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.

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

Sincerely,

John E. Kieling
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

Western Refining
LOGISTICS

WNR LISTED NYSE

June 21, 2011

RECEIVED OCD
2011 JUN 22 A 10: 31

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 19th, 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 15th 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,

James R. Schmaltz
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 [2]	0.75 [3]	0.7 [2]	0.62 [3]	0.012 [1]				1.6 [3]	250 [3]				600 [3]						
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	1 4	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	NA	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	NA	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	NA	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

Notes:

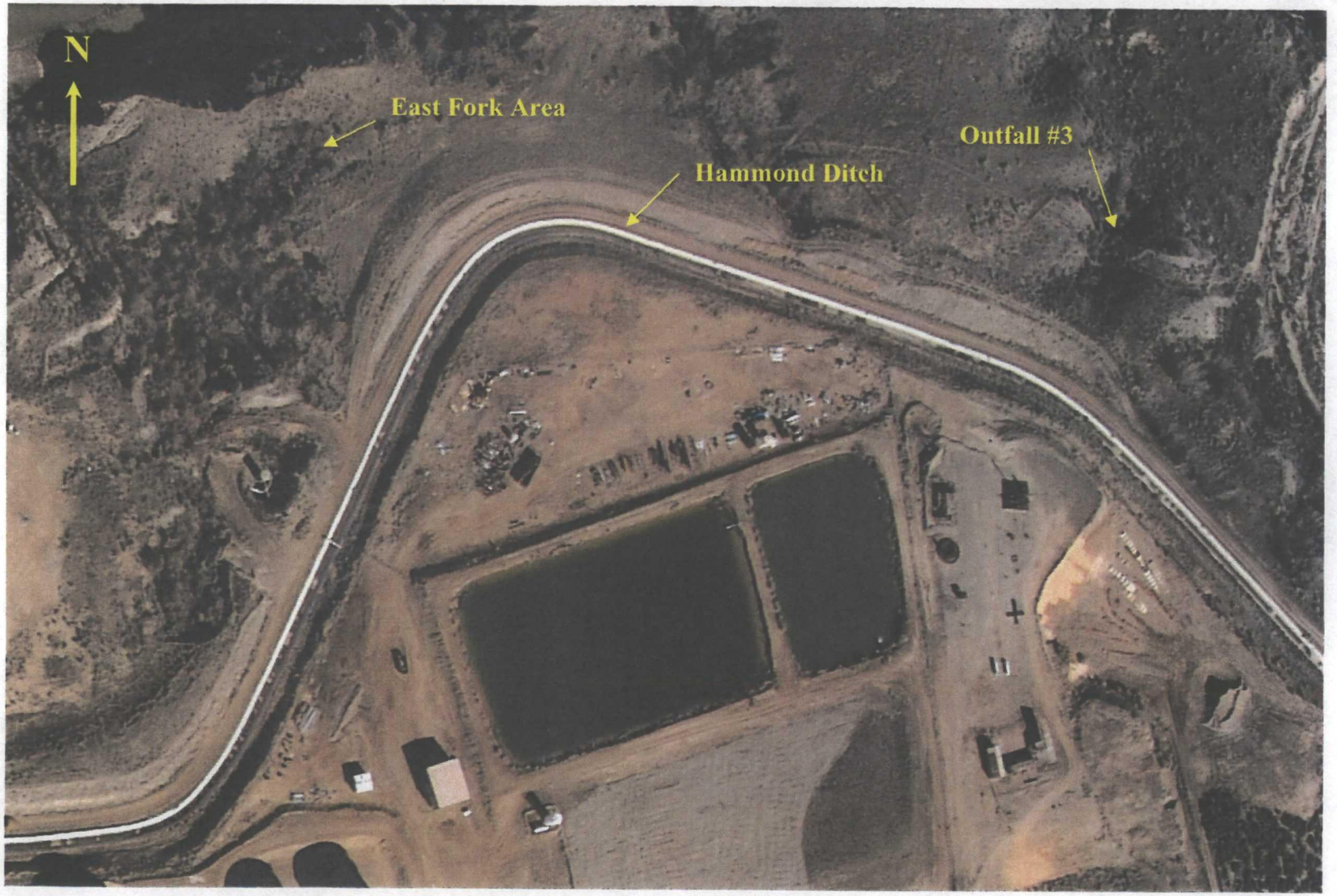
(1) EPA Regional Screening Level (April 2009) - EPA Regional Screening Level Tap Water
(2) EPA - Regional Screening Level (April 2009) - MCL
(3) NMED WQCC Standards - Title 20 Chapter 6 Part 2 - 20.6.2.3101 Standards for Groundwater of 10,000 mg/L TDS Concentration or Less.
(4) NMED TPH Screening Guidelines 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

FIGURE 1
East Fork Area Location Map



ATTACHMENT A

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Order No.: 1104194

Dear Kelly Robinson:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Apr-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1104194	**Collection Date:**	4/4/2011 8:40:00 AM
Project:	Drainage North of TK#38	**Date Received:**	4/5/2011
Lab ID:	1104194-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/9/2011 7:08:01 PM
Motor Oil 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 RANGE						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 8260: 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-Dichloroethane-d4	113	65.8-138		%REC	1	4/14/2011 8:22:17 PM
Surr: 4-Bromofluorobenzene	127	72.7-128		%REC	1	4/14/2011 8:22:17 PM
Surr: Dibromofluoromethane	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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Apr-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	TRIP BLANK
Lab Order:	1104194	**Collection Date:**	
Project:	Drainage North of TK#38	**Date Received:**	4/5/2011
Lab ID:	1104194-02	**Matrix:**	TRIP BLANK

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 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-Dichloroethane-d4	106	65.8-138		%REC	1	4/14/2011 8:48:21 PM
Surr: 4-Bromofluorobenzene	117	72.7-128		%REC	1	4/14/2011 8:48:21 PM
Surr: Dibromofluoromethane	109	69-135		%REC	1	4/14/2011 8:48:21 PM
Surr: Toluene-d8	111	86.1-134		%REC	1	4/14/2011 8:48:21 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 **Work Order:** 1104194

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range											
Sample ID: MB-26321		*MBLK*				Batch ID:	**26321**	Analysis Date:		4/9/2011 2:35:02 PM	
Diesel Range Organics (DRO)	ND	mg/L	0.20								
Motor Oil Range Organics (MRO)	ND	mg/L	2.5								
Sample ID: LCS-26321		*LCS*				Batch ID:	**26321**	Analysis Date:		4/9/2011 3:09:09 PM	
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 8015B: Gasoline Range											
Sample ID: 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 11:24:51 AM	
Gasoline Range Organics (GRO)	0.5292	mg/L	0.050	0.5	0	106	81.8	120			
Method: EPA Method 8260: Volatiles Short List											
Sample ID: b8		*MBLK*				Batch ID:	**R44760**	Analysis Date:		4/14/2011 2:16:45 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 lcs1		*LCS*				Batch ID:	**R44760**	Analysis Date:		4/14/2011 3:09:13 PM	
Benzene	20.90	µg/L	1.0	20	0	104	85.2	121			
Toluene	19.64	µg/L	1.0	20	0	98.2	88.3	121			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT

Date Received: 4/5/2011

Work Order Number 1104194

Received by: LNM

Checklist completed by: Signature 4/5/11 Date

Sample ID labels checked by: Initials

Matrix: Carrier name: 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?	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 vials submitted	Yes ✔	No	
Water - Preservation labels on bottle and cap match?	Yes	No	N/A ✔	
Water - pH acceptable upon receipt?	Yes	No	N/A ✔	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	4.8°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding:

Comments:

Corrective Action

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 4-4-11
Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample temperature: 4.8

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1104102CE	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) Motor Oil	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE and	8270 (Semi-VOA)	DRO 8015	Air Bubbles (Y or N)
4-4-11	8:40	H_2O	East Fork	3-VOA	HCl	1			X							X			
4-4-11	8:40	H_2O	East Fork	1-Liter	—	1												X	
			Trip. Blank			2													

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-4-11	3:00	Robert Knokow		4/5/11	1330
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Order No.: 1105879

Dear Bob Krakow:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *07-Jun-11*

CLIENT: Western Refining Southwest, Inc.
Project: Drainage North of TK# 38 5-23-11
Lab Order: 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

Hall Environmental Analysis Laboratory, Inc.

Date: *07-Jun-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1105879	**Collection Date:**	5/23/2011 9:05:00 AM
Project:	Drainage North of TK# 38 5-23-11	**Date Received:**	5/24/2011
Lab ID:	1105879-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/1/2011 4:39:13 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/1/2011 4:39:13 AM
Surr: DNOP	118	95.2-140		%REC	1	6/1/2011 4:39:13 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range 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 8260: VOLATILES SHORT LIST						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		µg/L	1	5/26/2011 8:04:39 PM
Surr: 1,2-Dichloroethane-d4	115	65.8-138		%REC	1	5/26/2011 8:04:39 PM
Surr: 4-Bromofluorobenzene	103	72.7-128		%REC	1	5/26/2011 8:04:39 PM
Surr: Dibromofluoromethane	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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK# 38 5-23-11 **Work Order:** 1105879

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%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)	2.754	mg/L	0.20	2.5	0	110	71	161	9.99	23	
Sample ID: MB-26995		*MBLK*				Batch ID: **26995**		Analysis Date:		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								
Sample ID: LCS-26995		*LCS*				Batch ID: **26995**		Analysis Date:		6/1/2011 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 Date:		6/1/2011 4:05:06 AM	
Diesel Range Organics (DRO)	2.704	mg/L	0.20	2.5	0	108	74	157	3.43	23	
Sample ID: 1105879-01BMS		*MS*				Batch ID: **26995**		Analysis Date:		6/1/2011 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 Range											
Sample ID: 5ML RB		*MBLK*				Batch ID: **R45631**		Analysis 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 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 Date:		5/27/2011 8:15:05 PM	
Gasoline Range Organics (GRO)	0.5274	mg/L	0.050	0.5	0	105	81.8	120	0.532	17.1	
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5ml-rb		*MBLK*				Batch ID: **R45616**		Analysis Date:		5/26/2011 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 lcs		*LCS*				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:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT | Date Received: 5/24/2011

Work Order Number 1105879 | Received by: MMG

Checklist completed by: _____ Signature _____ Date 5/24/11 | Sample ID labels checked by: MG Initials

Matrix: | Carrier name: 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?	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 vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	1.9°	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-~~4111~~ 4135

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Drainage North of TK#38 5-23-11

Project #:

Project Manager:
Bob

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1105719	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) MRO	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)	DRO 8015B				Air Bubbles (Y or N)
5-23-11	905	H_2O	East Fork	3-VOA	HCl	-1			X							X						
1		1	" "	1-500ml	Amber													X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-23-11	3:00	Robert Bracken	Michelle Garcia	5/24/11	10:00
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

Western Refining

WNR LISTED NYSE

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 19th 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

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

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 3rd, 2010, and below the EPA Maximum Contaminant Level (MCL) of 5 ug/L since June 16th, 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.

Sincerely,

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

cc: Allen Hains – Western Refining El Paso

FIGURES

Figure 1

East Fork and Outfall #3 Location Map

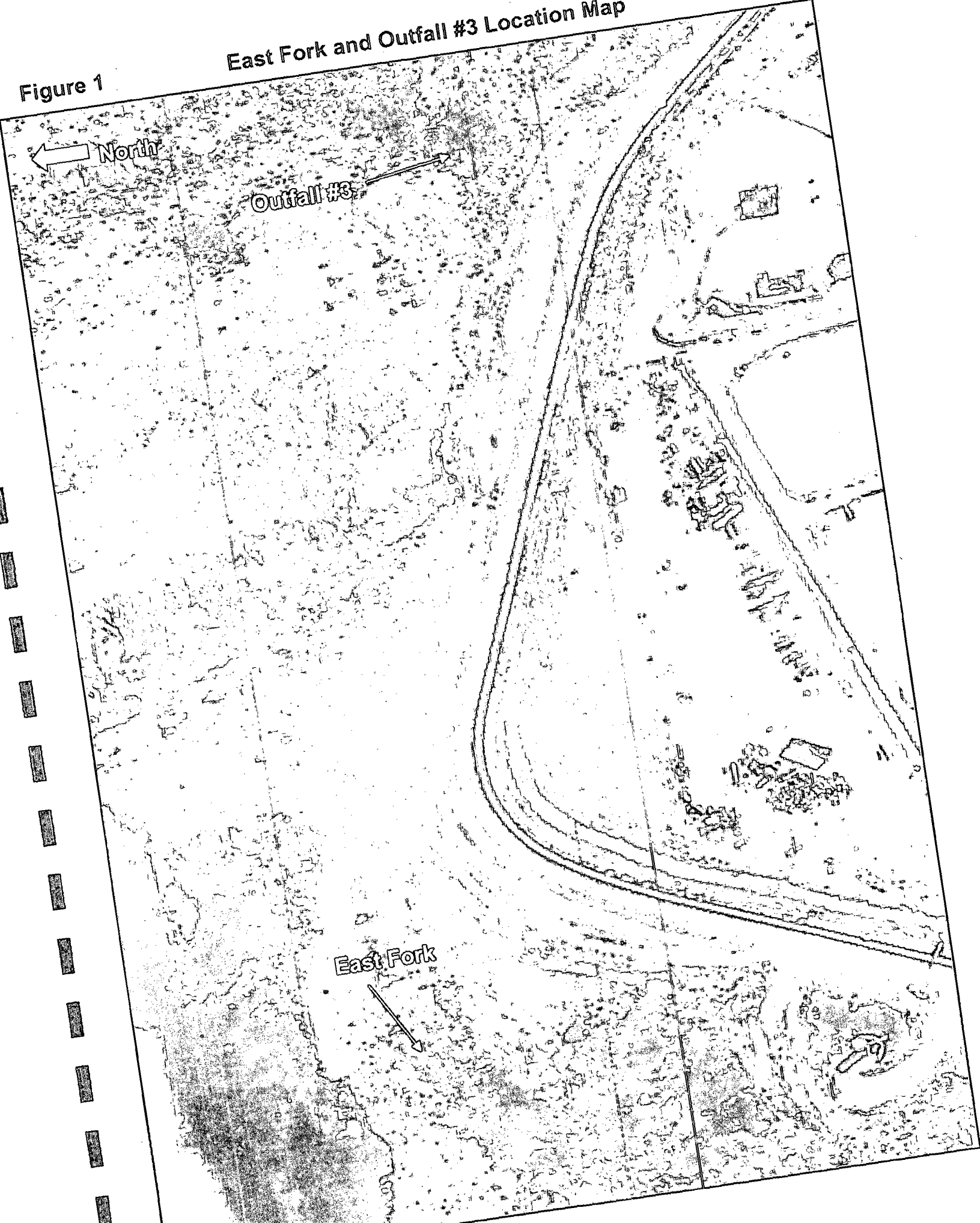
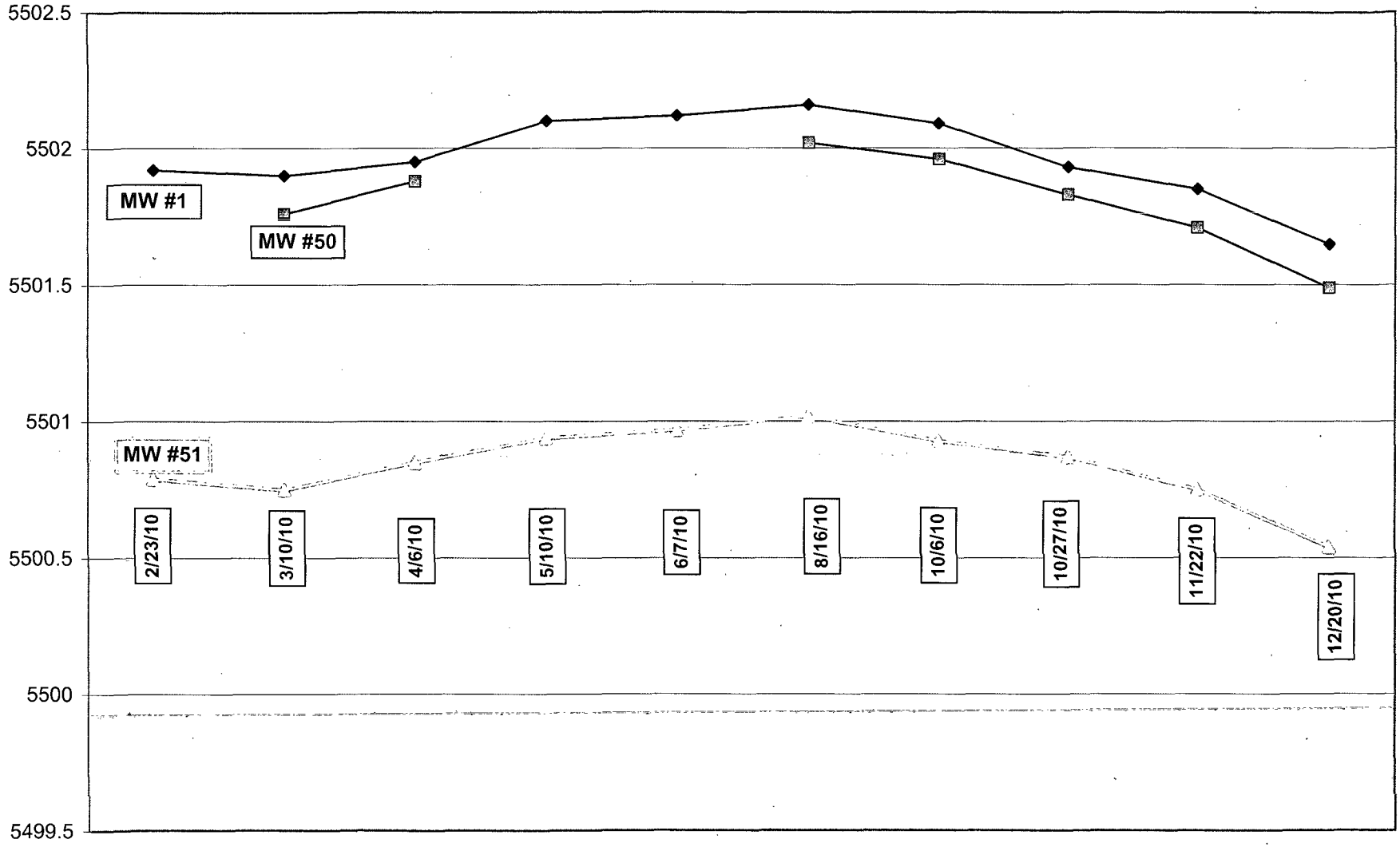


