers seeps located along the San Juan River northwest of the processing units, which are identified as AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47 in the NMED Order. The Order requires that San Juan Refining Company and Giant Industries Arizona, Inc. ("Western") determine and evaluate the presence, nature, and extent of historical releases at the aforementioned AOCs. This Investigation Work Plan has been developed to collect the necessary data to meet the requirements of the Order.

# Section 1 Introduction

The Bloomfield Refinery is located immediately south of Bloomfield, New Mexico in San Juan County (Figure 1). The physical address is #50 Road 4990, Bloomfield, New Mexico 87413. The Bloomfield Refinery is located on approximately 263 acres. Bordering the facility is a combination of federal and private properties. Public property managed by the Bureau of Land Management lies to the south. The majority of undeveloped land in the vicinity of the facility is used extensively for oil and gas production and, in some instances, grazing. U.S. Highway 44 is located approximately one-half mile west of the facility. The topography of the main portion of the site is generally flat with steep bluffs to the north where the San Juan River intersects Tertiary terrace deposits.

The Bloomfield Refinery is a crude oil refinery currently owned by San Juan Refining Company, a New Mexico Corporation, and it is operated by Western Refining Southwest, Inc., formerly known as Giant Industries Arizona, Inc., an Arizona corporation. The Bloomfield Refinery has an approximate refining capacity of 18,000 barrels per day. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization, and diesel hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils, and LPG. Petroleum refining operations were suspended on November 23, 2009.

On July 27, 2007, the New Mexico Environment Department (NMED) issued an Order to San Juan Refining Company and Giant Industries Arizona, Inc. ("Western") requiring investigation and corrective action at the Bloomfield Refinery. This Investigation Work Plan has been prepared for the Areas of Concern (AOC) designated as Group 6 in the Order, which includes AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47. The location of AOC Nos. 19, 20 and 21 are shown on Figure 2. Photographs of select locations around the seeps are included in Appendix A.

The purpose of the site investigation is to determine and evaluate the presence, nature, and extent of releases in accordance with 20.4.1.500 New Mexico Administrative Code (NMAC) incorporating 40 Code of Federal Regulations (CFR) Section 264.101. The investigation activities will be conducted in accordance with Section IV of the Order.

# Section 2 Background

This section presents background information for the AOCs, including a review of historical waste management and product storage activities to identity the following:

- Type and characteristics of all waste and all potential contaminants handled in the subject AOCs;
- Known and possible sources of contamination;
- History of releases; and
- Known extent of contamination.

From 2001 to 2002, the Hammond Irrigation Ditch was lined with concrete. The ditch extends along the Facility's northern and western boundaries between the refinery and the San Juan River. The water present in the ditch acted as a hydraulic barrier prior to installation of the liner, confining the bulk of the impacts to within the refinery boundaries. A recovery system with a French drain was installed to preserve the integrity of the concrete liner.

Between August and December 2004, petroleum hydrocarbons and water were observed to be seeping out of seven areas on the north side of the refinery near monitoring wells MW-45, MW-46, and MW-47. During inspections of these areas, hydrocarbon was observed to have stained the soil. Figure 2 shows the locations of these seeps.

Four seeps (Nos. 1, 2, 5, and 9) are located within two small drainage tributaries to the San Juan River at a location north of monitoring well MW-45. These seeps are referred to as AOC No. 19 Seep North of MW-45. Two seeps (Seep Nos. 6 and 7) were discovered along the bluff north of monitoring well MW-46 and are referred to as AOC No. 20 Seep North of MW-46. The last seep (No. 8) is located along the bluff above the San Juan River north of monitoring well MW-47 and is referred to as AOC No. 21 Seep North of MW-47.

Nine catchment basins were installed as temporary measures when the seeps were first identified in 2004. A liner was installed at each catchment basin with the exception of Seep No. 4. Initially, the water accumulating in the catchment basins was pumped to Tank 37 and then to the Refinery's wastewater treatment system. The basins were constructed by placing high density polyethylene (HDPE) on top of the exposed bedrock after the visibly impacted soils had

been removed and earthen berms formed. The design of the catchment basins also allows the accumulation of rain water in addition to groundwater discharge.

The North Boundary Barrier Wall (slurry wall) was designed and installed by April 2005 as a permanent control measure to prevent further potential discharges of groundwater to surface water and the generation of seeps along the bluff. Subsequent to the installation of the slurry wall and with the continued recovery of groundwater from the Hammond Ditch French drain, the discharge from the seeps was significantly reduced.

Only Seep Nos. 1, 6, and 9 currently have any actual discharge of groundwater. Seep No. 1 has the most flow at the rate of a trickle. Seep No. 6 has about two thirds the flow of Seep No. 1 with Seep No. 9 measured by drips with no continuous flow. Seep Nos. 2, 5, 7, and 8 did have historic flows, but groundwater discharge has ceased subsequent to the installation of the slurry wall.

Water samples were collected from the seeps in 2007. The samples were collected on three occasions (October 9, 2007, November 8, 2007, and December 10, 2007) from the seeps, which had an active discharge of groundwater. The samples were collected from Seep Nos. 1, 6, 7, 8, and 9 shown on Figure 8 and were identified on the chain-of-custodies and analytical reports as Outfall #1, Outfall #6, Outfall #7, Outfall #8, and Outfall #9. The analytical results are summarized in Table 1. All of the analyses were non-detect for BTEX (benzene, ethylbenzene, toluene, and xylenes) constituents, with one exception. The October sample from Seep No. 1 (Outfall #1) indicated very low concentrations of benzene and xylenes at 0.0029 mg/l and 0.0039 mg/l, respectively. Both subsequent samples from this location were non-detect for all BTEX constituents. All of the detected results and non-detect quantitation limits are less than the potentially applicable groundwater and surface water quality standards shown in Table 1.

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Water samples have been collected from the seeps on a semiannual basis starting in 2008. As part of the Facility-Wide Groundwater Monitoring Plan, Western checks all of the identified seep locations (Nos. 1 through 9) on a bi-weekly basis to determine if there is evidence of an active groundwater discharge. The presence of groundwater discharges is recorded and water samples are collected during the semiannual sampling event, when water is present, from all seeps that have indicated an active groundwater discharge within the past six months. The analytical results from these seep samples are summarized in Table 2. No semivolatile organic compounds were detected in any of the seep samples and, therefore, are not included in the

summary table. All analytical results are included in the Groundwater Remediation and Monitoring Report, which is submitted to the NMED in April of each year.

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Results of the historical analyses of seep samples show that chloride and sulfate are detected at concentrations above the New Mexico Water Quality Control Commission Standards for Groundwater. All of the 2008 and 2009 analyses were non-detect for BTEX (benzene, ethylbenzene, toluene, and xylenes). Methyl tert-butyl ether (MTBE) was sporadically reported in some seep samples at concentrations ranging from less than 0.001 to 0.048 mg/L.

# Section 3 Site Conditions

The surface and subsurface conditions that could affect the fate and transport of any constituents are discussed below. This information is based on recent visual observations and historical subsurface investigations.

### 3.1 Surface Conditions

Regionally, the surface topography slopes toward the floodplain of the San Juan River, which runs along the northern boundary of the refinery complex. To the south of the refinery, the drainage is to the northwest. North of the refinery, across the San Juan River, surface water flows in a southeasterly direction toward the San Juan River. The active portion of the refinery property, where the process units and storage tanks are located, is generally of low relief with an overall northwest gradient of approximately 0.02 ft/ft. The refinery sits on an alluvial floodplain terrace deposit and there is a steep bluff (approx. drop of 90 feet) at the northern boundary of the refinery where the San Juan River intersects the floodplain terrace, which marks the southern boundary of the floodplain.

There are two locally significant arroyos, one immediately east and another immediately west of the refinery. These arroyos collect most of the surface water flows in the area, thus significantly reducing surface water flows across the refinery. A minor drainage feature is located on the eastern portion of the refinery, where the former Landfill Pond (SWMU No. 9) was located. There are several steep arroyos located to the west along the northern refinery boundary that capture local surface water flows and minor groundwater discharges. As shown in the photographs in Appendix A, the seeps associated with AOC Nos. 19, 20 and 21 are located within these western arroyos along the northern refinery boundary.

The refinery complex is bisected by County Rd #4990 (Sulivan Road), which runs east-west. The process units, storage tanks (crude oil and liquid products), and wastewater treatment systems are located north of the county road. The crude oil and product loading racks, LPG storage tanks and loading racks, maintenance buildings/90-day storage area, pipeline offices, transportation truck shop, and the Class I injection well are located south of the county road. There is very little vegetation throughout these areas with most surfaces composed of concrete, asphalt, or gravel. The area between the refinery and the San Juan River does have limited vegetation on steep slopes that do not support dense vegetation.

#### 3.2 Subsurface Conditions

Numerous soil borings and monitoring wells have been completed across the refinery property during previous site investigations and installation of the slurry wall, which runs along the northern and western refinery boundary. Based on the available site-specific and regional subsurface information, the site is underlain by the Quaternary Jackson Lake terrace deposits, which unconformably overlie the Tertiary Nacimiento Formation. The Jackson Lake deposits consist of fine grained sand, silt and clay that grades to coarse sand, gravel and cobble size material closer to the contact with the Nacimiento Formation. The Jackson Lake Formation is over 40 feet thick near the southeast portion of the site and generally thins to the northwest toward the San Juan River. The Nacimiento Formation is primarily composed of fine grained materials (e.g., carbonaceous mudstone/claystone with interbedded sandstones) with a reported local thickness of approximately 570 feet (Groundwater Technology Inc., 1994).

Figures 3 and 4 present cross-sections of the shallow subsurface based on borings logs from on-site monitoring well completions. The boring log for MW-54 on Figure 3 is similar to the logs for MW-45 and MW-46 and depicts the shallow subsurface stratigraphy in the vicinity of AOC Nos. 19, 20 and 21. The surface elevation along the bluff is approximately 5504 feet MSL (based on the surface elevations of monitoring wells MW-45 and MW-46). As shown in Cross-Section A-A' (Figure 3), the top of the Nacimiento Formation occurs at approximately 5495 feet MSL. Due to erosion along the bluff, the elevation of the top of the Nacimiento near the seeps is as much as 60 feet lower.

The uppermost aquifer is under water table conditions and occurs within the sand and gravel deposits of the Jackson Lake Formation. The Nacimiento Formation functions as an aquitard at the site that prevents constituents from migrating to deeper aquifers. The potentiometric surface as measured in August 2009 is presented as Figure 5 and shows the groundwater flowing to the northwest, toward the San Juan River.

Previous investigations have identified and delineated impacts to groundwater from historical site operations. Figure 6 shows the distribution of separate phase hydrocarbon (SPH) in the subsurface based on the apparent thickness of SPH measured in monitoring wells. SPH is not present within the AOC seeps or within nearby monitoring wells. Dissolved-phase impacts are depicted on Figure 7.

# Section 4 Scope of Services

### 4.1 Anticipated Activities

Pursuant to Section IV of the Order, a scope of services has been developed to determine and evaluate the presence, nature, extent, fate, and transport of constituents. To accomplish this objective, surface and shallow soil samples will be collected at AOC No. 19 Seep North of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47. No groundwater samples are planned as the water from the seeps is already collected and analyzed on a semiannual basis as part of the Facility-Wide Groundwater Monitoring Plan. Therefore, the site investigation will be limited to the collection of soil samples. Where the HDPE liners are present within the catchment basins, surface soil samples will be collected as discussed below and in Section 5.2. Hand augured soil borings will be installed at select locations along the arroyos (drainage pathways) and samples will be collected from the following intervals:

- 0-6";
- 18-24";
- The sample from each soil boring with the greatest apparent degree of contamination, based on field observations and field screening (if different from the two designated sampling intervals);
- Any additional intervals as determined based on field screening results; and
- Total depth of the boring (if different from the two designated sampling intervals).

Six soil borings are proposed for locations in the middle of the drainage pathways and at locations just downstream from the berms of the catchment basins. Thirty four surface soil samples (0-6") will be collected at the seep faces, on top of the HDPE liner, at select locations along the bottom of the drainage pathways, and along the margins of the drainage pathways, which occur on the banks of the drainage pathways and at the edge of the catchment basin liners.

