

GW – 001

**GW REMEDIATION
& MONITORING
ANNUAL REPORT
(4 of 4)**

2016



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 02, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Bloomfield Terminal

OrderNo.: 1604849

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604849**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-26

Project: Bloomfield Terminal

Collection Date: 4/19/2016 9:20:00 AM

Lab ID: 1604849-001

Matrix: PRODUCT

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DRO BY 8015D						Analyst: KJH
Diesel Range Organics (DRO)	110	1.9		wt%	20	4/27/2016 11:41:40 AM
Motor Oil Range Organics (MRO)	ND	9.5		wt%	20	4/27/2016 11:41:40 AM
Surr: DNOP	0	72.8-129	S	%Rec	20	4/27/2016 11:41:40 AM
GRO BY 8015D						Analyst: NSB
Gasoline Range Organics (GRO)	ND	2.5		wt%	1	4/22/2016 2:33:12 PM
Surr: BFB	107	80-120		%Rec	1	4/22/2016 2:33:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604849**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-14

Project: Bloomfield Terminal

Collection Date: 4/18/2016 2:00:00 PM

Lab ID: 1604849-002

Matrix: PRODUCT

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
DRO BY 8015D						Analyst: KJH
Diesel Range Organics (DRO)	31	1.9		wt%	20	4/27/2016 12:03:20 PM
Motor Oil Range Organics (MRO)	ND	9.7		wt%	20	4/27/2016 12:03:20 PM
Surr: DNOP	0	72.8-129	S	%Rec	20	4/27/2016 12:03:20 PM
GRO BY 8015D						Analyst: NSB
Gasoline Range Organics (GRO)	43.7	2.50		wt%	1	4/25/2016 3:50:25 PM
Surr: BFB	132	80-120	S	%Rec	1	4/25/2016 3:50:25 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604849

02-May-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID	LCS-24993		SampType: LCS		TestCode: DRO by 8015D					
Client ID:	LCSW		Batch ID: 24993		RunNo: 33821					
Prep Date:	4/26/2016		Analysis Date: 4/27/2016		SeqNo: 1041851		Units: wt%			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.48	0.10	0.5000	0	95.6	70.8	122			
Surr: DNOP	0.034		0.05000		67.3	72.8	129			S

Sample ID	LCSD-24993		SampType: LCSD		TestCode: DRO by 8015D					
Client ID:	LCSS02		Batch ID: 24993		RunNo: 33821					
Prep Date:	4/26/2016		Analysis Date: 4/27/2016		SeqNo: 1041852		Units: wt%			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.50	0.10	0.5000	0	99.7	70.8	122	4.18	20	
Surr: DNOP	0.036		0.05000		72.0	72.8	129	0	0	S

Sample ID	MB-24993		SampType: MBLK		TestCode: DRO by 8015D					
Client ID:	PBW		Batch ID: 24993		RunNo: 33821					
Prep Date:	4/26/2016		Analysis Date: 4/27/2016		SeqNo: 1041853		Units: wt%			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.10								
Motor Oil Range Organics (MRO)	ND	0.50								
Surr: DNOP	0.076		0.1000		75.6	72.8	129			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604849

02-May-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID MB-24933	SampType: MBLK			TestCode: GRO by 8015D						
Client ID: PBW	Batch ID: 24933			RunNo: 33721						
Prep Date: 4/21/2016	Analysis Date: 4/22/2016			SeqNo: 1038994		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	2.5								
Surr: BFB	950		1000		95.3	80	120			

Sample ID LCS-24933	SampType: LCS			TestCode: GRO by 8015D						
Client ID: LCSW	Batch ID: 24933			RunNo: 33721						
Prep Date: 4/21/2016	Analysis Date: 4/22/2016			SeqNo: 1038995		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	2.5	25.00	0	95.5	69.3	137			
Surr: BFB	1100		1000		105	80	120			

Sample ID LCSD-24933	SampType: LCSD			TestCode: GRO by 8015D						
Client ID: LCSS02	Batch ID: 24933			RunNo: 33721						
Prep Date: 4/21/2016	Analysis Date: 4/22/2016			SeqNo: 1038996		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	2.5	25.00	0	92.3	69.3	137	3.41	20	
Surr: BFB	1000		1000		102	80	120	0	0	

Sample ID MB-24965	SampType: MBLK			TestCode: GRO by 8015D						
Client ID: PBW	Batch ID: 24965			RunNo: 33757						
Prep Date: 4/23/2016	Analysis Date: 4/25/2016			SeqNo: 1039891		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	2.5								
Surr: BFB	950		1000		94.8	80	120			

Sample ID LCS-24965	SampType: LCS			TestCode: GRO by 8015D						
Client ID: LCSW	Batch ID: 24965			RunNo: 33757						
Prep Date: 4/23/2016	Analysis Date: 4/25/2016			SeqNo: 1039895		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	2.5	25.00	0	95.2	69.3	137			
Surr: BFB	1100		1000		106	80	120			

Sample ID LCSD-24965	SampType: LCSD			TestCode: GRO by 8015D						
Client ID: LCSS02	Batch ID: 24965			RunNo: 33757						
Prep Date: 4/23/2016	Analysis Date: 4/25/2016			SeqNo: 1039899		Units: wt%				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604849

02-May-16

Client: Western Refining Southwest, Inc.

Project: Bloomfield Terminal

Sample ID	LCSD-24965		SampType: LCSD		TestCode: GRO by 8015D					
Client ID:	LCSS02		Batch ID: 24965		RunNo: 33757					
Prep Date:	4/23/2016		Analysis Date: 4/25/2016		SeqNo: 1039899		Units: wt%			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	2.5	25.00	0	95.5	69.3	137	0.336	20	
Surr: BFB	1000		1000		104	80	120	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604849

RcptNo: 1

Received by/date: AT 04/20/16

Logged By: Anne Thorne 4/20/2016 7:30:00 AM

Completed By: Anne Thorne 4/20/2016

Reviewed By: TO 04/20/16

Anne Thorne

Anne Thorne

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☒ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☒ No ☐ NA ☐

Person Notified:	<u>KELLY ROBINSON</u>	Date:	<u>4/20/2016</u>
By Whom:	<u>Anne Thorne</u>	Via:	☒ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	<u>PROJECT NAME</u>		
Client Instructions:	<u>BLOOMFIELD TERMINAL</u>		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

Chain-of-Custody Record		Turn-Around Time:
Client: <u>Western Refining</u>	☒ Standard ☐ Rush	Project Name: <u>AT 04/20/16</u>
Mailing Address: <u>50 CR 4990</u>	<u>Bloomfield Terminal</u>	
<u>Bloomfield, NM</u>	Project #:	<u>PO # 12615321</u>
Phone #: <u>505-632-4133</u>		

Email or Fax#: _____ QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation) Accreditation ☐ NELAP ☐ Other _____ ☐ EDD (Type) _____	Project Manager: _____ Sampler: <u>M. Wickes</u> On Ice: ☒ Yes ☐ No Sample Temperature: <u>2.1</u> °C
--	---

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
11-14-16	0920	Product	MW-26	1-VolA	Coel	1604849
11-18-16	1400	Ad	RW-14	3-VolA	Coel	2012

[illegible]

ite:	Time:	Relinquished by:	Received by:	Date	Time	R
19-16	1623			4/19/16	1625	
19-16	1849			04/20/16	0730	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility.



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

Received by:	Date	Time
Christy Wacht	4/19/16	1025
Received by:	Date	Time
Christy Wacht	04/20/16	0730

if necessary, samples submitted to Hal 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.

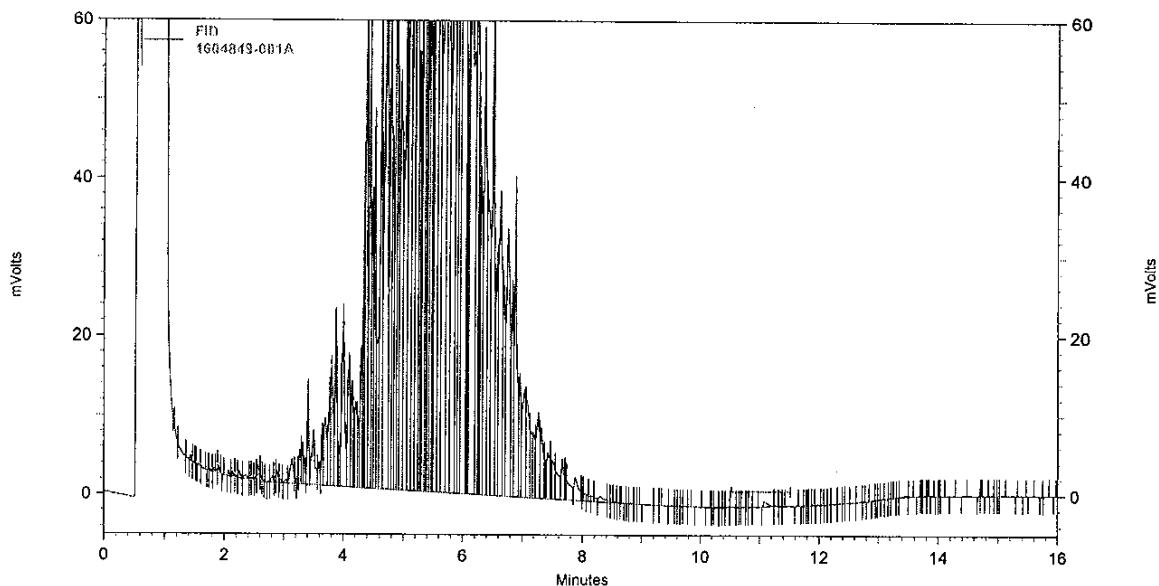
MW-26

Instrument: Dante (Offline)
Sample ID: 1604849-001A

Vial #: 21
Data Description: PRODUCT X20 HCR

User: System

Method: H:\EZsemi\8015dro\Data 2015\Dante\Method\032816.met
File: H:\EZsemi\8015dro\Data 2015\Dante\Data\042716\1604849-001A 04-27-16 11-36-13 AM.dat
Acquired: 4/27/2016 11:41:40 AM



FID Results

Name	Retention Time	Area	ug/ml
DNOP	11.083	3374	0.775
DRO		8028836	579.961
MRO		2929	0.000

Analyst Kor

Reviewed By [Signature]

$$(579.961 \times 0.009533) \times 20$$

110.56

DNOP not recovered
due to dilution

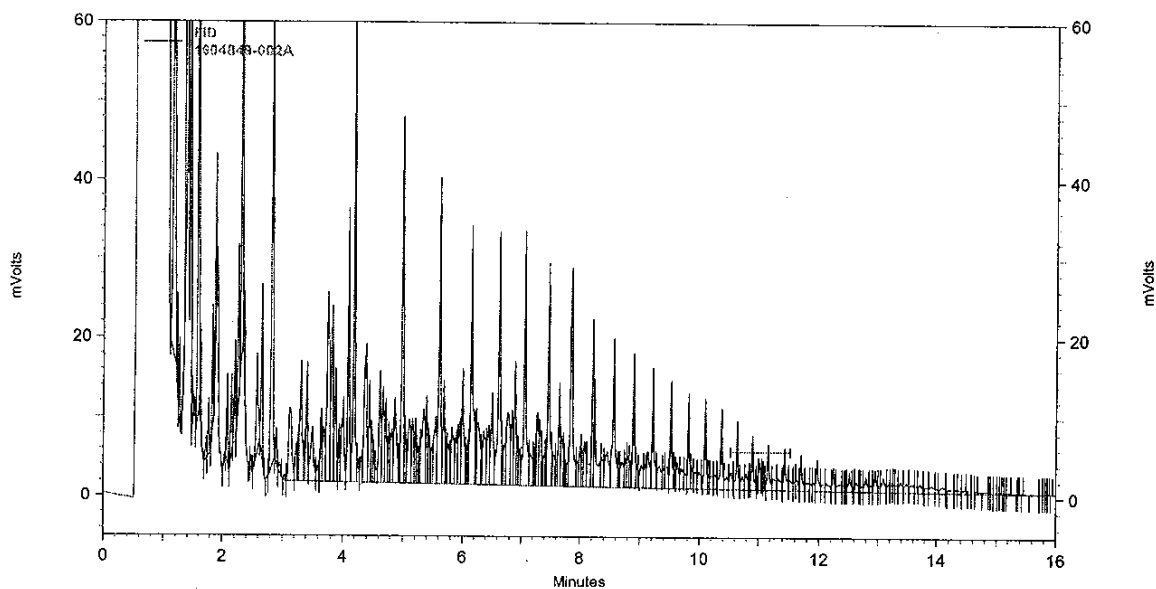
RW-14

Instrument: Dante (Offline)
Sample ID: 1604849-002A

Vial #: 22
Data Description: PRODUCT X20 HCR

User: System

Method: H:\EZsemi\8015dro\Data 2015\Dante\Method\032816.met
File: H:\EZsemi\8015dro\Data 2015\Dante\Data\042716\1604849-002A 04-27-16 11-59-57 AM.dat
Acquired: 4/27/2016 12:03:20 PM



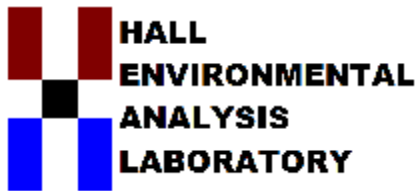
FID Results

Name	Retention Time	Area	ug/ml
DNOP	11.024	8187	1.126
DRO		2131445	157.729
MRO		239483	22.378

Analyst

Reviewed By

DNOP not recovered
due to dilution



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 02, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: North Boundry Barrier

OrderNo.: 1604889

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 4/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized, flowing script.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW- 0+60

Project: North Boundry Barrier

Collection Date: 4/19/2016 11:00:00 AM

Lab ID: 1604889-001

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	0.73	0.20		mg/L	1	4/25/2016 12:39:27 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 12:39:27 PM
Surr: DNOP	88.8	63.2-161		%Rec	1	4/25/2016 12:39:27 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	2.5	1.0		µg/L	1	4/26/2016 4:05:43 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 4:05:43 AM
Ethylbenzene	2.3	1.0		µg/L	1	4/26/2016 4:05:43 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 4:05:43 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 4:05:43 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/26/2016 4:05:43 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/26/2016 4:05:43 AM
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	4/26/2016 4:05:43 AM
Surr: Toluene-d8	97.9	70-130		%Rec	1	4/26/2016 4:05:43 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** OW 3+85**Project:** North Boundry Barrier**Collection Date:** 4/19/2016 11:50:00 AM**Lab ID:** 1604889-002**Matrix:** AQUEOUS**Received Date:** 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	56	2.0		mg/L	10	4/26/2016 1:15:08 PM
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	4/26/2016 1:15:08 PM
Surr: DNOP	0	63.2-161	S	%Rec	10	4/26/2016 1:15:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	0.50		mg/L	10	4/21/2016 3:26:44 PM
Surr: BFB	412	66.4-120	S	%Rec	10	4/21/2016 3:26:44 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	10	D	µg/L	10	4/26/2016 4:34:33 AM
Toluene	ND	10	D	µg/L	10	4/26/2016 4:34:33 AM
Ethylbenzene	11	10	D	µg/L	10	4/26/2016 4:34:33 AM
Methyl tert-butyl ether (MTBE)	ND	10	D	µg/L	10	4/26/2016 4:34:33 AM
Xylenes, Total	ND	15	D	µg/L	10	4/26/2016 4:34:33 AM
Surr: 1,2-Dichloroethane-d4	98.6	70-130	D	%Rec	10	4/26/2016 4:34:33 AM
Surr: 4-Bromofluorobenzene	104	70-130	D	%Rec	10	4/26/2016 4:34:33 AM
Surr: Dibromofluoromethane	94.2	70-130	D	%Rec	10	4/26/2016 4:34:33 AM
Surr: Toluene-d8	94.6	70-130	D	%Rec	10	4/26/2016 4:34:33 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** OW 16+60**Project:** North Boundry Barrier**Collection Date:** 4/19/2016 1:15:00 PM**Lab ID:** 1604889-003**Matrix:** AQUEOUS**Received Date:** 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	28	0.20		mg/L	1	4/25/2016 2:48:14 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 2:48:14 PM
Surr: DNOP	93.7	63.2-161		%Rec	1	4/25/2016 2:48:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.8	0.050		mg/L	1	4/21/2016 5:04:48 PM
Surr: BFB	937	66.4-120	S	%Rec	1	4/21/2016 5:04:48 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	10	D	µg/L	10	4/26/2016 5:03:22 AM
Toluene	ND	10	D	µg/L	10	4/26/2016 5:03:22 AM
Ethylbenzene	ND	10	D	µg/L	10	4/26/2016 5:03:22 AM
Methyl tert-butyl ether (MTBE)	280	10	D	µg/L	10	4/26/2016 5:03:22 AM
Xylenes, Total	ND	15	D	µg/L	10	4/26/2016 5:03:22 AM
Surr: 1,2-Dichloroethane-d4	94.6	70-130	D	%Rec	10	4/26/2016 5:03:22 AM
Surr: 4-Bromofluorobenzene	96.4	70-130	D	%Rec	10	4/26/2016 5:03:22 AM
Surr: Dibromofluoromethane	90.7	70-130	D	%Rec	10	4/26/2016 5:03:22 AM
Surr: Toluene-d8	97.5	70-130	D	%Rec	10	4/26/2016 5:03:22 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** OW 22+00**Project:** North Boundry Barrier**Collection Date:** 4/19/2016 2:30:00 PM**Lab ID:** 1604889-004**Matrix:** AQUEOUS**Received Date:** 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/25/2016 3:09:42 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 3:09:42 PM
Surr: DNOP	90.2	63.2-161		%Rec	1	4/25/2016 3:09:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/22/2016 12:49:36 PM
Surr: BFB	82.7	66.4-120		%Rec	1	4/22/2016 12:49:36 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 5:32:15 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 5:32:15 AM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 5:32:15 AM
Methyl tert-butyl ether (MTBE)	1.8	1.0		µg/L	1	4/26/2016 5:32:15 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 5:32:15 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/26/2016 5:32:15 AM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	4/26/2016 5:32:15 AM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	4/26/2016 5:32:15 AM
Surr: Toluene-d8	102	70-130		%Rec	1	4/26/2016 5:32:15 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-23+10