Figure 2
Groundwater Elevation - Near the East Fork - 2010



TABLES

Table 1
East Fork Analytical Monitoring

Screening Level (mg/L)	0.005 (2)	0.75 (3)	0.7 (2)	0.62 (3)	0.012 (1)	0.2 (4)			1.6 (3)	250 (3)				600 (3)						
Sampling Event	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)	MRO (mg/L)	Fluoride (mg/L)	Chloride (mg/L)	Bromide (mg/L)	Nitrate/ Nitrite (mg/L)	P (mg/L)	Sulfate (mg/L)	Calcium (mg/L)	Mg (mg/L)	K (mg/L)	Sodium (mg/L)	CO2 (mg/L)	ALK (mg/L)
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	<0.05	<2.5	0.44	12	0.14	<1.0	<0.50	75	65	17	1.4	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	NA	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	NA	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
6/25/2010	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	<0.05	<2.5	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	NA	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

(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

TABLE 2

Groundwater Elevation Measurement Summary - Near East Fork Area

Well ID	Monitoring Event	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	
MW-1	10 weeks after S/O	12/20/2010	5519.21	21.56	NPP	17.56	5501.65	Hammond Ditch Shut Off
	6 weeks after S/O	11/22/2010	5519.21	21.56	NPP	17.36	5501.85	
	2 weeks after S/O	10/27/2010	5519.21	21.56	NPP	17.28	5501.93	
	1 week before S/O	10/6/2010	5519.21	21.56	NPP	17.12	5502.09	Hammond Ditch Operating
	3rd QTR	8/16/2010	5519.21	21.56	NPP	17.05	5502.16	
	5th Month	6/7/2010	5519.21	21.56	NPP	17.09	5502.12	
	4th Month	5/10/2010	5519.21	21.56	NPP	17.11	5502.10	
	2nd QTR (3rd M)	4/6/2010	5519.21	21.56	NPP	17.26	5501.95	Hammond Ditch Shut Off
	1st QTR (2nd M)	3/10/2010	5519.21	21.56	NPP	17.31	5501.90	
	1st Month	2/23/2010	5519.21	21.56	NPP	17.29	5501.92	
MW-50	10 weeks after S/O	12/20/2010	5518.79	22.14	NPP	17.30	5501.49	Hammond Ditch Shut Off
	6 weeks after S/O	11/22/2010	5518.79	22.14	NPP	17.08	5501.71	
	2 weeks after S/O	10/27/2010	5518.79	22.14	NPP	16.96	5501.83	
	1 week before S/O	10/6/2010	5518.79	22.14	NPP	16.83	5501.96	Hammond Ditch Operating
	3rd QTR	8/16/2010	5518.79	22.14	NPP	16.77	5502.02	
	5th Month	NA	5518.79	22.14	NA	NA	NA	
	4th Month	NA	5518.79	22.14	NA	NA	NA	
	2nd QTR (3rd M)	4/6/2010	5518.79	22.14	NPP	16.91	5501.88	Hammond Ditch Shut Off
	1st QTR (2nd M)	3/10/2010	5518.79	22.14	NPP	17.03	5501.76	
	1st Month	NA	5518.79	22.14	NA	NA	NA	
MW-51	10 weeks after S/O	12/20/2010	5515.58	22.18	NPP	15.04	5500.54	Hammond Ditch Shut Off
	6 weeks after S/O	11/22/2010	5515.58	22.18	NPP	14.83	5500.75	
	2 weeks after S/O	10/27/2010	5515.58	22.18	NPP	14.71	5500.87	
	1 week before S/O	10/6/2010	5515.58	22.18	NPP	14.65	5500.93	Hammond Ditch Operating
	3rd QTR	8/16/2010	5515.58	22.18	NPP	14.56	5501.02	
	5th Month	6/7/2010	5515.58	22.18	NPP	14.61	5500.97	
	4th Month	5/10/2010	5515.58	22.18	NPP	14.64	5500.94	
	2nd QTR (3rd M)	4/6/2010	5515.58	22.18	NPP	14.73	5500.85	Hammond Ditch Shut Off
	1st QTR (2nd M)	3/10/2010	5515.58	22.18	NPP	14.83	5500.75	
	1st Month	2/23/2010	5515.58	22.18	NPP	14.79	5500.79	

S/O - Shut Off of Hammond Ditch

NA - not applicable - not part of the 5 month Fluid Collection Activities

ATTACHMENT A
Analytical Reports

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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,

FOR Andy Freeman, Laboratory Manager

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-May-10*

CLIENT: Western Refining Southwest, Inc. **Lab Order:** 1005560
Project: 5-19-10 Drainage North of TK#38

Lab ID: 1005560-01 **Collection Date:** 5/19/2010 2:15:00 PM
Client Sample ID: West Fork **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT 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 ether (MTBE)	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 Date:** 5/19/2010 2:25:00 PM
Client Sample ID: East Fork **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: HL
Benzene	110	5.0		µg/L	5	5/21/2010 6:03:59 PM
Toluene	ND	1.0		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 ether (MTBE)	ND	1.0		µg/L	1	5/20/2010 6:52:11 PM
Xylenes, Total	ND	2.0		µg/L	1	5/20/2010 6:52:11 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: 5-19-10 Drainage North of TK#38 **Work Order:** 1005560

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1005560-01a msd		*MSD*				Batch ID:	**R38830**	Analysis Date:		5/20/2010 6:22:54 PM	
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**	Analysis Date:		5/20/2010 8:45:56 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:	**R38844**	Analysis Date:		5/21/2010 8:57:02 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**	Analysis Date:		5/20/2010 8:45:56 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 lcs		*LCS*				Batch ID:	**R38830**	Analysis Date:		5/20/2010 10:54:22 AM	
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: 100ng lcs		*LCS*				Batch ID:	**R38844**	Analysis Date:		5/21/2010 10:19:50 AM	
Benzene	18.82	µg/L	1.0	20	0	94.1	82.4	116			
Toluene	21.74	µg/L	1.0	20	0	109	89.5	123			
Sample ID: 100ng lcs		*LCS*				Batch ID:	**R38830**	Analysis Date:		5/20/2010 10:54:22 AM	
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**	Analysis Date:		5/20/2010 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			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **5/20/2010**

Work Order Number **1005560** Received by: **TLS**

Checklist completed by: _____ 5/20/10 Sample ID labels checked by: _____

Signature Date Initials

Matrix: Carrier name: 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?	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 vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	_____ *<2 >12 unless noted below.*
Container/Temp Blank temperature?	**4.0°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 5-19-10
DRAINAGE North of TK# 38

Project #:

Project Manager:

Sampler: Cindy & Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 10

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1005560	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)					Air Bubbles (Y or N)
5-19-10	2:15	H_2O	West Fork	3-VOA	HCl	1										X						
5-19-10	2:25	H_2O	East Fork	3-VOA	HCl	2										X						

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-19-10	3:00	Robert Knabow			
Date:	Time:	Relinquished by:	Received by:	5/20/10	1015

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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

Order No.: 1005835

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jun-10*

CLIENT: Western Refining Southwest, Inc. **Lab Order:** 1005835
Project: Drainage North of TK#38 5-26-10

Lab ID: 1005835-01 **Collection Date:** 5/26/2010 1:05:00 PM
Client Sample ID: West Fork **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DAM**
Benzene	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 (MTBE)	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 **Collection Date:** 5/26/2010 12:50:00 PM
Client Sample ID: East Fork **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **DAM**
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 (MTBE)	ND	1.0		µg/L	1	5/28/2010 11:33:35 AM
Xylenes, Total	ND	2.0		µg/L	1	5/28/2010 11:33:35 AM

Lab ID: 1005835-03 **Collection Date:** 5/26/2010 12:30:00 PM
Client Sample ID: Outfall #2 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						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: 1005835-04 **Collection Date:** 5/26/2010 12:15:00 PM
Client Sample ID: MW-51 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT 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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 5-26-10 **Work Order:** 1005835

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5ml rb		*MBLK*				Batch ID:	**R38998**	Analysis Date:		5/28/2010 8:44:54 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 lcs		*LCS*				Batch ID:	**R38998**	Analysis Date:		5/28/2010 9:41:09 AM	
Benzene	21.46	µg/L	1.0	20	0	107	82.4	116			
Toluene	23.42	µg/L	1.0	20	0	117	89.5	123			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **5/27/2010**

Work Order Number **1005835** Received by: **ARS**

Checklist completed by: _____ 5/27/10 Sample ID labels checked by: _____

Signature Date Initials

Matrix: Carrier name: 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?	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 vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**6.7°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
5-26-10
Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob
On Ice: ☒ Yes ☐ No
Sample Temperature: 6.7

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1005835	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE on	8270 (Semi-VOA)					Air Bubbles (Y or N)
26-10	1:05	H_2O	West Fork	3-VOA	HCl	1										X						
"	12:50	"	East Fork	3-VOA	HCl	2										X						
"	12:30	"	outfall #2	3-VOA	HCl	3										X						
"	12:15	"	MW-51	3-VOA	HCl	4										X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
26-10	3:00	Robert Krakow		5/27/10	1045
Date:	Time:	Relinquished by:	Received by:	Date	Time
				5/26/10	15:45

Remarks: Please Cc Results to Kelly Robinson

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.

envirotech
Analytical Laboratory

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**	**1**	**0.2**
Ethylbenzene	**ND**	**1**	**0.2**
p,m-Xylene	**ND**	**1**	**0.2**
o-Xylene	**ND**	**1**	**0.1**
Total BTEX	**1.9**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	fluorobenzene	**107 %**
	1,4-difluorobenzene	**98.3 %**
	4-bromochlorobenzene	**97.7 %**

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

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

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

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

envirotech
Analytical Laboratory

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	0528BBLK QA/QC	Date Reported:	05-20-10
Laboratory Number:	54454	Date Sampled:	N/A
Sample Matrix:	Aqueous	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	05-27-10
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range: 0 - 15%	Blank 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

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	1.9	1.8	0.0%	0 - 30%
Toluene	ND	ND	0.0%	0 - 30%
Ethylbenzene	ND	ND	0.0%	0 - 30%
p,m-Xylene	ND	ND	0.0%	0 - 30%
o-Xylene	ND	ND	0.0%	0 - 30%

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	%Recovery	Accept Limits
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 Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for Samples 54454 and 54455.**

Analyst

Review

5796 US Highway 64, Farmington, NM 87401 | Ph (505) 632-0615 Fr (800) 362-1879 Fx (505) 632-1865 lab@envirotech-inc.com envirotech-inc.com

CHAIN OF COUSTODY RECORD

09482

Client: Western Refining	Project Name / Location: Drainage North of TK# 38
Client Address:	Sampler Name: Bob
Client Phone No.:	Client No.: 96012 - 0009

ANALYSIS / PARAMETERS

Sample No./ Identification	Sample Date	Sample Time	Lab No.	Sample Matrix	No./Volume of Containers	Preservative $HgCl_2$	Preservative HCl		TPH (Method 8015)	BTEX (Method 8021)	VOC (Method 8260)	RCRA 8 Metals	Cation / Anion	RCI	TCLP with H/P	PAH	TPH (418.1)	CHLORIDE				Sample Cool	Sample Intact
West Fork	5-26-10	1:05	54454	Soil Solid Sludge Aqueous (circled: Aqueous)	3-VOA		X			X												X	X
East Fork	5-26-10	12:50	54455	Soil Solid Sludge Aqueous (circled: Aqueous)	3-VOA		X			X												X	X
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
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				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			
				Soil Solid Sludge Aqueous																			

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Robert Krakow	5-26-10	4:05	[signature]	4:05	5-26-10
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

envirotech
Analytical Laboratory

5796 US Highway 64 • Farmington, NM 87401 • 505-632-0615 • lab@envirotech-inc.com

ACCENT Printing • Form 28-0807

6/4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Order No.: 1006193

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Jun-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1006193	**Collection Date:**	6/3/2010 1:20:00 PM
Project:	Drainage North of TK#38 6/3/10	**Date Received:**	6/4/2010
Lab ID:	1006193-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/10/2010 12:59:10 PM
Motor Oil Range Organics (MRO)	ND	2.5		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 RANGE						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 8260: VOLATILES SHORT 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	1	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-Dichloroethane-d4	85.0	54.6-141		%REC	1	6/8/2010 2:57:30 PM
Surr: 4-Bromofluorobenzene	99.3	60.1-133		%REC	1	6/8/2010 2:57:30 PM
Surr: Dibromofluoromethane	91.3	78.5-130		%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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 6/3/10 **Work Order:** 1006193

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range											
Sample ID: MB-22560		*MBLK*				Batch ID:	**22560**	Analysis Date:		6/10/2010 9:35:54 AM	
Diesel Range Organics (DRO)	ND	mg/L	0.20								
Motor Oil Range Organics (MRO)	ND	mg/L	2.5								
Sample ID: LCS-22560		*LCS*				Batch ID:	**22560**	Analysis Date:		6/10/2010 10:09:45 AM	
Diesel Range Organics (DRO)	3.750	mg/L	0.20	2.5	0.1779	143	74	157			
Sample ID: LCSD-22560		*LCSD*				Batch ID:	**22560**	Analysis Date:		6/10/2010 10:43:52 AM	
Diesel Range Organics (DRO)	3.569	mg/L	0.20	2.5	0.1779	136	74	157	4.96	23	
Method: EPA Method 8015B: Gasoline Range											
Sample ID: 5ML RB		*MBLK*				Batch ID:	**R39200**	Analysis Date:		6/10/2010 9:35:51 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Sample ID: 2.5UG GRO LCS		*LCS*				Batch ID:	**R39200**	Analysis Date:		6/10/2010 6:45:23 PM	
Gasoline Range Organics (GRO)	0.4882	mg/L	0.050	0.5	0	97.6	77.8	124			
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5ml rb		*MBLK*				Batch ID:	**R39141**	Analysis Date:		6/8/2010 8:42:02 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: 100ng lcs		*LCS*				Batch ID:	**R39141**	Analysis Date:		6/8/2010 9:53:19 AM	
Benzene	18.99	µg/L	1.0	20	0	94.9	82.4	116			
Toluene	21.58	µg/L	1.0	20	0	108	89.5	123			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **6/4/2010**

Work Order Number **1006193** Received by: **TLS**

Checklist completed by: _____ Signature 6/4/10 Date

Sample ID labels checked by: _____ Initials

Matrix: Carrier name: 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?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	**9.5°**	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: _____

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 6-3-10
DRAINAGE North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 0.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1000093	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE	8270 (Semi-VOA)	Air Bubbles (Y or N)
6-3-10	1:20	H_2O	EAST Fork	3-VOA	HCl	1										X		
6-3-10	1:20	H_2O	EAST Fork	1-250	Amber	2			X									

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-3-10	3:00	Robert Krabow		6/4/10	
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

6/9

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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

Order No.: 1006309

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *16-Jun-10*

CLIENT: Western Refining Southwest, Inc. **Lab Order:** 1006309
Project: Drainage North of TK#38 6-8-10

Lab ID: 1006309-01 **Collection Date:** 6/8/2010 2:25:00 PM
Client Sample ID: MW-1 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						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 ether (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 Date:** 6/8/2010 2:40:00 PM
Client Sample ID: Fresh Water Pond **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT 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 ether (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 Date:** 6/8/2010 2:50:00 PM
Client Sample ID: East Fork **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **MMS**
Benzene	5.2	1.0		µg/L	1	6/11/2010 2:29:29 PM
Toluene	ND	1.0		µg/L	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 ether (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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, 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								
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100ng lcs		*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			
Toluene	19.09	µg/L	1.0	20	0	95.5	89.5	123			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **6/9/2010**

Work Order Number **1006309** Received by: **ARS**

Checklist completed by: _____ 6/9/10 Sample ID labels checked by: _____

Signature Date Initials

Matrix: Carrier name: 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?	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 vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**8.3°"**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: 6-8-10 Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1006360
6-8-10	2:25	H_2O	MW-1	3-VOA	HCl	1
"	2:40	H_2O	Fresh water POND	3-VOA	HCl	2
"	2:50	H_2O	EAST FORK	3-VOA	HCl	3

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE	8270 (Semi-VOA)						Air Bubbles (Y or N)
									X							
									X							
									X							

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-8-10	3:00	Robert Knabon			
Date:	Time:	Relinquished by:	Received by:	6/9/10	10:15

Remarks:

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.