Soil samples will be collected at AOC No. 19 from the following locations:

- Three surface soil samples will be collected near Seep No. 1, with one of the samples collected from the seep face and the other two samples collected along the margins of the drainage pathway;
- Near Seep No.2, a total of three surface soil samples will be collected with one collected from the seep face and the other two collected from along the margins of the drainage pathway;
- Three surface soil samples will be collected near Seep No. 5 with one collected from the seep face and two more collected along the margins of the drainage pathway;
- Four surface soil samples will be collected near Seep No. 9 with one collected from the bottom of the drainage pathway where the seep originated, one from the center of the lined catchment basin, and two from along the margins of the drainage pathway;
- One surface soil sample will be collected at Seep No. 4 at the center of the natural basin where the seep daylighted;
- Two surface soil samples will be collected from along the margins of the drainage pathway between Seep No. 5 and Seep No. 9;
- Four surface soil samples will be collected along the margins of the drainage pathway between Seep No. 3 and Seep No. 4; and
- A minimum of six soil samples will be collected from the three soil borings, which are located near the center of the two major drainage pathways that occur at AOC No. 19.

At AOC No. 20, soil samples will be collected at the following locations:

- Four surface samples will be collected at Seep No. 6 with one sample collected from the seep face, one soil sample collected from on top of the catchment liner, and two samples collected from along the margins of the drainage pathway;
- Three surface soil samples will be collected at Seep No. 7, with one sample collected from the top of the catchment liner and two samples collected from along the margins of the drainage pathway;
- Two surface soil samples will be collected from along the center line of the drainage pathway that extends from Seep No. 6 toward the San Juan River;
- Two surface soil samples will be collected from the margins of the drainage pathway that extends from Seep No. 6 toward the San Juan River; and
- A minimum of two soil samples will be collected from one soil boring at the center line of the drainage pathway that extends below Seep No. 6.

Soil samples will be collected from the following locations at AOC No. 21:

• Three surface soil samples will be collected at Seep No. 8, with one collected from the top of the catchment liner and two collected from along the margins of the drainage pathway; and

• A minimum of four soil samples will be collected from two soil borings, with one positioned at the discharge point of Seep No. 8 and the other down the drainage pathway just below the catchment berm near Seep No. 8.

The soil samples will be analyzed by the following methods:

- SW-846 Method 8260 (volatile organic compounds);
- SW-846 Method 8270 (semi-volatile organic compounds);
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics;
- SW-846 Methods 6010/6020 and 7470/7471 (metals); and
- SW-846 Methods 335.4/335.2 (cyanide).

#### 4.2 Background Information Research

Documents containing the results of previous investigations and subsequent routine groundwater monitoring data from monitoring wells and the seeps were reviewed to facilitate development of this work plan. The previously collected data provide detailed information on the overall subsurface conditions, including hydrogeology and contaminant distribution within groundwater on a site-wide basis. The data collected under this scope of services will supplement the existing soil and groundwater information and provide specific information regarding contaminant occurrence and distribution within soils near the seeps.

### 4.3 Collection and Management of Investigation Derived Waste

Excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with site investigation activities will be contained and characterized using methods based on the boring location, boring depth, and type of constituents suspected or encountered. All decontamination water will be disposed in the refinery wastewater treatment system upstream of the API Separator. An IDW management plan is included as Appendix B.

#### 4.4 Surveys

The horizontal coordinates and elevation of each sampling location and the locations of all other pertinent structures will be determined by a registered New Mexico professional land surveyor in accordance with the State Plane Coordinate System (NMSA 1978 47-1-49-56 (Repl. Pamp. 1993)). The surveys will be conducted in accordance with Sections 500.1 through 500.12 of the

Regulations and Rules of the Board of Registration for Professional Engineers and Surveyors Minimum Standards for Surveying in New Mexico. Horizontal positions will be measured to the nearest 0.1-ft and vertical elevations will be measured to the nearest 0.01-ft.

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# Section 5 Investigation Methods

The purpose of the site investigation is to determine and evaluate the presence, nature, and extent of releases. Guidance on selecting and developing sampling plans as provided in *Guidance for Choosing a Sampling Design for Environmental Data Collection* (EPA, 2000) was utilized to select the appropriate sampling strategy.

#### 5.1 Soil Boring Installation

Shallow soil borings will be completed using a hand auger and/or shovel at appropriate locations within and into the banks of the drainage pathways where the HDPE liner of the catchment basins is not present. This sampling method is ideally suited due to the inaccessibility of a drill rig and the limited anticipated depth to bedrock in the vicinity of the seeps. The sampling equipment will be properly decontaminated before beginning each boring.

The NMED will be notified as early as practicable if conditions arise or are encountered that do not allow the advancement of borings at planned sampling locations. Appropriate actions (e.g., relocation of borings to a less threatening location) will be taken to minimize any negative impacts from investigative borings. The depth of soil borings in the vicinity of the seeps may be limited due to collapse of the overlying soil. The soil borings within the drainage pathways will be extended to the top of bedrock (Nacimiento Formation) or to refusal, whichever occurs first, at an anticipated completion depth of less than 3 feet. Soil samples will be collected continuously and logged by a qualified geologist or engineer.

The sampling will be accomplished under the direction of a qualified engineer or geologist who will maintain a detailed log of the materials and conditions encountered in each boring. Both sample information and visual observations of the cuttings and core samples will be recorded on the boring log. Known site features and/or site survey grid markers will be used as references to locate each boring prior to surveying the location as described in Section 4.4. The boring locations will be measured to the nearest foot, and locations will be recorded on a scaled site map upon completion of each boring.

### 5.2 Soil Sampling

Since there is the potential for constituents to have been released to soils at known locations at AOC Nos. 19, 20 and 21, a judgmental sampling design is appropriate. Soil samples will be collected from the locations where groundwater reaches the land surface (i.e., seep face) and along the bottom and sides of the drainage pathways where water flowed and accumulated. The individual sample locations have been selected in an attempt to determine the highest concentrations of constituents in soil and to determine the horizontal extent of the impacts. The surface soil samples (0-6") collected from the seep faces and soil that has accumulated on top of the catchment basin liners where water accumulated should represent the higher concentration areas. Samples collected from soil borings located at seep faces and along the center of the drainage pathways will also represent higher concentration areas. The drainage pathways are generally narrow and deeply incised into the alluvial terrace deposits overlying the bedrock (Nacimiento Formation). Surface soil samples (0-6") collected from the seep faces and bottom the sides of the steep slopes along the drainage pathways and at the edge of catchment liners will be used to define the horizontal extent of any impacts identified in the seep faces and bottom of the drainage pathways.

The six soil borings will be completed using a hand auger to the top of bedrock or to refusal, whichever occurs first. The thirty four surface soil sample locations will terminate at the top of the HDPE-liner, where present, or at a depth of 6", unless Western elects to extend the sampling deeper based on field screening results. If the surface soil sampling depth is extended, additional soil samples will be collected and analyzed as described below. A decontaminated hand auger will be used to obtain disturbed soils during the installation of each boring. Surface samples may be collected using decontaminated, hand-held stainless steel sampling device, hand auger, or a pre-cleaned disposable sampling device. A portion of the sample will be placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. The use of an Encore® Sampler or other similar device will be used for logging and field screening as discussed in Section 5.2.1. Sample handling and chain-of-custody procedures will be in accordance with the procedures presented below in Section 5.3.

Discrete soil samples will be collected at the soil borings for laboratory analyses at the following intervals:

0-6" (all soil sample locations);

- 18-24" (only from the six deeper hand-augured soil boring locations);
- The sample from each of the six hand-augured soil borings with the greatest apparent degree of contamination, based on field observations and field screening (if different from the two designated sampling intervals);
- Any additional intervals as determined based on field screening results; and
- Total depth of the boring (if different from the two designated sampling intervals).

Proposed sampling locations for AOC Nos. 19, 20 and 21 are shown on Figures 9, 10 and 11, respectively and are described in detail below.

#### AOC No. 19

Soil samples will be collected at AOC No. 19 from the following locations:

- Three surface soil samples will be collected near Seep No. 1, with one of the samples collected from the seep face and the other two collected along the margins of the drainage pathway;
- Near Seep No.2, a total of three surface soil samples will be collected with one from the seep face and the other two from along the margins of the drainage pathway;
- Three surface soil samples will be collected near Seep No. 5 with one collected from the seep face and two more collected along the margins of the drainage pathway;
- Four surface soil samples will be collected near Seep No. 9 with one collected from the bottom of the drainage pathway where the seep originated, one from the center of the lined catchment basin, and two from along the margins of the drainage pathway;
- One surface soil sample will be collected at Seep No. 4 at the center of the natural basin where the seep daylighted;
- Two surface soil samples will be collected along the margins of the drainage pathway between Seep No. 5 and Seep No. 9;
- Four surface soil samples will be collected along the margins of the drainage pathway between Seep No. 3 and Seep No. 4; and
- A minimum of six soil samples will be collected from the three soil borings, which are located near the center of the two major drainage pathways that occur at AOC No. 19.

#### AOC No. 20

At AOC No. 20, soil samples will be collected at the following locations:

- Four surface samples will be collected at Seep No. 6 with one sample collected from the seep face, one soil sample collected from on top of the catchment liner, and two samples collected from along the margins of the drainage pathway;
- Three surface soil samples will be collected at Seep No. 7, with one sample collected from the top of the catchment liner and two samples collected from along the margins of the drainage pathway;
- Two surface soil samples will be collected from along the center line of the drainage pathway that extends from Seep No. 6 toward the San Juan River;
- Two surface soil samples will be collected from the margins of the drainage pathway that extends from Seep No. 6 toward the San Juan River; and
- A minimum of two soil samples will be collected from one soil boring at the center line of the drainage pathway that extends below Seep No. 6.

#### AOC No. 21

Soil samples will be collected from the following locations at AOC No. 21:

- Three surface soil samples will be collected at Seep No. 8, with one collected from the top of the catchment liner and two collected from along the margins of the drainage pathway; and
- A minimum of four soil samples will be collected from two soil borings, with one positioned at the discharge point of Seep No. 8 and another down the drainage pathway just below the catchment berm near Seep No. 8.

Quality Assurance/Quality Control (QA/QC) samples will be collected to monitor the validity of the soil sample collection procedures as follows:

- Three field duplicates (one per AOC) will be collected; and
- Three equipment blanks (one per AOC) will be collected from sampling equipment.
- •

### 5.2.1 Soil Sample Field Screening and Logging

Samples obtained from the borings will be screened in the field on 1.0 foot intervals for evidence of impacts. Field screening results will be recorded on the exploratory boring logs and will be used to aid in the selection of soil samples for laboratory analysis. The primary screening methods include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds.

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds. Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag or a foil sealed container allowing space for ambient air. The container will be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container will be allowed to rest for a minimum of 5 minutes while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag or through the foil. The maximum value and the ambient air temperature will be recorded on the field boring log for each sample.

The monitoring instruments will be calibrated each day to the manufacturer's standard for instrument operation. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp or a combustible gas indicator will be used for VOC field screening. Field screening results may be site- and boring-specific and the results may vary with instrument type, the media screened, weather conditions, moisture content, soil type, and type of constituents. Conditions capable of influencing the results of field screening will be recorded on the field logs.

The physical characteristics of the samples (such as mineralogy, ASTM soil classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations will be recorded in the field log by a qualified geologist or engineer. Detailed logs of each soil boring will be completed in the field by a qualified engineer or geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during drilling, will be recorded on the logs.

#### 5.3 Sample Handling

At a minimum, the following procedures will be used at all times when collecting samples during investigation, corrective action, and monitoring activities:

- 1. Neoprene, nitrile, or other protective gloves will be worn when collecting samples. New disposable gloves will be used to collect each sample;
- 2. All samples collected of each medium for chemical analysis will be transferred into clean sample containers supplied by the project analytical laboratory with the exception of soil, rock, and sediment samples obtained in Encore® samplers. Sample container volumes and preservation methods will be in accordance with the most recent standard EPA and industry accepted practices for use by accredited analytical

laboratories. Sufficient sample volume will be obtained for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis; and

3. Sample labels and documentation will be completed for each sample following procedures discussed below. Immediately after the samples are collected, they will be stored in a cooler with ice or other appropriate storage method until they are delivered to the analytical laboratory. Standard chain-of-custody procedures, as described below, will be followed for all samples collected. All samples will be submitted to the laboratory soon enough to allow the laboratory to conduct the analyses within the method holding times. At a minimum, all samples will be submitted to the laboratory within 48 hours after their collection.