Project: North Boundry Barrier

Collection Date: 4/19/2016 2:45:00 PM

Lab ID: 1604889-005

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/25/2016 3:31:17 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 3:31:17 PM
Surr: DNOP	90.9	63.2-161		%Rec	1	4/25/2016 3:31:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.13	0.050		mg/L	1	4/22/2016 1:14:03 PM
Surr: BFB	94.4	66.4-120		%Rec	1	4/22/2016 1:14:03 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 6:01:07 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 6:01:07 AM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 6:01:07 AM
Methyl tert-butyl ether (MTBE)	1.2	1.0		µg/L	1	4/26/2016 6:01:07 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 6:01:07 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/26/2016 6:01:07 AM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	4/26/2016 6:01:07 AM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	4/26/2016 6:01:07 AM
Surr: Toluene-d8	97.2	70-130		%Rec	1	4/26/2016 6:01:07 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-23+90

Project: North Boundry Barrier

Collection Date: 4/19/2016 3:00:00 PM

Lab ID: 1604889-006

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/25/2016 4:09:51 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 4:09:51 PM
Surr: DNOP	92.6	63.2-161		%Rec	1	4/25/2016 4:09:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/21/2016 6:18:18 PM
Surr: BFB	88.0	66.4-120		%Rec	1	4/21/2016 6:18:18 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 6:29:52 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 6:29:52 AM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 6:29:52 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 6:29:52 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 6:29:52 AM
Surr: 1,2-Dichloroethane-d4	97.7	70-130		%Rec	1	4/26/2016 6:29:52 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/26/2016 6:29:52 AM
Surr: Dibromofluoromethane	83.6	70-130		%Rec	1	4/26/2016 6:29:52 AM
Surr: Toluene-d8	94.7	70-130		%Rec	1	4/26/2016 6:29:52 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Equipment Blank

Project: North Boundry Barrier

Collection Date: 4/18/2016 3:30:00 PM

Lab ID: 1604889-007

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 6:58:39 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 6:58:39 AM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 6:58:39 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 6:58:39 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 6:58:39 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/26/2016 6:58:39 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/26/2016 6:58:39 AM
Surr: Dibromofluoromethane	92.8	70-130		%Rec	1	4/26/2016 6:58:39 AM
Surr: Toluene-d8	97.3	70-130		%Rec	1	4/26/2016 6:58:39 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604889**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: North Boundry Barrier

Collection Date:

Lab ID: 1604889-008

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 7:27:34 AM
Toluene	ND	1.0		µg/L	1	4/26/2016 7:27:34 AM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 7:27:34 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 7:27:34 AM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 7:27:34 AM
Surr: 1,2-Dichloroethane-d4	99.4	70-130		%Rec	1	4/26/2016 7:27:34 AM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	4/26/2016 7:27:34 AM
Surr: Dibromofluoromethane	88.1	70-130		%Rec	1	4/26/2016 7:27:34 AM
Surr: Toluene-d8	98.7	70-130		%Rec	1	4/26/2016 7:27:34 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604889

02-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier

Sample ID	1604889-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW- 0+60		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039858		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.2	0.20	2.500	0.7253	101	73.3	174			
Surr: DNOP	0.23		0.2500		91.9	63.2	161			

Sample ID	1604889-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW- 0+60		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039859		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0.7253	103	73.3	174	1.81	20	
Surr: DNOP	0.23		0.2500		92.0	63.2	161	0	0	

Sample ID	LCS-24970		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039867		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039868		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604889

02-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A33706	RunNo:	33706					
Prep Date:		Analysis Date:	4/21/2016	SeqNo:	1038287	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		84.6	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A33706	RunNo:	33706					
Prep Date:		Analysis Date:	4/21/2016	SeqNo:	1038288	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.5	80	120			
Surr: BFB	20		20.00		98.8	66.4	120			

Sample ID	1604889-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	OW 3+85	Batch ID:	A33706	RunNo:	33706					
Prep Date:		Analysis Date:	4/21/2016	SeqNo:	1038290	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	0.50	5.000	14.32	119	70	130			
Surr: BFB	860		200.0		431	66.4	120			S

Sample ID	1604889-002AMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	OW 3+85	Batch ID:	A33706	RunNo:	33706					
Prep Date:		Analysis Date:	4/21/2016	SeqNo:	1038291	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	0.50	5.000	14.32	121	70	130	0.581	20	
Surr: BFB	870		200.0		433	66.4	120	0	0	S

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R33733	RunNo:	33733					
Prep Date:		Analysis Date:	4/22/2016	SeqNo:	1039011	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.1	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R33733	RunNo:	33733					
Prep Date:		Analysis Date:	4/22/2016	SeqNo:	1039012	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604889

02-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R33733	RunNo:	33733					
Prep Date:		Analysis Date:	4/22/2016	SeqNo:	1039012	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.4	80	120			
Surr: BFB	20		20.00		102	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604889

02-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33772	RunNo:	33772					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1040456	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.7	70	130			
Toluene	20	1.0	20.00	0	98.7	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R33772	RunNo:	33772					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1040457	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.2	70	130			
Surr: Toluene-d8	9.3		10.00		92.8	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604889

RcptNo: 1

Received by/date: AT 04/20/16

Logged By: Anne Thorne 4/20/2016 7:30:00 AM

Completed By: **Anne Thorne** **4/20/2016**

Reviewed By: IO 04/20/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

- | | | | |
|--|---|--|---------------------------------------|
| 4. Was an attempt made to cool the samples? | Yes ☒ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C | Yes ☒ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☒ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☒ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☒ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☒ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☒ | No ☐ | No VOA Vials ☐ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☒ | |
| 12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) | Yes ☒ | No ☐ | |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☒ | No ☐ | |
| 14. Is it clear what analyses were requested? | Yes ☒ | No ☐ | |
| 15. Were all holding times able to be met?
(If no, notify customer for authorization.) | Yes ☒ | No ☐ | |
- # of preserved bottles checked for pH: (<2)

Adjusted?

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

☒ Standard ☐ Rush

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

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(G) RC MS 2 F 2 M

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature $24 = 110 - CF = 1.4$

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5-VOA	HCl	204
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1-500 ml	Amber	204
Amber 125	Amber	

[illegible]

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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[illegible]

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Received by:	Date	Time
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Received by: Date: 11/13/11 Time:

04/20/16

Amson 0730

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 #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **North Boundary Barrier**

Project #: **Semi Annual**

PO# 12615521

Project Manager:

Sampler: **M. Wicker**

On Ice ☒ Yes ☐ No

Sample Temperature: **24 C F 76 F**

Date Time Matrix Sample Request ID

4/19/16 1500 H₂O OW 23+90

4/19/16 1500 H₂O OW 23+90

4/18/16 1530 Equipment Blank

4/18/16 1530 Trip Blank

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Date: **4-19-16**

Time: **11:21**

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Date: **4/19/16**

Time: **1849**

Relinquished by: *[Signature]*

Date: **4/19/16**

Time: **1849**

Relinquished by: *[Signature]*

Date: **4/19/16**

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Relinquished by: *[Signature]*

Date: **4/19/16**

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Date: **4/1**



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 04, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: North Boundary Barrier

OrderNo.: 1604932

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized, flowing script.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604932**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** OW 1+50**Project:** North Boundary Barrier**Collection Date:** 4/19/2016 10:30:00 AM**Lab ID:** 1604932-001**Matrix:** AQUEOUS**Received Date:** 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	2.5	0.20		mg/L	1	4/25/2016 4:31:41 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/25/2016 4:31:41 PM
Surr: DNOP	95.2	63.2-161		%Rec	1	4/25/2016 4:31:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	3.2	0.25		mg/L	5	4/26/2016 9:57:07 AM
Surr: BFB	424	66.4-120	S	%Rec	5	4/26/2016 9:57:07 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	5.0		µg/L	5	4/26/2016 6:28:31 PM
Toluene	ND	5.0		µg/L	5	4/26/2016 6:28:31 PM
Ethylbenzene	ND	5.0		µg/L	5	4/26/2016 6:28:31 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	4/26/2016 6:28:31 PM
Xylenes, Total	ND	7.5		µg/L	5	4/26/2016 6:28:31 PM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%Rec	5	4/26/2016 6:28:31 PM
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	5	4/26/2016 6:28:31 PM
Surr: Dibromofluoromethane	86.2	70-130		%Rec	5	4/26/2016 6:28:31 PM
Surr: Toluene-d8	98.8	70-130		%Rec	5	4/26/2016 6:28:31 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604932**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** OW 11+15**Project:** North Boundary Barrier**Collection Date:** 4/19/2016 12:45:00 PM**Lab ID:** 1604932-002**Matrix:** AQUEOUS**Received Date:** 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	110	2.0		mg/L	10	4/26/2016 1:36:39 PM
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	4/26/2016 1:36:39 PM
Surr: DNOP	0	63.2-161	S	%Rec	10	4/26/2016 1:36:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	14	0.50		mg/L	10	4/26/2016 11:10:40 AM
Surr: BFB	131	66.4-120	S	%Rec	10	4/26/2016 11:10:40 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	3800	100		µg/L	100	4/26/2016 8:25:13 AM
Toluene	ND	20		µg/L	20	4/26/2016 6:57:11 PM
Ethylbenzene	ND	20		µg/L	20	4/26/2016 6:57:11 PM
Methyl tert-butyl ether (MTBE)	220	20		µg/L	20	4/26/2016 6:57:11 PM
Xylenes, Total	ND	30		µg/L	20	4/26/2016 6:57:11 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	20	4/26/2016 6:57:11 PM
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	20	4/26/2016 6:57:11 PM
Surr: Dibromofluoromethane	97.5	70-130		%Rec	20	4/26/2016 6:57:11 PM
Surr: Toluene-d8	103	70-130		%Rec	20	4/26/2016 6:57:11 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604932**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Equipment Rinsate

Project: North Boundary Barrier

Collection Date: 4/18/2016 3:30:00 PM

Lab ID: 1604932-003

Matrix: AQUEOUS

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 7:26:00 PM
Toluene	ND	1.0		µg/L	1	4/26/2016 7:26:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 7:26:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 7:26:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 7:26:00 PM
Surr: 1,2-Dichloroethane-d4	94.4	70-130		%Rec	1	4/26/2016 7:26:00 PM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	4/26/2016 7:26:00 PM
Surr: Dibromofluoromethane	83.3	70-130		%Rec	1	4/26/2016 7:26:00 PM
Surr: Toluene-d8	100	70-130		%Rec	1	4/26/2016 7:26:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604932

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: North Boundary Barrier

Collection Date:

Lab ID: 1604932-004

Matrix: TRIP BLANK

Received Date: 4/20/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 7:54:53 PM
Toluene	ND	1.0		µg/L	1	4/26/2016 7:54:53 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 7:54:53 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 7:54:53 PM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 7:54:53 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	1	4/26/2016 7:54:53 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	4/26/2016 7:54:53 PM
Surr: Dibromofluoromethane	86.5	70-130		%Rec	1	4/26/2016 7:54:53 PM
Surr: Toluene-d8	101	70-130		%Rec	1	4/26/2016 7:54:53 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604932

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier

Sample ID	LCS-24970		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039867		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039868		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604932

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier

Sample ID	5ML RB	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: A33804			RunNo: 33804					
Prep Date:		Analysis Date: 4/26/2016			SeqNo: 1041252		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.9	66.4	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A33804		RunNo: 33804					
Prep Date:			Analysis Date: 4/26/2016		SeqNo: 1041253		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.2	80	120			
Surr: BFB	21		20.00		105	66.4	120			

Sample ID	1604932-001AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW 1+50		Batch ID: A33804		RunNo: 33804					
Prep Date:			Analysis Date: 4/26/2016		SeqNo: 1041255		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	5.0	0.25	2.500	3.151	75.0	70	130			
Surr: BFB	360		100.0		364	66.4	120			S

Sample ID	1604932-001AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW 1+50		Batch ID: A33804		RunNo: 33804					
Prep Date:			Analysis Date: 4/26/2016		SeqNo: 1041256		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	4.9	0.25	2.500	3.151	70.4	70	130	2.32	20	
Surr: BFB	360		100.0		360	66.4	120	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604932

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: R33772			RunNo: 33772						
Prep Date:	Analysis Date: 4/26/2016			SeqNo: 1040456		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: R33772			RunNo: 33772						
Prep Date:	Analysis Date: 4/26/2016			SeqNo: 1040457		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.2	70	130			
Surr: Toluene-d8	9.3		10.00		92.8	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: B33810			RunNo: 33810						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1041470		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: B33810			RunNo: 33810						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042932		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604932

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B33810	RunNo:	33810					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042932	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604932

RcptNo: 1

Received by/date:

AT

04/20/16

Logged By: Ashley Gallegos

4/20/2016 7:30:00 AM

Ag

Completed By: Ashley Gallegos

4/21/2016 11:15:03 AM

Ag

Reviewed By:

Ag

04/21/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 02, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Collection 4-21-16

OrderNo.: 1604A70

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW-25+95

Project: Collection 4-21-16

Collection Date: 4/21/2016 12:50:00 PM

Lab ID: 1604A70-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/28/2016 3:27:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/28/2016 3:27:29 PM
Surr: DNOP	134	63.2-161		%Rec	1	4/28/2016 3:27:29 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	3.9	1.0		µg/L	1	4/27/2016 5:32:41 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 5:32:41 PM
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: Dibromofluoromethane	91.3	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: Toluene-d8	97.8	70-130		%Rec	1	4/27/2016 5:32:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW-25+95 Dup

Project: Collection 4-21-16

Collection Date: 4/21/2016 1:00:00 PM

Lab ID: 1604A70-002

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/28/2016 4:33:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/28/2016 4:33:29 PM
Surr: DNOP	127	63.2-161		%Rec	1	4/28/2016 4:33:29 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	4.1	1.0		µg/L	1	4/27/2016 6:01:34 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:01:34 PM
Surr: 1,2-Dichloroethane-d4	89.1	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: Dibromofluoromethane	85.1	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: Toluene-d8	98.0	70-130		%Rec	1	4/27/2016 6:01:34 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Blank

Project: Collection 4-21-16

Collection Date: 4/21/2016 1:10:00 PM

Lab ID: 1604A70-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:30:16 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: Toluene-d8	99.5	70-130		%Rec	1	4/27/2016 6:30:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Collection 4-21-16

Collection Date:

Lab ID: 1604A70-004

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:58:58 PM
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: Toluene-d8	97.4	70-130		%Rec	1	4/27/2016 6:58:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 6
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A70

02-May-16

Client: Western Refining Southwest, Inc.

Project: Collection 4-21-16

Sample ID	1604A70-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW-25+95		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043210		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	73.3	174			
Surr: DNOP	0.32		0.2500		128	63.2	161			

Sample ID	1604A70-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW-25+95		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043211		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	106	73.3	174	15.7	20	
Surr: DNOP	0.27		0.2500		109	63.2	161	0	0	

Sample ID	LCS-25050		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043213		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.5	0.20	2.500	0	138	65.4	162			
Surr: DNOP	0.35		0.2500		140	63.2	161			

Sample ID	MB-25050		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043214		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		103	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A70

02-May-16

Client: Western Refining Southwest, Inc.

Project: Collection 4-21-16

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042438	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.2	70	130			
Toluene	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042439	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.0	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1604A70**

RcptNo: 1

Received by/date:

AG

04/23/16

Logged By:

Lindsay Mangin

4/23/2016 8:45:00 AM

Lindsay Mangin

Completed By:

Lindsay Mangin

4/25/2016 12:22:34 PM

Lindsay Mangin

Reviewed By:

[Signature]

04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0° C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **Collection**

4-21-16

Project #: Semi Annual

PO#12615521

Project Manager:

Kelly Robinson

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 10

Date Time Matrix Sample Request ID

Container Type and #

Preservative Type

HEAL No.

4-21-16

1250

H₂O

CW - 25+95

3-VOA

HCl

-001

4-21-16

1250

H₂O

CW - 25+95

1-500 ml Amber

Cool

-001

4-21-16

1300

H₂O

CW - 25+95

3-VOA

HCl

-002

4-21-16

1300

H₂O

CW - 25+95

1-125 ml Amber

Cool

-002

4-21-16

1310

H₂O

Field Blank

3-VOA

HCl

-003

4-21-16

1310

H₂O

Trip Blank

3-VOA

HCl

-004

Date:

4-22-16

1645

Relinquished by:

Colin

Received by:

Mat Wicker

Date:

4/22/16

Time:

1645

Relinquished by:

Mat Wicker

Received by:

Mat Wicker

Date:

4/22/16

Time:

0845

Remarks: See attachment for full analytical list

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

8015B DRO Extended

Air Bubbles (Y or N)

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 noted on the analytical report.