6/17

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Order No.: 1006609

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Jun-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1006609	**Collection Date:**	6/16/2010 3:10:00 PM
Project:	Drainage North of TK#38 6/16/10	**Date Received:**	6/17/2010
Lab ID:	1006609-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: HL
Benzene	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-butyl ether (MTBE)	ND	1.0		µg/L	1	6/23/2010 8:53:52 PM
Xylenes, Total	ND	2.0		µg/L	1	6/23/2010 8:53:52 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 6/16/10 Work Order: 1006609

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1006609-01a msd		*MSD*				Batch ID:	**R39454**	Analysis Date:		6/23/2010 9:49:10 PM	
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	
Sample ID: b6		*MBLK*				Batch ID:	**R39454**	Analysis Date:		6/23/2010 10:44:23 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: 5ml rb		*MBLK*				Batch ID:	**R39454**	Analysis Date:		6/23/2010 9:38:36 AM	
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	2.0								
Sample ID: 100ng lcs_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			
Toluene	20.66	µg/L	1.0	20	0	103	89.5	123			
Sample ID: 100ng lcs		*LCS*				Batch ID:	**R39454**	Analysis Date:		6/23/2010 11:07:02 AM	
enzene	19.41	µg/L	1.0	20	0	97.0	82.4	116			
Toluene	20.35	µg/L	1.0	20	0	102	89.5	123			
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			
Toluene	21.36	µg/L	1.0	20	0	107	79.2	115			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **6/17/2010**

Work Order Number **1006609** Received by: **TLS**

Checklist completed by: _____ 6/17/10 Sample ID labels checked by: _____

Signature Date Initials

Matrix: Carrier name: 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?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	5.3°	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: _____

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 6-16-10
DRAINAGE NORTH of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 5.3

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1006005
6-16-10	3:10	H2O	EAST FORK	3-VOA	HCl	-1

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)					Air Bubbles (Y or N)
									X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-16-10	3:30	Robert Knakow			
Date:	Time:	Relinquished by:	Received by:	Date	Time
				6/17/10	1020

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Order No.: 1006905

Dear Cindy Hurtado:

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,

for Andy Freeman, Laboratory Manager

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

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Jul-10*

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 Analyzed
EPA METHOD 8260: VOLATILES SHORT 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	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 6/24/10 **Work Order:** 1006905

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1006905-01a msd		*MSD*				Batch ID:	**R39668**	Analysis Date:		7/7/2010 8:22:12 AM	
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	0	103	90.2	127	1.67	20	
Sample ID: b6		*MBLK*				Batch ID:	**R39668**	Analysis Date:		7/6/2010 10:43:45 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**	Analysis Date:		7/6/2010 11:38:43 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**	Analysis 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:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT

Date Received: 6/25/2010

Work Order Number 1006905

Received by: TLS

Checklist completed by: Signature 6/25/10 Date

Sample ID labels checked by: TS Initials

Matrix:

Carrier name 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?	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 vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**9.6°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

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Corrective Action _____

_____

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Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 6-24-10
Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1006900	Analysis Request: BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)					Air Bubbles (Y or N)
6-24-10	2:45	H2O	FAST Fork	3-VOA	HCl	-1										X						

Date:	Time:	Relinquished by:	Received by:	Date	Time	Remarks:
6-24-10	3:00	Robert Knabow		6/25/10	1050	
Date:	Time:	Relinquished by:	Received by:	Date	Time	

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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

Order No.: 1007081

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Jul-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1007081	**Collection Date:**	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	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT 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-Bromofluorobenzene	116	60.1-133		%REC	1	7/8/2010 11:54:58 PM
Surr: Dibromofluoromethane	101	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:

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

QA/QC SUMMARY REPORT

ient: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 7-1-10 **Work Order:** 1007081

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5ml rb		*MBLK*				Batch ID:	**R39704**	Analysis Date:	7/8/2010 8:57:37 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:	**R39704**	Analysis 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**	Analysis Date:	7/8/2010 10:20:21 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**	Analysis Date:	7/8/2010 10:04:52 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:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **7/2/2010**

Work Order Number **1007081** Received by: **DAM**

Checklist completed by: _____ 7/2/10 Sample ID labels checked by: _____
Signature Date Initials

Matrix: Carrier name: 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?	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 vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**2.1°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

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Corrective Action _____

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Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Drainage North of TK#38 7-1-10

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.1°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1007081	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)					Air Bubbles (Y or N)
7-1-10	2:30	H2O	East Fork	3-VOA	HCl	1007081										X						

Analysis Request

Date	Time	Relinquished by:	Received by:	Date	Time
7-1-10	3:00	Robert Knabow		7/2/10	14:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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

Order No.: 1007281

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Jul-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1007281	**Collection Date:**	7/8/2010 2:15:00 PM
Project:	Drainage North of TK#38 7-8-10	**Date Received:**	7/9/2010
Lab ID:	1007281-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **MMS**
Benzene	2.0	1.0		µg/L	1	7/13/2010 5:51:44 PM
Toluene	ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
Ethylbenzene	ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/13/2010 5:51:44 PM
Xylenes, Total	ND	2.0		µg/L	1	7/13/2010 5:51:44 PM
Surr: 1,2-Dichloroethane-d4	88.4	54.6-141		%REC	1	7/13/2010 5:51:44 PM
Surr: 4-Bromofluorobenzene	91.1	60.1-133		%REC	1	7/13/2010 5:51:44 PM
Surr: Dibromofluoromethane	140	78.5-130	S	%REC	1	7/13/2010 5:51:44 PM
Surr: Toluene-d8	97.7	79.5-126		%REC	1	7/13/2010 5:51:44 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 7-8-10 **Work Order:** 1007281

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1007281-01a msd		*MSD*				Batch ID:	**R39786**	Analysis Date:		7/13/2010 6:48:17 PM	
Benzene	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
Sample ID: 1007281-01a ms		*MS*				Batch ID:	**R39786**	Analysis Date:		7/13/2010 6:20:03 PM	
Benzene	16.35	µg/L	1.0	20	2.025	71.6	72.4	126			S
Toluene	16.46	µg/L	1.0	20	0	82.3	79.2	115			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **7/9/2010**

Work Order Number **1007281** Received by: TLS

Checklist completed by: _____ 7/9/10 Sample ID labels checked by: _____
Signature Date Initials

Matrix: Carrier name: Greyhound

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 bottles checked for pH:
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**11.9°**	*<6° C Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

_____

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Corrective Action _____

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Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 7-8-10 Drainage North of TK#38

Project #:

Project Manager:

Sampler: Cindy

On Ice: ☒ Yes ☐ No

Sample Temperature: 3

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1007
7-8-10	215	H2O	East Fork	3-VOA	HCl	-1

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-8-10	2300	Cindy Hurtado			
Date:	Time:	Relinquished by:	Received by:	7/9/10	1010

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)					Air Bubbles (Y or N)
									X						

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.

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

Order No.: 1010563

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Oct-10*

CLIENT: Western Refining Southwest, Inc.
Project: Drainage North of TK #38
Lab Order: 1010563

Work Order 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

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Oct-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1010563	**Collection Date:**	10/6/2010 8:45:00 AM
Project:	Drainage North of TK #38	**Date 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)+Nitrite (As N)	ND	1.0		mg/L	5	10/18/2010 4:33:35 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	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: TOTAL 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
EPA METHOD 8260: VOLATILES SHORT 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-Dichloroethane-d4	91.9	54.6-141		%REC	1	10/13/2010 10:05:24 PM
Surr: 4-Bromofluorobenzene	89.4	60.1-133		%REC	1	10/13/2010 10:05:24 PM
Surr: Dibromofluoromethane	105	78.5-130		%REC	1	10/13/2010 10:05:24 PM
Surr: Toluene-d8	99.5	79.5-126		%REC	1	10/13/2010 10:05:24 PM
SM 2320B: ALKALINITY						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	1	10/14/2010 5:09:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Lab Order: 1010563
Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Instrument Run ID	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	OSEIDON_101014.	R41585		10/14/2010
1010563-01C				EPA 6010B: Total Recoverable Metals	ISIS_101017A	24117	10/14/2010	10/17/2010

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1010563

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB		*MBLK*				Batch ID:	**R41535**	Analysis Date:	10/13/2010 11:08:35 AM		
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:	**R41535**	Analysis Date:	10/14/2010 2:48:39 AM		
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 Date:	10/16/2010 11:52:46 PM		
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 Date:	10/18/2010 11:20:10 AM		
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 Date:	10/13/2010 11:25:59 AM		
Fluoride	0.5051	mg/L	0.10	0.5	0	101	90	110			
Chloride	4.977	mg/L	0.50	5	0	99.5	90	110			
Bromide	2.501	mg/L	0.10	2.5	0	100	90	110			
Nitrate (As N)+Nitrite (As N)	3.517	mg/L	0.20	3.5	0	100	90	110			
Phosphorus, Orthophosphate (As P)	5.097	mg/L	0.50	5	0	102	90	110			
Sulfate	10.07	mg/L	0.50	10	0	101	90	110			
Sample ID: LCS		*LCS*				Batch ID:	**R41535**	Analysis Date:	10/14/2010 3:06:04 AM		
Fluoride	0.5473	mg/L	0.10	0.5	0	109	90	110			
Chloride	5.219	mg/L	0.50	5	0	104	90	110			
Bromide	2.654	mg/L	0.10	2.5	0	106	90	110			
Nitrate (As N)+Nitrite (As N)	3.737	mg/L	0.20	3.5	0	107	90	110			
Phosphorus, Orthophosphate (As P)	5.249	mg/L	0.50	5	0	105	90	110			
Sulfate	10.53	mg/L	0.50	10	0	105	90	110			
Sample ID: LCS		*LCS*				Batch ID:	**R41594**	Analysis Date:	10/17/2010 12:10:11 AM		
Fluoride	0.5353	mg/L	0.10	0.5	0	107	90	110			
Chloride	4.902	mg/L	0.50	5	0	98.0	90	110			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1010563

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: LCS		*LCS*				Batch ID:	**R41594**	Analysis Date:	10/17/2010 12:10:11 AM		
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 P)	5.012	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 Date:	10/18/2010 11:37:35 AM		
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											
Sample ID: MB-1		*MBLK*				Batch ID:	**R41585**	Analysis Date:	10/14/2010 4:10:00 PM		
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 Date:	10/14/2010 11:08:00 PM		
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 Date:	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 Date:	10/14/2010 11:15:00 PM		
Alkalinity, Total (As CaCO3)	80.00	mg/L Ca	20	80	0	100	96.5	104			
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1010563-01a msd		*MSD*				Batch ID:	**R41532**	Analysis Date:	10/13/2010 11:01:46 PM		
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	115	6.66	20	
Sample ID: b2		*MBLK*				Batch ID:	**R41532**	Analysis Date:	10/13/2010 1:37:25 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:	**R41532**	Analysis Date:	10/13/2010 12:41:50 PM		
Benzene	19.37	µg/L	1.0	20	0	96.8	82.4	116			
Toluene	19.26	µg/L	1.0	20	0	96.3	89.5	123			
Sample ID: 1010563-01a ms		*MS*				Batch ID:	**R41532**	Analysis Date:	10/13/2010 10:33:39 PM		
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:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1010563

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals											
Sample ID: MB-24117		*MBLK*				Batch ID:	**24117**	Analysis Date:	**10/17/2010 4:34:57 PM**		
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-24117		*LCS*				Batch ID:	**24117**	Analysis Date:	**10/17/2010 4:37:55 PM**		
Calcium	52.61	mg/L	1.0	50	0	105	80	120			
Magnesium	53.22	mg/L	1.0	50	0	106	80	120			
Potassium	55.24	mg/L	1.0	50	0.0943	110	80	120			
Sodium	56.26	mg/L	1.0	50	0.4958	112	80	120			
Sample ID: LCS-24117		*LCS*				Batch ID:	**24117**	Analysis Date:	**10/17/2010 4:41:05 PM**		
Calcium	52.48	mg/L	1.0	50	0	105	80	120			
Magnesium	53.25	mg/L	1.0	50	0	106	80	120			
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			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT | Date Received: 10/6/2010

Work Order Number 1010563 | Received by: MLW

Checklist completed by: Signature 10/6/10 Date | Sample ID labels checked by: AT Initials

Matrix: | Carrier name 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?	Yes ✔	No		
All samples received within holding time?	Yes ✔	No		
Water - VOA vials have zero headspace?	No VOA vials submitted	Yes ✔	No	
Water - Preservation labels on bottle and cap match?	Yes ✔	No	N/A	
Water - pH acceptable upon receipt?	Yes ✔	No	N/A	
Container/Temp Blank temperature?	2.0°	<6° C *Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: 2

(<2) >12 *unless noted below.*

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding:

Comments: Unpreserved Sample poured off & preserved w/HNO3 for Cations/kt 10/12/10

Corrective Action

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard
☒ Level 4 (Full Validation) AK 10/27/10

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name:
Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 2°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1016503	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX MTBE only	8270 (Semi-VOA)	Major Cations/Anions	Carbonates	Gen. Chemistry Alk		Air Bubbles (Y or N)
10-6-10	8:45	H_2O	East Fork	3-VOA	HCl	-1										X						
"	"	"	"	1-500ml		-1												X	X	X		
"	"	"	"	1-250	H_2SO_4	-1												X	X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
10-6-10	3:00	Robert Krakow	Melissa Morris	10/7/10	1400
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: ~~gen chem - pH, Ec, Cations, Anions~~ Alk AK 10/12/10
per CH requested level 4 QC K 10/27/10

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

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

Order No.: 1011023

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Nov-10*

CLIENT: Western Refining Southwest, Inc.
Project: Drainage North of TK#38
Lab Order: 1011023