Chain-of-custody and shipment procedures will include the following:

- 1. Chain-of-custody forms will be completed at the end of each sampling day, prior to the transfer of samples off site.
- 2. Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice or other suitable coolant or other EPA or industry-wide accepted method. The drainage hole at the bottom of the cooler will be sealed and secured in case of sample container leakage.
- 3. Each cooler or other container will be delivered directly to the analytical laboratory.
- 4. Glass bottles will be separated in the shipping container by cushioning material to prevent breakage.
- 5. Plastic containers will be protected from possible puncture during shipping using cushioning material.
- 6. The chain-of-custody form and sample request form will be shipped inside the sealed storage container to be delivered to the laboratory.
- 7. Chain-of-custody seals will be used to seal the sample-shipping container in conformance with EPA protocol.
- 8. Signed and dated chain-of-custody seals will be applied to each cooler prior to transport of samples from the site.
- 9. Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form will be signed as received by the laboratory, and the conditions of the samples will be recorded on the form. The original chain-of-custody form will remain with the laboratory and copies will be returned to the relinquishing party.
- 10. Copies of all chain-of-custody forms generated as part of sampling activities will be maintained on-site.

#### 5.4 Decontamination Procedures

The objective of the decontamination procedures is to minimize the potential for crosscontamination. A designated decontamination area will be established for decontamination of sampling equipment.

Sampling or measurement equipment, including but not limited to, stainless steel sampling tools will be decontaminated in accordance with the following procedures or other methods approved by the Department before each sampling attempt or measurement:

- 1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;
- 2. Rinse with potable tap water;
- 3. Wash with nonphosphate detergent or other detergent approved by the Department (examples include Fantastik<sup>™</sup>, Liqui-Nox<sup>®</sup>);
- 4. Rinse with potable tap water; and
- 5. Double rinse with deionized water.

All decontamination solutions will be collected and stored temporarily as described in Section 4.3. Decontamination procedures and the cleaning agents used will be documented in the daily field log.

### 5.5 Field Equipment Calibration Procedures

Field equipment requiring calibration will be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks will be conducted daily, or at other intervals approved by the Department, and the instruments will be recalibrated, if necessary. Calibration measurements will be recorded in the daily field logs. If field equipment becomes inoperable, its use will be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument will be used.

#### 5.6 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded in a field log book. The original field forms will be maintained at the facility. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities.

Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

- 1. Site or unit designation;
- 2. Date;
- 3. Time of arrival and departure;
- 4. Field investigation team members including subcontractors and visitors;
- 5. Weather conditions;
- 6. Daily activities and times conducted;
- 7. Observations;
- 8. Record of samples collected with sample designations and locations specified;
- 9. Photographic log, as appropriate;
- 10. Field monitoring data, including health and safety monitoring;
- 11. Equipment used and calibration records, if appropriate;
- 12. List of additional data sheets and maps completed;
- 13. An inventory of the waste generated and the method of storage or disposal; and
- 14. Signature of personnel completing the field record.

#### 5.7 Chemical Analyses

All samples collected for laboratory analysis will be submitted to an accredited laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

The soil samples will be analyzed by the following methods:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.

Soil samples will also be analyzed for the following metals and cyanide using the indicated analytical methods.

Analyte,	Analytical
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

#### 5.8 Data Quality Objectives

The Data Quality Objectives (DQOs) were developed to ensure that newly collected data are of sufficient quality and quantity to address the projects goals, including Quality Assurance/Quality Control (QA/QC) issues (EPA, 2006). The project goals are established in the Order and are to determine and evaluate the presence, nature, and extent of releases at specified AOCs. The type of data required to meet the project goals includes chemical analyses of soil, sediment and groundwater to determine if there has been a release at the individual AOCs.

The quantity of data is AOC specific and based on the historical operations at individual locations. The quality of data required is consistent across locations and is specified in Section VIII.D.7.c of the Order. In general, method detection limits should be 20% or less of the applicable background levels, cleanup standards and screening levels.

Additional DQOs include precision, accuracy, representativeness, completeness, and comparability. Precision is a measurement of the reproducibility of measurements under a given set of circumstances and is commonly stated in terms of standard deviation or coefficient of variation (EPA, 1987). Precision is also specific to sampling activities and analytical

performance. Sampling precision will be evaluated through the analyses of duplicate field samples and laboratory replicates will be utilized to assess laboratory precision.

Accuracy is a measurement in the bias of a measurement system and may include many sources of potential error, including the sampling process, field contamination, preservation, handling, sample matrix, sample preparation, and analysis techniques (EPA, 1987). An evaluation of the accuracy will be performed by reviewing the results of field/trip blanks, matrix spikes, and laboratory QC samples.

Representativeness is an expression of the degree to which the data accurately and precisely represent the true environmental conditions. Sample locations and the number of samples have been selected to ensure the data is representative of actual environmental conditions. Based on AOC specific conditions, this may include either biased (i.e., judgmental) locations/depths or unbiased (systematic grid samples) locations, as discussed in Section 5.2 for soils. In addition, sample collection techniques (e.g., field monitoring and decontamination of sampling equipment) will be utilized to help ensure representative results.

Completeness is defined as the percentage of measurements taken that are actually valid measurements, considering field QA and laboratory QC problems. EPA Contract Laboratory Program (CLP) data has been found to be 80-85% complete on a nationwide basis and this has been extrapolated to indicate that Level III, IV, and V analytical techniques will generate data that are approximately 80% complete (EPA, 1987). As an overall project goal, the completeness goal is 85%; however, some samples may be critical based on location or field screening results and thus a sample-by-sample evaluation will be performed to determine if the completeness goals have been obtained.

Comparability is a qualitative parameter, which expresses the confidence with which one data set can be compared to another. Industry standard sample collection techniques and routine EPA analytical methods will be utilized to help ensure data are comparable to historical and future data. Analytical results will be reported in appropriate units for comparison to historical data and cleanup levels.

# Section 6 Monitoring and Sampling Program

Water samples from the seeps are collected on a semi-annual basis as part of the NMEDapproved Facility-Wide Groundwater Monitoring Plan. In accordance with Section 5.3 of the Facility-Wide Groundwater Monitoring Plan, water samples are collected from the seeps, if water is present. All seep locations are visually inspected bi-weekly to monitor active groundwater discharge along the bluff (NMED, 2008). The analytical results are included in the Groundwater Remediation and Monitoring Report submitted in April of each year. Groundwater is removed from any seep where analytical results exceed any of the standards set by the Water Quality Control Commission (WQCC), the EPA Maximum Contaminant Level (MCL), or the EPA Regional Screening Levels (Tap Water) in the absence of a WQCC standard or MCL (NMED, 2008).

## Section 7 Schedule

This investigation Work Plan will be implemented within 90 days of NMED approval. The estimated timeframes for each of the planned activities is as shown below:

- Field work (inclusive of all soil sampling) -- four weeks;
- Laboratory analyses for initial sampling event eight weeks;
- Data reduction and validation (soils) three weeks; and
- Data gap analysis three weeks.

Completion of the data gap analysis will complete all activities conducted under this Investigation Work Plan. Western will then prepare an Investigation Report pursuant to Section X.C of the Order. The Investigation Report will be submitted to the NMED within 120 calendar days of completion of the data gap analysis.

### Section 8 References

- EPA, 1987, Data Quality Objectives for Remedial Response Activities; United States Environmental Protection Agency, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, OSWER Directive 9355.0-7B, 85p
- EPA, 2000, Guidance on Choosing a Sampling Design for Environmental Data Collection, EPA/240/R-02/005, EPA QA/G-5S, 168 p.
- EPA, 2006, Guidance on Systematic Planning Using the Data Quality Objectives Process, United States Environmental Protection Agency, Office of Environmental Information; EPA/240/B-06/001, p. 111.
- Groundwater Technology Inc., 1994, RCRA Facility Investigation/Corrective Measures Study Report Bloomfield Refining Company #50 County Road 4990 Bloomfield, New Mexico, p.51.
- NMED, 2007, State of New Mexico Environment Department v. San Juan Refining Company and Giant Industries, Inc.; Order July 27, 2007, p. 133
- NMED, 2008. New Mexico Environmental Department (NMED) Hazardous Waste Bureau, Approval with Direction Facility-Wide Groundwater Monitoring Plan dated March 25, 2008.

# Tables

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Table 1Summary of 2007 Groundwater Seep ConcentrationsGroup 6 Investigation Work PlanWestern Refining Southwest - Bloomfield Refinery

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			Parar	Parameters	
		Benzene	Toluene	Ethylbenzene	Xylenes
		(mg/L)	(mg/L)	(mg/L)	(mg/L)
WQCC 20NMAC 6.2.3103(mg/L)	6.2.3103(mg/L):	0.01	0.75	0.75	0.62
WQCC 20N	WQCC 20NMAC 6.4(mg/L):	0.022	6.8	3.1	NE
Sample ID:	Date Sampled:				
∩i#foll #1	10/9/2007	<0.001	0.0029	<0.001	0.0039
	11/8/2007	<0.001	<0.001	<0.001	<0.002
(Jaceb MO. I)	12/10/2007	<0.001	<0.001	<0.001	<0.002
	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
(o cep ino. o)	12/10/2007	<0.001	<0.001	<0.001	<0.002
74th	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
(1. MI daso)	12/10/2007	<0.001	<0.001	<0.001	<0.002
	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/7/2007	<0.001	<0.001	<0.001	<0.002
(o ceeh Mo. o)	12/10/2007	<0.001	<0.001	<0.001	<0.002
	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
(Seep INO. 3)	12/10/2007	<0.001	<0.001	<0.001	<0.002

Notes:

mg/L = milligram per liter

NE = not established

WQCC 20NMAC 6.2.3103 = New Mexico Standard for Groundwater of 10,000 ug/L or less WQCC 20NMAC 6.4 = New Mexico Standards for Interstate and Intrastate Surface Water

Summary of Facility-Wide Monitoring Plan Seep Concentrations Group 6 Investigation Work Plan Western Refining Southwest - Bloomfield Refinery Table 2