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 10, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Cross Gradient 4-21-16 and 4-22-16

OrderNo.: 1604A64

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A64**

Date Reported: 5/10/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient 4-21-16 and 4-22-16

Collection Date: 4/21/2016 10:15:00 AM

Lab ID: 1604A64-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 10:44:11 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 10:44:11 AM
Surr: DNOP	92.6	63.2-161		%Rec	1	4/26/2016 10:44:11 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	4/29/2016 11:08:04 PM
Toluene	ND	1.0		µg/L	1	4/29/2016 11:08:04 PM
Ethylbenzene	ND	1.0		µg/L	1	4/29/2016 11:08:04 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/29/2016 11:08:04 PM
Xylenes, Total	ND	1.5		µg/L	1	4/29/2016 11:08:04 PM
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%Rec	1	4/29/2016 11:08:04 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	4/29/2016 11:08:04 PM
Surr: Dibromofluoromethane	88.1	70-130		%Rec	1	4/29/2016 11:08:04 PM
Surr: Toluene-d8	107	70-130		%Rec	1	4/29/2016 11:08:04 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 1 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A64**

Date Reported: 5/10/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Cross Gradient 4-21-16 and 4-22-16

Collection Date:

Lab ID: 1604A64-002

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/30/2016 11:22:10 AM
Toluene	ND	1.0		µg/L	1	4/30/2016 11:22:10 AM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2016 11:22:10 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/30/2016 11:22:10 AM
Xylenes, Total	ND	1.5		µg/L	1	4/30/2016 11:22:10 AM
Surr: 1,2-Dichloroethane-d4	98.0	70-130		%Rec	1	4/30/2016 11:22:10 AM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	4/30/2016 11:22:10 AM
Surr: Dibromofluoromethane	94.1	70-130		%Rec	1	4/30/2016 11:22:10 AM
Surr: Toluene-d8	109	70-130		%Rec	1	4/30/2016 11:22:10 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A64**

Date Reported: 5/10/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient 4-21-16 and 4-22-16

Collection Date: 4/21/2016 2:40:00 PM

Lab ID: 1604A64-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/30/2016 11:51:05 AM
Toluene	ND	1.0		µg/L	1	4/30/2016 11:51:05 AM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2016 11:51:05 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/30/2016 11:51:05 AM
Xylenes, Total	ND	1.5		µg/L	1	4/30/2016 11:51:05 AM
Surr: 1,2-Dichloroethane-d4	99.2	70-130		%Rec	1	4/30/2016 11:51:05 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	4/30/2016 11:51:05 AM
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	4/30/2016 11:51:05 AM
Surr: Toluene-d8	104	70-130		%Rec	1	4/30/2016 11:51:05 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A64**

Date Reported: 5/10/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-33

Project: Cross Gradient 4-21-16 and 4-22-16

Collection Date: 4/22/2016 3:50:00 PM

Lab ID: 1604A64-004

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 11:05:43 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 11:05:43 AM
Surr: DNOP	89.8	63.2-161		%Rec	1	4/26/2016 11:05:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 1:38:36 PM
Surr: BFB	94.4	66.4-120		%Rec	1	4/26/2016 1:38:36 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/30/2016 1:17:47 PM
Toluene	ND	1.0		µg/L	1	4/30/2016 1:17:47 PM
Ethylbenzene	ND	1.0		µg/L	1	4/30/2016 1:17:47 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/30/2016 1:17:47 PM
Xylenes, Total	ND	1.5		µg/L	1	4/30/2016 1:17:47 PM
Surr: 1,2-Dichloroethane-d4	99.4	70-130		%Rec	1	4/30/2016 1:17:47 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/30/2016 1:17:47 PM
Surr: Dibromofluoromethane	102	70-130		%Rec	1	4/30/2016 1:17:47 PM
Surr: Toluene-d8	111	70-130		%Rec	1	4/30/2016 1:17:47 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A64

10-May-16

Client: Western Refining Southwest, Inc.
Project: Cross Gradient 4-21-16 and 4-22-16

Sample ID	LCS-24970		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039867		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 24970		RunNo: 33768					
Prep Date:	4/25/2016		Analysis Date: 4/25/2016		SeqNo: 1039868		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A64

10-May-16

Client: Western Refining Southwest, Inc.
Project: Cross Gradient 4-21-16 and 4-22-16

Sample ID	5ML RB	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: A33804			RunNo: 33804					
Prep Date:		Analysis Date: 4/26/2016			SeqNo: 1041252		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.9	66.4	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A33804		RunNo: 33804					
Prep Date:			Analysis Date: 4/26/2016		SeqNo: 1041253		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.2	80	120			
Surr: BFB	21		20.00		105	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A64

10-May-16

Client: Western Refining Southwest, Inc.
Project: Cross Gradient 4-21-16 and 4-22-16

Sample ID rb	SampType: MBLK				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: PBW	Batch ID: R33898				RunNo: 33898					
Prep Date:	Analysis Date: 4/29/2016				SeqNo: 1044053	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	9.0		10.00		90.0	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID 100ng lcs3	SampType: LCS				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: LCSW	Batch ID: R33898				RunNo: 33898					
Prep Date:	Analysis Date: 4/29/2016				SeqNo: 1044054	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.5	70	130			
Toluene	19	1.0	20.00	0	93.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID 100ng lcs	SampType: LCS				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: LCSW	Batch ID: A33911				RunNo: 33911					
Prep Date:	Analysis Date: 4/30/2016				SeqNo: 1044642	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.5	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.5	70	130			
Surr: Toluene-d8	11		10.00		111	70	130			

Sample ID rb	SampType: MBLK				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: PBW	Batch ID: A33911				RunNo: 33911					
Prep Date:	Analysis Date: 4/30/2016				SeqNo: 1044643	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A64

10-May-16

Client: Western Refining Southwest, Inc.
Project: Cross Gradient 4-21-16 and 4-22-16

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: PBW	Batch ID: A33911		RunNo: 33911							
Prep Date:	Analysis Date: 4/30/2016		SeqNo: 1044643		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.1	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 1604a64-003ams	SampType: MS		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: MW-13	Batch ID: A33911		RunNo: 33911							
Prep Date:	Analysis Date: 4/30/2016		SeqNo: 1044646		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	86.5	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.5	70	130			
Surr: Dibromofluoromethane	8.7		10.00		86.7	70	130			
Surr: Toluene-d8	11		10.00		109	70	130			

Sample ID 1604a64-003amsd	SampType: MSD		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: MW-13	Batch ID: A33911		RunNo: 33911							
Prep Date:	Analysis Date: 4/30/2016		SeqNo: 1044647		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.7	70	130	5.82	20	
Toluene	19	1.0	20.00	0	96.9	70	130	4.19	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130	0	0	
Surr: Dibromofluoromethane	9.5		10.00		94.7	70	130	0	0	
Surr: Toluene-d8	11		10.00		108	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A64

RcptNo: 1

Received by/date:

AG

04/23/16

Logged By: Lindsay Mangin

4/23/2016 8:45:00 AM

Jessie Mangin

Completed By: Lindsay Mangin

4/25/2016 10:18:21 AM

Jessie Mangin

Reviewed By:

Jessie Mangin

04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

☒ Standard ☐ Rush

na Address: 50 CR 4990

Bloomfield, NM 87413

e #: 505-632-4135

or Fax#:

C Package:

X Level 4 (Full Validation)

standard

her

OD (Type)

Kelly Robinson

M. Wicker

☒ Yes ☐ No

Temperature: 70

Q. Now, you're going to tell me that the defendant was not in the car at the time of the shooting, is that correct?

Time	Matrix	Sample Request ID
------	--------	-------------------

Matrix

Samp

Sample Request ID

4-21-16

1440

MW-13

3-VOA

HCl

Container Type and #	Preservative Type
-------------------------	----------------------

HEAL No:

11/17/11

8

Time:

13.

Relinquished by:

10

Time:	
-------	--

Time:

Relinquished by:

ued by:

Received by:

Date _____ Time _____

Received by:

Date	Time
------	------

Remarks: See full analyte list.

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 04, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: North Boundry Barrier 4-21-16

OrderNo.: 1604A66

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A66**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 25+70

Project: North Boundry Barrier 4-21-16

Collection Date: 4/21/2016 9:25:00 AM

Lab ID: 1604A66-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 12:53:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 12:53:29 PM
Surr: DNOP	91.2	63.2-161		%Rec	1	4/26/2016 12:53:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.13	0.050		mg/L	1	4/26/2016 3:41:15 PM
Surr: BFB	94.0	66.4-120		%Rec	1	4/26/2016 3:41:15 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 1:42:31 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 1:42:31 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 1:42:31 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 1:42:31 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 1:42:31 PM
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%Rec	1	4/27/2016 1:42:31 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	4/27/2016 1:42:31 PM
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	4/27/2016 1:42:31 PM
Surr: Toluene-d8	102	70-130		%Rec	1	4/27/2016 1:42:31 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A66**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: North Boundry Barrier 4-21-16

Collection Date:

Lab ID: 1604A66-002

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 2:11:17 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 2:11:17 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 2:11:17 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 2:11:17 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 2:11:17 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/27/2016 2:11:17 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/27/2016 2:11:17 PM
Surr: Dibromofluoromethane	94.6	70-130		%Rec	1	4/27/2016 2:11:17 PM
Surr: Toluene-d8	98.8	70-130		%Rec	1	4/27/2016 2:11:17 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A66

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 4-21-16

Sample ID	LCS-24970		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039867		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039868		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A66

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 4-21-16

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041252	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.9	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041253	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.2	80	120			
Surr: BFB	21		20.00		105	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A66

04-May-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 4-21-16

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042438	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.2	70	130			
Toluene	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042439	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.0	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A66

RcptNo: 1

Received by/date:	AG	04/23/16	
Logged By:	Lindsay Mangin	4/23/2016 8:45:00 AM	
Completed By:	Lindsay Mangin	4/25/2016 10:43:51 AM	
Reviewed By:		04/25/16	

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record		Turn-Around Time:
Client: Western Refining		☒ Standard ☐ Rush
Mailing Address: 50 CR 4990	Project Name: North Boundary Barrier	
Bloomfield, NM 87413	4-21-16	
Phone #: 505-632-4135	Project #: Semi Annual	
	PO# 12615521	

Turn-Around Time:	☒ Standard ☐ Rush
Project Name:	North Boundry Barrier
Project #:	Semi Annual
PO#	12615521

PO# 12615521

Project Manager: Kelly Robinson

Sampler: M. Wicker
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

Container Type and # 16	Preservative Type	HEAL No. 1601A/6
-------------------------------	----------------------	---------------------

β-VOA	HCl	-001
1-508 ml Amber 125	Cool	-001
		003

[illegible]

Received by:	Date	Time
<i>J. Mota</i>	<i>4/22/06</i>	<i>16:45</i>
Received by:	Date	Time

Contracted to other accredited laboratories. This serves as notice of this

C

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other _____

☒ EDD (Type) _____

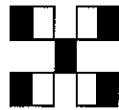
Date	Time	Matrix	Sample Request ID
------	------	--------	-------------------

4-11-16	0925	H ₂ O	OW 25+70
4-21-16	0925	H ₂ O	OW 25+70
			Trim Blank

[illegible]

Date:	4-22-16	Time:	1045	Relinquished by:	
Date:		Time:		Relinquished by:	

ref# 1840 / Master Walter



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks: See attachment for full analytical list.

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-22-16	1645	<i>[Signature]</i>	<i>[Signature]</i>	4/22/16	1645
4/22/16	1840	<i>[Signature]</i>	<i>[Signature]</i>	04/23/16	0843

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 02, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Collection 4-21-16

OrderNo.: 1604A70

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW-25+95

Project: Collection 4-21-16

Collection Date: 4/21/2016 12:50:00 PM

Lab ID: 1604A70-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/28/2016 3:27:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/28/2016 3:27:29 PM
Surr: DNOP	134	63.2-161		%Rec	1	4/28/2016 3:27:29 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	3.9	1.0		µg/L	1	4/27/2016 5:32:41 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 5:32:41 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 5:32:41 PM
Surr: 1,2-Dichloroethane-d4	95.3	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: Dibromofluoromethane	91.3	70-130		%Rec	1	4/27/2016 5:32:41 PM
Surr: Toluene-d8	97.8	70-130		%Rec	1	4/27/2016 5:32:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW-25+95 Dup

Project: Collection 4-21-16

Collection Date: 4/21/2016 1:00:00 PM

Lab ID: 1604A70-002

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/28/2016 4:33:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/28/2016 4:33:29 PM
Surr: DNOP	127	63.2-161		%Rec	1	4/28/2016 4:33:29 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	4.1	1.0		µg/L	1	4/27/2016 6:01:34 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:01:34 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:01:34 PM
Surr: 1,2-Dichloroethane-d4	89.1	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: Dibromofluoromethane	85.1	70-130		%Rec	1	4/27/2016 6:01:34 PM
Surr: Toluene-d8	98.0	70-130		%Rec	1	4/27/2016 6:01:34 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Blank

Project: Collection 4-21-16

Collection Date: 4/21/2016 1:10:00 PM

Lab ID: 1604A70-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:30:16 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:30:16 PM
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	4/27/2016 6:30:16 PM
Surr: Toluene-d8	99.5	70-130		%Rec	1	4/27/2016 6:30:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A70**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Collection 4-21-16

Collection Date:

Lab ID: 1604A70-004

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 6:58:58 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 6:58:58 PM
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/27/2016 6:58:58 PM
Surr: Toluene-d8	97.4	70-130		%Rec	1	4/27/2016 6:58:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 6
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A70

02-May-16

Client: Western Refining Southwest, Inc.

Project: Collection 4-21-16

Sample ID	1604A70-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW-25+95		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043210		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	73.3	174			
Surr: DNOP	0.32		0.2500		128	63.2	161			

Sample ID	1604A70-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	CW-25+95		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043211		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	106	73.3	174	15.7	20	
Surr: DNOP	0.27		0.2500		109	63.2	161	0	0	

Sample ID	LCS-25050		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 25050		RunNo: 33843					
Prep Date:	4/28/2016		Analysis Date: 4/28/2016		SeqNo: 1043213		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.5	0.20	2.500	0	138	65.4	162			
Surr: DNOP	0.35		0.2500		140	63.2	161			

Sample ID	MB-25050	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 25050			RunNo: 33843					
Prep Date:	4/28/2016	Analysis Date: 4/28/2016			SeqNo: 1043214		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		103	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A70

02-May-16

Client: Western Refining Southwest, Inc.

Project: Collection 4-21-16

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042438	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.2	70	130			
Toluene	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042439	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.0	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1604A70**

RcptNo: 1

Received by/date:

AG

04/23/16

Logged By:

Lindsay Mangin

4/23/2016 8:45:00 AM

Lindsay Mangin

Completed By:

Lindsay Mangin

4/25/2016 12:22:34 PM

Lindsay Mangin

Reviewed By:

[Signature]

04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0° C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 02, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: Refinery Wells 4-21-16

OrderNo.: 1604A68

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A68**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 4-21-16

Collection Date: 4/21/2016 11:50:00 AM

Lab ID: 1604A68-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	3000	100		µg/L	100	4/27/2016 3:09:04 PM
Toluene	1300	100		µg/L	100	4/27/2016 3:09:04 PM
Ethylbenzene	4700	100		µg/L	100	4/27/2016 3:09:04 PM
Methyl tert-butyl ether (MTBE)	ND	100		µg/L	100	4/27/2016 3:09:04 PM
Xylenes, Total	13000	150		µg/L	100	4/27/2016 3:09:04 PM
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	100	4/27/2016 3:09:04 PM
Surr: 4-Bromofluorobenzene	94.3	70-130		%Rec	100	4/27/2016 3:09:04 PM
Surr: Dibromofluoromethane	102	70-130		%Rec	100	4/27/2016 3:09:04 PM
Surr: Toluene-d8	99.5	70-130		%Rec	100	4/27/2016 3:09:04 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A68**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Refinery Wells 4-21-16

Collection Date:

Lab ID: 1604A68-002

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 3:37:47 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 3:37:47 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 3:37:47 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 3:37:47 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 3:37:47 PM
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	4/27/2016 3:37:47 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/27/2016 3:37:47 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	4/27/2016 3:37:47 PM
Surr: Toluene-d8	97.6	70-130		%Rec	1	4/27/2016 3:37:47 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A68**

Date Reported: 5/2/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: Refinery Wells 4-21-16

Collection Date: 4/21/2016 10:50:00 AM

Lab ID: 1604A68-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 4:06:28 PM
Toluene	ND	1.0		µg/L	1	4/27/2016 4:06:28 PM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 4:06:28 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 4:06:28 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 4:06:28 PM
Surr: 1,2-Dichloroethane-d4	94.8	70-130		%Rec	1	4/27/2016 4:06:28 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/27/2016 4:06:28 PM
Surr: Dibromofluoromethane	88.0	70-130		%Rec	1	4/27/2016 4:06:28 PM
Surr: Toluene-d8	99.7	70-130		%Rec	1	4/27/2016 4:06:28 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A68

02-May-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 4-21-16

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042438		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.2	70	130			
Toluene	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042439		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.0	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID 1604a68-003ams	SampType: MS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: MW-52	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042450		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	19	1.0	20.00	0	96.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	8.8		10.00		87.7	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID 1604a68-003amsd	SampType: MSD			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: MW-52	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042451		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.1	70	130	5.72	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A68

02-May-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 4-21-16

Sample ID	1604a68-003amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	MW-52	Batch ID:	R33840	RunNo:	33840					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042451	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	18	1.0	20.00	0	92.2	70	130	4.44	20	
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130	0	0	
Surr: Dibromofluoromethane	8.4		10.00		83.5	70	130	0	0	
Surr: Toluene-d8	9.9		10.00		99.0	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A58

RcptNo: 1

Received by/date:

AG 04/23/16

Logged By:

Lindsay Mangin

4/23/2016 8:45:00 AM



Completed By:

Lindsay Mangin

4/25/2016 12:02:51 PM



Reviewed By:



04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH.

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

☒ Standard ☐ Rush

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

PO# 12615521

Project Manager:

Kelly Robinson

☐ Other

X EDD (Type)

10

[illegible]

HEAL No.

3-VOA

Trip Blank

20-02

Received by:

Date	Time
------	------

Received by:

Date _____ Time _____

4/22/16	1840	Christina Walter		\$ 0423110	0845
---------	------	------------------	--	-----------------------	------

Any sub-contracted data will be clearly notated on the analytical report. 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 #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Refinery Wells

4-21-16

Project #: Semi-Annual

PO# 12615521

Project Manager:

Kelly Robinson

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

Date Time Matrix Sample Request ID

4-21-16 1050 H₂O MW - 52

Container Type and #

3-VOA

Preservative Type

HCl

HEAL No.

1605-1608

-003

Date: 4-22-16 1645

Relinquished by: [Signature]

Received by: [Signature]

Date Time

4/22/16 1645

Date: 4/22/16 1846

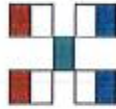
Relinquished by: [Signature]

Received by: [Signature]

Date Time

04/23/16 0815

Remarks: See full analyte list.