Work Order Sample Summary

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

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Nov-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1011023	**Collection Date:**	10/27/2010 1:50:00 AM
Project:	Drainage North of TK#38	**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**
Benzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Toluene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Ethylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Naphthalene	ND	2.0		µg/L	1	11/2/2010 5:41:36 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	11/2/2010 5:41:36 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	11/2/2010 5:41:36 AM
Acetone	ND	10		µg/L	1	11/2/2010 5:41:36 AM
Bromobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Bromodichloromethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Bromoform	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Bromomethane	ND	3.0		µg/L	1	11/2/2010 5:41:36 AM
2-Butanone	ND	10		µg/L	1	11/2/2010 5:41:36 AM
Carbon disulfide	ND	10		µg/L	1	11/2/2010 5:41:36 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
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
Chloroform	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Chloromethane	ND	3.0		µg/L	1	11/2/2010 5:41:36 AM
2-Chlorotoluene	ND	1.0		µg/L	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
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/2/2010 5:41:36 AM
Dibromochloromethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Dibromomethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	11/2/2010 5:41:36 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	11/2/2010 5:41:36 AM
1,1-Dichloropropene	ND	1.0		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:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Nov-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1011023	**Collection Date:**	10/27/2010 1:50:00 AM
Project:	Drainage North of TK#38	**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-Isopropyltoluene	ND	1.0		µg/L	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 5:41:36 AM
n-Butylbenzene	ND	1.0		µg/L	1	11/2/2010 5:41:36 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 5:41:36 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	1	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	B	Analyte detected in the associated Method Blank
E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
NC	Non-Chlorinated	ND	Not Detected at the Reporting Limit
PQL	Practical Quantitation Limit	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Nov-10*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1011023	**Collection Date:**	11/1/2010 1:15:00 PM
Project:	Drainage North of TK#38	**Date Received:**	10/28/2010
Lab ID:	1011023-02	**Matrix:**	AQUEOUS

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)+Nitrite (As N)	ND	1.0		mg/L	5	11/11/2010 8:21:24 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	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: TOTAL RECOVERABLE METALS						Analyst: **RAGS**
Calcium	69	1.0		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	1	11/9/2010 11:25:39 AM
Sodium	55	1.0		mg/L	1	11/9/2010 11:25:39 AM
SM 2320B: ALKALINITY						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
Bicarbonate	250	20		mg/L CaCO3	1	11/5/2010 6:45:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Lab Order: 1011023
Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Instrument Run ID	QC Batch ID	Prep Date	Analysis Date
1011023-01A	East Fork	10/27/2010 1:50:00 AM	Aqueous	EPA Method 8260B: VOLATILES	NEPTUNE_101101A	R41901		11/2/2010
1011023-02A		11/1/2010 1:15:00 PM		EPA Method 300.0: Anions	ORION_101110A	R42078		11/11/2010
				EPA Method 300.0: Anions	TRITON_101109B	R42058		11/10/2010
				EPA Method 300.0: Anions	TRITON_101109B	R42058		11/10/2010
				SM 2320B: Alkalinity	OSEIDON_101105.	R42014		11/5/2010
1011023-02B				EPA 6010B: Total Recoverable Metals	ISIS_101109A	24431	11/8/2010	11/9/2010

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 **Work Order:** 1011023

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB		*MBLK*				**Batch ID: R42068**		**Analysis Date: 11/9/2010 9:05:29 PM**			
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: R42078**		**Analysis Date: 11/10/2010 1:46:57 PM**			
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: R42078**		**Analysis Date: 11/11/2010 5:27:15 AM**			
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: LCS		*LCS*				**Batch ID: R42068**		**Analysis Date: 11/9/2010 9:22:53 PM**			
Fluoride	0.5225	mg/L	0.10	0.5	0	105	90	110			
Chloride	4.863	mg/L	0.50	5	0	97.3	90	110			
Nitrate (As N)+Nitrite (As N)	3.472	mg/L	0.20	3.5	0	99.2	90	110			
Phosphorus, Orthophosphate (As P)	4.956	mg/L	0.50	5	0	99.1	90	110			
Sulfate	9.815	mg/L	0.50	10	0	98.2	90	110			
Sample ID: LCS		*LCS*				**Batch ID: R42078**		**Analysis Date: 11/10/2010 2:04:21 PM**			
Fluoride	0.5167	mg/L	0.10	0.5	0	103	90	110			
Chloride	4.999	mg/L	0.50	5	0	100	90	110			
Nitrate (As N)+Nitrite (As N)	3.606	mg/L	0.20	3.5	0	103	90	110			
Phosphorus, Orthophosphate (As P)	5.056	mg/L	0.50	5	0	101	90	110			
Sulfate	10.06	mg/L	0.50	10	0	101	90	110			
Sample ID: LCS		*LCS*				**Batch ID: R42078**		**Analysis Date: 11/11/2010 5:44:40 AM**			
Fluoride	0.4941	mg/L	0.10	0.5	0	98.8	90	110			
Chloride	4.921	mg/L	0.50	5	0	98.4	90	110			
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			
Sulfate	10.25	mg/L	0.50	10	0	103	90	110			
Method: SM 2320B: Alkalinity											
Sample ID: MB		*MBLK*				**Batch ID: R42014**		**Analysis Date: 11/5/2010 4:50:00 PM**			
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		*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:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 **Work Order:** 1011023

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260B: VOLATILES											
Sample ID: b6		*MBLK*									
Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0								
1,2,4-Trimethylbenzene	ND	µg/L	1.0								
1,3,5-Trimethylbenzene	ND	µg/L	1.0								
1,2-Dichloroethane (EDC)	ND	µg/L	1.0								
1,2-Dibromoethane (EDB)	ND	µg/L	1.0								
Naphthalene	ND	µg/L	2.0								
1-Methylnaphthalene	ND	µg/L	4.0								
2-Methylnaphthalene	ND	µg/L	4.0								
Acetone	ND	µg/L	10								
Bromobenzene	ND	µg/L	1.0								
Bromodichloromethane	ND	µg/L	1.0								
Bromoform	ND	µg/L	1.0								
Bromomethane	ND	µg/L	3.0								
2-Butanone	ND	µg/L	10								
Carbon disulfide	ND	µg/L	10								
Carbon Tetrachloride	ND	µg/L	1.0								
Chlorobenzene	ND	µg/L	1.0								
Chloroethane	ND	µg/L	2.0								
Chloroform	ND	µg/L	1.0								
Chloromethane	ND	µg/L	3.0								
2-Chlorotoluene	ND	µg/L	1.0								
4-Chlorotoluene	ND	µg/L	1.0								
cis-1,2-DCE	ND	µg/L	1.0								
cis-1,3-Dichloropropene	ND	µg/L	1.0								
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0								
Dibromochloromethane	ND	µg/L	1.0								
Dibromomethane	ND	µg/L	1.0								
1,2-Dichlorobenzene	ND	µg/L	1.0								
1,3-Dichlorobenzene	ND	µg/L	1.0								
1,4-Dichlorobenzene	ND	µg/L	1.0								
Dichlorodifluoromethane	ND	µg/L	1.0								
1,1-Dichloroethane	ND	µg/L	1.0								
1,1-Dichloroethene	ND	µg/L	1.0								
1,2-Dichloropropane	ND	µg/L	1.0								
1,3-Dichloropropane	ND	µg/L	1.0								
2,2-Dichloropropane	ND	µg/L	2.0								
1,1-Dichloropropene	ND	µg/L	1.0								
Hexachlorobutadiene	ND	µg/L	1.0								
2-Hexanone	ND	µg/L	10								
Isopropylbenzene	ND	µg/L	1.0								
4-Isopropyltoluene	ND	µg/L	1.0								

Batch ID: R41901 **Analysis Date:** 11/1/2010 4:25:32 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 **Work Order:** 1011023

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260B: VOLATILES											
Sample ID: b6		*MBLK*				Batch ID:	R41901	Analysis Date:		11/1/2010 4:25:32 PM	
4-Methyl-2-pentanone	ND	µg/L	10								
Methylene Chloride	ND	µg/L	3.0								
n-Butylbenzene	ND	µg/L	1.0								
n-Propylbenzene	ND	µg/L	1.0								
sec-Butylbenzene	ND	µg/L	1.0								
Styrene	ND	µg/L	1.0								
tert-Butylbenzene	ND	µg/L	1.0								
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0								
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0								
Tetrachloroethene (PCE)	ND	µg/L	1.0								
trans-1,2-DCE	ND	µg/L	1.0								
trans-1,3-Dichloropropene	ND	µg/L	1.0								
1,2,3-Trichlorobenzene	ND	µg/L	1.0								
1,2,4-Trichlorobenzene	ND	µg/L	1.0								
1,1,1-Trichloroethane	ND	µg/L	1.0								
1,1,2-Trichloroethane	ND	µg/L	1.0								
Trichloroethene (TCE)	ND	µg/L	1.0								
Trichlorofluoromethane	ND	µg/L	1.0								
1,2,3-Trichloropropane	ND	µg/L	2.0								
Vinyl chloride	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	1.5								
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			
Sample ID: 100ng lcs		*LCS*				Batch ID:	R41901	Analysis Date:		11/1/2010 3:58:01 PM	
Benzene	18.85	µg/L	1.0	20	0	94.2	84.6	109			
Toluene	21.15	µg/L	1.0	20	0	106	81	114			
Chlorobenzene	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			
Trichloroethene (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	106			S
Surr: Dibromofluoromethane	10.05	µg/L	0	10	0	101	91.6	125			
Surr: Toluene-d8	9.349	µg/L	0	10	0	93.5	92.3	107			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK#38 **Work Order:** 1011023

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals											
Sample ID: MB-24431		*MBLK*				**Batch ID:**	**24431**	**Analysis 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**	**Analysis Date:**	**11/9/2010 11:19:20 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	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	NC	Non-Chlorinated
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT — Date Received: 10/28/2010

Work Order Number 1011023 — Received by: LNM

Checklist completed by: _____ Signature — Date 11/1/10 — Sample ID labels checked by: MG Initials

Matrix: — Carrier name: 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?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐			
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐		
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐		
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐		
Container/Temp Blank temperature?	5.7°	<6° C Acceptable If given sufficient time to cool.			

Number of preserved bottles checked for pH: ~~N~~

(<2) >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
~~Standard~~ X Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
X Standard ☐ Rush

Project Name: 10-27-10
Drainage North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: Yes / No

Sample Temperature: 4

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1011423
10-27-10	1:50	H_2O	East Fork	3-VOA	HCl	1
1		1	1	1-250ml	H_2SO_4	

Date	Time	Relinquished by:	Received by:	Date	Time
10-28-10	3:00	Robert Krakow		10/28/10	1430
Date:	Time:	Relinquished by:	Received by:	Date	Time

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	~~Major Cations~~/Anions	~~Carbonates~~	~~Alkalinity~~ AT		Air Bubbles (Y or N)
									X						
											X	X	X		

Remarks:
10/29/10 per CH sending more volume for Cations/Alk/Anions
AT

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.

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
~~Standard~~ ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: DRAINAGE North of TK# 38

Project #:

Project Manager:

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 12

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1010023
11-1-10	1:15	H_2O	EAST FORK	1-500ml		-2
11-1-10	1:15	H_2O	" "	1-500ml	HNO_3	

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Major Cations/Anions	Carbonates	Alkalinity		Air Bubbles (Y or N)
											X	X	X		
											X	X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-1-10	3:00	Robert Knabow		11/2/10	1030
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Hall Environmental Analysis Laboratory, Inc.

Date: *03-Jan-11*

CLIENT: Western Refining Southwest, Inc.
Project: Drainage North of TK #38
Lab Order: 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

Hall Environmental Analysis Laboratory, Inc.

Date: *03-Jan-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1011933	**Collection Date:**	11/22/2010 1:30:00 PM
Project:	Drainage North of TK #38	**Date Received:**	11/23/2010
Lab ID:	1011933-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **JB**
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/30/2010 6:33:22 PM
Motor Oil Range 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 RANGE						Analyst: **NSB**
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: **LJB**
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, Orthophosphate (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: TOTAL RECOVERABLE METALS						Analyst: **RAGS**
Calcium	65	1.0		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 8260: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	11/29/2010 5:55:56 PM
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 PM
Xylenes, Total	ND	2.0		µg/L	1	11/29/2010 5:55:56 PM
Surr: 1,2-Dichloroethane-d4	101	77.7-113		%REC	1	11/29/2010 5:55:56 PM
Surr: 4-Bromofluorobenzene	94.1	76.4-106		%REC	1	11/29/2010 5:55:56 PM
Surr: Dibromofluoromethane	99.0	91.6-125		%REC	1	11/29/2010 5:55:56 PM
Surr: Toluene-d8	96.6	92.3-107		%REC	1	11/29/2010 5:55:56 PM
SM 2320B: ALKALINITY						Analyst: **IC**
Alkalinity, Total (As CaCO3)	250	20		mg/L CaCO3	1	11/24/2010 9:33:00 PM
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

Qualifiers:

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

Lab Order: 1011933
Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	Instrument Run ID	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 8260: Volatiles Short List	THOR_101129A	R42386		11/29/2010
1011933-01B				EPA Method 8015B: Diesel Range	TD(17A) 2_101130/	24676	11/29/2010	11/30/2010
1011933-01C				EPA 6010B: Total Recoverable Metals	ISIS_101207B	24685	11/29/2010	12/7/2010
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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1011933

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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1011933

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Gasoline Range											
Sample ID: 5ML RB		*MBLK*				Batch ID:	**R42411**	Analysis Date:	11/30/2010 8:39:20 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050								
Sample ID: 2.5UG GRO LCS		*LCS*				Batch ID:	**R42411**	Analysis Date:	11/30/2010 5:08:50 PM		
Gasoline Range Organics (GRO)	0.5788	mg/L	0.050	0.5	0	116	83.7	124			
Sample ID: 2.5UG GRO LCSD		*LCSD*				Batch ID:	**R42411**	Analysis Date:	11/30/2010 5:37:42 PM		
Gasoline Range Organics (GRO)	0.5414	mg/L	0.050	0.5	0	108	83.7	124	6.68	12	
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 5mL rb		*MBLK*				Batch ID:	**R42386**	Analysis Date:	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 Date:	11/29/2010 7:41:01 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:	**R42386**	Analysis Date:	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 lcs		*LCS*				Batch ID:	**R42386**	Analysis Date:	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	0	88.1	81	114			
Method: EPA 6010B: Total Recoverable Metals											
Sample ID: MB-24685		*MBLK*				Batch ID:	**24685**	Analysis Date:	12/7/2010 11:19:43 AM		
Calcium	ND	mg/L	1.0								
Magnesium	ND	mg/L	1.0								
Sample ID: MB-24685		*MBLK*				Batch ID:	**24685**	Analysis Date:	12/7/2010 5:05:43 PM		
Potassium	ND	mg/L	1.0								
Sodium	ND	mg/L	1.0								
Sample ID: LCS-24685		*LCS*				Batch ID:	**24685**	Analysis Date:	12/7/2010 11:22:50 AM		
Calcium	53.44	mg/L	1.0	50	0.0708	107	80	120			
Magnesium	53.73	mg/L	1.0	50	0.1838	107	80	120			
Sample ID: LCS-24685		*LCS*				Batch ID:	**24685**	Analysis Date:	12/7/2010 5:08:45 PM		
Potassium	53.11	mg/L	1.0	50	0	106	80	120			
Sodium	49.28	mg/L	1.0	50	0.6185	97.3	80	120			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT | Date Received: 11/23/2010

Work Order Number 1011933 | Received by: AMG

Checklist completed by: Michelle Cyr (Signature) 11/23/10 (Date) | Sample ID labels checked by: (Initials)

Matrix: | Carrier name: 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?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐			
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐		
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐		
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑		
Container/Temp Blank temperature?	4.7°	<6° C Acceptable If given sufficient time to cool.			