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SM 2320B	ALK	(mg/L) _	220	NS1	250	NS2	130	NS1	160	NS2	160	440	370	SN	₽SN	NS¹	NS1	sNS₂	١SN	200	NS¹	NS²	NS1	460	NS⁴	NS <sup>2</sup>
S M 2	C02	(mg/L)	200	NS1	250	NS2	120	NS1	160	NS2	150	420	370	NS <sup>2</sup>	NS1	NS1	NS <sup>1</sup>	NS <sup>2</sup>	NS1	190	NS <sup>1</sup>	NS²	NS1	420	NS1	NS <sup>2</sup>
Γ	Sulfate	(mg/L)	1500	NS1	1500	NS2	6800	NS1	2500	NS₂	1500	1000	960	NS²	NS¹	NS₁	NS1	NS²	NS1	2200	NS1	NS₂	NS1	1500	NS1	NS <sup>2</sup>
EPA 300.0	P (),cm,	(116) L	<0.50	NS1	<0.50	NS²	<10	NS <sup>1</sup>	<0.50	sNS²	<10	<0.50	<0.50	NS <sup>2</sup>	NS1	NS1	NS1	NS²	NS1	<0.50	NS <sup>1</sup>	NS²	NS <sup>1</sup>	<0.50	NS1	NS²
	Nitrate	10	<0.10	NS'	<0.10	NS2	<2.0	NS	<0.10	NS2	<2.0	<2.0	<0.10	NS²	NS⁺	NS1	NS <sup>1</sup>	NS²	NS1	<1.0	NS1	NS²	NS1	0.	NS1	NS²
	Nitrite (mo//)	1.1.8/	<2.0	NS <sup>1</sup>	<1.0	NS²	<2.0	NS'	<1.0	NS²	<2.0	\$	<1.0	NS <sup>2</sup>	NS <sup>1</sup>	NS <sup>1</sup>	NS1	NS <sup>2</sup>	NS۱	₹	NS1	NS²	NS1	<1.0	NS1	NS²
	Bromide	1	¥	Ą	Ą	NA	AN	AN	AN	AN	AN	1.6	AN	NA	AN	AN	AN	NA	AN	1.7	AN	AN	AN	1.0	AA	AN
	Chloride	250	390	NS1	370	NS₂	1400	NS1	370	NS²	4800	2900	2500	NS²	NS <sup>1</sup>	NS1	NS1	NS²	NS۱	650	NS1	NS₂	NS1	620	NS¹	NS²
	Fluoride	1.6	0.29	NS1	0.35	NS²	0.22	NS⁴	0.8	NS²	0.58	<0.50	0.47	NS <sup>2</sup>	NS1	NS1	NS1	NS²	NS1	0.33	NS1	NS₂	NS1	0.35	NS <sup>1</sup>	'SN
Γ	WQCC 20 NMAC 6.2.3103 40CFR141.61 (Benzene and Ethylbenzene) EPA Regional Screening Level (MTIBE))																									
EPA 8260B	MTBE (moli)	0.012	0.003	NS1	0.042	NS²	<0.0015	NS <sup>1</sup>	<0.015	NS1	<0.0015	0.014	0.006	NS²	NS1	NS٩	NS1	NS <sup>2</sup>	NS1	<0.001	NS <sup>1</sup>	NS²	NS	0.048	NS1	NS²
	Xylene	0.62	<0.003	NS1	<0.003	<0.002	<0.003	NS1	<0.003	NS1	<0.003	<0.002	<0.003	<0.002	NS1	NS1	NS¹	<0.002	NS۱	<0.002	NS1	NS₂	NS1	<0.002	NS1	<0.002
	EthylBen (moll)	0.70	<0.001	NS1	<0.001	<0.001	<0.001	NS1	<0.001	NS <sup>1</sup>	<0.001	<0.001	<0.001	<0.001	NS¹	NS1	NS1	<0.001	NS۱	<0.001	NS1	NS²	NS1	<0.001	NS1	<0.001
	Toluene (mg/l)	0.75	<0.001	NS1	<0.001	<0.001	<0.001	NS1	<0.001	NS <sup>1</sup>	<0.001	<0.001	<0.001	<0.001	NS	NS1	NS1	<0.001	NS	<0.001	NS1	NS <sup>2</sup>	NS <sup>1</sup>	<0.001	NS <sup>1</sup>	<0.001
	Benzene	0.05	<0.001	NS <sup>1</sup>	<0.001	<0.001	<0.001	NS <sup>1</sup>	<0.001	NS <sup>1</sup>	<0.001	<0.001	<0.001	<0.001	NS <sup>1</sup>	NS1	NS1	<0.001	NS <sup>1</sup>	<0.001	NS¹	NS <sup>2</sup>	NS <sup>1</sup>	<0.001	NS1	<0.001
	Date		Aug-09	Apr-09	Aug-08	Apr-08	Aug-09	Apr-09	Aug-08	Apr-08	Aug-09	Apr-09	Aug-08	Apr-08	Aug-09	Apr-09	Aug-08	Apr-08	Aug-09	Apr-09	Aug-08	Apr-08	Aug-09	Apr-09	Aug-08	Apr-08
	Sample Location			Seep 1				Seep 3				Seep 6			Seep 7				Seep 8				Seep 9			

 $NS^{\,\text{t}}$  = Seep location is Dry or Not Enough Water to Sample- No Sample NS^ = Not Sampled - Sample was taken before implementation of Facility-Wide Monitoring Plan

NA = Constituent analysis not requested

WOCC 20NMAC 6.2.3103 = New Mexico Water Quality Control Commmission Standard for Groundwater of 10,000 ug/L or less 40CFR141.61 = Safe Driking Water Act Maximum Contaminant Level

EPA Regional Screening Level (RSL) Tapwater (November 2010)

No active discharge at Seeps 2, 4 and 5 has been present to sample since implementation of the Facility-Wide Monitoring Plan