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTX + MTBE + TMB's (8021)	BTX + MTBE + TPH (Gas only)	TPH 8015B (GRO / BRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F ⁻ , Cl ⁻ , NO ₃ ⁻ , NO ₂ ⁻ , PO ₄ ³⁻ , SO ₄ ²⁻)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA) BTEX, MTBE	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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 04, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: Down Gradient 4-22-16

OrderNo.: 1604A65

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 7 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-12

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 1:40:00 PM

Lab ID: 1604A65-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 11:27:13 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 11:27:13 AM
Surr: DNOP	99.6	63.2-161		%Rec	1	4/26/2016 11:27:13 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 2:03:03 PM
Surr: BFB	87.0	66.4-120		%Rec	1	4/26/2016 2:03:03 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 2:38:14 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 2:38:14 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 2:38:14 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 5:41:01 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 2:38:14 AM
Surr: 1,2-Dichloroethane-d4	97.3	70-130		%Rec	1	4/27/2016 2:38:14 AM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	4/27/2016 2:38:14 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/27/2016 2:38:14 AM
Surr: Toluene-d8	97.0	70-130		%Rec	1	4/27/2016 2:38:14 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-12 Dup

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 1:45:00 PM

Lab ID: 1604A65-002

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 11:48:50 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 11:48:50 AM
Surr: DNOP	99.7	63.2-161		%Rec	1	4/26/2016 11:48:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 2:27:33 PM
Surr: BFB	91.3	66.4-120		%Rec	1	4/26/2016 2:27:33 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 3:07:03 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 3:07:03 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 3:07:03 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 6:09:45 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 3:07:03 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/27/2016 3:07:03 AM
Surr: 4-Bromofluorobenzene	95.7	70-130		%Rec	1	4/27/2016 3:07:03 AM
Surr: Dibromofluoromethane	93.1	70-130		%Rec	1	4/27/2016 3:07:03 AM
Surr: Toluene-d8	96.9	70-130		%Rec	1	4/27/2016 3:07:03 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Down Gradient 4-22-16

Collection Date:

Lab ID: 1604A65-003

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 3:35:51 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 3:35:51 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 3:35:51 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 6:38:43 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 3:35:51 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/27/2016 3:35:51 AM
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	4/27/2016 3:35:51 AM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	4/27/2016 3:35:51 AM
Surr: Toluene-d8	98.9	70-130		%Rec	1	4/27/2016 3:35:51 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-35

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 2:50:00 PM

Lab ID: 1604A65-004

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 4:04:31 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 4:04:31 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 4:04:31 AM
Methyl tert-butyl ether (MTBE)	1.5	1.0		µg/L	1	4/27/2016 11:47:20 AM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 4:04:31 AM
Surr: 1,2-Dichloroethane-d4	94.5	70-130		%Rec	1	4/27/2016 4:04:31 AM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	4/27/2016 4:04:31 AM
Surr: Dibromofluoromethane	86.9	70-130		%Rec	1	4/27/2016 4:04:31 AM
Surr: Toluene-d8	101	70-130		%Rec	1	4/27/2016 4:04:31 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-35 Dup

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 2:55:00 PM

Lab ID: 1604A65-005

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 4:33:17 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 4:33:17 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 4:33:17 AM
Methyl tert-butyl ether (MTBE)	1.7	1.0		µg/L	1	4/27/2016 12:16:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 4:33:17 AM
Surr: 1,2-Dichloroethane-d4	97.4	70-130		%Rec	1	4/27/2016 4:33:17 AM
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	4/27/2016 4:33:17 AM
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	4/27/2016 4:33:17 AM
Surr: Toluene-d8	99.1	70-130		%Rec	1	4/27/2016 4:33:17 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-37

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 3:20:00 PM

Lab ID: 1604A65-006

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 12:10:20 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 12:10:20 PM
Surr: DNOP	90.0	63.2-161		%Rec	1	4/26/2016 12:10:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 2:52:08 PM
Surr: BFB	91.1	66.4-120		%Rec	1	4/26/2016 2:52:08 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 5:02:03 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 5:02:03 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 5:02:03 AM
Methyl tert-butyl ether (MTBE)	1.0	1.0		µg/L	1	4/27/2016 12:44:56 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 5:02:03 AM
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	4/27/2016 5:02:03 AM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	4/27/2016 5:02:03 AM
Surr: Dibromofluoromethane	93.0	70-130		%Rec	1	4/27/2016 5:02:03 AM
Surr: Toluene-d8	100	70-130		%Rec	1	4/27/2016 5:02:03 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A65**

Date Reported: 5/4/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-38

Project: Down Gradient 4-22-16

Collection Date: 4/22/2016 2:25:00 PM

Lab ID: 1604A65-007

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 12:31:55 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 12:31:55 PM
Surr: DNOP	90.1	63.2-161		%Rec	1	4/26/2016 12:31:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 3:16:42 PM
Surr: BFB	93.7	66.4-120		%Rec	1	4/26/2016 3:16:42 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 8:12:24 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 8:12:24 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 8:12:24 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/27/2016 1:13:45 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 8:12:24 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/27/2016 8:12:24 AM
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	1	4/27/2016 8:12:24 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	4/27/2016 8:12:24 AM
Surr: Toluene-d8	102	70-130		%Rec	1	4/27/2016 8:12:24 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A65

04-May-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient 4-22-16

Sample ID	LCS-24970		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039867		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039868		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A65

04-May-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient 4-22-16

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041252	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.9	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041253	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.2	80	120			
Surr: BFB	21		20.00		105	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A65

04-May-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient 4-22-16

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: B33810			RunNo: 33810						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1041470		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042438		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: R33840			RunNo: 33840						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042439		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.0	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: B33810			RunNo: 33810						
Prep Date:	Analysis Date: 4/27/2016			SeqNo: 1042932		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A65

04-May-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient 4-22-16

Sample ID	100ng lcs2	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B33810	RunNo:	33810					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042932	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33873	RunNo:	33873					
Prep Date:		Analysis Date:	4/28/2016	SeqNo:	1043397	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R33873	RunNo:	33873					
Prep Date:		Analysis Date:	4/28/2016	SeqNo:	1043400	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A65

RcptNo: 1

Received by/date: AG 04/23/16

Logged By: Lindsay Mangin 4/23/2016 8:45:00 AM

Completed By: Lindsay Mangin 4/25/2016 10:30:28 AM

Reviewed By: Jal 04/25/16

[Signature]
[Signature]

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

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**

X Standard ☐ **Rush**

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard☐ Standard☐ Other

X EDD (Type) _____

Project Manager:

Kelly Robinsan

Sampler: M. Wicks

OnIce: ☒ Yes ☐ No

Sample Temperature: 110

Date	Time	Matrix	Sample Request ID
------	------	--------	-------------------

Matrix

Sample

Sample Request ID

4-27-16	H ₂ O	MW - 35
---------	------------------	---------

 H_2O

		H ₂ O	MW - 35
4-4-22-16	1450	H ₂ O	MW-35 DUP

HCl

FOO-

422-16	1455	H ₂ O	MW)-35 DOP
--------	------	------------------	------------

五

005

Date: _____ Time: _____

Relinquished by:

W.

Received by:

Date	Time
------	------

Date:	Time:
-------	-------

Relinquished by:

1

Received by:

Date _____ Time _____

Remarks:	See full analyte list.
----------	------------------------

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 23, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: San Juan River Bluff Seeps 4-22-16

OrderNo.: 1604A69

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A69**

Date Reported: 5/23/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep-1

Project: San Juan River Bluff Seeps 4-22-16

Collection Date: 4/22/2016 11:10:00 AM

Lab ID: 1604A69-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LGT
Fluoride	0.35	0.10		mg/L	1	4/26/2016 8:41:15 PM
Chloride	200	10		mg/L	20	4/26/2016 8:53:40 PM
Bromide	2.6	0.10		mg/L	1	4/26/2016 8:41:15 PM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	4/30/2016 1:20:19 AM
Sulfate	1300	25		mg/L	50	4/28/2016 3:56:20 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/26/2016 9:30:53 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/28/2016 1:50:11 PM
Toluene	ND	1.0		µg/L	1	4/28/2016 1:50:11 PM
Ethylbenzene	ND	1.0		µg/L	1	4/28/2016 1:50:11 PM
Methyl tert-butyl ether (MTBE)	41	1.0		µg/L	1	4/28/2016 1:50:11 PM
Xylenes, Total	ND	1.5		µg/L	1	4/28/2016 1:50:11 PM
Surr: 1,2-Dichloroethane-d4	98.9	70-130		%Rec	1	4/28/2016 1:50:11 PM
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	4/28/2016 1:50:11 PM
Surr: Dibromofluoromethane	97.2	70-130		%Rec	1	4/28/2016 1:50:11 PM
Surr: Toluene-d8	96.4	70-130		%Rec	1	4/28/2016 1:50:11 PM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	450	1.0	H	mg CO2/L	1	4/27/2016 4:03:31 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	479.6	20.00		mg/L CaCO3	1	4/27/2016 4:03:31 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 4:03:31 PM
Total Alkalinity (as CaCO3)	479.6	20.00		mg/L CaCO3	1	4/27/2016 4:03:31 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A69**

Date Reported: 5/23/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: San Juan River Bluff Seeps 4-22-16

Collection Date:

Lab ID: 1604A69-002

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/28/2016 3:16:30 PM
Toluene	ND	1.0		µg/L	1	4/28/2016 3:16:30 PM
Ethylbenzene	ND	1.0		µg/L	1	4/28/2016 3:16:30 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 3:16:30 PM
Xylenes, Total	ND	1.5		µg/L	1	4/28/2016 3:16:30 PM
Surr: 1,2-Dichloroethane-d4	96.2	70-130		%Rec	1	4/28/2016 3:16:30 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	4/28/2016 3:16:30 PM
Surr: Dibromofluoromethane	97.6	70-130		%Rec	1	4/28/2016 3:16:30 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	4/28/2016 3:16:30 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 8
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A69**

Date Reported: 5/23/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep-3

Project: San Juan River Bluff Seeps 4-22-16

Collection Date: 4/22/2016 11:20:00 AM

Lab ID: 1604A69-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LGT
Fluoride	0.22	0.10		mg/L	1	4/26/2016 9:06:05 PM
Chloride	260	10		mg/L	20	4/26/2016 9:18:29 PM
Bromide	3.2	0.10		mg/L	1	4/26/2016 9:06:05 PM
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	5/3/2016 1:20:49 AM
Sulfate	2500	50		mg/L	100	4/28/2016 4:21:09 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/26/2016 9:43:18 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/28/2016 3:45:27 PM
Toluene	ND	1.0		µg/L	1	4/28/2016 3:45:27 PM
Ethylbenzene	ND	1.0		µg/L	1	4/28/2016 3:45:27 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 3:45:27 PM
Xylenes, Total	ND	1.5		µg/L	1	4/28/2016 3:45:27 PM
Surr: 1,2-Dichloroethane-d4	99.5	70-130		%Rec	1	4/28/2016 3:45:27 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/28/2016 3:45:27 PM
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	4/28/2016 3:45:27 PM
Surr: Toluene-d8	98.0	70-130		%Rec	1	4/28/2016 3:45:27 PM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	330	1.0	H	mg CO2/L	1	4/27/2016 4:23:37 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	365.4	20.00		mg/L CaCO3	1	4/27/2016 4:23:37 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 4:23:37 PM
Total Alkalinity (as CaCO3)	365.4	20.00		mg/L CaCO3	1	4/27/2016 4:23:37 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A69

23-May-16

Client: Western Refining Southwest, Inc.
Project: San Juan River Bluff Seeps 4-22-16

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A33817		RunNo: 33817							
Prep Date:	Analysis Date: 4/26/2016		SeqNo: 1041686		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A33817		RunNo: 33817							
Prep Date:	Analysis Date: 4/26/2016		SeqNo: 1041687		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	98.8	90	110			
Bromide	2.4	0.10	2.500	0	94.3	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.6	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R33890		RunNo: 33890							
Prep Date:	Analysis Date: 4/28/2016		SeqNo: 1043762		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R33890		RunNo: 33890							
Prep Date:	Analysis Date: 4/28/2016		SeqNo: 1043763		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.3	90	110			

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R33917		RunNo: 33917							
Prep Date:	Analysis Date: 4/29/2016		SeqNo: 1044764		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P)	ND	0.50								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A69

23-May-16

Client: Western Refining Southwest, Inc.
Project: San Juan River Bluff Seeps 4-22-16

Sample ID LCS	SampType: ics			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R33917			RunNo: 33917						
Prep Date:	Analysis Date: 4/29/2016			SeqNo: 1044765		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	98.0	90	110			

Sample ID MB	SampType: mblk			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R33940			RunNo: 33940						
Prep Date:	Analysis Date: 5/2/2016			SeqNo: 1045762		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID LCS	SampType: ics			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R33940			RunNo: 33940						
Prep Date:	Analysis Date: 5/2/2016			SeqNo: 1045763		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.5	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A69

23-May-16

Client: Western Refining Southwest, Inc.
Project: San Juan River Bluff Seeps 4-22-16

Sample ID 1604a69-001ams	SampType: MS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: Seep-1	Batch ID: A33873			RunNo: 33873						
Prep Date:	Analysis Date: 4/28/2016			SeqNo: 1043428		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	19	1.0	20.00	0	95.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID 1604a69-001amsd	SampType: MSD			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: Seep-1	Batch ID: A33873			RunNo: 33873						
Prep Date:	Analysis Date: 4/28/2016			SeqNo: 1043429		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130	1.58	20	
Toluene	18	1.0	20.00	0	92.2	70	130	3.38	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		103	70	130	0	0	
Surr: Toluene-d8	9.7		10.00		97.2	70	130	0	0	

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: A33873			RunNo: 33873						
Prep Date:	Analysis Date: 4/28/2016			SeqNo: 1043432		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.4	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.2	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: A33873			RunNo: 33873						
Prep Date:	Analysis Date: 4/29/2016			SeqNo: 1043435		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A69

23-May-16

Client: Western Refining Southwest, Inc.
Project: San Juan River Bluff Seeps 4-22-16

Sample ID rb3	SampType: MBLK		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: PBW	Batch ID: A33873		RunNo: 33873							
Prep Date:	Analysis Date: 4/29/2016		SeqNo: 1043435		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A69

23-May-16

Client: Western Refining Southwest, Inc.
Project: San Juan River Bluff Seeps 4-22-16

Sample ID mb-1	SampType: mbk		TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R33846		RunNo: 33846							
Prep Date:	Analysis Date: 4/27/2016		SeqNo: 1042626		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs		TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R33846		RunNo: 33846							
Prep Date:	Analysis Date: 4/27/2016		SeqNo: 1042627		Units: mg/L CaCO3					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	84.68	20.00	80.00	0	106	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A69

RcptNo: 1

Received by/date:

AG 04/23/16

Logged By:

Lindsay Mangin

4/23/2016 8:45:00 AM

Lindsay Mangin

Completed By:

Lindsay Mangin

4/25/2016 12:12:57 PM

Lindsay Mangin

Reviewed By:

[Signature]

04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 2
(<2 or >12 unless noted)
Adjusted? No
Checked by: *[Signature]*

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

☐ Other _____

☒ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: San Juan River Bluff Seeps

4-22-16

Project #: Semi Annual

PO#12615521

Project Manager:

Kelly Robinson

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: -0

HEAL No.

1604A69

Container Type and #

3-VOA

HCl

1-250 ml

H₂SO₄

1-500 ml

-001

-001

-001

-002

Trip Blank

BTX + MTBE + TMB's (8021)

BTX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCBs

8260B (VOA) BTX, MTBE only

8270 (Semi-VOA)

Alkalinity, CO₂

Air Bubbles (Y or N)

Date: 4-22-16 11:45

Relinquished by: M. Wicker

Received by:

Date

Time

Christina Wicker 4/23/16 11:45

Date: 4/23/16 18:40

Relinquished by: Christina Wicker

Received by:

Date

Time

Christina Wicker 04/23/16 08:45

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



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: San Juan River Bluff Seeps

4-22-16

Project #: Semit Annual

PO# 12615521

Project Manager:

Kelly Robinson

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

Date Time Matrix Sample Request ID

4-22-16 1120 H₂O Seep - 3

↓ H₂O Seep - 3

↓ H₂O Seep - 3

Container Type and #

3-VOA

1-250 ml

1-500 ml

Preservative Type

HCl

H₂SO₄

HEAL No.

116041A69

-003

-003

-003

Analysis Request

BTEX + MTBE + TMB's (6021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

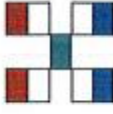
8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

Alkalinity, CO₂

Air Bubbles (Y or N)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

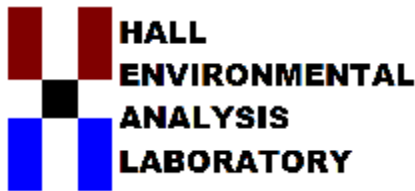
4901 Hawkins NE - Albuquerque, NM 87109

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

Received by: Christina Wade Date: 4/22/16 Time: 1645

Received by: Christina Wade Date: 4/23/16 Time: 0845

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 24, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: San Juan River 4-22-16

OrderNo.: 1604A62

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 4/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 10:00:00 AM

Lab ID: 1604A62-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 8:51:12 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 8:51:12 AM
Surr: DNOP	95.9	63.2-161		%Rec	1	4/26/2016 8:51:12 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 11:59:59 AM
Surr: BFB	90.9	66.4-120		%Rec	1	4/26/2016 11:59:59 AM
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.20	0.10		mg/L	1	4/30/2016 1:40:05 AM
Chloride	3.3	0.50		mg/L	1	4/30/2016 1:40:05 AM
Bromide	ND	0.10		mg/L	1	4/30/2016 1:40:05 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	4/30/2016 1:40:05 AM
Sulfate	75	10		mg/L	20	4/30/2016 1:52:29 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/30/2016 3:19:23 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	4/29/2016 5:28:28 PM
Barium	0.072	0.0020		mg/L	1	4/29/2016 5:28:28 PM
Boron	ND	0.040		mg/L	1	4/29/2016 5:28:28 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2016 5:28:28 PM
Calcium	39	1.0		mg/L	1	4/29/2016 5:28:28 PM
Chromium	ND	0.0060		mg/L	1	4/29/2016 5:28:28 PM
Cobalt	ND	0.0060		mg/L	1	4/29/2016 5:28:28 PM
Copper	ND	0.0060		mg/L	1	5/2/2016 3:35:12 PM
Iron	ND	0.020		mg/L	1	4/29/2016 5:28:28 PM
Magnesium	5.9	1.0		mg/L	1	4/29/2016 5:28:28 PM
Manganese	0.012	0.0020		mg/L	1	4/29/2016 5:28:28 PM
Molybdenum	ND	0.0080		mg/L	1	4/29/2016 5:28:28 PM
Nickel	ND	0.010		mg/L	1	4/29/2016 5:28:28 PM
Potassium	1.7	1.0		mg/L	1	4/29/2016 5:28:28 PM
Silver	ND	0.0050		mg/L	1	4/29/2016 5:28:28 PM
Sodium	26	1.0		mg/L	1	4/29/2016 5:28:28 PM
Zinc	0.016	0.010		mg/L	1	5/2/2016 3:35:12 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0010		mg/L	1	5/5/2016 9:20:22 PM
Lead	ND	0.00050		mg/L	1	5/5/2016 9:20:22 PM
Selenium	ND	0.0010		mg/L	1	5/5/2016 9:20:22 PM
Uranium	0.00076	0.00050		mg/L	1	5/5/2016 9:20:22 PM
EPA METHOD 7470: MERCURY						Analyst: pmf