Number of preserved bottles checked for pH: 2

(2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: 11-22-10
DRAINAGE North of TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 4

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1202253
11-22-10	1:30	H_2O	EAST FORK	3-VOA	HCl	-1
		H_2O	" "	1-500ml	amber	
		H_2O	" "	1-250ml	H_2SO_4	
		H_2O	" "	1-500ml		
		H_2O	" "	1-500ml	HNO_3	

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE and MRO	8270 (Semi-VOA)	8015B DRO	Major Cations/Anions	Carbonates	Alkalinity	Air Bubbles (Y or N)
		X							X						
											X				
												X	X	X	
												X	X	X	
												X	X	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-22-10	3:00	Robert Krakow		11/23/10	10:35
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

Order No.: 1012812

Dear Cindy Hurtado:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *06-Jan-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	East Fork
Lab Order:	1012812	**Collection Date:**	12/20/2010 9:20:00 AM
Project:	Drainage North of TK #38	**Date Received:**	12/21/2010
Lab ID:	1012812-01	**Matrix:**	AQUEOUS

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)+Nitrite (As N)	ND	1.0		mg/L	5	12/27/2010 7:34:15 PM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	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: TOTAL RECOVERABLE METALS						Analyst: **SNV**
Calcium	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 8260: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	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-Dichloroethane-d4	91.6	77.7-113		%REC	1	12/23/2010 8:18:20 PM
Surr: 4-Bromofluorobenzene	113	76.4-106	S	%REC	1	12/23/2010 8:18:20 PM
Surr: Dibromofluoromethane	88.8	91.6-125	S	%REC	1	12/23/2010 8:18:20 PM
Surr: Toluene-d8	101	92.3-107		%REC	1	12/23/2010 8:18:20 PM
SM 2320B: ALKALINITY						Analyst: **IC**
Alkalinity, 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

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1012812

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB		*MBLK*				Batch ID:	**R42828**	Analysis Date:	12/22/2010 10:12:30 AM		
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 PM		
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 PM		
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:	**R42882**	Analysis Date:	12/27/2010 2:38:14 PM		
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: LCS		*LCS*				Batch ID:	**R42828**	Analysis Date:	12/22/2010 10:29:55 AM		
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 PM		
Chloride	5.161	mg/L	0.50	5	0	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 PM		
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			
Nitrate (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		*LCS*				Batch ID:	**R42882**	Analysis Date:	12/27/2010 2:55:39 PM		
Fluoride	0.5040	mg/L	0.10	0.5	0	101	90	110			
Chloride	4.908	mg/L	0.50	5	0	98.2	90	110			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1012812

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: LCS		*LCS*				Batch ID:	**R42882**	Analysis 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, Orthophosphate (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: Alkalinity											
Sample ID: MB-1		*MBLK*				Batch ID:	**R42931**	Analysis Date:	12/27/2010 7:08:00 PM		
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:	**R42931**	Analysis Date:	12/28/2010 3:23:00 AM		
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:	**R42931**	Analysis Date:	12/27/2010 7:14:00 PM		
Alkalinity, Total (As CaCO3)	80.47	mg/L Ca	20	80	0	101	96.5	104			
Sample ID: LCS-2		*LCS*				Batch ID:	**R42931**	Analysis Date:	12/28/2010 3:29:00 AM		
Alkalinity, Total (As CaCO3)	80.12	mg/L Ca	20	80	0	100	96.5	104			
Method: EPA Method 8260: Volatiles Short List											
Sample ID: 1012812-01a msd		*MSD*				Batch ID:	**R42858**	Analysis 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 Date:	12/23/2010 10:09:21 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 lcs		*LCS*				Batch ID:	**R42858**	Analysis Date:	12/23/2010 11:25:51 AM		
Benzene	18.68	µg/L	1.0	20	0	93.4	84.6	109			
Toluene	21.98	µg/L	1.0	20	0	110	81	114			
Sample ID: 1012812-01a ms		*MS*				Batch ID:	**R42858**	Analysis Date:	12/23/2010 8:45:51 PM		
Benzene	17.22	µg/L	1.0	20	0	86.1	73.1	117			
Toluene	20.72	µg/L	1.0	20	0	104	82.9	109			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Drainage North of TK #38 **Work Order:** 1012812

Analyte	Result	Units	PQL	SPK Val	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals											
Sample ID: MB-25069		*MBLK*				Batch ID:	**25069**	Analysis Date:		1/4/2011 2:12:47 PM	
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-25069		*LCS*				Batch ID:	**25069**	Analysis Date:		1/4/2011 2:16:09 PM	
Calcium	51.00	mg/L	1.0	50	0	102	80	120			
Magnesium	53.49	mg/L	1.0	50	0	107	80	120			
Potassium	54.76	mg/L	1.0	50	0	110	80	120			
Sodium	51.56	mg/L	1.0	50	0	103	80	120			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **12/21/2010**

Work Order Number **1012812** Received by: **MMG**

Sample ID labels checked by: YS (Initials)

Checklist completed by: Signature 12/21/10 Date

Matrix: Carrier name: **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?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	**2.5°**	*<6° C Acceptable* If given sufficient time to cool.		

Number of preserved bottles checked for pH: 2

<2 >12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: WESTERN REFINING

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161

email or Fax#: 505-632-3911

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
DRAINAGE NORTH OF TK#38

Project #:

Project Manager:

Sampler: Bob

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1012512	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE	8270 (Semi-VOA)	Major Cations/Anions	Carbonates	Alkalinity		Air Bubbles (Y or N)
12-20-10	9:20	H_2O	EAST FORK	3-VOA	HCl											X						
		"	" "	1-250ml	H_2SO_4													X	X	X		
		"	" "	1-500ml	—													X	X	X		
		"	" "	1-500ml	HNO_3													X	X	X		

Date: 12-20-10 Time: 3:00 Relinquished by: Robert Krakow
Received by: Michelle Gee Date: 12/21/10 Time: 1220

Date: Time: Relinquished by:
Received by: Date: Time:

Remarks:

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.

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

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

December 2009
(Revised February 2011)

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

Western Refining

WNR
NYSE

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.

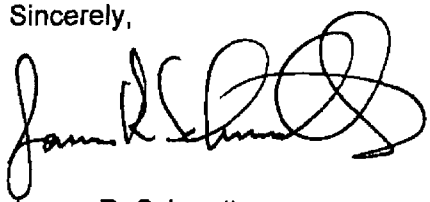
Comment 6 Response: A north indicator has been added to the first photograph (Google Maps figure) in Appendix A. In addition, the seep locations have been annotated on the last aerial photograph within Appendix A.

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

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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.

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.

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.

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 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 during collection of soil samples for VOC analysis. The remaining portions of the sample 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 cross-contamination. 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™, Liqui-Nox®);
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 Method
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 NMED-approved 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

Table 1
Summary of 2007 Groundwater Seep Concentrations
Group 6 Investigation Work Plan
Western Refining Southwest - Bloomfield Refinery

		Parameters			
		Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
WQCC 20NMAC 6.2.3103(mg/L):		**0.01**	**0.75**	**0.75**	**0.62**
WQCC 20NMAC 6.4(mg/L):		**0.022**	**6.8**	**3.1**	**NE**
Sample ID:	**Date Sampled:**				
Outfall #1 (Seep No.1)	10/9/2007	<0.001	0.0029	<0.001	0.0039
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #6 (Seep No. 6)	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #7 (Seep No. 7)	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #8 (Seep No. 8)	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/7/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #9 (Seep No. 9)	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	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

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

		EPA 8260B						EPA 300.0							SM 2320B		
Sample Location	Date	Benzene (mg/L)	Toluene (mg/L)	EthylBen (mg/L)	Xylene (mg/L)	MTBE (mg/L)		Fluoride (mg/L)	Chloride (mg/L)	Bromide (mg/L)	Nitrite (mg/L)	Nitrate (mg/L)	P (mg/L)	Sulfate (mg/L)	CO2 (mg/L)	ALK (mg/L)	
		0.005	0.75	0.70	0.62	0.012	40CFR141.61 (Benzene and Ethylbenzene) WQCC 20 NMAC 6.2.3103 EPA Regional Screening Level (MTBE)	1.6	250	--	1	10	--	600	--	--	WQCC 20 NMAC 6.2.3103
Seep 1	Aug-09	<0.001	<0.001	<0.001	<0.003	0.003		0.29	390	NA	<2.0	<0.10	<0.50	1500	200	220	
	Apr-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Aug-08	<0.001	<0.001	<0.001	<0.003	0.042		0.35	370	NA	<1.0	<0.10	<0.50	1500	250	250	
	Apr-08	<0.001	<0.001	<0.001	<0.002	NS[2]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	
Seep 3	Aug-09	<0.001	<0.001	<0.001	<0.003	<0.0015		0.22	1400	NA	<2.0	<2.0	<10	6800	120	130	
	Apr-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Aug-08	<0.001	<0.001	<0.001	<0.003	<0.015		0.8	370	NA	<1.0	<0.10	<0.50	2500	160	160	
	Apr-08	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	
Seep 6	Aug-09	<0.001	<0.001	<0.001	<0.003	<0.0015		0.58	4800	NA	<2.0	<2.0	<10	1500	150	160	
	Apr-09	<0.001	<0.001	<0.001	<0.002	0.014		<0.50	2900	1.6	<2.0		<0.50	1000	420	440	
	Aug-08	<0.001	<0.001	<0.001	<0.003	0.006		0.47	2500	NA	<1.0	<0.10	<0.50	960	370	370	
	Apr-08	<0.001	<0.001	<0.001	<0.002	NS[2]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	
Seep 7	Aug-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Aug-08	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-08	<0.001	<0.001	<0.001	<0.002	NS[2]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	
Seep 8	Aug-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-09	<0.001	<0.001	<0.001	<0.002	<0.001		0.33	650	1.7	<1.0		<0.50	2200	190	200	
	Aug-08	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-08	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	
Seep 9	Aug-09	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-09	<0.001	<0.001	<0.001	<0.002	0.048		0.35	620	1.0	<1.0		<0.50	1500	420	460	
	Aug-08	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]		NS[1]	NS[1]	NA	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	
	Apr-08	<0.001	<0.001	<0.001	<0.002	NS[2]		NS[2]	NS[2]	NA	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	NS[2]	

NS[1] = Seep location is Dry or Not Enough Water to Sample- No Sample

NS[2] = Not Sampled - Sample was taken before implementation of Facility-Wide Monitoring Plan

NA = Constituent analysis not requested

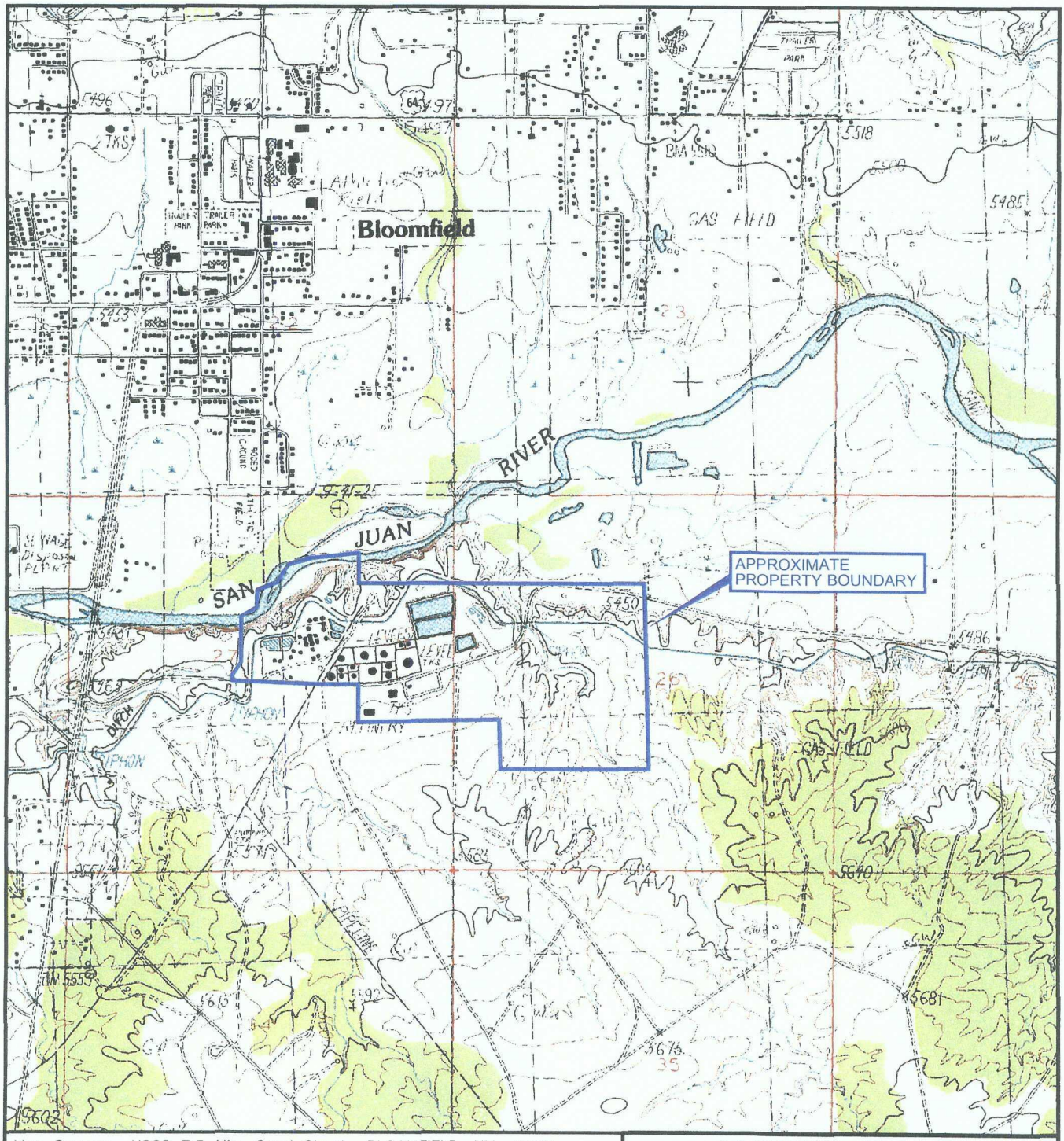
WQCC 20NMAC 6.2.3103 = New Mexico Water Quality Control Commmission Standard for Groundwater of 10,000 ug/L or less

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



Map Source: USGS 7.5 Min. Quad Sheet BLOOMFIELD, NM., 1985.

N

0 2000

SCALE IN FEET

NEW MEXICO

QUADRANGLE LOCATION

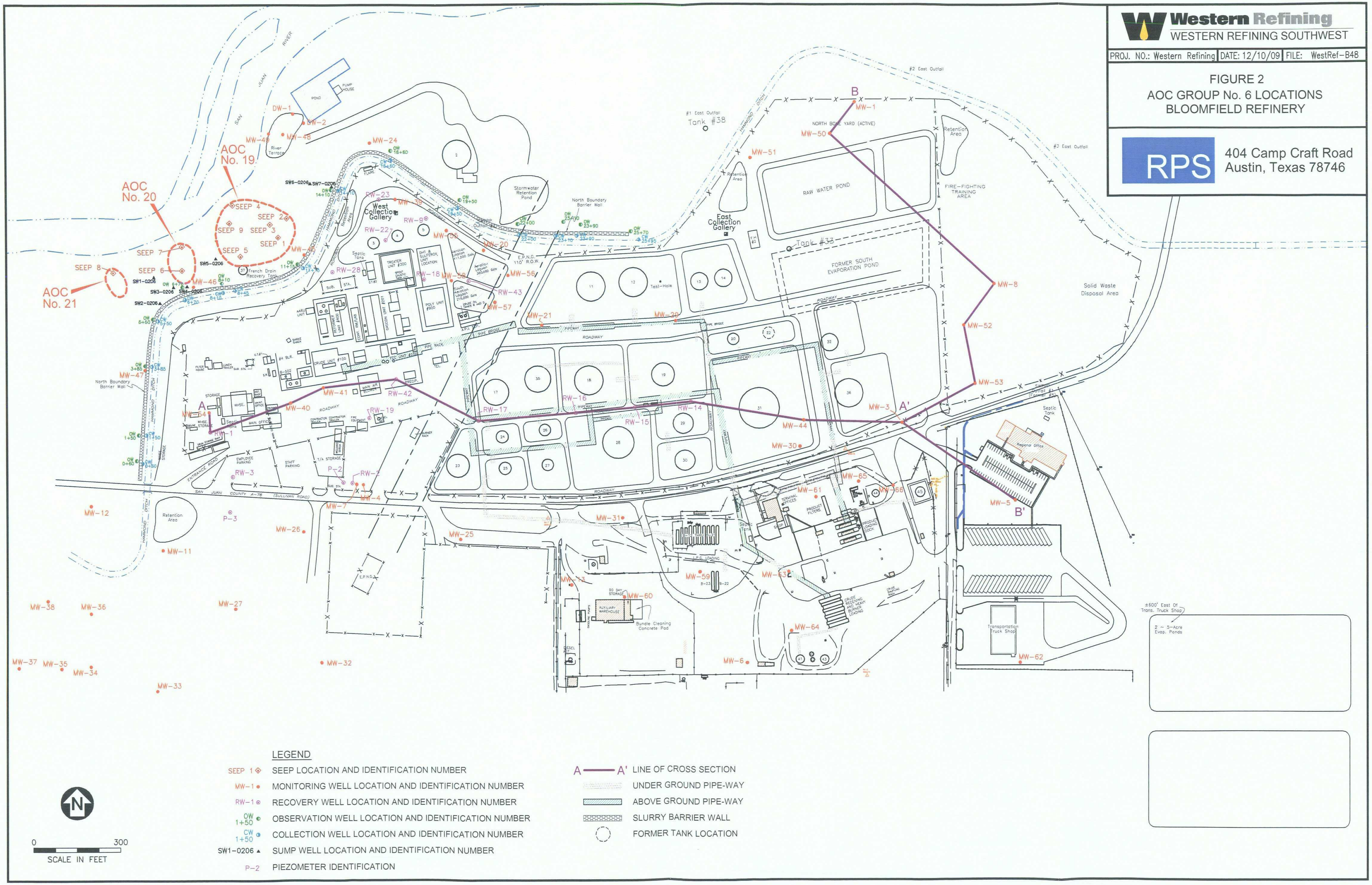
Western Refining

WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining	DATE: 6/19/08	FILE:WestRef-A25