# Figures

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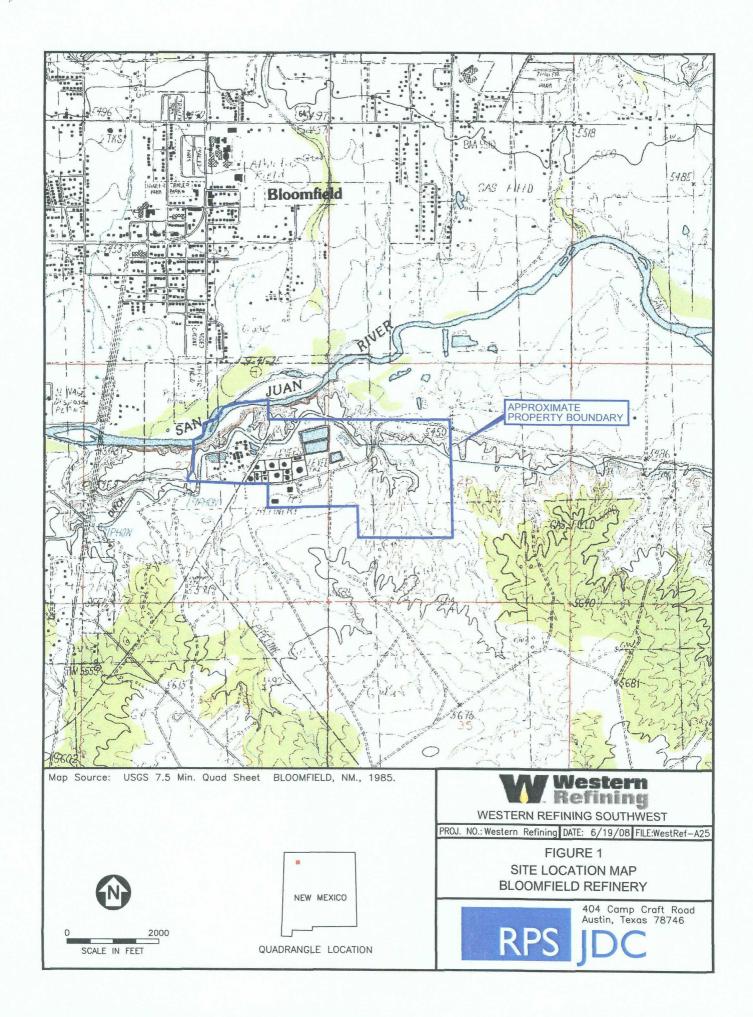
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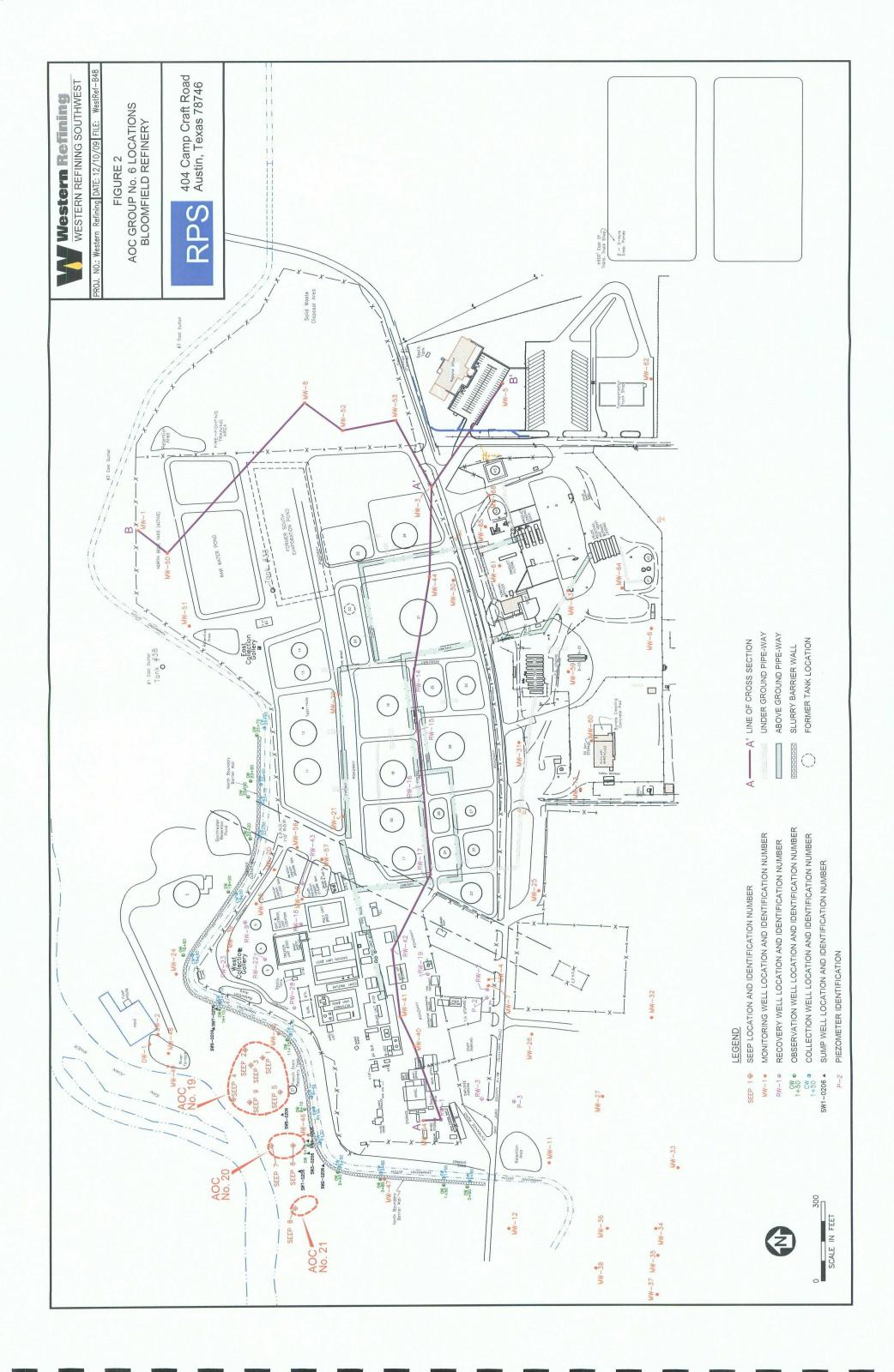
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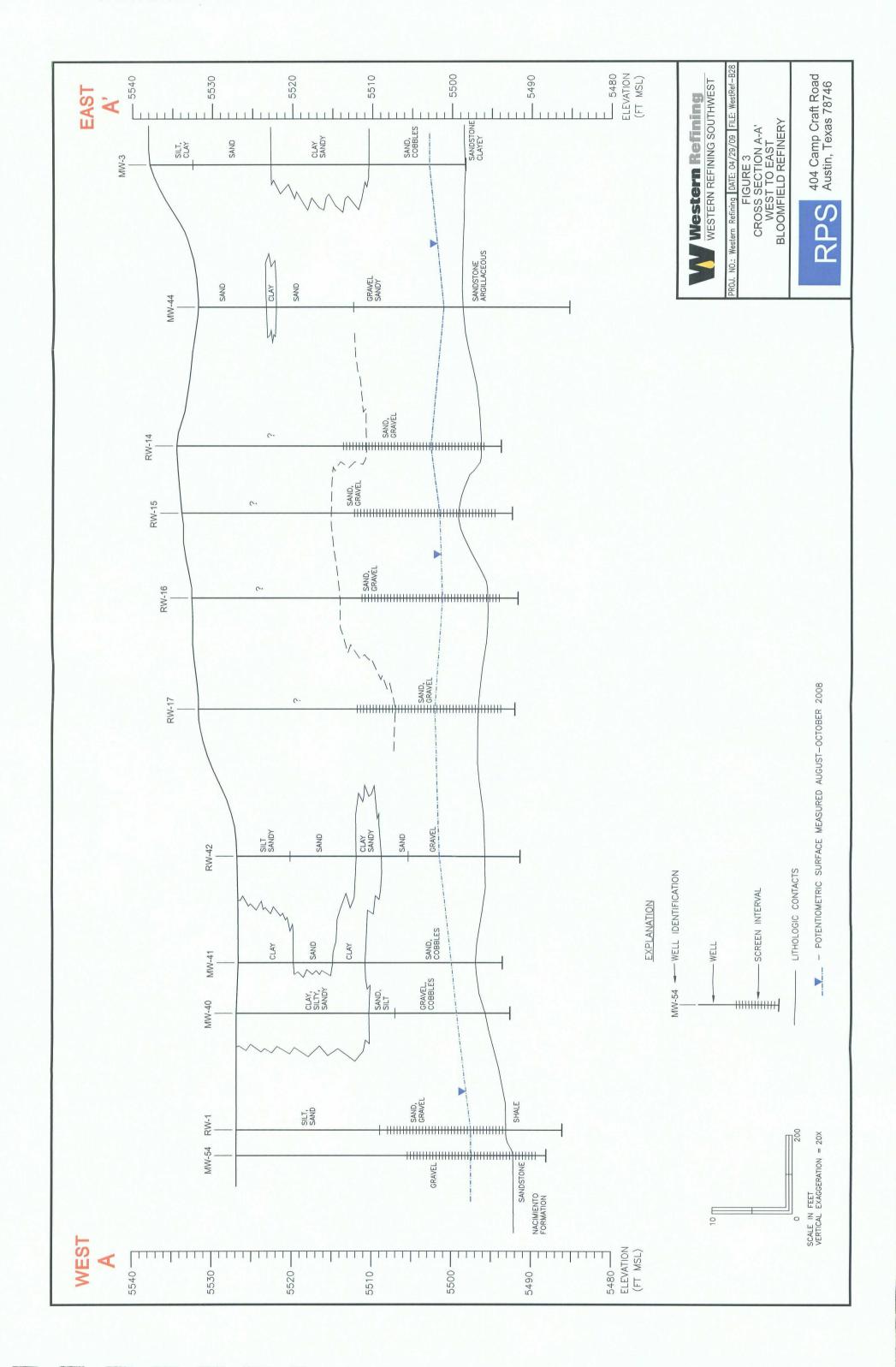