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 10:00:00 AM

Lab ID: 1604A62-001

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	4/29/2016 11:40:07 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	5/3/2016 11:31:43 AM
Barium	0.080	0.020		mg/L	1	5/3/2016 11:31:43 AM
Cadmium	ND	0.0020		mg/L	1	5/3/2016 11:31:43 AM
Chromium	ND	0.0060		mg/L	1	5/3/2016 11:31:43 AM
Lead	ND	0.0050		mg/L	1	5/3/2016 11:31:43 AM
Selenium	ND	0.050		mg/L	1	5/3/2016 11:31:43 AM
Silver	ND	0.0050		mg/L	1	5/3/2016 11:31:43 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 9:21:28 PM
Toluene	ND	1.0		µg/L	1	4/26/2016 9:21:28 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 9:21:28 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 9:21:28 PM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 9:21:28 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/26/2016 9:21:28 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/26/2016 9:21:28 PM
Surr: Dibromofluoromethane	91.0	70-130		%Rec	1	4/26/2016 9:21:28 PM
Surr: Toluene-d8	107	70-130		%Rec	1	4/26/2016 9:21:28 PM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	86	1.0	H	mg CO2/L	1	4/27/2016 3:30:41 PM
SM2510B: SPECIFIC CONDUCTANCE						Analyst: JRR
Conductivity	380	1.0		µmhos/cm	1	4/27/2016 3:30:41 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	95.32	20.00		mg/L CaCO3	1	4/27/2016 3:30:41 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 3:30:41 PM
Total Alkalinity (as CaCO3)	95.32	20.00		mg/L CaCO3	1	4/27/2016 3:30:41 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	240	20.0		mg/L	1	4/27/2016 9:53:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: San Juan River 4-22-16

Collection Date:

Lab ID: 1604A62-002

Matrix: TRIP BLANK

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/26/2016 10:47:59 PM
Toluene	ND	1.0		µg/L	1	4/26/2016 10:47:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2016 10:47:59 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/26/2016 10:47:59 PM
Xylenes, Total	ND	1.5		µg/L	1	4/26/2016 10:47:59 PM
Surr: 1,2-Dichloroethane-d4	99.5	70-130		%Rec	1	4/26/2016 10:47:59 PM
Surr: 4-Bromofluorobenzene	93.9	70-130		%Rec	1	4/26/2016 10:47:59 PM
Surr: Dibromofluoromethane	104	70-130		%Rec	1	4/26/2016 10:47:59 PM
Surr: Toluene-d8	97.3	70-130		%Rec	1	4/26/2016 10:47:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Downstream

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 12:50:00 PM

Lab ID: 1604A62-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 9:12:48 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 9:12:48 AM
Surr: DNOP	99.4	63.2-161		%Rec	1	4/26/2016 9:12:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 12:24:36 PM
Surr: BFB	90.1	66.4-120		%Rec	1	4/26/2016 12:24:36 PM
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.19	0.10		mg/L	1	4/30/2016 2:04:54 AM
Chloride	3.4	0.50		mg/L	1	4/30/2016 2:04:54 AM
Bromide	ND	0.10		mg/L	1	4/30/2016 2:04:54 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	4/30/2016 2:04:54 AM
Sulfate	84	10		mg/L	20	4/30/2016 2:17:19 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/30/2016 4:09:02 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	4/29/2016 5:32:26 PM
Barium	0.072	0.0020		mg/L	1	4/29/2016 5:32:26 PM
Boron	ND	0.040		mg/L	1	4/29/2016 5:32:26 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2016 5:32:26 PM
Calcium	41	1.0		mg/L	1	4/29/2016 5:32:26 PM
Chromium	ND	0.0060		mg/L	1	4/29/2016 5:32:26 PM
Cobalt	ND	0.0060		mg/L	1	4/29/2016 5:32:26 PM
Copper	ND	0.0060		mg/L	1	5/2/2016 3:43:13 PM
Iron	0.031	0.020		mg/L	1	4/29/2016 5:32:26 PM
Magnesium	6.2	1.0		mg/L	1	4/29/2016 5:32:26 PM
Manganese	0.029	0.0020		mg/L	1	4/29/2016 5:32:26 PM
Molybdenum	ND	0.0080		mg/L	1	4/29/2016 5:32:26 PM
Nickel	ND	0.010		mg/L	1	4/29/2016 5:32:26 PM
Potassium	1.9	1.0		mg/L	1	4/29/2016 5:32:26 PM
Silver	ND	0.0050		mg/L	1	4/29/2016 5:32:26 PM
Sodium	29	1.0		mg/L	1	4/29/2016 5:32:26 PM
Zinc	0.013	0.010		mg/L	1	5/2/2016 3:43:13 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0010		mg/L	1	5/5/2016 9:23:25 PM
Lead	ND	0.00050		mg/L	1	5/5/2016 9:23:25 PM
Selenium	ND	0.0010		mg/L	1	5/5/2016 9:23:25 PM
Uranium	0.00084	0.00050		mg/L	1	5/5/2016 9:23:25 PM
EPA METHOD 7470: MERCURY						Analyst: pmf

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Downstream

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 12:50:00 PM

Lab ID: 1604A62-003

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	4/29/2016 11:42:12 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	5/3/2016 11:33:18 AM
Barium	0.082	0.020		mg/L	1	5/3/2016 11:33:18 AM
Cadmium	ND	0.0020		mg/L	1	5/3/2016 11:33:18 AM
Chromium	ND	0.0060		mg/L	1	5/3/2016 11:33:18 AM
Lead	ND	0.0050		mg/L	1	5/3/2016 11:33:18 AM
Selenium	ND	0.050		mg/L	1	5/3/2016 11:33:18 AM
Silver	ND	0.0050		mg/L	1	5/3/2016 11:33:18 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 1:11:49 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 1:11:49 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 1:11:49 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 4:14:26 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 1:11:49 AM
Surr: 1,2-Dichloroethane-d4	99.8	70-130		%Rec	1	4/27/2016 1:11:49 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	4/27/2016 1:11:49 AM
Surr: Dibromofluoromethane	90.8	70-130		%Rec	1	4/27/2016 1:11:49 AM
Surr: Toluene-d8	98.1	70-130		%Rec	1	4/27/2016 1:11:49 AM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	87	1.0	H	mg CO2/L	1	4/27/2016 3:39:10 PM
SM2510B: SPECIFIC CONDUCTANCE						Analyst: JRR
Conductivity	400	1.0		µmhos/cm	1	4/27/2016 3:39:10 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	96.84	20.00		mg/L CaCO3	1	4/27/2016 3:39:10 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 3:39:10 PM
Total Alkalinity (as CaCO3)	96.84	20.00		mg/L CaCO3	1	4/27/2016 3:39:10 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	254	20.0		mg/L	1	4/27/2016 9:53:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 10:40:00 AM

Lab ID: 1604A62-004

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 9:34:14 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 9:34:14 AM
Surr: DNOP	97.4	63.2-161		%Rec	1	4/26/2016 9:34:14 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 12:49:20 PM
Surr: BFB	88.4	66.4-120		%Rec	1	4/26/2016 12:49:20 PM
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.20	0.10		mg/L	1	4/30/2016 2:29:44 AM
Chloride	3.3	0.50		mg/L	1	4/30/2016 2:29:44 AM
Bromide	ND	0.10		mg/L	1	4/30/2016 2:29:44 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	4/30/2016 2:29:44 AM
Sulfate	78	10		mg/L	20	4/30/2016 2:42:08 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/30/2016 4:21:27 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	4/29/2016 5:43:56 PM
Barium	0.073	0.0020		mg/L	1	4/29/2016 5:43:56 PM
Boron	ND	0.040		mg/L	1	4/29/2016 5:43:56 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2016 5:43:56 PM
Calcium	39	1.0		mg/L	1	4/29/2016 5:43:56 PM
Chromium	ND	0.0060		mg/L	1	4/29/2016 5:43:56 PM
Cobalt	ND	0.0060		mg/L	1	4/29/2016 5:43:56 PM
Copper	ND	0.0060		mg/L	1	5/2/2016 3:45:10 PM
Iron	ND	0.020		mg/L	1	4/29/2016 5:43:56 PM
Magnesium	6.1	1.0		mg/L	1	4/29/2016 5:43:56 PM
Manganese	0.011	0.0020		mg/L	1	4/29/2016 5:43:56 PM
Molybdenum	ND	0.0080		mg/L	1	4/29/2016 5:43:56 PM
Nickel	ND	0.010		mg/L	1	4/29/2016 5:43:56 PM
Potassium	1.8	1.0		mg/L	1	4/29/2016 5:43:56 PM
Silver	ND	0.0050		mg/L	1	4/29/2016 5:43:56 PM
Sodium	27	1.0		mg/L	1	4/29/2016 5:43:56 PM
Zinc	0.014	0.010		mg/L	1	5/2/2016 3:45:10 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0010		mg/L	1	5/11/2016 7:46:48 PM
Lead	ND	0.00050		mg/L	1	5/11/2016 7:46:48 PM
Selenium	ND	0.0010		mg/L	1	5/11/2016 7:46:48 PM
Uranium	0.00076	0.00050		mg/L	1	5/11/2016 7:46:48 PM
EPA METHOD 7470: MERCURY						Analyst: pmf

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 10:40:00 AM

Lab ID: 1604A62-004

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	4/29/2016 11:44:19 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	5/3/2016 11:34:51 AM
Barium	0.080	0.020		mg/L	1	5/3/2016 11:34:51 AM
Cadmium	ND	0.0020		mg/L	1	5/3/2016 11:34:51 AM
Chromium	ND	0.0060		mg/L	1	5/3/2016 11:34:51 AM
Lead	ND	0.0050		mg/L	1	5/3/2016 11:34:51 AM
Selenium	ND	0.050		mg/L	1	5/3/2016 11:34:51 AM
Silver	ND	0.0050		mg/L	1	5/3/2016 11:34:51 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 1:40:39 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 1:40:39 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 1:40:39 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 4:43:21 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 1:40:39 AM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/27/2016 1:40:39 AM
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	4/27/2016 1:40:39 AM
Surr: Dibromofluoromethane	96.6	70-130		%Rec	1	4/27/2016 1:40:39 AM
Surr: Toluene-d8	97.2	70-130		%Rec	1	4/27/2016 1:40:39 AM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	86	1.0	H	mg CO2/L	1	4/27/2016 3:47:16 PM
SM2510B: SPECIFIC CONDUCTANCE						Analyst: JRR
Conductivity	380	1.0		µmhos/cm	1	4/27/2016 3:47:16 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	95.44	20.00		mg/L CaCO3	1	4/27/2016 3:47:16 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 3:47:16 PM
Total Alkalinity (as CaCO3)	95.44	20.00		mg/L CaCO3	1	4/27/2016 3:47:16 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	246	20.0		mg/L	1	4/27/2016 9:53:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 11:35:00 AM

Lab ID: 1604A62-005

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/26/2016 9:55:49 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/26/2016 9:55:49 AM
Surr: DNOP	96.5	63.2-161		%Rec	1	4/26/2016 9:55:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2016 1:14:03 PM
Surr: BFB	89.3	66.4-120		%Rec	1	4/26/2016 1:14:03 PM
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.19	0.10		mg/L	1	4/30/2016 2:54:33 AM
Chloride	3.5	0.50		mg/L	1	4/30/2016 2:54:33 AM
Bromide	ND	0.10		mg/L	1	4/30/2016 2:54:33 AM
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	4/30/2016 2:54:33 AM
Sulfate	80	10		mg/L	20	4/30/2016 3:06:58 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/30/2016 4:33:52 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	4/29/2016 5:47:50 PM
Barium	0.074	0.0020		mg/L	1	4/29/2016 5:47:50 PM
Boron	ND	0.040		mg/L	1	4/29/2016 5:47:50 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2016 5:47:50 PM
Calcium	40	1.0		mg/L	1	4/29/2016 5:47:50 PM
Chromium	ND	0.0060		mg/L	1	4/29/2016 5:47:50 PM
Cobalt	ND	0.0060		mg/L	1	4/29/2016 5:47:50 PM
Copper	ND	0.0060		mg/L	1	5/2/2016 3:47:08 PM
Iron	0.022	0.020		mg/L	1	4/29/2016 5:47:50 PM
Magnesium	6.1	1.0		mg/L	1	4/29/2016 5:47:50 PM
Manganese	0.0097	0.0020		mg/L	1	4/29/2016 5:47:50 PM
Molybdenum	ND	0.0080		mg/L	1	4/29/2016 5:47:50 PM
Nickel	ND	0.010		mg/L	1	4/29/2016 5:47:50 PM
Potassium	1.9	1.0		mg/L	1	4/29/2016 5:47:50 PM
Silver	ND	0.0050		mg/L	1	4/29/2016 5:47:50 PM
Sodium	27	1.0		mg/L	1	4/29/2016 5:47:50 PM
Zinc	0.024	0.010		mg/L	1	5/2/2016 3:47:08 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0010		mg/L	1	5/11/2016 7:51:56 PM
Lead	ND	0.00050		mg/L	1	5/11/2016 7:51:56 PM
Selenium	ND	0.0010		mg/L	1	5/11/2016 7:51:56 PM
Uranium	0.00078	0.00050		mg/L	1	5/11/2016 7:51:56 PM
EPA METHOD 7470: MERCURY						Analyst: pmf

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1604A62**

Date Reported: 5/24/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River 4-22-16

Collection Date: 4/22/2016 11:35:00 AM

Lab ID: 1604A62-005

Matrix: AQUEOUS

Received Date: 4/23/2016 8:45:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	4/29/2016 11:46:26 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	5/3/2016 11:36:25 AM
Barium	0.078	0.020		mg/L	1	5/3/2016 11:36:25 AM
Cadmium	ND	0.0020		mg/L	1	5/3/2016 11:36:25 AM
Chromium	ND	0.0060		mg/L	1	5/3/2016 11:36:25 AM
Lead	ND	0.0050		mg/L	1	5/3/2016 11:36:25 AM
Selenium	ND	0.050		mg/L	1	5/3/2016 11:36:25 AM
Silver	ND	0.0050		mg/L	1	5/3/2016 11:36:25 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	4/27/2016 2:09:25 AM
Toluene	ND	1.0		µg/L	1	4/27/2016 2:09:25 AM
Ethylbenzene	ND	1.0		µg/L	1	4/27/2016 2:09:25 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/28/2016 5:12:17 PM
Xylenes, Total	ND	1.5		µg/L	1	4/27/2016 2:09:25 AM
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	1	4/27/2016 2:09:25 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/27/2016 2:09:25 AM
Surr: Dibromofluoromethane	86.7	70-130		%Rec	1	4/27/2016 2:09:25 AM
Surr: Toluene-d8	102	70-130		%Rec	1	4/27/2016 2:09:25 AM
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	86	1.0	H	mg CO2/L	1	4/27/2016 3:55:34 PM
SM2510B: SPECIFIC CONDUCTANCE						Analyst: JRR
Conductivity	380	1.0		µmhos/cm	1	4/27/2016 3:55:34 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	95.48	20.00		mg/L CaCO3	1	4/27/2016 3:55:34 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	4/27/2016 3:55:34 PM
Total Alkalinity (as CaCO3)	95.48	20.00		mg/L CaCO3	1	4/27/2016 3:55:34 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	245	20.0		mg/L	1	4/27/2016 9:53:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A33899	RunNo:	33899					
Prep Date:		Analysis Date:	4/29/2016	SeqNo:	1044209	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A33899	RunNo:	33899					
Prep Date:		Analysis Date:	4/29/2016	SeqNo:	1044210	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	102	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.48	0.0020	0.5000	0	96.9	85	115			
Calcium	51	1.0	50.00	0	101	85	115			
Chromium	0.48	0.0060	0.5000	0	96.6	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.0	85	115			
Iron	0.50	0.020	0.5000	0	101	85	115			
Magnesium	49	1.0	50.00	0	97.5	85	115			
Manganese	0.48	0.0020	0.5000	0	96.2	85	115			
Molybdenum	0.50	0.0080	0.5000	0	99.9	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Potassium	47	1.0	50.00	0	94.8	85	115			
Silver	0.098	0.0050	0.1000	0	97.9	85	115			
Sodium	47	1.0	50.00	0	93.9	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID LLLCS-A	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: A33899			RunNo: 33899						
Prep Date:	Analysis Date: 4/29/2016			SeqNo: 1044211			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	73.1	50	150			
Barium	0.0026	0.0020	0.002000	0	129	50	150			
Boron	0.041	0.040	0.04000	0	102	50	150			
Cadmium	ND	0.0020	0.002000	0	98.5	50	150			
Calcium	ND	1.0	0.5000	0	111	50	150			
Chromium	0.0068	0.0060	0.006000	0	114	50	150			
Cobalt	0.0064	0.0060	0.006000	0	107	50	150			
Iron	0.022	0.020	0.02000	0	111	50	150			
Magnesium	ND	1.0	0.5000	0	103	50	150			
Manganese	0.0022	0.0020	0.002000	0	112	50	150			
Molybdenum	0.010	0.0080	0.008000	0	129	50	150			
Nickel	ND	0.010	0.005000	0	95.4	50	150			
Potassium	ND	1.0	0.5000	0	93.3	50	150			
Silver	0.0054	0.0050	0.005000	0	107	50	150			
Sodium	ND	1.0	0.5000	0	97.3	50	150			

Sample ID MB-B	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: B33919			RunNo: 33919						
Prep Date:	Analysis Date: 5/2/2016			SeqNo: 1044932			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								
Zinc	ND	0.010								

Sample ID LCS-B	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: B33919			RunNo: 33919						
Prep Date:	Analysis Date: 5/2/2016			SeqNo: 1044936			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.47	0.0060	0.5000	0	94.8	85	115			
Zinc	0.51	0.010	0.5000	0	103	85	115			

Sample ID LLLCS-B	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: B33919			RunNo: 33919						
Prep Date:	Analysis Date: 5/2/2016			SeqNo: 1044937			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060	0.006000	0	90.2	50	150			
Zinc	ND	0.010	0.005000	0	117	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34025		RunNo: 34025					
Prep Date:			Analysis Date: 5/5/2016		SeqNo: 1048522		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	101	85	115			
Lead	0.012	0.00050	0.01250	0	99.9	85	115			
Selenium	0.025	0.0010	0.02500	0	98.8	85	115			
Uranium	0.013	0.00050	0.01250	0	104	85	115			

Sample ID	LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: B34025			RunNo: 34025					
Prep Date:		Analysis Date: 5/5/2016			SeqNo: 1048523		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	100	50	150			
Lead	ND	0.00050	0.0005000	0	99.8	50	150			
Selenium	ND	0.0010	0.001000	0	94.2	50	150			
Uranium	ND	0.00050	0.0005000	0	99.9	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B34025			RunNo: 34025					
Prep Date:		Analysis Date: 5/5/2016			SeqNo: 1048524		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B34157			RunNo: 34157					
Prep Date:		Analysis Date: 5/11/2016			SeqNo: 1053221		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	LCS		SampType: LCS			TestCode: EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID: B34157			RunNo: 34157				
Prep Date:			Analysis Date: 5/11/2016			SeqNo: 1053222		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34157		RunNo: 34157					
Prep Date:			Analysis Date: 5/11/2016		SeqNo: 1053222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.3	85	115			
Lead	0.012	0.00050	0.01250	0	99.8	85	115			
Selenium	0.024	0.0010	0.02500	0	94.3	85	115			
Uranium	0.013	0.00050	0.01250	0	107	85	115			