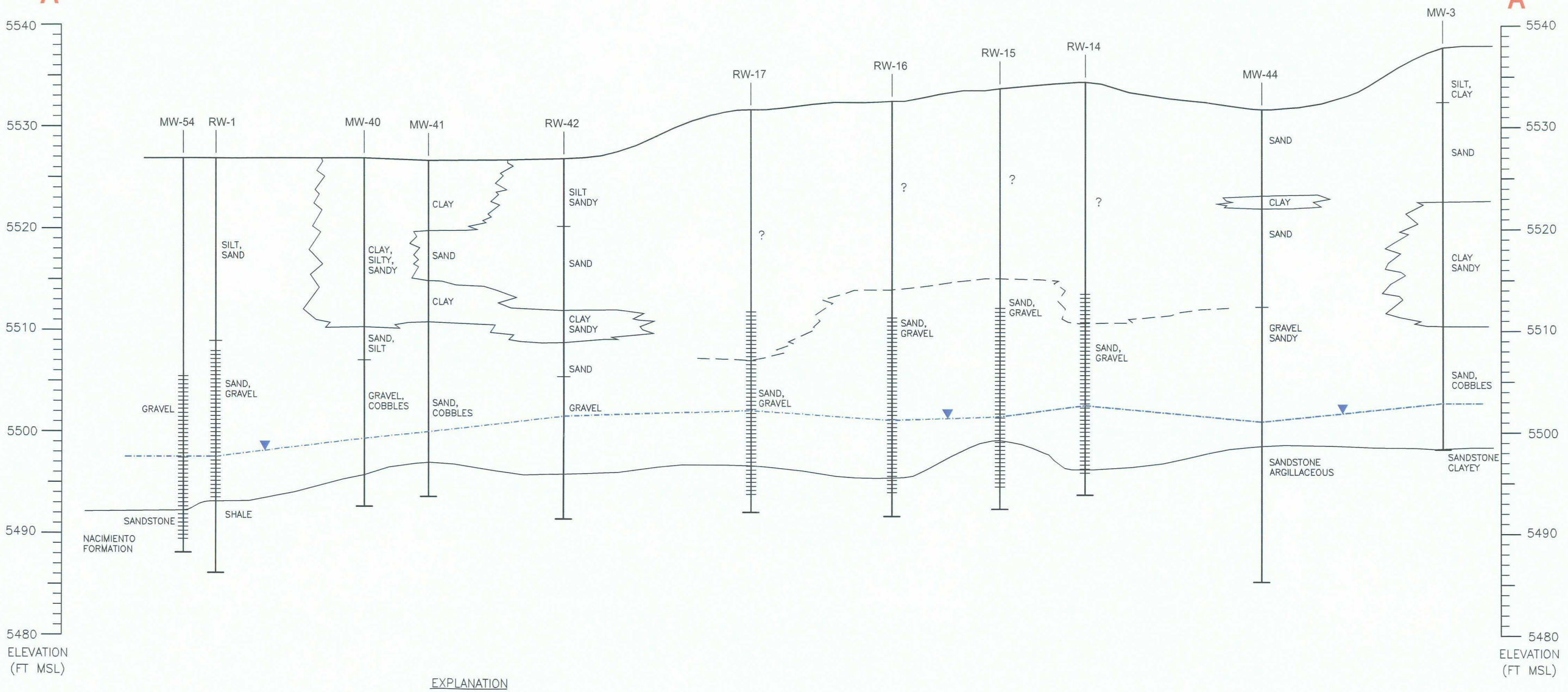
FIGURE 1
SITE LOCATION MAP
BLOOMFIELD REFINERY

RPS JDC
404 Camp Craft Road
Austin, Texas 78746


Western Refining
WESTERN REFINING SOUTHWEST
PROJ. NO.: Western Refining
DATE: 12/10/09
FILE: WestRef-B48
FIGURE 2
AOC GROUP No. 6 LOCATIONS
BLOOMFIELD REFINERY
RPS
404 Camp Craft Road
Austin, Texas 78746
LEGEND
SEEP 1 SEEP LOCATION AND IDENTIFICATION NUMBER
MW-1 MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
RW-1 RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
OW 1+50 OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
CW 1+50 COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
SW1-0206 SUMP WELL LOCATION AND IDENTIFICATION NUMBER
P-2 PIEZOMETER IDENTIFICATION
A — A' LINE OF CROSS SECTION
UNDER GROUND PIPE-WAY
ABOVE GROUND PIPE-WAY
SLURRY BARRIER WALL
FORMER TANK LOCATION
0
300
SCALE IN FEET
AOC No. 19
AOC No. 20
AOC No. 21
SEEP 1
SEEP 2
SEEP 3
SEEP 4
SEEP 5
SEEP 6
SEEP 7
SEEP 8
SEEP 9
SAN JUAN RIVER
HAMMOND DITCH
RAW WATER POND
FORMER SOUTH EVAPORATION POND
NORTH BONE YARD (ACTIVE)
FIRE-FIGHTING TRAINING AREA
Solid Waste Disposal Area
North Boundary Barrier Wall
Stormwater Retention Pond
West Collection Gallery
East Collection Gallery
French Drain Recovery Tank
Transportation Truck Shop
Regional Office
±600' East Of Trans. Truck Shop
2 ~ 5-Acre Evap. Ponds
SAN JUAN COUNTY A-78 (SULLIVAN ROAD)
ENTRANCE ROAD
Bundle Cleaning Concrete Pad
AUXILIARY WAREHOUSE
90 DAY STORAGE

WEST
A

EAST
A'



EXPLANATION

MW-54 ← WELL IDENTIFICATION

WELL

SCREEN INTERVAL

LITHOLOGIC CONTACTS

– POTENTIOMETRIC SURFACE MEASURED AUGUST–OCTOBER 2008

10
0
200
SCALE IN FEET
VERTICAL EXAGGERATION = 20X

Western Refining
WESTERN REFINING SOUTHWEST

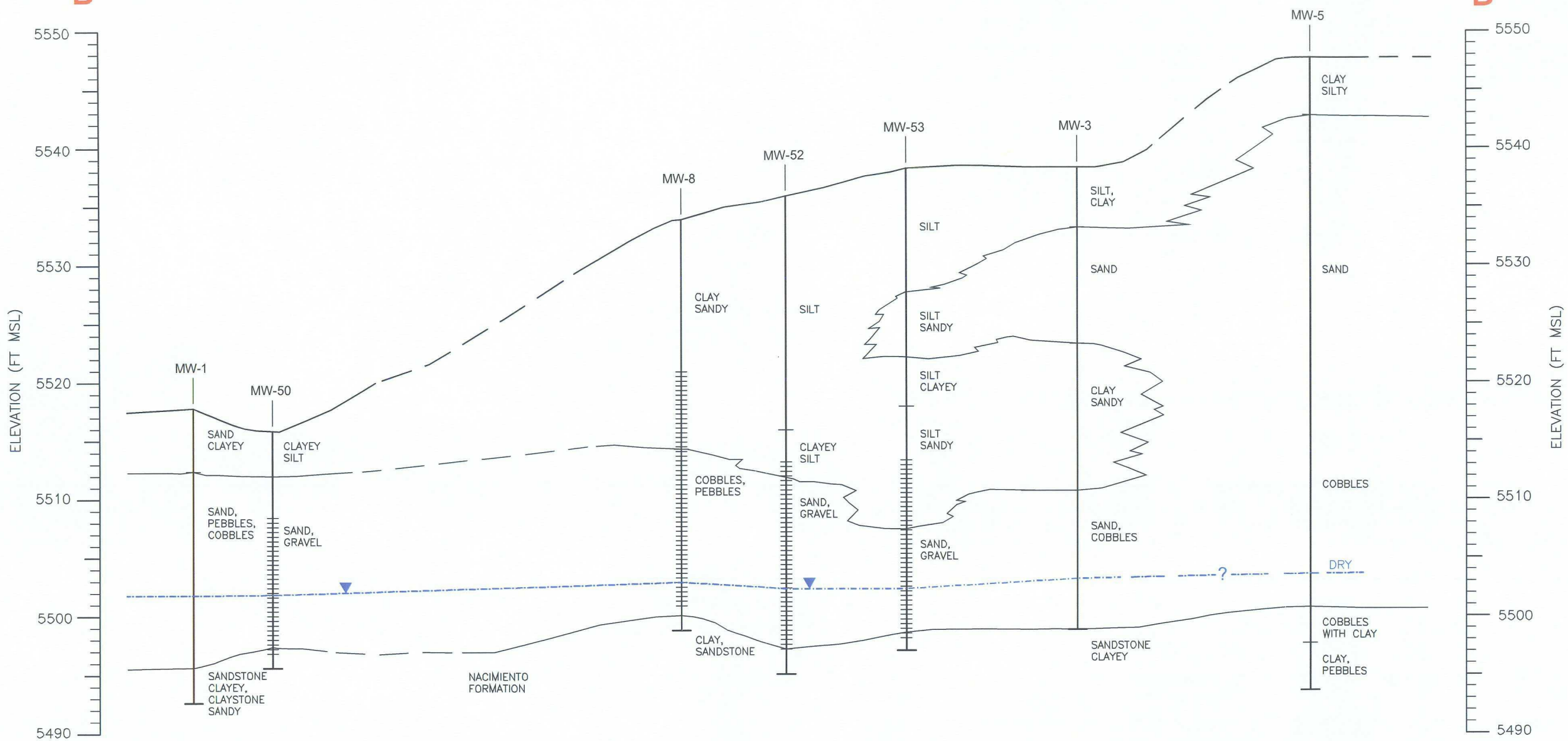
PROJ. NO.: Western Refining	DATE: 04/29/09	FILE: WestRef-B28

FIGURE 3
CROSS SECTION A-A'
WEST TO EAST
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746

NORTH
B

SOUTH
B'



EXPLANATION

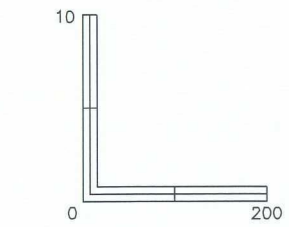
MW-8 ← WELL IDENTIFICATION

WELL

SCREEN INTERVAL

LITHOLOGIC CONTACTS

– POTENTIOMETRIC SURFACE MEASURED AUGUST–OCTOBER 2008



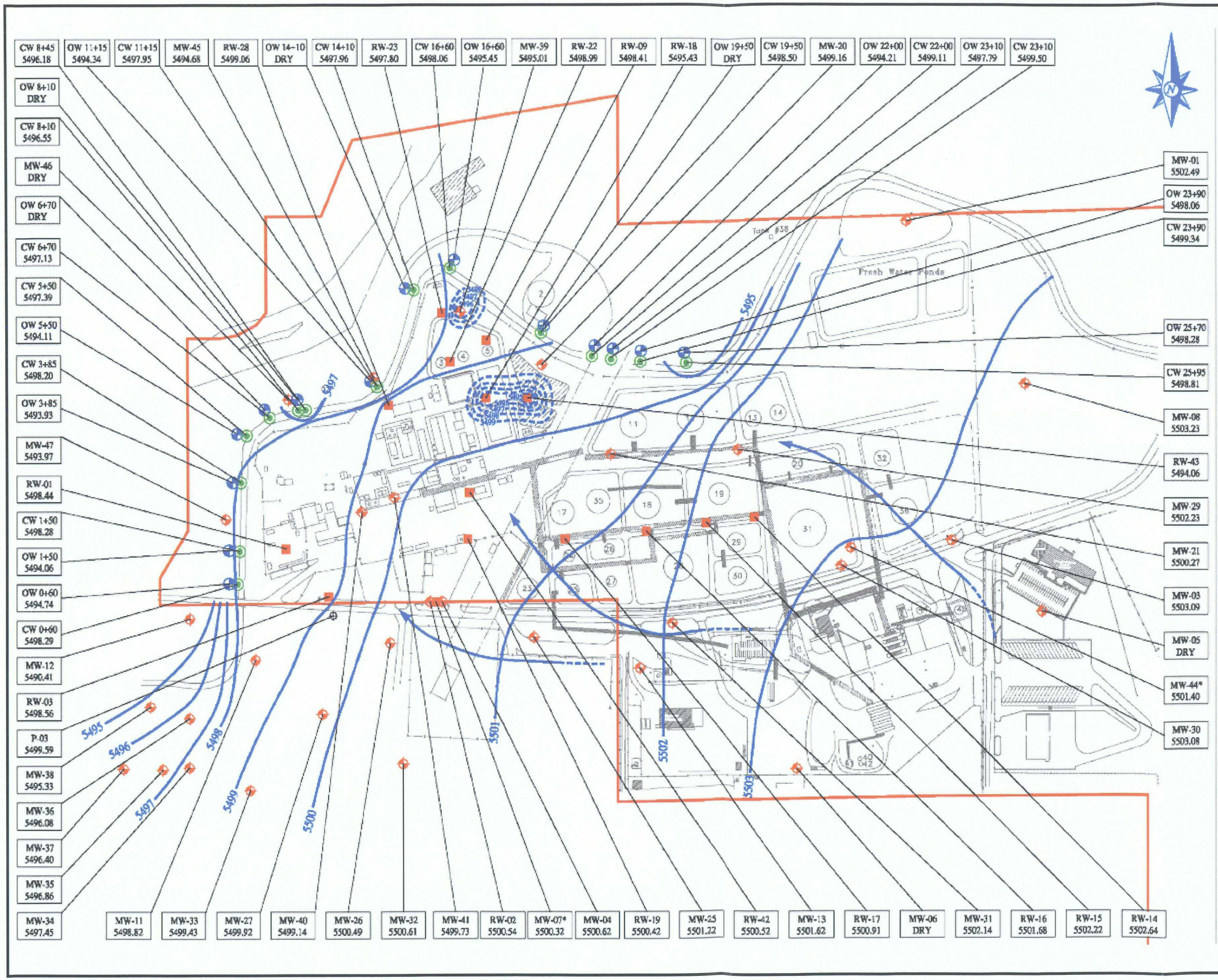
SCALE IN FEET
VERTICAL EXAGGERATION = 20X

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining	DATE: 04/29/09	FILE: WestRef–B29

FIGURE 4
CROSS SECTION B-B'
NORTH TO SOUTH
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746



Map Source: Western Refining Southwest, Inc. 2010, Fig 17.

0 360
APPROXIMATE SCALE IN FEET

Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Piezometer
- Seep
- Site
- Approximate Property Line
- Groundwater Elevation Contours
- Inferred Groundwater Elevation
- Groundwater Flow Direction - Dashed where inferred
- MW-47 5493.97 -Well ID -Groundwater Elevation (ft amsl)

Notes:
* Deeper Well; data not used to contour.