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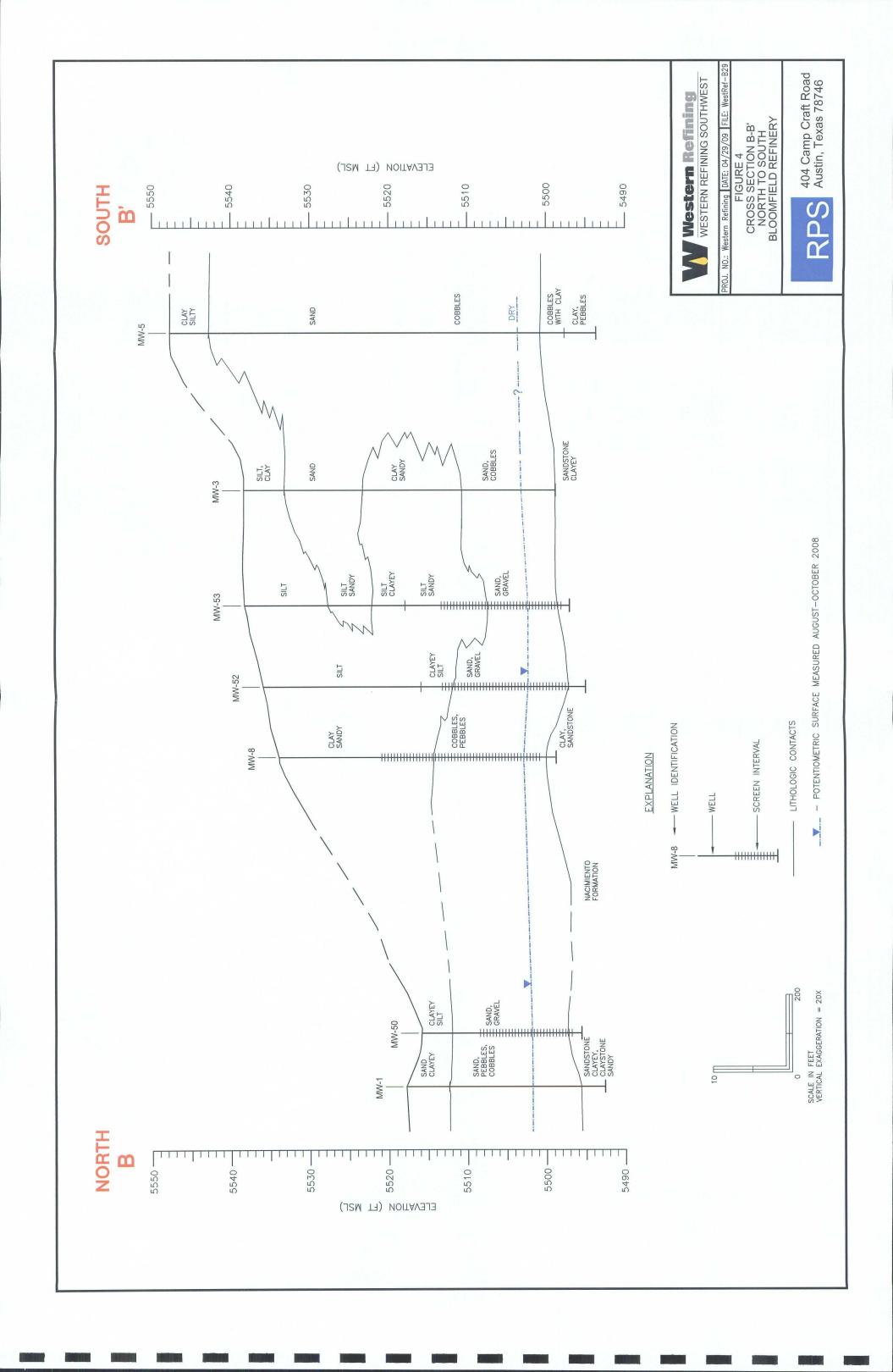
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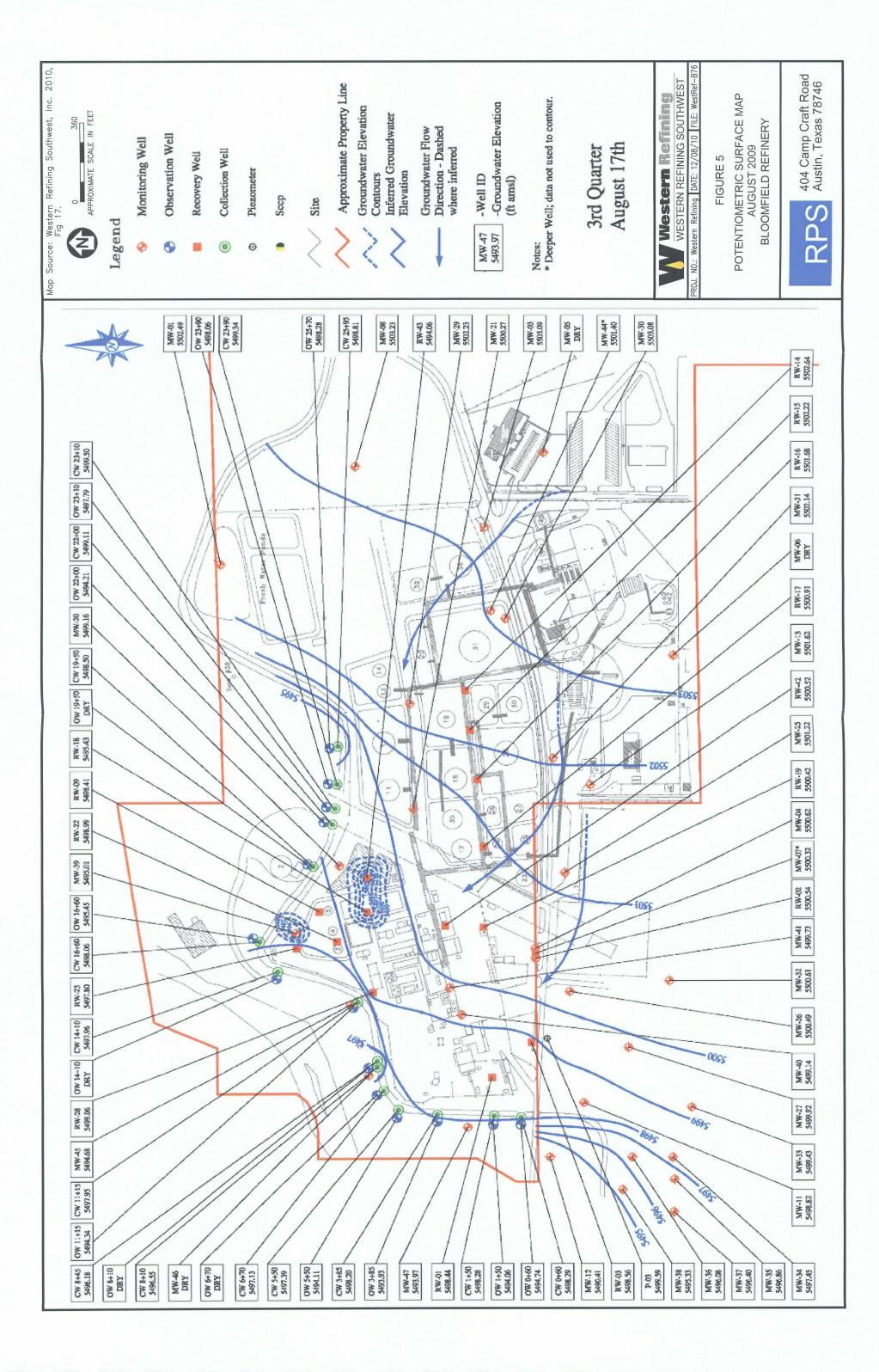
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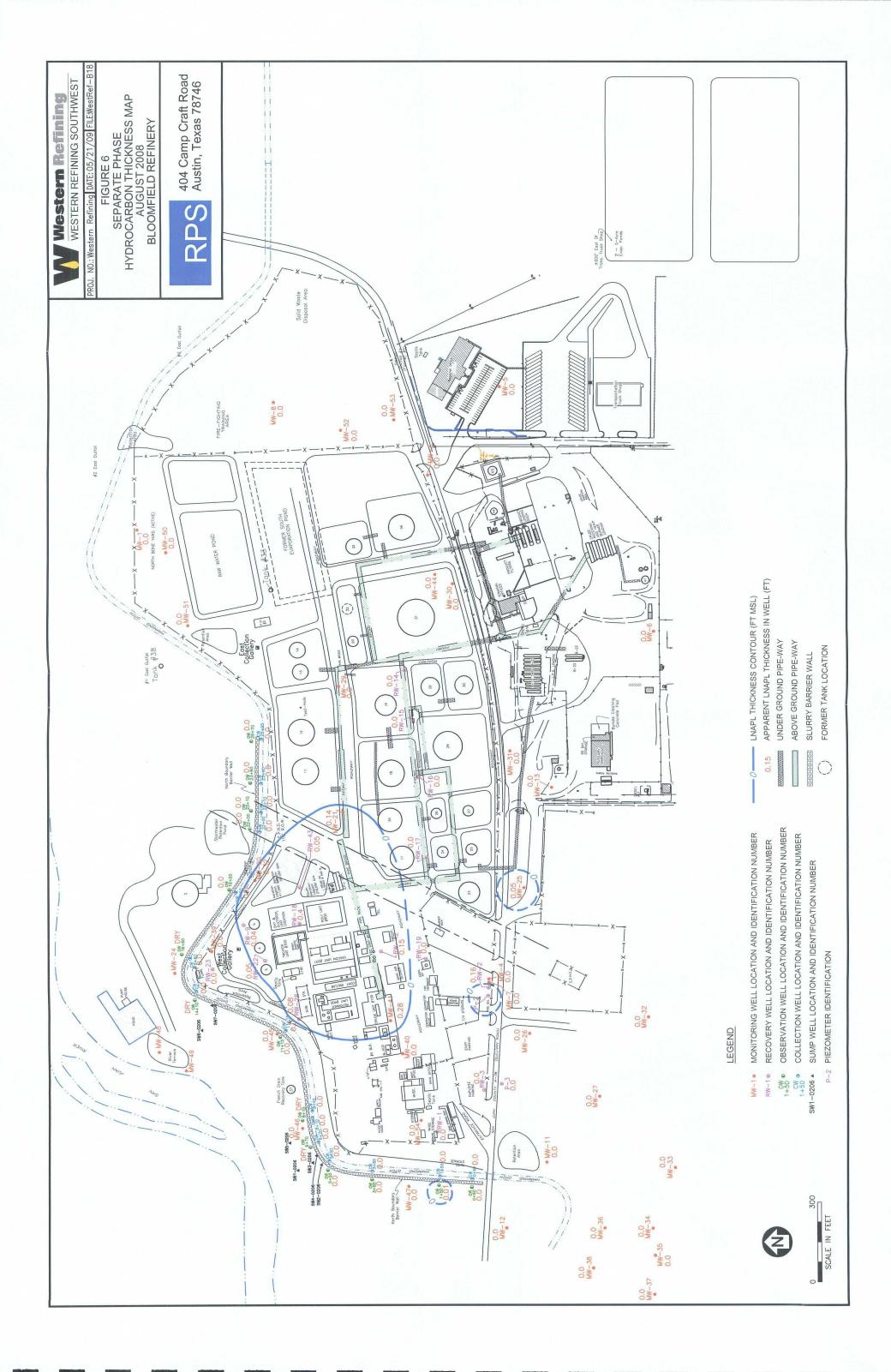