Sample ID	LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: B34157			RunNo: 34157					
Prep Date:		Analysis Date: 5/11/2016			SeqNo: 1053223		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.0	50	150			
Lead	0.00052	0.00050	0.0005000	0	104	50	150			
Selenium	ND	0.0010	0.001000	0	93.2	50	150			
Uranium	0.00054	0.00050	0.0005000	0	108	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID MB	SampType: mblk			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R34165			RunNo: 34165						
Prep Date:	Analysis Date: 4/29/2016			SeqNo: 1053421		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R34165			RunNo: 34165						
Prep Date:	Analysis Date: 4/29/2016			SeqNo: 1053422		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.9	0.50	5.000	0	97.1	90	110			
Bromide	2.5	0.10	2.500	0	99.9	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	101	90	110			
Sulfate	9.9	0.50	10.00	0	98.9	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	LCS-24970		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039867		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.8	0.20	2.500	0	153	65.4	162			
Surr: DNOP	0.31		0.2500		124	63.2	161			

Sample ID	MB-24970		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 24970			RunNo: 33768				
Prep Date:	4/25/2016		Analysis Date: 4/25/2016			SeqNo: 1039868		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		112	63.2	161			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041252	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		89.9	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A33804	RunNo:	33804					
Prep Date:		Analysis Date:	4/26/2016	SeqNo:	1041253	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.2	80	120			
Surr: BFB	21		20.00		105	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID rb3	SampType: MBLK				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: PBW	Batch ID: B33810				RunNo: 33810					
Prep Date:	Analysis Date: 4/27/2016				SeqNo: 1041470	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 1604a62-001ams	SampType: MS				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: Upstream	Batch ID: B33810				RunNo: 33810					
Prep Date:	Analysis Date: 4/26/2016				SeqNo: 1041505	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	19	1.0	20.00	0	97.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.4	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 1604a62-001amsd	SampType: MSD				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: Upstream	Batch ID: B33810				RunNo: 33810					
Prep Date:	Analysis Date: 4/26/2016				SeqNo: 1041506	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	0.317	20	
Toluene	20	1.0	20.00	0	100	70	130	3.51	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.8		10.00		97.6	70	130	0	0	
Surr: Dibromofluoromethane	8.9		10.00		89.1	70	130	0	0	
Surr: Toluene-d8	10		10.00		105	70	130	0	0	

Sample ID 100ng lcs2	SampType: LCS				TestCode: EPA Method 8260: Volatiles Short List					
Client ID: LCSW	Batch ID: B33810				RunNo: 33810					
Prep Date:	Analysis Date: 4/27/2016				SeqNo: 1042932	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	100ng lcs2		SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW		Batch ID: B33810		RunNo: 33810					
Prep Date:			Analysis Date: 4/27/2016		SeqNo: 1042932		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R33873	RunNo:	33873					
Prep Date:		Analysis Date:	4/28/2016	SeqNo:	1043397	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R33873			RunNo: 33873					
Prep Date:		Analysis Date: 4/28/2016			SeqNo: 1043400		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	MB-25066	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	25066	RunNo:	33907					
Prep Date:	4/28/2016	Analysis Date:	4/29/2016	SeqNo:	1044543	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25066	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	25066	RunNo:	33907					
Prep Date:	4/28/2016	Analysis Date:	4/29/2016	SeqNo:	1044544	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	MB-25017	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 25017			RunNo: 33941					
Prep Date:	4/26/2016	Analysis Date: 5/3/2016			SeqNo: 1045834		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-25017		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 25017		RunNo: 33941					
Prep Date:	4/26/2016		Analysis Date: 5/3/2016		SeqNo: 1045835		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	80	120			
Barium	0.50	0.020	0.5000	0	101	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Chromium	0.50	0.0060	0.5000	0	99.9	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.10	0.0050	0.1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R33846	RunNo:	33846					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042626	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R33846	RunNo:	33846					
Prep Date:		Analysis Date:	4/27/2016	SeqNo:	1042627	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	84.68	20.00	80.00	0	106	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604A62

24-May-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-22-16

Sample ID	MB-25006	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	25006	RunNo:	33836					
Prep Date:	4/26/2016	Analysis Date:	4/27/2016	SeqNo:	1042246	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-25006	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	25006	RunNo:	33836					
Prep Date:	4/26/2016	Analysis Date:	4/27/2016	SeqNo:	1042247	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID	1604A62-003DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	Downstream	Batch ID:	25006	RunNo:	33836					
Prep Date:	4/26/2016	Analysis Date:	4/27/2016	SeqNo:	1042265	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1260	20.0	1000	254.0	101	80	120			

Sample ID	1604A62-003DMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	Downstream	Batch ID:	25006	RunNo:	33836					
Prep Date:	4/26/2016	Analysis Date:	4/27/2016	SeqNo:	1042266	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1270	20.0	1000	254.0	101	80	120	0.158	5	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1604A62

RcptNo: 1

Received by/date: AG 04/23/16

Logged By: Lindsay Mangin 4/23/2016 8:45:00 AM *Judy Mangin*

Completed By: Lindsay Mangin 4/25/2016 9:44:49 AM *Judy Mangin*

Reviewed By: *Ja* 04/25/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 12
(<2 or >12 unless noted)

Adjusted? No

Checked by: *Ja*

Special Handling (if applicable)

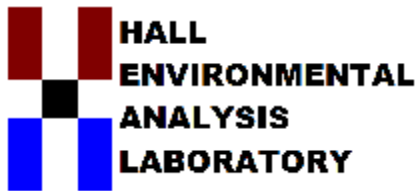
16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

June 30, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: San Juan River Bluff 5-18-2016

OrderNo.: 1605889

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/19/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605889

Date Reported: 6/30/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River Bluff 5-18-2016

Collection Date: 5/18/2016 11:15:00 AM

Lab ID: 1605889-001

Matrix: AQUEOUS

Received Date: 5/19/2016 7:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.18	0.023	0.10		mg/L	1	5/20/2016 12:42:22 AM	R34382
Chloride	3.4	0.027	0.50		mg/L	1	5/20/2016 12:42:22 AM	R34382
Nitrogen, Nitrite (As N)	ND	0.042	0.10		mg/L	1	5/20/2016 12:42:22 AM	R34382
Bromide	ND	0.032	0.10		mg/L	1	5/20/2016 12:42:22 AM	R34382
Nitrogen, Nitrate (As N)	0.17	0.042	0.10		mg/L	1	5/20/2016 12:42:22 AM	R34382
Phosphorus, Orthophosphate (As P)	ND	0.22	0.50		mg/L	1	5/20/2016 12:42:22 AM	R34382
Sulfate	45	1.3	10		mg/L	20	5/20/2016 12:54:47 AM	R34382
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 12:27:59 PM	A34409
Barium	0.068	0.0013	0.0020		mg/L	1	5/23/2016 12:27:59 PM	A34409
Boron	0.023	0.0011	0.040	J	mg/L	1	5/23/2016 12:27:59 PM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 12:27:59 PM	A34409
Calcium	37	0.26	1.0		mg/L	1	5/23/2016 12:27:59 PM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 12:27:59 PM	A34409
Cobalt	0.00091	0.00074	0.0060	J	mg/L	1	5/23/2016 12:27:59 PM	A34409
Copper	ND	0.0040	0.0060		mg/L	1	5/23/2016 12:27:59 PM	A34409
Iron	0.014	0.0091	0.020	J	mg/L	1	5/23/2016 12:27:59 PM	A34409
Magnesium	6.2	0.013	1.0		mg/L	1	5/23/2016 12:27:59 PM	A34409
Manganese	0.0090	0.00032	0.0020		mg/L	1	5/23/2016 12:27:59 PM	A34409
Molybdenum	ND	0.0019	0.0080		mg/L	1	5/23/2016 12:27:59 PM	A34409
Nickel	ND	0.0024	0.010		mg/L	1	5/23/2016 12:27:59 PM	A34409
Potassium	1.6	0.18	1.0		mg/L	1	5/23/2016 12:27:59 PM	A34409
Silver	ND	0.0028	0.0050		mg/L	1	5/23/2016 12:27:59 PM	A34409
Sodium	16	0.096	1.0		mg/L	1	5/23/2016 12:27:59 PM	A34409
Zinc	0.020	0.0028	0.010		mg/L	1	5/23/2016 12:27:59 PM	A34409
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.00087	0.00014	0.0010	J	mg/L	1	5/23/2016 3:24:27 PM	B34426
Lead	ND	0.00017	0.00050		mg/L	1	5/23/2016 3:24:27 PM	B34426
Selenium	0.00071	0.00021	0.0010	J	mg/L	1	5/23/2016 3:24:27 PM	B34426
Uranium	0.00080	0.000051	0.00050		mg/L	1	5/23/2016 3:24:27 PM	B34426
EPA METHOD 7470: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:21:42 AM	25454
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED	
Arsenic	ND	0.0082	0.020		mg/L	1	5/24/2016 9:13:05 AM	25456
Barium	0.090	0.00070	0.020		mg/L	1	5/24/2016 9:13:05 AM	25456
Cadmium	ND	0.00078	0.0020		mg/L	1	5/24/2016 9:13:05 AM	25456
Chromium	ND	0.0012	0.0060		mg/L	1	5/24/2016 9:13:05 AM	25456

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605889

Date Reported: 6/30/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River Bluff 5-18-2016

Collection Date: 5/18/2016 11:15:00 AM

Lab ID: 1605889-001

Matrix: AQUEOUS

Received Date: 5/19/2016 7:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED	
Lead	0.0057	0.0041	0.0050		mg/L	1	5/24/2016 9:13:05 AM	25456
Selenium	ND	0.025	0.050		mg/L	1	5/24/2016 9:13:05 AM	25456
Silver	ND	0.00072	0.0050		mg/L	1	5/24/2016 9:13:05 AM	25456
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	5/24/2016 4:27:10 PM	B34459
Toluene	ND	0.12	1.0		µg/L	1	5/24/2016 4:27:10 PM	B34459
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/24/2016 4:27:10 PM	B34459
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	5/24/2016 4:27:10 PM	B34459
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/24/2016 4:27:10 PM	B34459
Surr: 1,2-Dichloroethane-d4	85.8	0	70-130		%Rec	1	5/24/2016 4:27:10 PM	B34459
Surr: 4-Bromofluorobenzene	96.9	0	70-130		%Rec	1	5/24/2016 4:27:10 PM	B34459
Surr: Dibromofluoromethane	99.8	0	70-130		%Rec	1	5/24/2016 4:27:10 PM	B34459
Surr: Toluene-d8	96.2	0	70-130		%Rec	1	5/24/2016 4:27:10 PM	B34459
CARBON DIOXIDE							Analyst: JRR	
Total Carbon Dioxide	90	0	1.0	H	mg CO2/L	1	5/23/2016 3:51:21 PM	R34435
SM2320B: ALKALINITY							Analyst: JRR	
Bicarbonate (As CaCO3)	97.96	1.485	20.00		mg/L CaC	1	5/23/2016 3:51:21 PM	R34435
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/23/2016 3:51:21 PM	R34435
Total Alkalinity (as CaCO3)	97.96	1.485	20.00		mg/L CaC	1	5/23/2016 3:51:21 PM	R34435

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605889

Date Reported: 6/30/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River Bluff 5-18-2016

Collection Date: 5/18/2016 11:45:00 AM

Lab ID: 1605889-002

Matrix: AQUEOUS

Received Date: 5/19/2016 7:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.18	0.023	0.10		mg/L	1	5/20/2016 1:32:01 AM	R34382
Chloride	3.8	0.027	0.50		mg/L	1	5/20/2016 1:32:01 AM	R34382
Nitrogen, Nitrite (As N)	ND	0.042	0.10		mg/L	1	5/20/2016 1:32:01 AM	R34382
Bromide	ND	0.032	0.10		mg/L	1	5/20/2016 1:32:01 AM	R34382
Nitrogen, Nitrate (As N)	0.22	0.042	0.10		mg/L	1	5/20/2016 1:32:01 AM	R34382
Phosphorus, Orthophosphate (As P)	ND	0.22	0.50		mg/L	1	5/20/2016 1:32:01 AM	R34382
Sulfate	44	1.3	10		mg/L	20	5/20/2016 1:44:25 AM	R34382
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 12:31:54 PM	A34409
Barium	0.072	0.0013	0.0020		mg/L	1	5/23/2016 12:31:54 PM	A34409
Boron	0.022	0.0011	0.040	J	mg/L	1	5/23/2016 12:31:54 PM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 12:31:54 PM	A34409
Calcium	35	0.26	1.0		mg/L	1	5/23/2016 12:31:54 PM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 12:31:54 PM	A34409
Cobalt	0.0011	0.00074	0.0060	J	mg/L	1	5/23/2016 12:31:54 PM	A34409
Copper	ND	0.0040	0.0060		mg/L	1	5/23/2016 12:31:54 PM	A34409
Iron	ND	0.0091	0.020		mg/L	1	5/23/2016 12:31:54 PM	A34409
Magnesium	5.8	0.013	1.0		mg/L	1	5/23/2016 12:31:54 PM	A34409
Manganese	0.0028	0.00032	0.0020		mg/L	1	5/23/2016 12:31:54 PM	A34409
Molybdenum	ND	0.0019	0.0080		mg/L	1	5/23/2016 12:31:54 PM	A34409
Nickel	ND	0.0024	0.010		mg/L	1	5/23/2016 12:31:54 PM	A34409
Potassium	1.6	0.18	1.0		mg/L	1	5/23/2016 12:31:54 PM	A34409
Silver	ND	0.0028	0.0050		mg/L	1	5/23/2016 12:31:54 PM	A34409
Sodium	17	0.096	1.0		mg/L	1	5/23/2016 12:31:54 PM	A34409
Zinc	0.0084	0.0028	0.010	J	mg/L	1	5/23/2016 12:31:54 PM	A34409
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.00084	0.00014	0.0010	J	mg/L	1	5/23/2016 3:29:36 PM	B34426
Lead	ND	0.00017	0.00050		mg/L	1	5/23/2016 3:29:36 PM	B34426
Selenium	0.00065	0.00021	0.0010	J	mg/L	1	5/23/2016 3:29:36 PM	B34426
Uranium	0.00078	0.000051	0.00050		mg/L	1	5/23/2016 3:29:36 PM	B34426
EPA METHOD 7470: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:27:48 AM	25454
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED	
Arsenic	0.012	0.0082	0.020	J	mg/L	1	5/24/2016 9:14:15 AM	25456
Barium	0.074	0.00070	0.020		mg/L	1	5/24/2016 9:14:15 AM	25456
Cadmium	ND	0.00078	0.0020		mg/L	1	5/24/2016 9:14:15 AM	25456
Chromium	ND	0.0012	0.0060		mg/L	1	5/24/2016 9:14:15 AM	25456

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605889

Date Reported: 6/30/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River Bluff 5-18-2016

Collection Date: 5/18/2016 11:45:00 AM

Lab ID: 1605889-002

Matrix: AQUEOUS

Received Date: 5/19/2016 7:35:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED	
Lead	ND	0.0041	0.0050		mg/L	1	5/24/2016 9:14:15 AM	25456
Selenium	ND	0.025	0.050		mg/L	1	5/24/2016 9:14:15 AM	25456
Silver	ND	0.00072	0.0050		mg/L	1	5/24/2016 9:14:15 AM	25456
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	5/24/2016 5:53:26 PM	B34459
Toluene	ND	0.12	1.0		µg/L	1	5/24/2016 5:53:26 PM	B34459
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/24/2016 5:53:26 PM	B34459
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	5/24/2016 5:53:26 PM	B34459
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/24/2016 5:53:26 PM	B34459
Surr: 1,2-Dichloroethane-d4	96.7	0	70-130		%Rec	1	5/24/2016 5:53:26 PM	B34459
Surr: 4-Bromofluorobenzene	95.0	0	70-130		%Rec	1	5/24/2016 5:53:26 PM	B34459
Surr: Dibromofluoromethane	98.6	0	70-130		%Rec	1	5/24/2016 5:53:26 PM	B34459
Surr: Toluene-d8	96.9	0	70-130		%Rec	1	5/24/2016 5:53:26 PM	B34459
CARBON DIOXIDE							Analyst: JRR	
Total Carbon Dioxide	87	0	1.0	H	mg CO2/L	1	5/23/2016 4:00:17 PM	R34435
SM2320B: ALKALINITY							Analyst: JRR	
Bicarbonate (As CaCO3)	95.28	1.485	20.00		mg/L CaC	1	5/23/2016 4:00:17 PM	R34435
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L CaC	1	5/23/2016 4:00:17 PM	R34435
Total Alkalinity (as CaCO3)	95.28	1.485	20.00		mg/L CaC	1	5/23/2016 4:00:17 PM	R34435

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A34409			RunNo: 34409					
Prep Date:		Analysis Date: 5/23/2016			SeqNo: 1060909		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34409		RunNo: 34409					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1060910		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	106	85	115			
Barium	0.50	0.0020	0.5000	0	101	85	115			
Boron	0.52	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Calcium	50	1.0	50.00	0	99.2	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Magnesium	50	1.0	50.00	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Molybdenum	0.53	0.0080	0.5000	0	105	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Potassium	49	1.0	50.00	0	97.7	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Sodium	49	1.0	50.00	0	98.6	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	LCS-A		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: A34409			RunNo: 34409				
Prep Date:			Analysis Date: 5/23/2016			SeqNo: 1060910		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.51	0.010	0.5000	0	101	85	115			

Sample ID	LLCS-A	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID: A34409			RunNo: 34409					
Prep Date:	Analysis Date: 5/23/2016			SeqNo: 1060911		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.0097	0.020	0.01000	0	96.7	50	150			J
Barium	0.0018	0.0020	0.002000	0	89.0	50	150			J
Boron	0.040	0.040	0.04000	0	100	50	150			
Cadmium	0.0017	0.0020	0.002000	0	87.0	50	150			J
Calcium	0.51	1.0	0.5000	0	102	50	150			J
Chromium	0.0058	0.0060	0.006000	0	96.3	50	150			J
Cobalt	0.0064	0.0060	0.006000	0	106	50	150			
Copper	0.0071	0.0060	0.006000	0	119	50	150			
Iron	0.023	0.020	0.02000	0	116	50	150			
Magnesium	0.52	1.0	0.5000	0	105	50	150			J
Manganese	0.0021	0.0020	0.002000	0	103	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	0.0055	0.010	0.005000	0	110	50	150			J
Potassium	0.55	1.0	0.5000	0	110	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Sodium	0.51	1.0	0.5000	0	102	50	150			J
Zinc	0.0048	0.010	0.005000	0	95.4	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34426		RunNo: 34426					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061592		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.013	0.00050	0.01250	0	102	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Uranium	0.013	0.00050	0.01250	0	107	85	115			