3rd Quarter
August 17th

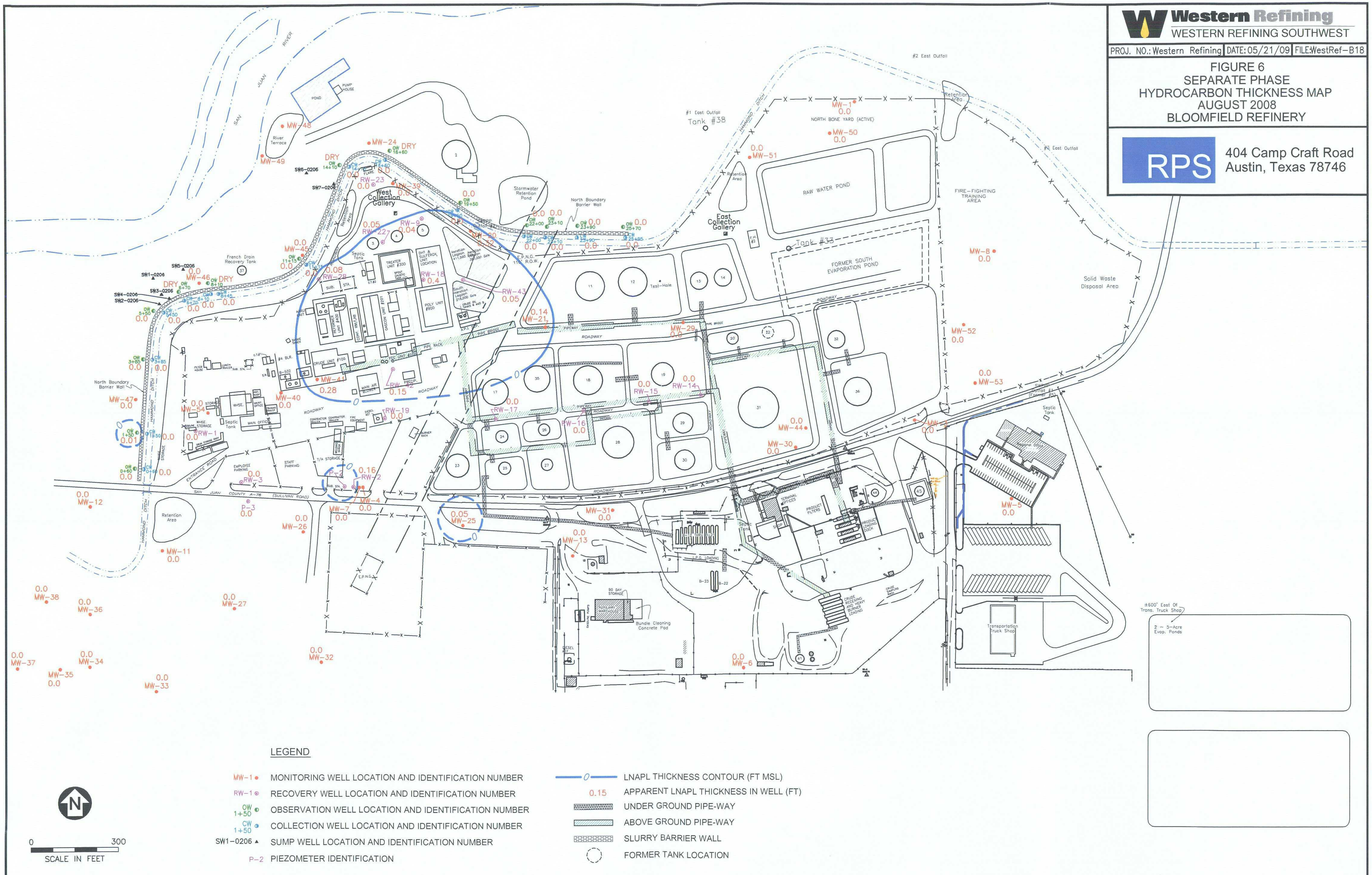
Western Refining
WESTERN REFINING SOUTHWEST

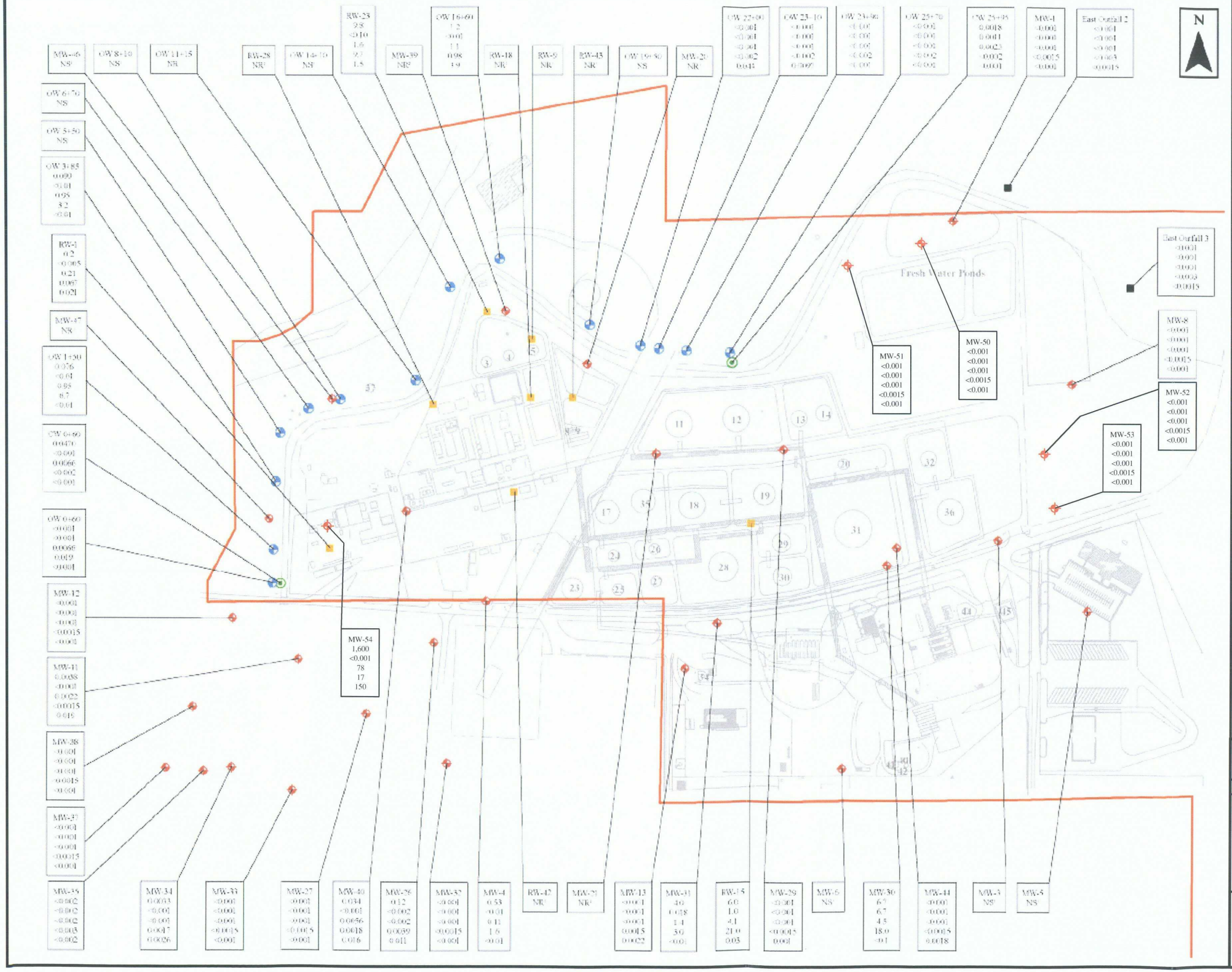
PROJ. NO.: Western Refining	DATE: 12/08/10	FILE: WestRef-B76

FIGURE 5

POTENTIOMETRIC SURFACE MAP
AUGUST 2009
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746


Western Refining
WESTERN REFINING SOUTHWEST
PROJ. NO.: Western Refining
DATE: 05/21/09
FILE: WestRef-B18
FIGURE 6
SEPARATE PHASE
HYDROCARBON THICKNESS MAP
AUGUST 2008
BLOOMFIELD REFINERY
RPS
404 Camp Craft Road
Austin, Texas 78746
LEGEND
MW-1 MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
RW-1 RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
OW 1+50 OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
CW 1+50 COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
SW1-0206 SUMP WELL LOCATION AND IDENTIFICATION NUMBER
P-2 PIEZOMETER IDENTIFICATION
LNAPL THICKNESS CONTOUR (FT MSL)
0.15 APPARENT LNAPL THICKNESS IN WELL (FT)
UNDER GROUND PIPE-WAY
ABOVE GROUND PIPE-WAY
SLURRY BARRIER WALL
FORMER TANK LOCATION
0 300
SCALE IN FEET
SAN JUAN RIVER
HAMMOND DITCH
RAW WATER POND
FORMER SOUTH EVAPORATION POND
FIRE-FIGHTING TRAINING AREA
Solid Waste Disposal Area
NORTH BONE YARD (ACTIVE)
East Collection Gallery
West Collection Gallery
North Boundary Barrier Wall
Stormwater Retention Pond
French Drain Recovery Tank
Transportation Truck Shop
±600' East Of Trans. Truck Shop
2 ~ 5-Acre Evap. Ponds
Bundle Cleaning Concrete Pad
SAN JUAN COUNTY A-78 (SULLIVAN ROAD)
ENTRANCE ROAD
MW-1 0.0
MW-50 0.0
MW-51 0.0
MW-8 0.0
MW-52 0.0
MW-53 0.0
MW-3 0.0
MW-5 0.0
MW-44 0.0
MW-30 0.0
MW-6 0.0
MW-29 0.0
MW-21 0.14
RW-43 0.05
RW-14 0.0
RW-15 0.0
RW-16 0.0
RW-17 0.0
MW-31 0.0
MW-13 0.0
MW-25 0.05
MW-24 DRY
RW-23 0.0
RW-9 0.04
RW-22 0.05
RW-18 0.4
RW-28 0.08
MW-41 0.28
RW-42 0.15
RW-19 0.0
RW-2 0.16
MW-4 0.0
MW-7 0.0
MW-26 0.0
MW-32 0.0
MW-27 0.0
MW-40 0.0
MW-45 0.0
MW-46 0.0
MW-47 0.0
MW-48
MW-49
MW-54 0.0
RW-1 0.0
RW-3 0.0
P-3 0.0
MW-11 0.0
MW-12 0.0
MW-33 0.0
MW-34 0.0
MW-35 0.0
MW-36 0.0
MW-37 0.0
MW-38 0.0
SW1-0206
SW2-0206
SW3-0206
SW4-0206
SW5-0206
SW6-0206
SW7-0206



Map Source: Western Refining Southwest, Inc. 2008 Facility–Wide Groundwater Monitoring Report, Fig 14.

0 360

APPROXIMATE SCALE IN FEET

Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Outfall
- Site
- Approximate Property Line

MW-38	- Well Id
< 0.001	- Benzene
< 0.001	- Toluene
< 0.001	- Ethylbenzene
< 0.0015	- Xylenes. Total
0.001	- MTBE

Notes:

All concentrations in milligrams per liter (mg/L)

NS[1] = Well is Dry or Not Enough Water to Sample- No sample

NS[2] = Sample Inadvertently not Collected this Sampling Event

NR[1] = No Sample Required - Well Contains Separate Phase Hydrocarbon

NR[2] = No Sample Required per OCD and NMED Conditions

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining | DATE: 05/25/09 | FILE: WestRef–B32

FIGURE 7
DISSOLVED-PHASE GROUNDWATER DATA
AUGUST AND OCTOBER 2008
BLOOMFIELD REFINERY

RPS JDC
404 Camp Craft Road
Austin, Texas 78746

Aerial Map Source: Google Map.

LEGEND

SEEP 1 ◈	SEEP LOCATION AND IDENTIFICATION NUMBER
MW-24 ●	MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
RW-28 ⊙	RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
OW 16+60 ◐	OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
CW 16+60 ◑	COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
SW6-0206 ▲	SUMP WELL LOCATION AND IDENTIFICATION NUMBER

N

0 100
SCALE IN FEET

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining | DATE: 12/10/09 | FILE: WestRef-B49

FIGURE 8
AOC Nos. 19, 20 AND 21
SEEP LOCATION MAP
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746

N

0 50

SCALE IN FEET

LEGEND

SEEP 1 SEEP IDENTIFICATION NUMBER

SURFACE SOIL SAMPLE LOCATION

SOIL BORING LOCATION

LINED CATCHMENT BASIN

DRAINAGE PATHWAY

Western Refining

WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining | DATE: 12/11/09 | FILE: WestRef-A38

FIGURE 9

AOC No. 19

SAMPLE LOCATION MAP

BLOOMFIELD REFINERY

RPS

404 Camp Craft Road
Austin, Texas 78746

N

0 50
SCALE IN FEET

LEGEND

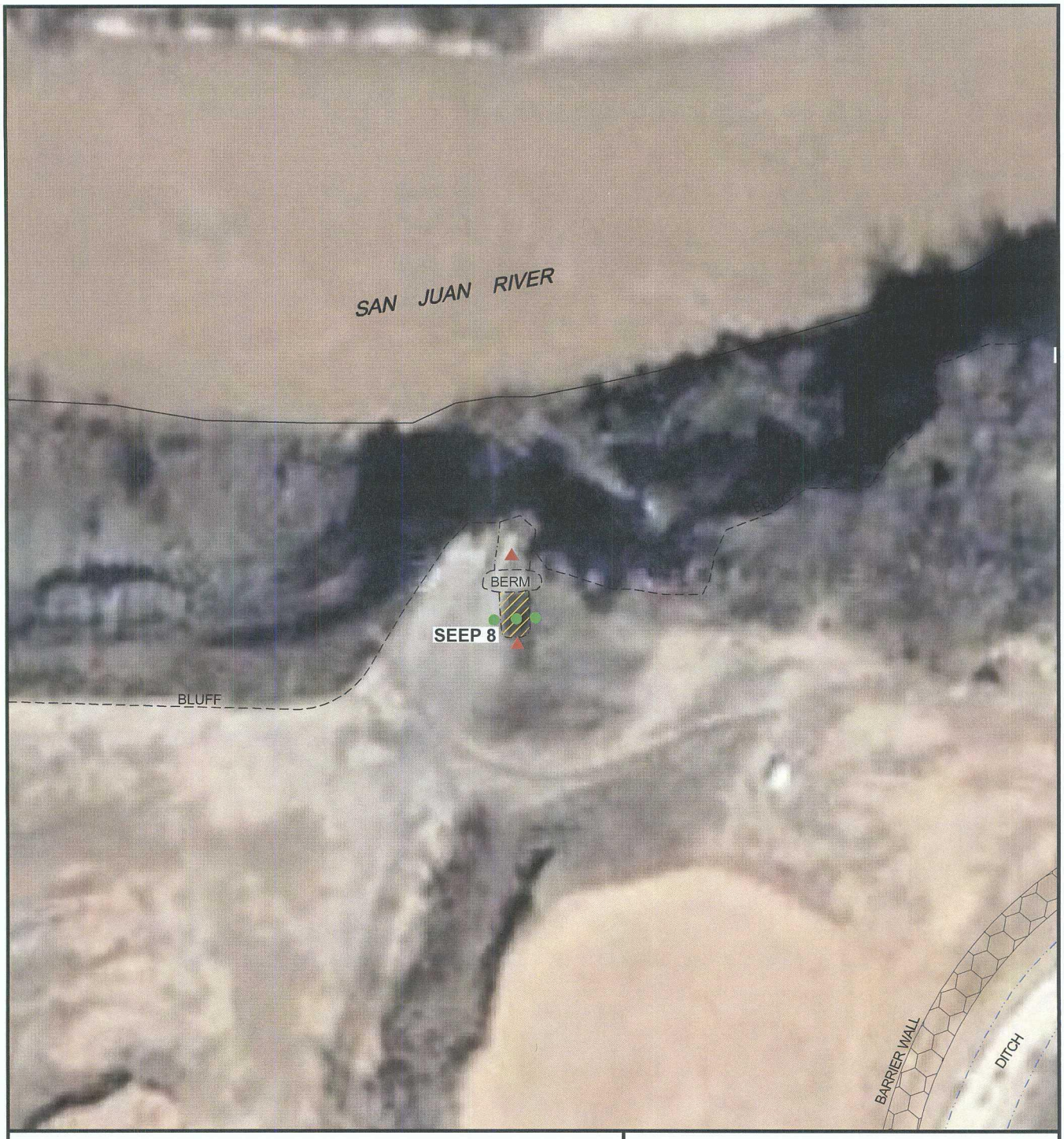
SEEP 6	SEEP IDENTIFICATION NUMBER
●	SURFACE SOIL SAMPLE LOCATION
▲	SOIL BORING LOCATION
▨	LINED CATCHMENT BASIN
---·---	DRAINAGE PATHWAY