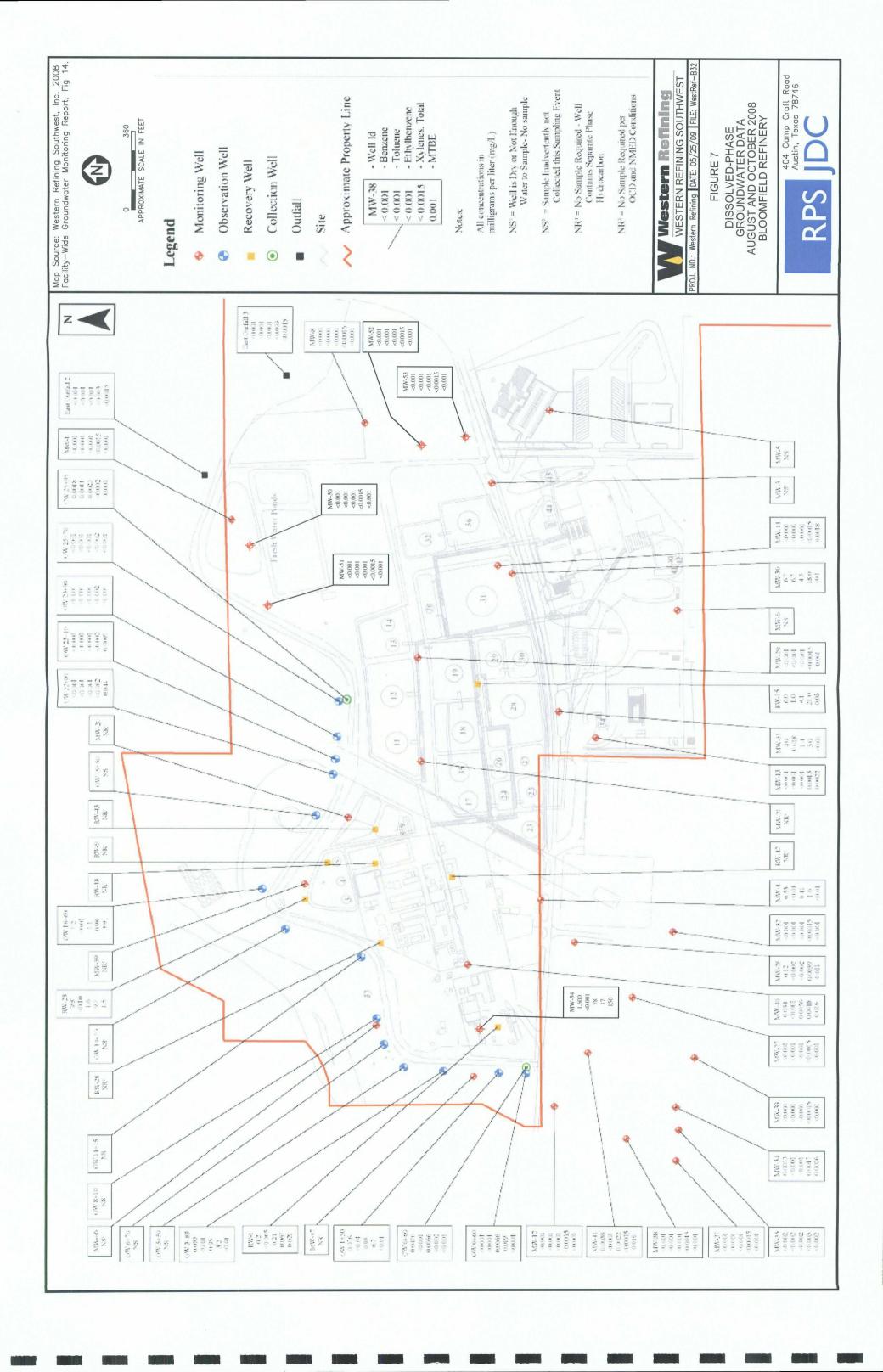


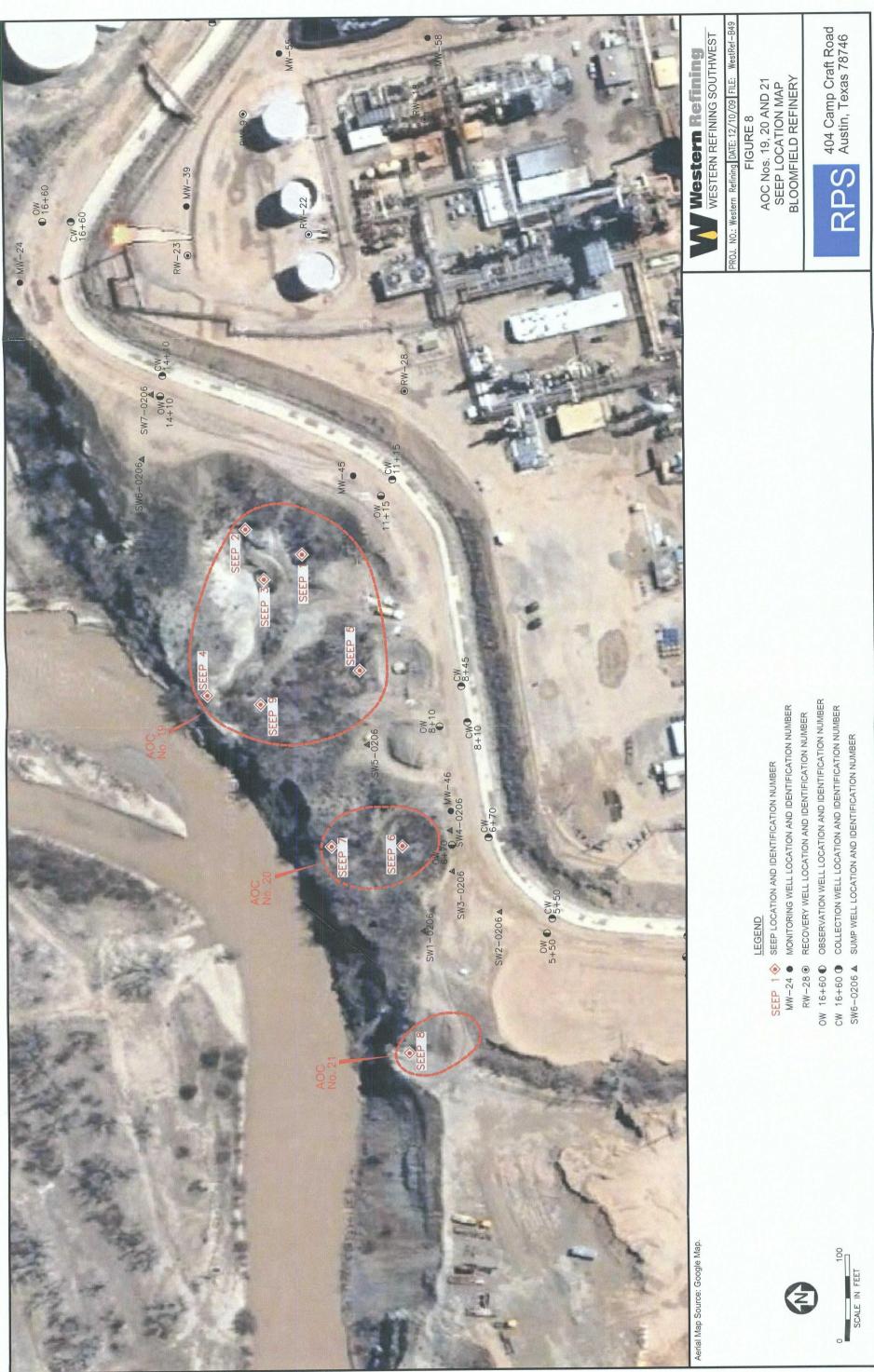






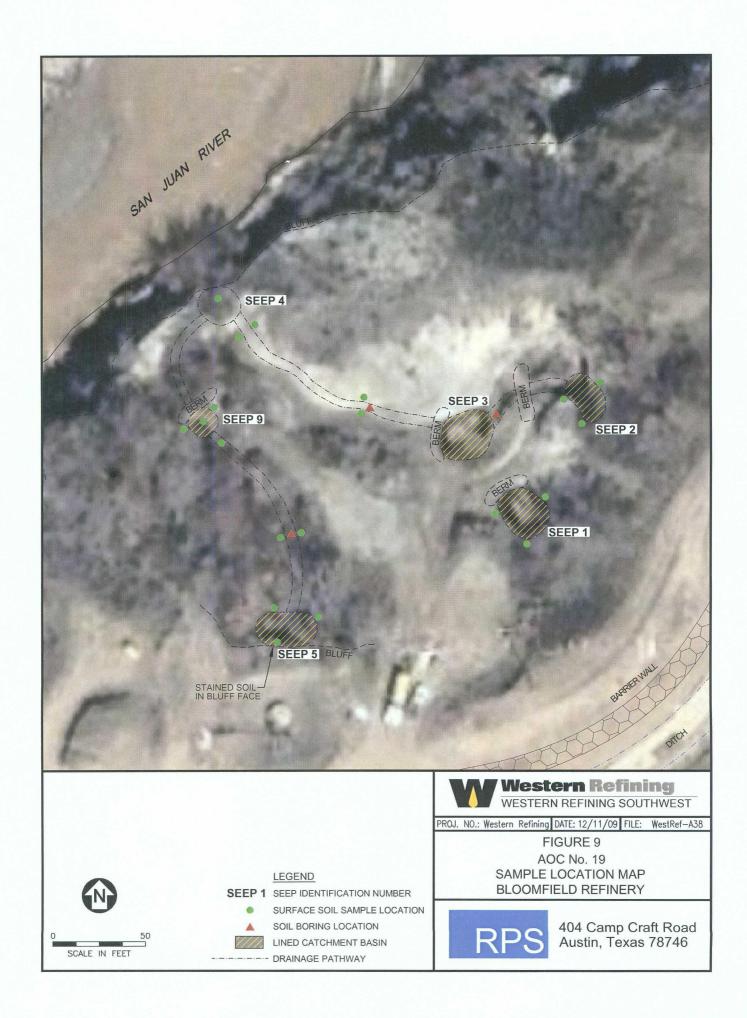


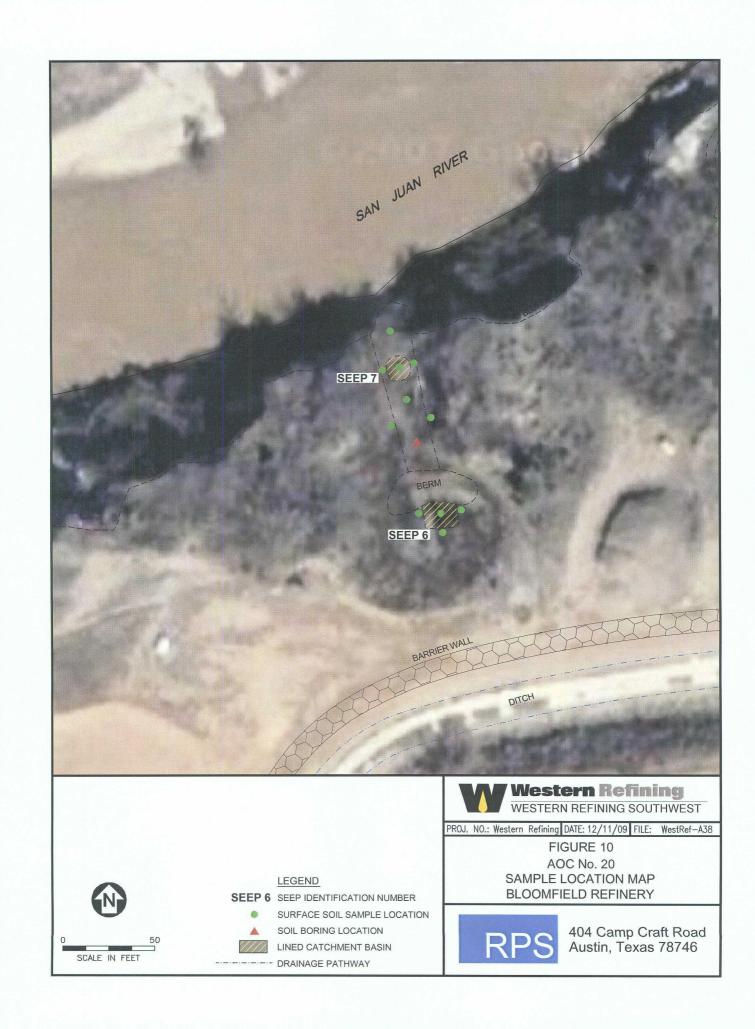




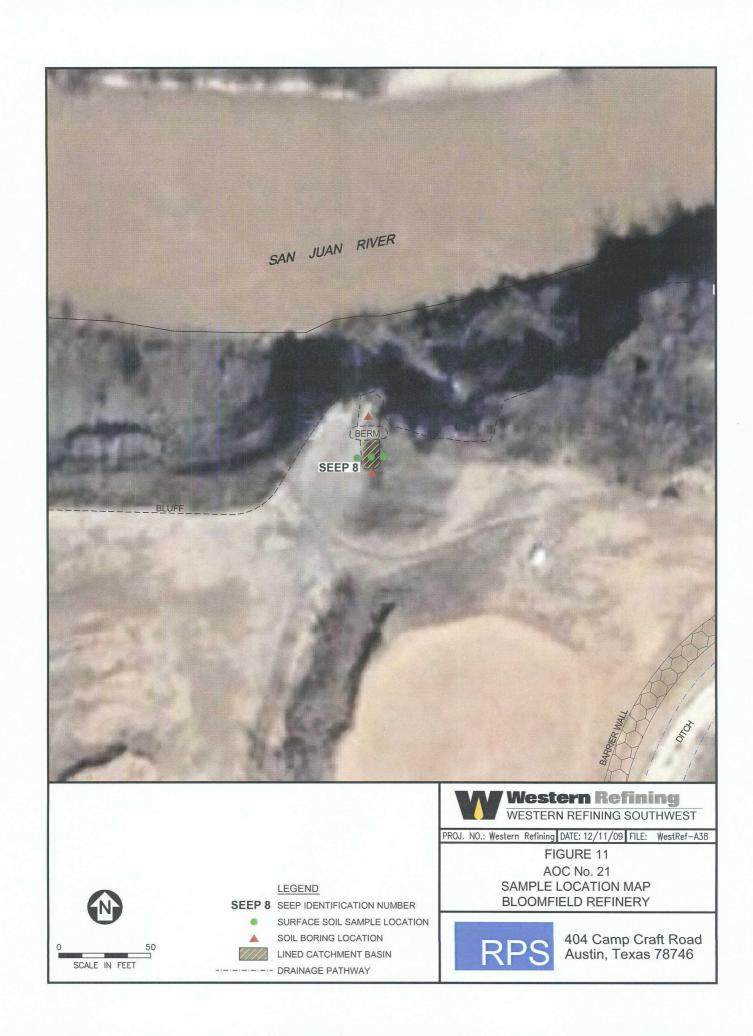
- SW6-0206 ▲ SUMP WELL LOCATION AND IDENTIFICATION NUMBER







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AOC No. 19 – Seep and Catchment Basin No. 1

E.



AOC No. 19 - Seep No. 2



AOC No. 19 - Sediment Within Catchment Basin No. 3



AOC No. 19 – Looking Southeast Toward Catchment No. 3 from Catchment No. 4

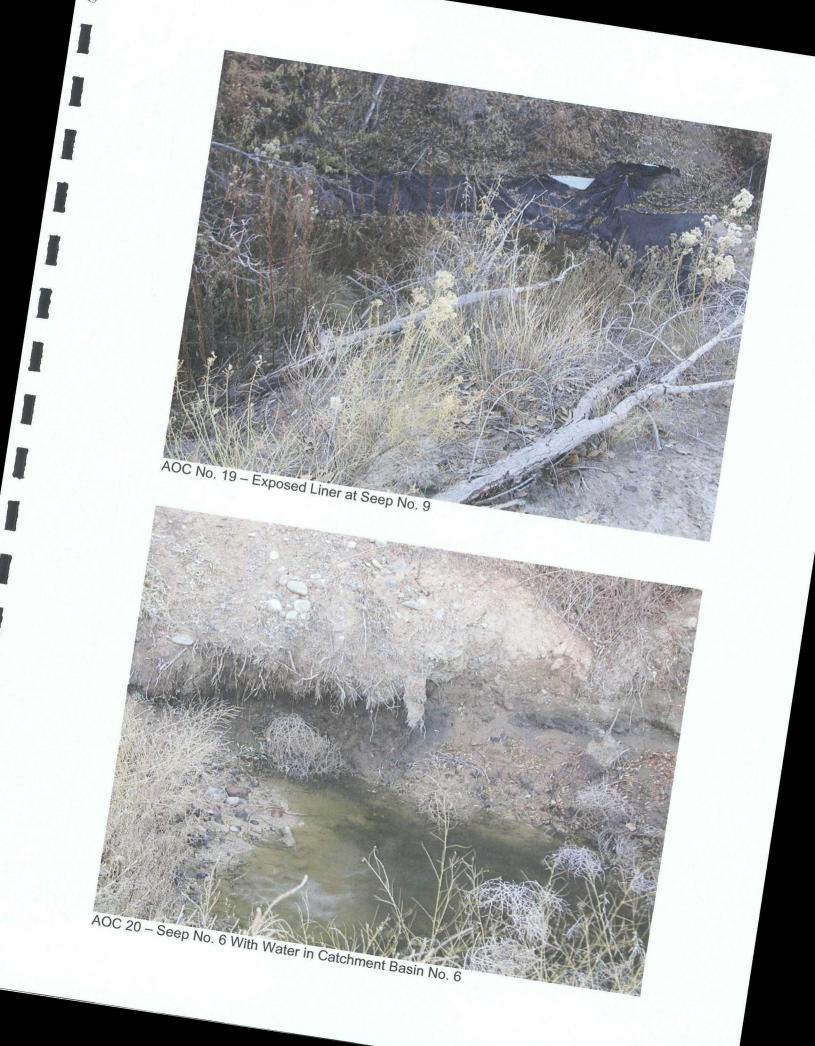


AOC No. 19 – HDPE Liner of Seep No. 5 Catchment Basin

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AOC No. 19 – Stained Soil in Bluff Face of Seep No. 5





AOC 20 – Looking North Toward Seep No. 7 From Berm Below Catchment Basin No. 6



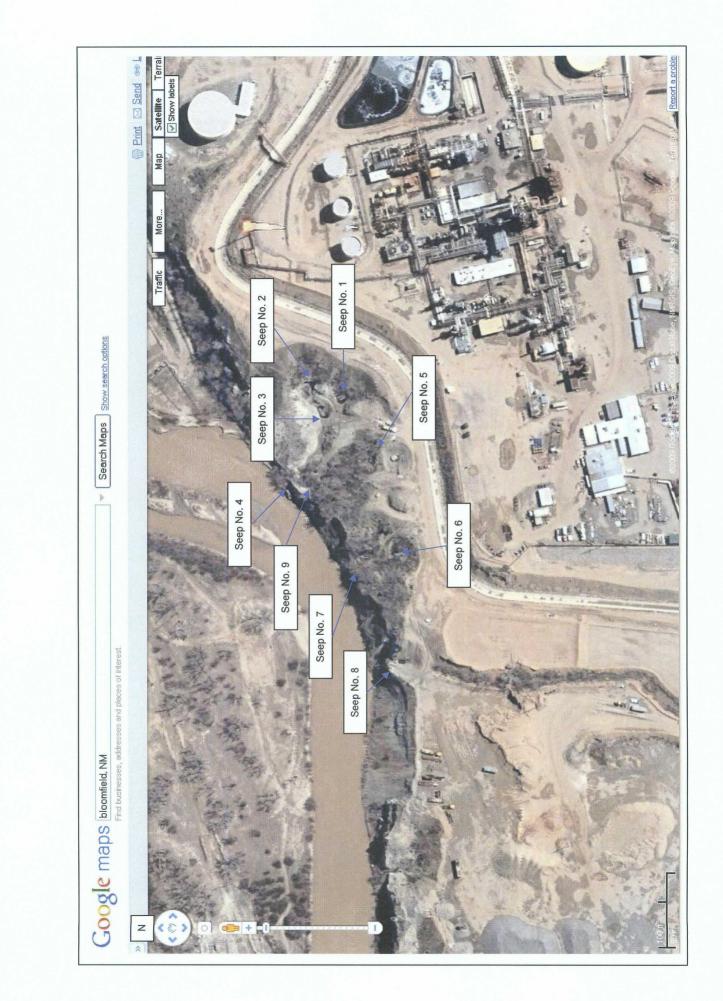
AOC 20 - Seep No. 7 and Bluff Overlooking San Juan River