Sample ID	LCSLL		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B34426		RunNo: 34426					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061596		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00096	0.0010	0.001000	0	95.6	50	150			J
Lead	0.00053	0.00050	0.0005000	0	105	50	150			
Selenium	0.00094	0.0010	0.001000	0	94.3	50	150			J
Uranium	0.00054	0.00050	0.0005000	0	108	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B34426			RunNo: 34426					
Prep Date:		Analysis Date: 5/23/2016			SeqNo: 1061600		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34382	RunNo:	34382					
Prep Date:		Analysis Date:	5/19/2016	SeqNo:	1060112	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R34382	RunNo:	34382					
Prep Date:		Analysis Date:	5/19/2016	SeqNo:	1060113	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	90	110			
Bromide	2.4	0.10	2.500	0	95.7	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	98.0	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	95.9	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID 100NG LCS3	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: B34459			RunNo: 34459						
Prep Date:	Analysis Date: 5/25/2016			SeqNo: 1062783		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	108	70	130			
Toluene	19	1.0	20.00	0	95.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.1	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: B34459			RunNo: 34459						
Prep Date:	Analysis Date: 5/25/2016			SeqNo: 1062784		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.9	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.1	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	70	130			

Sample ID 1605889-001ams	SampType: MS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: Outfall #2	Batch ID: B34459			RunNo: 34459						
Prep Date:	Analysis Date: 5/24/2016			SeqNo: 1062921		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.5	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID 1605889-001amsd	SampType: MSD			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: Outfall #2	Batch ID: B34459			RunNo: 34459						
Prep Date:	Analysis Date: 5/24/2016			SeqNo: 1062922		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.7	70	130	8.74	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	1605889-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Outfall #2	Batch ID:	B34459	RunNo:	34459					
Prep Date:		Analysis Date:	5/24/2016	SeqNo:	1062922	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	19	1.0	20.00	0	95.1	70	130	5.67	20	
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130	0	0	
Surr: Dibromofluoromethane	9.2		10.00		91.5	70	130	0	0	
Surr: Toluene-d8	10		10.00		103	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	MB-25454		SampType: MBLK		TestCode: EPA Method 7470: Mercury					
Client ID:	PBW		Batch ID: 25454		RunNo: 34451					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062352		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-25454		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 25454		RunNo: 34451					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062353		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120			

Sample ID	1605889-001CMS		SampType: MS		TestCode: EPA Method 7470: Mercury					
Client ID:	Outfall #2		Batch ID: 25454		RunNo: 34451					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062355		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	101	75	125			

Sample ID	1605889-001CMSD			SampType:	MSD		TestCode:	EPA Method 7470: Mercury			
Client ID:	Outfall #2			Batch ID:	25454		RunNo:	34451			
Prep Date:	5/23/2016			Analysis Date:	5/24/2016		SeqNo:	1062357		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0050	0.00020	0.005000	0	100	75	125	0.421	20		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	MB-25456		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	PBW		Batch ID:	25456		RunNo:	34428			
Prep Date:	5/23/2016		Analysis Date:	5/24/2016		SeqNo:	1061590	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.012	0.020								J
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-25456		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	LCSW		Batch ID:	25456		RunNo:	34428			
Prep Date:	5/23/2016		Analysis Date:	5/24/2016		SeqNo:	1061591	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	80	120			
Barium	0.49	0.020	0.5000	0	98.7	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.8	80	120			
Chromium	0.50	0.0060	0.5000	0	99.2	80	120			
Lead	0.49	0.0050	0.5000	0	97.6	80	120			
Selenium	0.52	0.050	0.5000	0	104	80	120			
Silver	0.099	0.0050	0.1000	0	98.6	80	120			

Sample ID	1605889-002CMS		SampType:	MS		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	Outfall #3		Batch ID:	25456		RunNo:	34428			
Prep Date:	5/23/2016		Analysis Date:	5/24/2016		SeqNo:	1061598	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0.01189	97.6	75	125			
Barium	0.55	0.020	0.5000	0.07426	95.7	75	125			
Cadmium	0.48	0.0020	0.5000	0	96.6	75	125			
Chromium	0.48	0.0060	0.5000	0	95.9	75	125			
Lead	0.48	0.0050	0.5000	0	95.3	75	125			
Selenium	0.48	0.050	0.5000	0	96.2	75	125			
Silver	0.096	0.0050	0.1000	0	96.3	75	125			

Sample ID	1605889-002CMSD		SampType:	MSD		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	Outfall #3		Batch ID:	25456		RunNo:	34428			
Prep Date:	5/23/2016		Analysis Date:	5/24/2016		SeqNo:	1061626	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0.01189	95.4	75	125	2.24	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID	1605889-002CMSD	SampType:	MSD	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	Outfall #3	Batch ID:	25456	RunNo:	34428					
Prep Date:	5/23/2016	Analysis Date:	5/24/2016	SeqNo:	1061626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.55	0.020	0.5000	0.07426	95.0	75	125	0.659	20	
Cadmium	0.48	0.0020	0.5000	0	96.2	75	125	0.440	20	
Chromium	0.48	0.0060	0.5000	0	96.2	75	125	0.237	20	
Lead	0.48	0.0050	0.5000	0	95.0	75	125	0.313	20	
Selenium	0.47	0.050	0.5000	0	94.1	75	125	2.24	20	
Silver	0.097	0.0050	0.1000	0	97.0	75	125	0.786	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605889

30-Jun-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 5-18-2016

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R34435			RunNo: 34435						
Prep Date:	Analysis Date: 5/23/2016			SeqNo: 1061823		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	2.040	20.00								J

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R34435			RunNo: 34435						
Prep Date:	Analysis Date: 5/23/2016			SeqNo: 1061824		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.52	20.00	80.00	0	96.9	90	110			

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R34435			RunNo: 34435						
Prep Date:	Analysis Date: 5/23/2016			SeqNo: 1061847		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-2	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R34435			RunNo: 34435						
Prep Date:	Analysis Date: 5/23/2016			SeqNo: 1061848		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.92	20.00	80.00	0	97.4	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1605889

RcptNo: 1

Received by/date:

LM

05/19/16

Logged By: Lindsay Mangin

5/19/2016 7:35:00 AM

Judy Mangin

Completed By: Lindsay Mangin

5/19/2016 9:11:40 AM

Judy Mangin

Reviewed By:

JM

05/19/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

6

(<2 or >12 unless noted)

Adjusted?

NO

Checked by:

aj

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: San Juan River Bluff

5 - 18 - 2016

Project #: Semi Annual

PO# 12615521

Project Manager:

Kelly Robinson

Sampler: M. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.6

Date Time Matrix Sample Request ID

5-18-16 1145 H₂O Outfall #3

1-500 ml HNO₃

1-250 ml HNO₃

1-250 ml H₂SO₄

1-500 ml Cool

Container Type and #

3-VOA

1-500 ml

1-250 ml

1-250 ml

1-500 ml

Preservative Type

HCl

HNO₃

HNO₃

H₂SO₄

Cool

HEAL No.

1605889

-002

-002

-002

-002

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH 80158 (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

Alk., CO₂

Dissolved Metals

Air Bubbles (Y or N)

Remarks:

Received by: [Signature] Date Time 5/18/16 1600

Received by: [Signature] Date Time 5/19/16 0735

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 31, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Collection Wells 8-17-2016

OrderNo.: 1608B58

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/19/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B58**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 25+95

Project: Collection Wells 8-17-2016

Collection Date: 8/17/2016 2:50:00 PM

Lab ID: 1608B58-001

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/22/2016 5:58:42 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 5:58:42 PM
Surr: DNOP	114	67.9-149		%Rec	1	8/22/2016 5:58:42 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	7.1	5.0	D	µg/L	5	8/22/2016 12:03:13 PM
Toluene	ND	5.0	D	µg/L	5	8/22/2016 12:03:13 PM
Ethylbenzene	ND	5.0	D	µg/L	5	8/22/2016 12:03:13 PM
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	8/22/2016 12:03:13 PM
Xylenes, Total	ND	7.5	D	µg/L	5	8/22/2016 12:03:13 PM
Surr: 1,2-Dichloroethane-d4	101	70-130	D	%Rec	5	8/22/2016 12:03:13 PM
Surr: 4-Bromofluorobenzene	96.1	70-130	D	%Rec	5	8/22/2016 12:03:13 PM
Surr: Dibromofluoromethane	93.5	70-130	D	%Rec	5	8/22/2016 12:03:13 PM
Surr: Toluene-d8	99.2	70-130	D	%Rec	5	8/22/2016 12:03:13 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B58

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60

Project: Collection Wells 8-17-2016

Collection Date: 8/17/2016 3:30:00 PM

Lab ID: 1608B58-002

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	0.83	0.20		mg/L	1	8/22/2016 6:20:29 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 6:20:29 PM
Surr: DNOP	115	67.9-149		%Rec	1	8/22/2016 6:20:29 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	8/22/2016 12:32:03 PM
Toluene	ND	1.0		µg/L	1	8/22/2016 12:32:03 PM
Ethylbenzene	1.8	1.0		µg/L	1	8/22/2016 12:32:03 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2016 12:32:03 PM
Xylenes, Total	ND	1.5		µg/L	1	8/22/2016 12:32:03 PM
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%Rec	1	8/22/2016 12:32:03 PM
Surr: 4-Bromofluorobenzene	87.2	70-130		%Rec	1	8/22/2016 12:32:03 PM
Surr: Dibromofluoromethane	83.2	70-130		%Rec	1	8/22/2016 12:32:03 PM
Surr: Toluene-d8	98.0	70-130		%Rec	1	8/22/2016 12:32:03 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B58**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60 Dup

Project: Collection Wells 8-17-2016

Collection Date: 8/17/2016 3:40:00 PM

Lab ID: 1608B58-003

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	0.90	0.20		mg/L	1	8/22/2016 6:41:59 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 6:41:59 PM
Surr: DNOP	117	67.9-149		%Rec	1	8/22/2016 6:41:59 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	8/22/2016 1:00:49 PM
Toluene	ND	1.0		µg/L	1	8/22/2016 1:00:49 PM
Ethylbenzene	1.7	1.0		µg/L	1	8/22/2016 1:00:49 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2016 1:00:49 PM
Xylenes, Total	ND	1.5		µg/L	1	8/22/2016 1:00:49 PM
Surr: 1,2-Dichloroethane-d4	92.0	70-130		%Rec	1	8/22/2016 1:00:49 PM
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	8/22/2016 1:00:49 PM
Surr: Dibromofluoromethane	85.0	70-130		%Rec	1	8/22/2016 1:00:49 PM
Surr: Toluene-d8	98.4	70-130		%Rec	1	8/22/2016 1:00:49 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B58

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Collection Wells 8-17-2016

Collection Date:

Lab ID: 1608B58-004

Matrix: TRIP BLANK

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: AG
Benzene	ND	1.0		µg/L	1	8/22/2016 1:29:35 PM
Toluene	ND	1.0		µg/L	1	8/22/2016 1:29:35 PM
Ethylbenzene	ND	1.0		µg/L	1	8/22/2016 1:29:35 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2016 1:29:35 PM
Xylenes, Total	ND	1.5		µg/L	1	8/22/2016 1:29:35 PM
Surr: 1,2-Dichloroethane-d4	98.5	70-130		%Rec	1	8/22/2016 1:29:35 PM
Surr: 4-Bromofluorobenzene	95.6	70-130		%Rec	1	8/22/2016 1:29:35 PM
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	8/22/2016 1:29:35 PM
Surr: Toluene-d8	96.7	70-130		%Rec	1	8/22/2016 1:29:35 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B58

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-17-2016

Sample ID	LCS-27092		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27092			RunNo: 36661				
Prep Date:	8/22/2016		Analysis Date: 8/22/2016			SeqNo: 1135687	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	65.4	162			
Surr: DNOP	0.27		0.2500		107	67.9	149			

Sample ID	MB-27092		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27092			RunNo: 36661				
Prep Date:	8/22/2016		Analysis Date: 8/22/2016			SeqNo: 1135688	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.55		0.5000		109	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B58

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-17-2016

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List							
Client ID: LCSW	Batch ID: S36669			RunNo: 36669							
Prep Date:	Analysis Date: 8/22/2016			SeqNo: 1136015		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	96.3	70	130				
Toluene	20	1.0	20.00	0	99.2	70	130				
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130				
Surr: 4-Bromofluorobenzene	9.6		10.00		95.5	70	130				
Surr: Dibromofluoromethane	9.2		10.00		91.9	70	130				
Surr: Toluene-d8	9.8		10.00		98.3	70	130				

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List							
Client ID: PBW	Batch ID: S36669			RunNo: 36669							
Prep Date:	Analysis Date: 8/22/2016			SeqNo: 1136016		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130				
Surr: 4-Bromofluorobenzene	9.2		10.00		92.1	70	130				
Surr: Dibromofluoromethane	9.5		10.00		94.8	70	130				
Surr: Toluene-d8	9.7		10.00		96.8	70	130				

Sample ID 1608b58-001ams	SampType: MS			TestCode: EPA Method 8260: Volatiles Short List							
Client ID: CW 25+95	Batch ID: S36669			RunNo: 36669							
Prep Date:	Analysis Date: 8/22/2016			SeqNo: 1136018		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	99	5.0	100.0	7.051	92.0	70	130				
Toluene	98	5.0	100.0	0	97.9	70	130				
Surr: 1,2-Dichloroethane-d4	51		50.00		103	70	130				
Surr: 4-Bromofluorobenzene	48		50.00		96.8	70	130				
Surr: Dibromofluoromethane	46		50.00		92.3	70	130				
Surr: Toluene-d8	49		50.00		98.0	70	130				

Sample ID 1608b58-001amsd	SampType: MSD			TestCode: EPA Method 8260: Volatiles Short List							
Client ID: CW 25+95	Batch ID: S36669			RunNo: 36669							
Prep Date:	Analysis Date: 8/22/2016			SeqNo: 1136019		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	94	5.0	100.0	7.051	86.7	70	130	5.48	20		

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B58

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-17-2016

Sample ID	1608b58-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	CW 25+95	Batch ID:	S36669	RunNo:	36669					
Prep Date:		Analysis Date:	8/22/2016	SeqNo:	1136019	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	93	5.0	100.0	0	93.4	70	130	4.71	20	
Surr: 1,2-Dichloroethane-d4	48		50.00		96.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	45		50.00		89.8	70	130	0	0	
Surr: Dibromofluoromethane	45		50.00		90.2	70	130	0	0	
Surr: Toluene-d8	49		50.00		97.1	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608B58**

RcptNo: **1**

Received by/date:

AG

08/19/16

Logged By: **Ashley Gallegos**

8/19/2016 7:30:00 AM

AG

Completed By: **Ashley Gallegos**

8/19/2016 10:28:29 AM

AG

Reviewed By:

JA

08/19/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons

GRO = gasoline range organics

VOCs = volatile organic compounds

DRO = diesel range organics

TDS = total dissolved solids

Notes:

⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009

⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

August 31, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: North Boundry Barrier 8-17-16

OrderNo.: 1608B57

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 13 sample(s) on 8/19/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 3+85

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 10:51:00 AM

Lab ID: 1608B57-001

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	9.0	0.20		mg/L	1	8/22/2016 12:10:56 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 12:10:56 PM
Surr: DNOP	110	67.9-149		%Rec	1	8/22/2016 12:10:56 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 2:36:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 2:36:00 AM
Ethylbenzene	1.1	1.0		µg/L	1	8/23/2016 2:36:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 2:36:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 2:36:00 AM
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%Rec	1	8/23/2016 2:36:00 AM
Surr: 4-Bromofluorobenzene	87.6	70-130		%Rec	1	8/23/2016 2:36:00 AM
Surr: Dibromofluoromethane	91.8	70-130		%Rec	1	8/23/2016 2:36:00 AM
Surr: Toluene-d8	106	70-130		%Rec	1	8/23/2016 2:36:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	3.1	0.10		mg/L	2	8/23/2016 12:13:46 PM
Surr: BFB	100	70-130		%Rec	2	8/23/2016 12:13:46 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B57

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 8+10

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 12:30:00 PM

Lab ID: 1608B57-002

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/22/2016 1:16:15 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 1:16:15 PM
Surr: DNOP	114	67.9-149		%Rec	1	8/22/2016 1:16:15 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 3:00:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 3:00:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 3:00:00 AM
Methyl tert-butyl ether (MTBE)	4.7	1.0		µg/L	1	8/23/2016 3:00:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 3:00:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 3:00:00 AM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	8/23/2016 3:00:00 AM
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	8/23/2016 3:00:00 AM
Surr: Toluene-d8	99.5	70-130		%Rec	1	8/23/2016 3:00:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 12:42:39 PM
Surr: BFB	100	70-130		%Rec	1	8/23/2016 12:42:39 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 11+15

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 1:00:00 PM

Lab ID: 1608B57-003

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	540	20		mg/L	100	8/22/2016 2:42:52 PM
Motor Oil Range Organics (MRO)	ND	250		mg/L	100	8/22/2016 2:42:52 PM
Surr: DNOP	0	67.9-149	S	%Rec	100	8/22/2016 2:42:52 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	3900	200		µg/L	200	8/23/2016 3:23:00 AM
Toluene	ND	20		µg/L	20	8/23/2016 3:47:00 AM
Ethylbenzene	ND	20		µg/L	20	8/23/2016 3:47:00 AM
Methyl tert-butyl ether (MTBE)	310	20		µg/L	20	8/23/2016 3:47:00 AM
Xylenes, Total	ND	30		µg/L	20	8/23/2016 3:47:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	20	8/23/2016 3:47:00 AM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	20	8/23/2016 3:47:00 AM
Surr: Dibromofluoromethane	97.2	70-130		%Rec	20	8/23/2016 3:47:00 AM
Surr: Toluene-d8	99.6	70-130		%Rec	20	8/23/2016 3:47:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	12	2.5		mg/L	50	8/23/2016 1:11:29 PM
Surr: BFB	104	70-130		%Rec	50	8/23/2016 1:11:29 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 16+60