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining	DATE: 12/11/09	FILE: WestRef-A38

FIGURE 10
AOC No. 20
SAMPLE LOCATION MAP
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746



N

0 50
SCALE IN FEET

LEGEND

SEEP 8	SEEP IDENTIFICATION NUMBER
●	SURFACE SOIL SAMPLE LOCATION
▲	SOIL BORING LOCATION
▨	LINED CATCHMENT BASIN
-·-·-·-	DRAINAGE PATHWAY

Western Refining
WESTERN REFINING SOUTHWEST

PROJ. NO.: Western Refining | DATE: 12/11/09 | FILE: WestRef-A38

FIGURE 11
AOC No. 21
SAMPLE LOCATION MAP
BLOOMFIELD REFINERY

RPS
404 Camp Craft Road
Austin, Texas 78746

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

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

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

AOC No. 19 – Exposed Liner at Seep No. 9

AOC 20 – Seep No. 6 With Water in Catchment Basin No. 6

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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Seep No. 6
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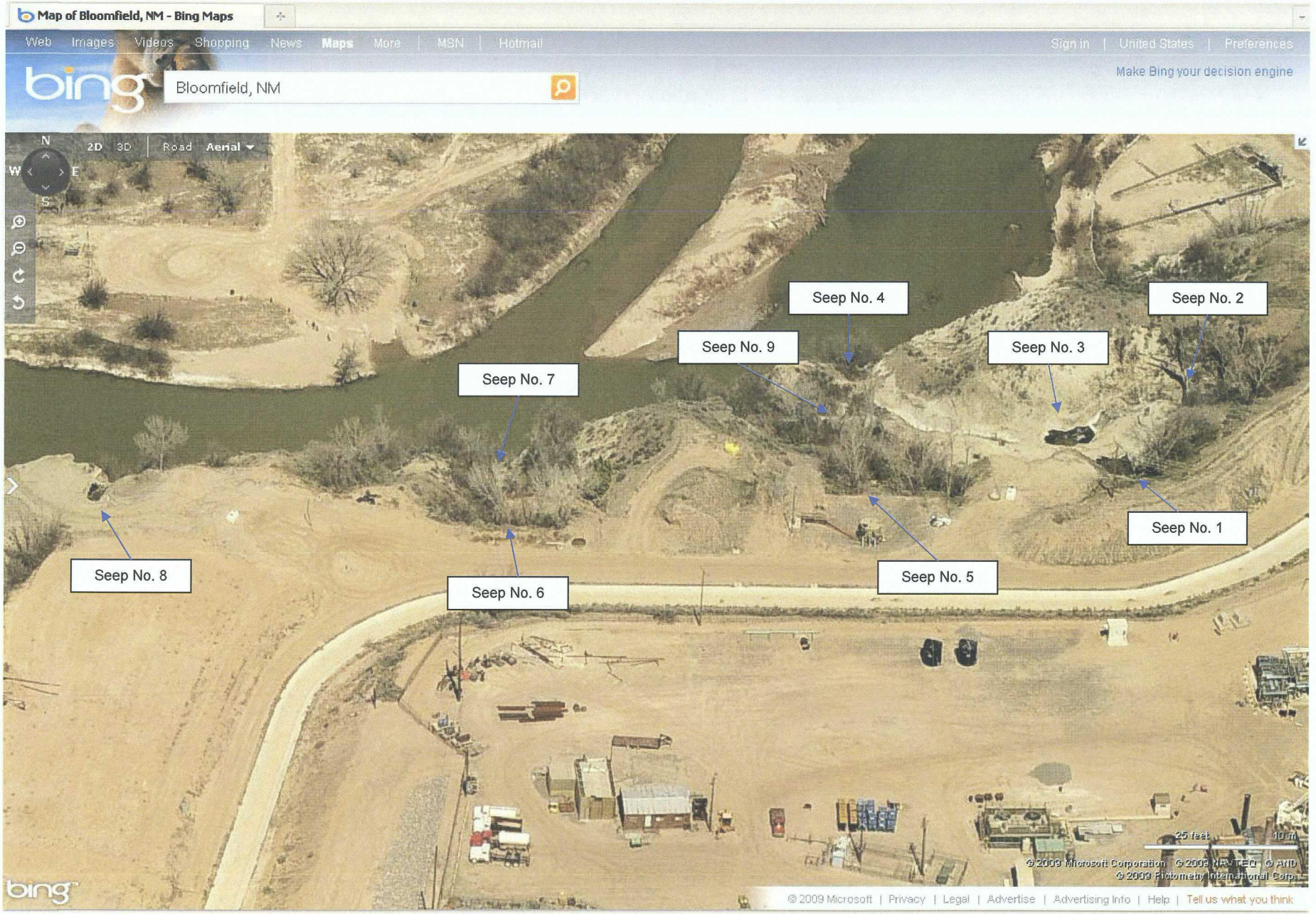
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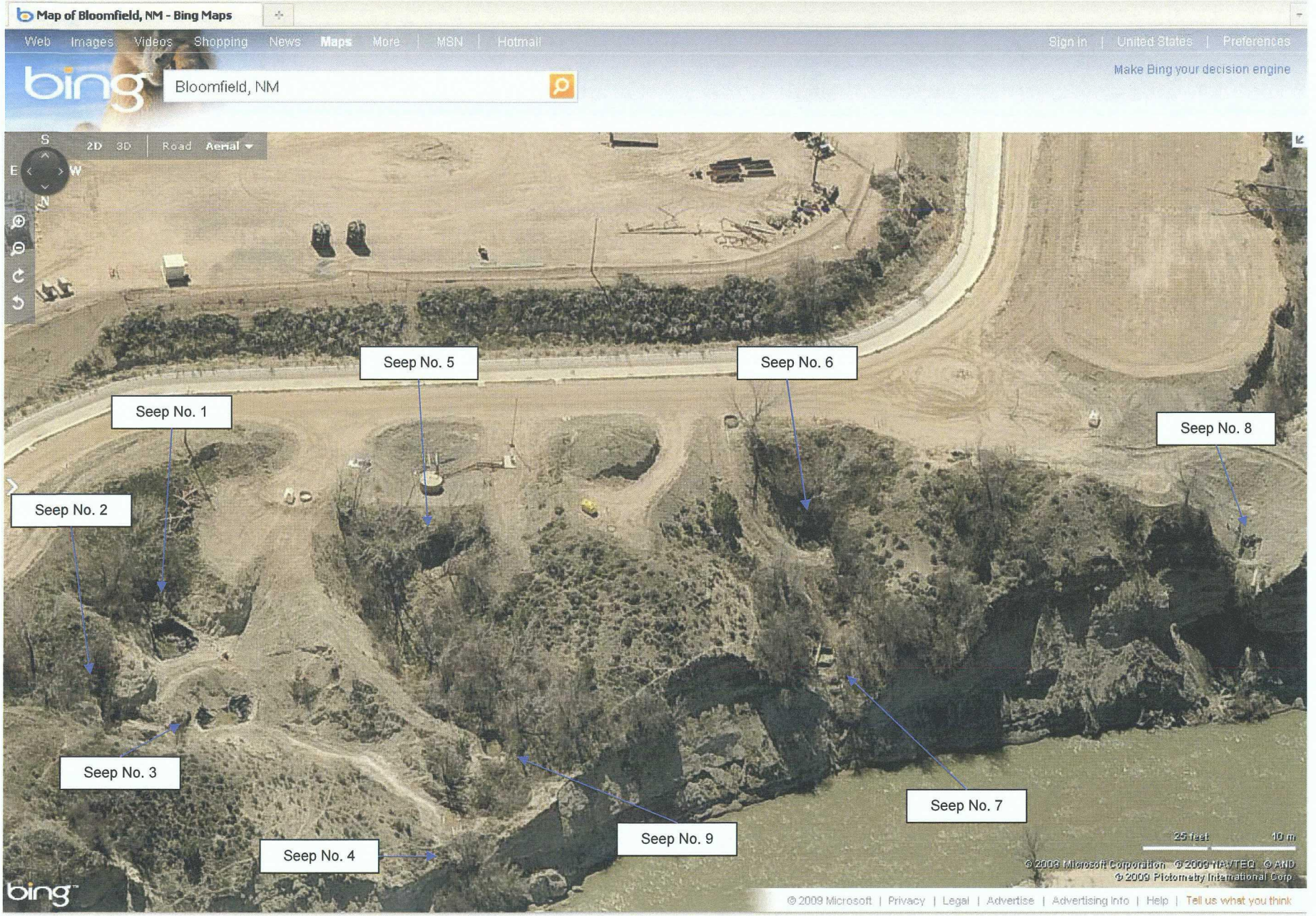
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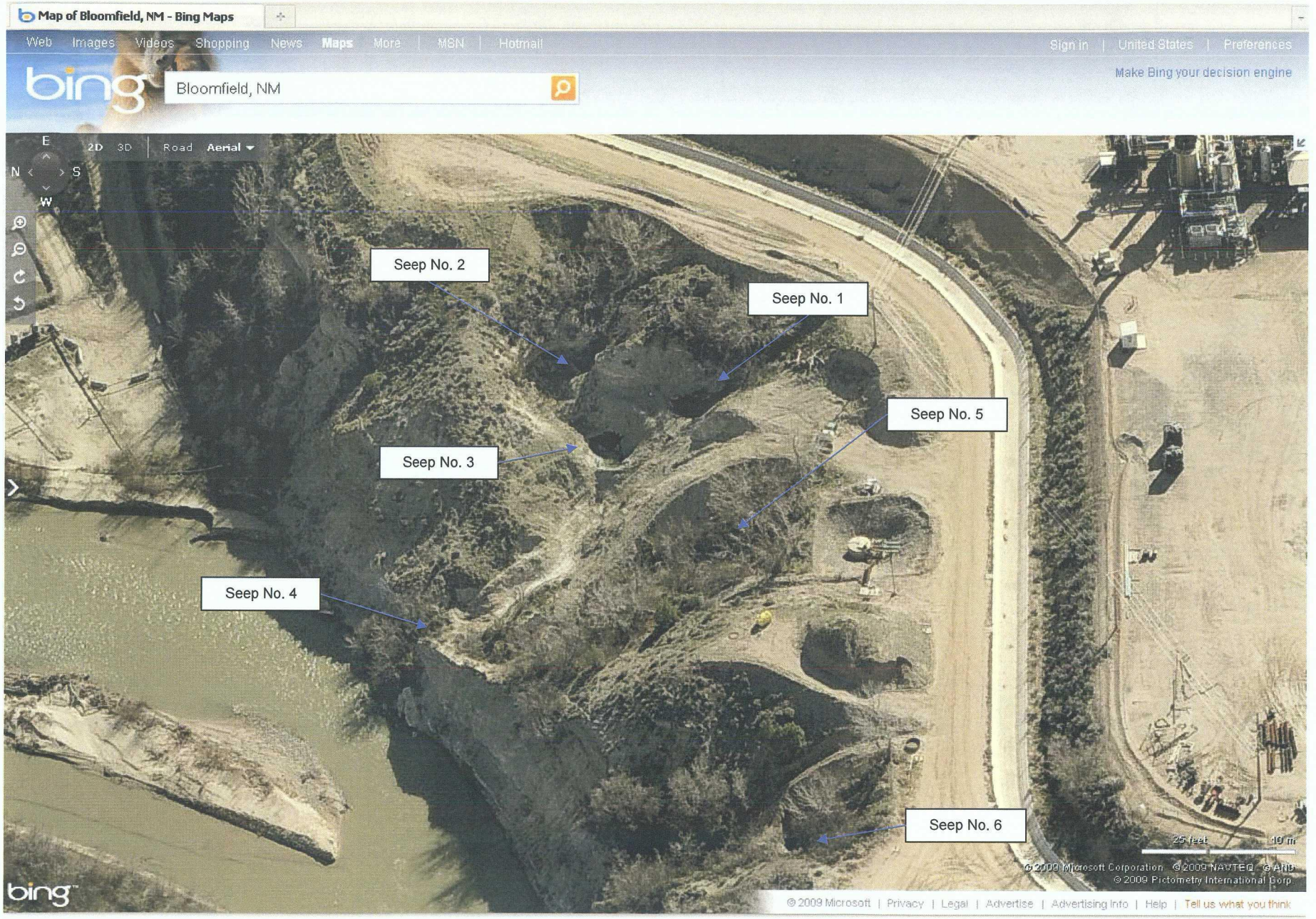
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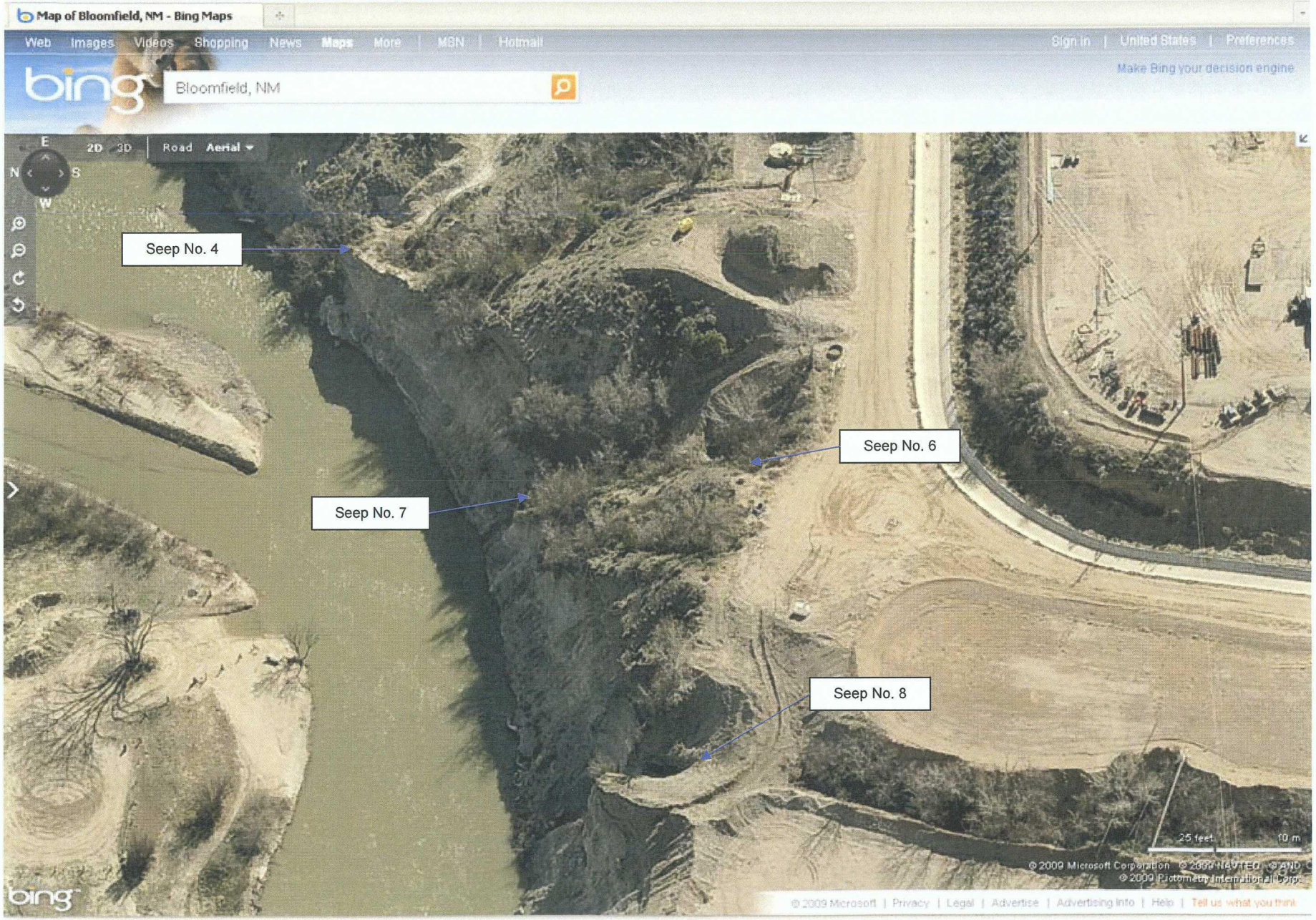
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Appendix B

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.

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.

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