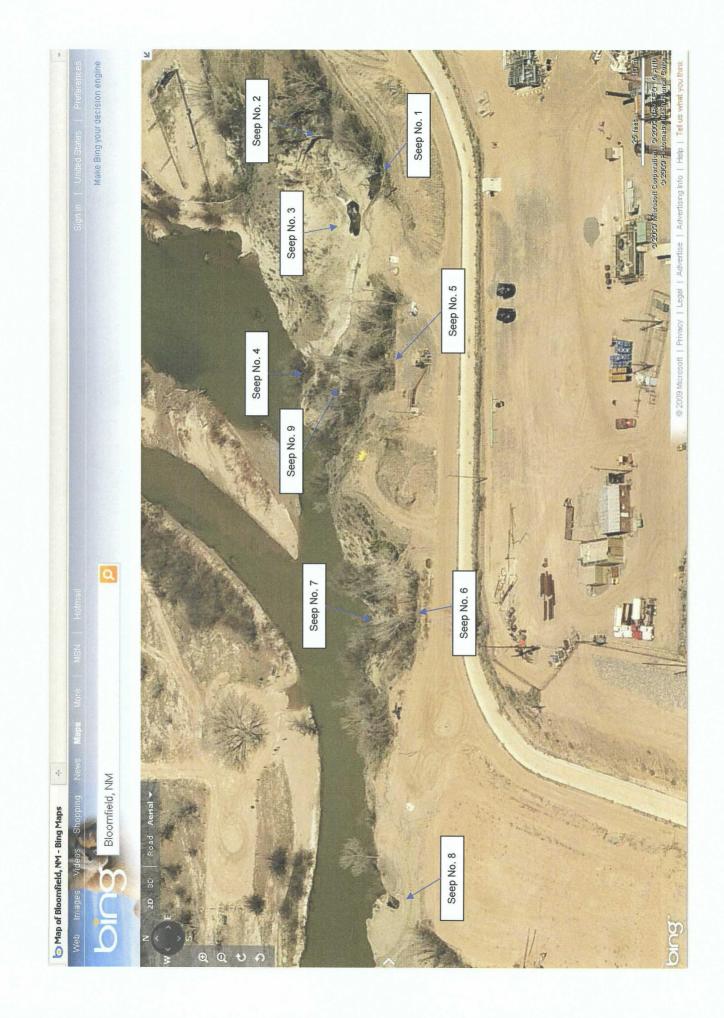


AOC 21 – Seep No. 8 (Below Wood Wall) and Liner of Catchment Basin No. 8



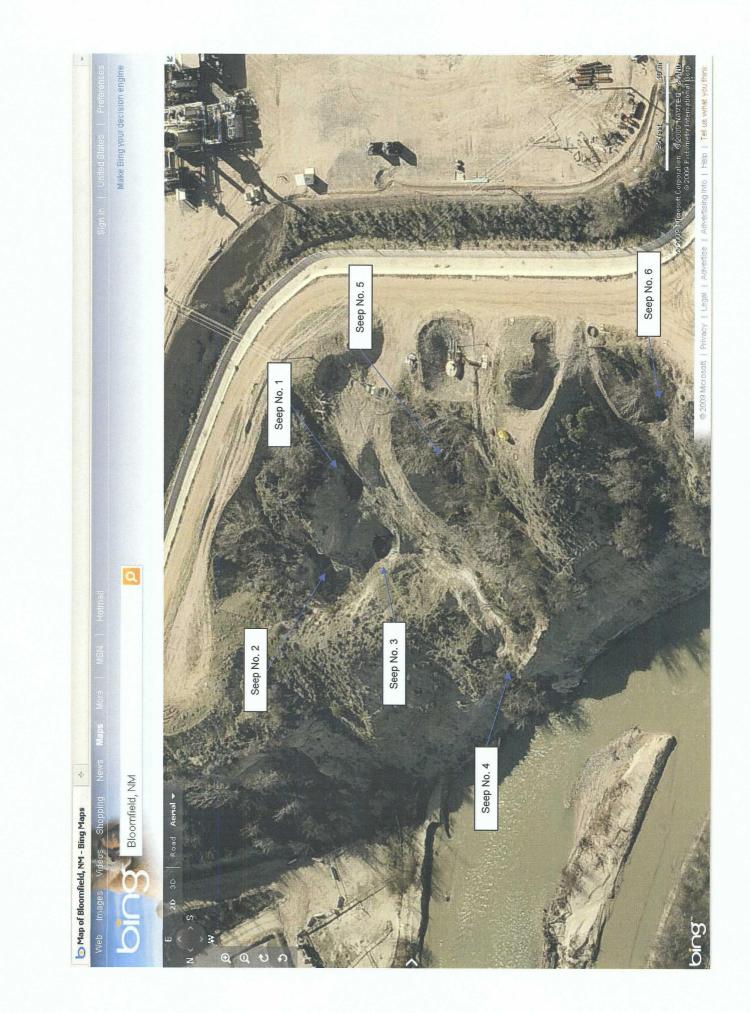
AOC 21 – Looking North Over San Juan River Bluff From Catchment Basin No. 8

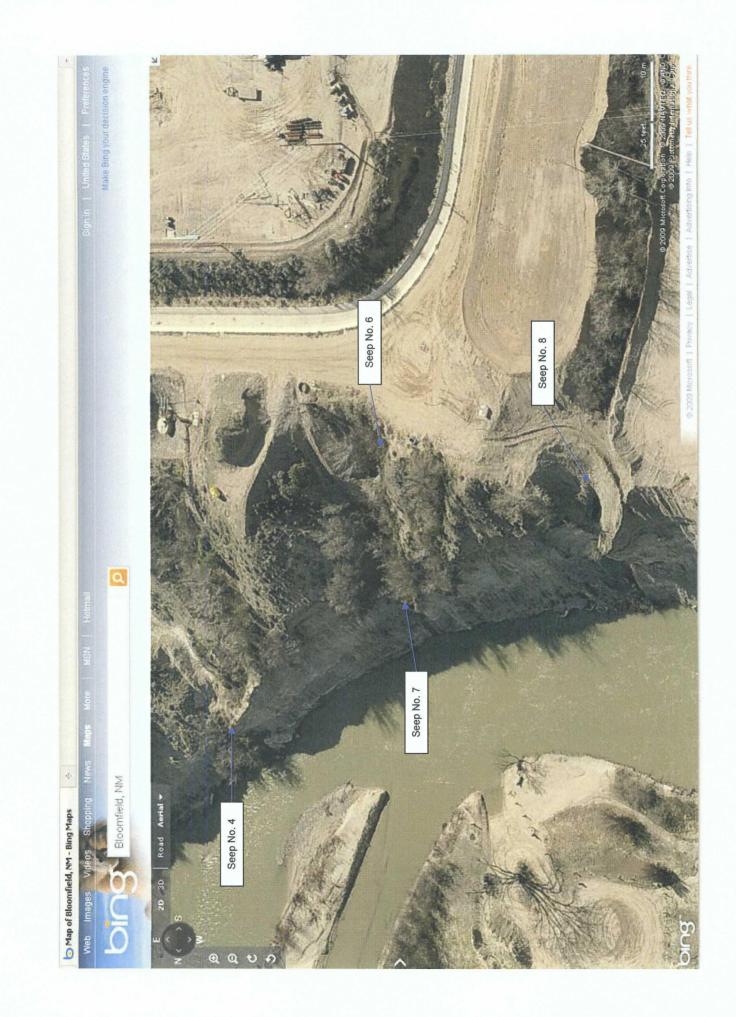




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# **Appendix B**

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# Investigation Derived Waste (IDW) Management Plan

#### **IDW Management Plan**

All IDW will be properly characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. If soils are found to be non-hazardous and concentrations of constituents are less than the NMED residential soil screening levels, then soils may be reused on-site pursuant to the approval of the NMED. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste. It is assumed that there are no listed wastes present in environmental media at any of the planned investigation areas.

A dedicated decontamination facility will be setup prior to any sample collection activities. The decontamination facility will be designed so as to capture and contain all decontamination fluids (e.g., wash water and rinse water) and foreign materials washed off the sampling equipment. The fluids will be pumped directly into suitable storage containers (e.g., labeled 55-gallon drums), which will be located at satellite accumulation areas until the fluids are disposed in the refinery wastewater treatment system upstream of the API separator. The solids captured in the decontamination facility will be shoveled into 55-gallon drums and stored at the designated satellite accumulation area pending proper waste characterization for off-site disposal.

Any solids generated (e.g., used soil cores) will be characterized by testing to determine if there are any hazardous characteristics in accordance with 40 Code of Federal Regulations (CFR) Part 261. This includes tests for ignitability, corrosivity, reactivity, and toxicity. If the materials are not characteristically hazardous, then further testing will be performed pursuant to the requirements of the facility to which the materials will be transported. Depending upon the results of analyses for individual investigation soil samples, additional analyses may include TPH and polynuclear aromatic hydrocarbons. All miscellaneous waste materials (e.g., discarded gloves, packing materials, etc.) will be placed into the refinery's solid waste storage containers for off-site disposal.



BILL RICHARDSON Governor

DIANE DENISH Lieutenant Governor

#### NEW MEXICO ENVIRONMENT DEPARTMENT

### Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1 Santa Fe, New Mexico 87505-6303 Phone (505) 476-6000 Fax (505) 476-6030 www.nmenv.state.nm.us



RON CURRY Secretary

SARAH COTTRELL Deputy Secretary

#### **CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

November 8, 2010

Mr. Randy Schmaltz Environmental Manager Western Refining, Southwest, Inc. Bloomfield Refinery P.O. Box 159 Bloomfield, New Mexico 87413

#### RE: NOTICE OF DISAPPROVAL INVESTIFATION WORK PLAN GROUP 6 (AOC NO. 19 SEEP NORTH OF MW-45, AOC NO. 20 SEEP NORTH OF MW-46, AND AOC NO. 21 SEEP NORTH OF MW-47) WESTERN REFINING SOUTHWEST, INC., BLOOMFIELD REFINERY EPA ID # NMD089416416 WRB-10-002

Dear Mr. Schmaltz:

The New Mexico Environment Department (NMED) has reviewed Western Refining Southwest, Inc., Bloomfield Refinery (Western) *Investigation Work Plan Group 6 (AOC No. 19 Seep North* of MW-45, AOC No. 20 Seep North of MW-46, and AOC No. 21 Seep North of MW-47) (Work Plan) dated December, 2009. NMED hereby issues this Notice of Disapproval. Western must address the following comments before NMED can take final action on the Work Plan.

#### Comment 1

Western discusses the facility's surface and subsurface conditions in Sections 3.1 (Surface Conditions) and Section 3.2 (Subsurface Conditions). However, these Sections do not address the conditions for subject AOCs. Western must revise these Sections to address the surface and subsurface conditions for AOCs 19, 20, and 21.

Randy Schmaltz November 8, 2010 Page 2 of 3

#### Comment 2

In Sections 4.1 (Anticipated Activities) and 5.2 (Soil Sampling), Western proposes to advance hand augured soil borings to a depth of two feet or more based on field screening at the seeps and drainage pathways leading toward the San Juan River. Western proposes to submit soil samples collected from each boring at depths of 0-0.5 feet and 1.5 to 2 feet below ground surface (bgs), and from the intervals where field screening evidence of contamination is observed for laboratory analysis. In order to determine the vertical extent of contamination, the soil sample collected from the bottom of all samples locations must be submitted for laboratory analysis. Western must revise the Work Plan accordingly.

#### Comment 3

In Section 4.2 (Background Information Research), page 9, Western states "[d]ocuments containing the results of previous investigations and subsequent routine groundwater monitoring data from monitoring wells and the seeps were reviewed to facilitate development of this work plan. The previously collected data provide detailed information on the overall subsurface conditions, including hydrogeology and contaminant distribution within groundwater on a site-wide basis. The data collected under this scope of services will supplement the existing soil and groundwater information and provide specific information regarding contaminant occurrence and distribution within soils near the seeps." It is unclear where the previously collected data is located within this document. Western must identify where within the Work Plan the data are located, or revise the Work Plan to include the data.

#### Comment 4

In Section 5.2 (Soil Sampling), page 11, Western states "[s]urface soil samples (0-6") collected from the sides of the steep slopes along the drainage pathways and at the edge of catchment liners will be used to define the horizontal extent of any impacts identified in the seep faces and bottom of the drainage pathways." Western must also determine the vertical extent of contamination. Western must revise the Work Plan to include the details for determining the vertical extent of contamination. See also Comment 2.

#### Comment 6

In Section 6 (Monitoring and Sampling Program), page 20, Western states "[g]roundwater is removed from any seep where analytical results exceed any of the standards set by the Water Quality Control Commission (WQCC), the EPA Maximum Contaminant Level (MCL), or the EPA Region VI Human Health Medium Specific Screening Levels (Tap Water) in the absence of a WQCC standard or MCL (NMED, 2008)." The Tap Water Screening Levels have been replaced with the EPA Regional Screening Levels (as updated). Western must revise the Work Plan to reference the EPA Regional Screening Levels (as updated) instead of the Tap Water Screening Levels.

#### Comment 6

In Appendix A (Photographs), the first photograph from Google maps does not contain any cardinal directions on it. Western must revise the Work Plan to include a reference compass direction for this photograph.

Randy Schmaltz November 8, 2010 Page 3 of 3

Western must address all comments contained in this NOD and submit a revised Work Plan to NMED on or before February 8, 2011. The revised Work Plan must be submitted with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised work plan must be submitted that identifies where all changes have been made in redline strikeout format.

If you have any questions regarding this letter, please contact Hope Monzeglio of my staff at (505) 476-6045.

Sincerely,

James P. Bearzi Chief Hazardous Waste Bureau

JPB:hm

cc: J. Kieling, NMED HWB D. Cobrain, NMED HWB C. Chavez, OCD A. Hains, Western File: WRB-10-002 and Reading 2010