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 1:16:00 PM

Lab ID: 1608B57-004

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	3.8	0.20		mg/L	1	8/22/2016 3:04:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 3:04:33 PM
Surr: DNOP	107	67.9-149		%Rec	1	8/22/2016 3:04:33 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 4:34:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 4:34:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 4:34:00 AM
Methyl tert-butyl ether (MTBE)	410	10		µg/L	10	8/23/2016 4:10:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 4:34:00 AM
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	8/23/2016 4:34:00 AM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	8/23/2016 4:34:00 AM
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	8/23/2016 4:34:00 AM
Surr: Toluene-d8	97.5	70-130		%Rec	1	8/23/2016 4:34:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	1.5	0.050		mg/L	1	8/23/2016 2:37:50 PM
Surr: BFB	108	70-130		%Rec	1	8/23/2016 2:37:50 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 22+00

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 1:40:00 PM

Lab ID: 1608B57-005

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/22/2016 3:26:21 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 3:26:21 PM
Surr: DNOP	118	67.9-149		%Rec	1	8/22/2016 3:26:21 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 4:58:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 4:58:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 4:58:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 4:58:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 4:58:00 AM
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	8/23/2016 4:58:00 AM
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	8/23/2016 4:58:00 AM
Surr: Dibromofluoromethane	97.8	70-130		%Rec	1	8/23/2016 4:58:00 AM
Surr: Toluene-d8	99.7	70-130		%Rec	1	8/23/2016 4:58:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 3:06:36 PM
Surr: BFB	100	70-130		%Rec	1	8/23/2016 3:06:36 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**Date Reported: **8/31/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** OW 23+90**Project:** North Boundry Barrier 8-17-16**Collection Date:** 8/17/2016 2:05:00 PM**Lab ID:** 1608B57-006**Matrix:** AQUEOUS**Received Date:** 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/22/2016 4:10:05 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 4:10:05 PM
Surr: DNOP	132	67.9-149		%Rec	1	8/22/2016 4:10:05 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 5:21:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 5:21:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 5:21:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 5:21:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 5:21:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 5:21:00 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 5:21:00 AM
Surr: Dibromofluoromethane	94.3	70-130		%Rec	1	8/23/2016 5:21:00 AM
Surr: Toluene-d8	98.7	70-130		%Rec	1	8/23/2016 5:21:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 3:35:26 PM
Surr: BFB	99.8	70-130		%Rec	1	8/23/2016 3:35:26 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B57

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 23+10

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 2:15:00 PM

Lab ID: 1608B57-007

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	0.27	0.20		mg/L	1	8/22/2016 4:31:47 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 4:31:47 PM
Surr: DNOP	118	67.9-149		%Rec	1	8/22/2016 4:31:47 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 5:45:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 5:45:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 5:45:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 5:45:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 5:45:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 5:45:00 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 5:45:00 AM
Surr: Dibromofluoromethane	94.3	70-130		%Rec	1	8/23/2016 5:45:00 AM
Surr: Toluene-d8	100	70-130		%Rec	1	8/23/2016 5:45:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	0.17	0.050		mg/L	1	8/23/2016 4:04:15 PM
Surr: BFB	102	70-130		%Rec	1	8/23/2016 4:04:15 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 25+70

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 2:50:00 PM

Lab ID: 1608B57-008

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/22/2016 4:53:37 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 4:53:37 PM
Surr: DNOP	116	67.9-149		%Rec	1	8/22/2016 4:53:37 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 6:08:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 6:08:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:08:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:08:00 AM
Xylenes, Total	2.6	1.5		µg/L	1	8/23/2016 6:08:00 AM
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	8/23/2016 6:08:00 AM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/23/2016 6:08:00 AM
Surr: Dibromofluoromethane	95.5	70-130		%Rec	1	8/23/2016 6:08:00 AM
Surr: Toluene-d8	99.6	70-130		%Rec	1	8/23/2016 6:08:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	0.078	0.050		mg/L	1	8/23/2016 4:33:02 PM
Surr: BFB	96.7	70-130		%Rec	1	8/23/2016 4:33:02 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 1+50

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 3:51:00 PM

Lab ID: 1608B57-009

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	4.2	0.20		mg/L	1	8/22/2016 5:15:12 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 5:15:12 PM
Surr: DNOP	113	67.9-149		%Rec	1	8/22/2016 5:15:12 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 6:32:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 6:32:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:32:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:32:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:32:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 6:32:00 AM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	8/23/2016 6:32:00 AM
Surr: Dibromofluoromethane	93.8	70-130		%Rec	1	8/23/2016 6:32:00 AM
Surr: Toluene-d8	102	70-130		%Rec	1	8/23/2016 6:32:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	2.9	0.050		mg/L	1	8/23/2016 5:01:46 PM
Surr: BFB	96.4	70-130		%Rec	1	8/23/2016 5:01:46 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 0+60

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 4:10:00 PM

Lab ID: 1608B57-010

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	1.3	0.20		mg/L	1	8/22/2016 5:37:00 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/22/2016 5:37:00 PM
Surr: DNOP	118	67.9-149		%Rec	1	8/22/2016 5:37:00 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 6:56:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 6:56:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:56:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:56:00 AM
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%Rec	1	8/23/2016 6:56:00 AM
Surr: 4-Bromofluorobenzene	89.2	70-130		%Rec	1	8/23/2016 6:56:00 AM
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	8/23/2016 6:56:00 AM
Surr: Toluene-d8	96.7	70-130		%Rec	1	8/23/2016 6:56:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: AG
Gasoline Range Organics (GRO)	0.70	0.050		mg/L	1	8/23/2016 5:30:30 PM
Surr: BFB	109	70-130		%Rec	1	8/23/2016 5:30:30 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B57

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Blank

Project: North Boundry Barrier 8-17-16

Collection Date: 8/17/2016 4:40:00 PM

Lab ID: 1608B57-011

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 7:19:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 7:19:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:19:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 7:19:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 7:19:00 AM
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	8/23/2016 7:19:00 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/23/2016 7:19:00 AM
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	8/23/2016 7:19:00 AM
Surr: Toluene-d8	99.3	70-130		%Rec	1	8/23/2016 7:19:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608B57

Date Reported: 8/31/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Equipement Blank

Project: North Boundry Barrier 8-17-16

Collection Date: 8/16/2016 2:15:00 PM

Lab ID: 1608B57-012

Matrix: AQUEOUS

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 7:43:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 7:43:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:43:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 7:43:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 7:43:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 7:43:00 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 7:43:00 AM
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	8/23/2016 7:43:00 AM
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/23/2016 7:43:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608B57**

Date Reported: **8/31/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: North Boundry Barrier 8-17-16

Collection Date:

Lab ID: 1608B57-013

Matrix: TRIP BLANK

Received Date: 8/19/2016 7:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/23/2016 8:06:00 AM
Toluene	ND	1.0		µg/L	1	8/23/2016 8:06:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:06:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 8:06:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 8:06:00 AM
Surr: 1,2-Dichloroethane-d4	99.1	70-130		%Rec	1	8/23/2016 8:06:00 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/23/2016 8:06:00 AM
Surr: Dibromofluoromethane	96.9	70-130		%Rec	1	8/23/2016 8:06:00 AM
Surr: Toluene-d8	100	70-130		%Rec	1	8/23/2016 8:06:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B57

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 8-17-16

Sample ID	1608B57-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	OW 3+85	Batch ID: 27092			RunNo: 36661					
Prep Date:	8/22/2016	Analysis Date: 8/22/2016			SeqNo: 1135682		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	0.20	2.500	8.991	-124	73.3	174			S
Surr: DNOP	0.26		0.2500		105	67.9	149			

Sample ID	1608B57-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	OW 3+85	Batch ID:	27092	RunNo:	36661					
Prep Date:	8/22/2016	Analysis Date:	8/22/2016	SeqNo:	1135683	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	0.20	2.500	8.991	-119	73.3	174	1.74	20	S
Surr: DNOP	0.28		0.2500		112	67.9	149	0	0	

Sample ID	LCS-27092	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 27092			RunNo: 36661					
Prep Date:	8/22/2016	Analysis Date: 8/22/2016			SeqNo: 1135687		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	65.4	162			
Surr: DNOP	0.27		0.2500		107	67.9	149			

Sample ID	MB-27092	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 27092			RunNo: 36661					
Prep Date:	8/22/2016	Analysis Date: 8/22/2016			SeqNo: 1135688		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.55		0.5000		109	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B57

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 8-17-16

Sample ID	100ng lcs4			SampType:	LCS		TestCode:	EPA Method 8260: Volatiles Short List			
Client ID:	LCSW			Batch ID:	C36665		RunNo:	36665			
Prep Date:				Analysis Date:	8/22/2016		SeqNo:	1136405	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	96.7	70	130				
Toluene	20	1.0	20.00	0	98.5	70	130				
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130				
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130				
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130				
Surr: Toluene-d8	9.8		10.00		97.5	70	130				

Sample ID	rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: C36665			RunNo: 36665					
Prep Date:		Analysis Date: 8/22/2016			SeqNo: 1136406		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.7	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.9	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608B57

31-Aug-16

Client: Western Refining Southwest, Inc.

Project: North Boundry Barrier 8-17-16

Sample ID	2.5ug gro lcs		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R36700		RunNo: 36700					
Prep Date:			Analysis Date: 8/23/2016		SeqNo: 1137274		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.41	0.050	0.5000	0	82.5	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Sample ID	rb	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range						
Client ID:	PBW	Batch ID: R36700		RunNo: 36700						
Prep Date:		Analysis Date: 8/23/2016		SeqNo: 1137275		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		98.1	70	130			

Sample ID	1608b57-003ams		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW 11+15		Batch ID: R36700		RunNo: 36700					
Prep Date:			Analysis Date: 8/23/2016		SeqNo: 1137698		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	40	2.5	25.00	11.89	113	53.8	128			
Surr: BFB	540		500.0		107	70	130			

Sample ID	1608b57-003amsd		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW 11+15		Batch ID: R36700		RunNo: 36700					
Prep Date:			Analysis Date: 8/23/2016		SeqNo: 1137699		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	39	2.5	25.00	11.89	107	53.8	128	3.70	20	
Surr: BFB	510		500.0		102	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1608B57

RcptNo: 1

Received by/date:

AG

08/19/16

Logged By: Ashley Gallegos

8/19/2016 7:30:00 AM

AG

Completed By: Ashley Gallegos

8/19/2016 10:16:49 AM

AG

Reviewed By:

aJ

08/19/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **North Boundary Barrier**

Date: **8-17-2016**

Project #: Annual

PO#12615520

Project Manager:

Sampler: **Michael A Wicke**

On Ice ☒ Yes ☐ No

Sample Temperature: **27**

Date Time Matrix Sample Request ID

8-17-16 1340 H₂O OW 22+00
↓ ↓ H₂O OW 22+00

Container Type and #

6-VOA HCl
1-500 ml Amber

Preservative Type

HCl Cool

HEAL No

1108B57

105

Analysis Request

BTEX + MTBE + TMBs (8021)
BTEX + MTBE + TPH (Gas only)
TPH 8015B (GRO / DRO / MRO)
TPH (Method 418.1)
EDB (Method 504.1)
PAH (8310 or 8270SIMS)
RCRA 8 Metals
Anions (F⁻, Cl⁻, NO₃⁻, NO₂⁻, PO₄³⁻, SO₄²⁻)
8081 Pesticides / 8082 PCB's
8260B (VOA) BTEX, MTBE only
8270 (Semi-VOA)
8015B DRO Extended
Air Bubbles (Y or N)

Remarks: See attachment for full analytical list

Received by: **Andreas Waeber** Date Time: **8/18/16 1540**

Received by: **Andreas Waeber** Date Time: **08/19/16 0730**

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		Turn-Around Time:
Client: Western Refining		☒ Standard ☐ Rush
Mailing Address: 50 CR 4990		Project Name: North Boudry Barrier
Bloomfield, NM 87413		Date: <u>8-17-2016</u>
Phone #: 505-632-4135		Project #: Annual
email or Fax#:		PO#12615520
QA/QC Package:		Project Manager:
☐ Standard	☒ Level 4 (Full Validation)	
☐ Other _____		
☒ EDD (Type) _____		
		Sampler: <u>Michael A Wicker</u>
		On Ice ☒ Yes ☐ No
		Sample Temperature: <u>21</u>

Turn-Around Time:	☒ Standard ☐ Rush
Project Name:	North Boundry Barrier
Date:	8-17-2016
Project #:	Annual
PO#	12615520
Project Manager:	
Sampler:	Michael A. Wicker
On Ice:	☒ Yes ☐ No
Sample Temperature:	2.1

Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#: _____

QA/QC Package:

☐ Standard **X** Level 4 (Full Validation)

☐ Other _____

X EDD (Type) _____

[illegible]

Date	Time	Matrix	Sample Request ID
8-17-16	B00	H ₂ O	OW 11+15
↓	↓	H ₂ O	OW 11+15

Date:	Time:	Relinquished by:	Received by:	Date	Time
8-18-16	1540			8/18/16	1540
Date:	Time:	Relinquished by:	Received by:	Date	Time
8/18/16	2040			8/19/16	0730

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this.

[illegible]

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NIM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

email or Fax#:		Project Manager:	
QA/QC Package:		Sampler: <i>Michael A Wicker</i> On Ice: ☒ Yes ☐ No Sample Temperature: <i>21</i>	
☒ Level 4 (Full Validation) ☐ Standard ☐ Other _____ ☒ EDD (Type) _____		Container Type and # Preservative Type HEAL No. <i>14088357</i>	
Date	Time	Matrix	Sample Request ID

email or Fax#:		QA/QC Package:		☒ Level 4 (Full Validation)	
		☐ Standard		☐ Other _____	
		☒ EDD (Type) _____			
Date	Time	Matrix	Sample Request ID		

[illegible][illegible]

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.

[illegible]

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.



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks: See attachment for full analytical list

Received by:

Date _____ Time _____

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.

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

- Notes:**
- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Down Gradient Wells 8-18-2016

OrderNo.: 1608C29

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 8/19/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001A

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Acetone	ND	10		µg/L	1	8/24/2016 3:56:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
2-Butanone	ND	10		µg/L	1	8/24/2016 3:56:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 3:56:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001A

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	10		µg/L	1	8/24/2016 3:56:00 PM	R36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 3:56:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
tert-Butylbenzene	0.34	1.0	J	µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 3:56:00 PM	R36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 3:56:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	8/24/2016 3:56:00 PM	R36743
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	8/24/2016 3:56:00 PM	R36743
Surr: Dibromofluoromethane	97.6	70-130		%Rec	1	8/24/2016 3:56:00 PM	R36743
Surr: Toluene-d8	98.1	70-130		%Rec	1	8/24/2016 3:56:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 2 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001B

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 11:06:39 AM	R36808
Surr: BFB	88.0	66.4-120		%Rec	1	8/26/2016 11:06:39 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 75

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001C

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 6:11:56 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 6:11:56 PM	27114
Surr: DNOP	113	67.9-149		%Rec	1	8/23/2016 6:11:56 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 4 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001D

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	690	1.0	H	mg CO2/L	1	8/24/2016 5:52:53 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.60	0.10		mg/L	1	8/27/2016 12:50:29 AM	R36827
Chloride	220	10		mg/L	20	9/1/2016 4:03:49 PM	R36952
Bromide	2.9	0.10		mg/L	1	9/1/2016 3:51:24 PM	R36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/27/2016 12:50:29 AM	R36827
Sulfate	270	10	*	mg/L	20	9/1/2016 4:03:49 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 4:16:59 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	766.7	20.00		mg/L CaCO ₃	1	8/24/2016 5:52:53 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:52:53 PM	R36738
Total Alkalinity (as CaCO ₃)	766.7	20.00		mg/L CaCO ₃	1	8/24/2016 5:52:53 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001E

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:33:53 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 1:48:27 PM	27124
Barium	0.27	0.020		mg/L	1	8/25/2016 1:48:27 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 1:48:27 PM	27124
Chromium	0.0034	0.0060	J	mg/L	1	8/25/2016 1:48:27 PM	27124
Lead	0.0068	0.0050		mg/L	1	8/25/2016 1:48:27 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 1:48:27 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 1:48:27 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 6 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-001F

Client Sample ID: MW-37
Collection Date: 8/18/2016 10:15:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:40:11 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:40:24 PM	A37036
Barium	0.22	0.020		mg/L	1	9/7/2016 5:40:24 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 5:40:24 PM	A37036
Calcium	86	1.0		mg/L	1	9/7/2016 5:40:24 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 5:40:24 PM	A37036
Copper	ND	0.0060		mg/L	1	9/7/2016 5:40:24 PM	A37036
Iron	1.6	0.10		mg/L	5	9/7/2016 5:42:01 PM	A37036
Lead	ND	0.0050		mg/L	1	9/7/2016 5:40:24 PM	A37036
Magnesium	19	1.0		mg/L	1	9/7/2016 5:40:24 PM	A37036
Manganese	0.96	0.0020		mg/L	1	9/7/2016 5:40:24 PM	A37036
Potassium	2.9	1.0		mg/L	1	9/7/2016 5:40:24 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 5:40:24 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 5:40:24 PM	A37036
Sodium	460	5.0		mg/L	5	9/7/2016 5:42:01 PM	A37036
Uranium	0.017	0.10	J	mg/L	1	9/12/2016 12:01:14 PM	A37126
Zinc	0.016	0.020	J	mg/L	1	9/7/2016 5:40:24 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002A

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	0.56	1.0	J	µg/L	1	8/24/2016 4:20:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Methyl tert-butyl ether (MTBE)	0.73	1.0	J	µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Acetone	ND	10		µg/L	1	8/24/2016 4:20:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
2-Butanone	ND	10		µg/L	1	8/24/2016 4:20:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 4:20:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002A

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	10		µg/L	1	8/24/2016 4:20:00 PM	R36743
Isopropylbenzene	2.6	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
4-Isopropyltoluene	0.47	1.0	J	µg/L	1	8/24/2016 4:20:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 4:20:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
n-Propylbenzene	1.5	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
sec-Butylbenzene	2.6	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
tert-Butylbenzene	1.7	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 4:20:00 PM	R36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 4:20:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	1	8/24/2016 4:20:00 PM	R36743
Surr: 4-Bromofluorobenzene	87.6	70-130		%Rec	1	8/24/2016 4:20:00 PM	R36743
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	8/24/2016 4:20:00 PM	R36743
Surr: Toluene-d8	99.3	70-130		%Rec	1	8/24/2016 4:20:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 9 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002B

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	0.87	0.050		mg/L	1	8/26/2016 11:31:09 AM	R36808
Surr: BFB	155	66.4-120	S	%Rec	1	8/26/2016 11:31:09 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002C

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	0.89	0.20		mg/L	1	8/23/2016 6:33:30 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 6:33:30 PM	27114
Surr: DNOP	108	67.9-149		%Rec	1	8/23/2016 6:33:30 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002D

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	930	1.0	H	mg CO2/L	1	8/24/2016 6:28:56 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.38	0.10		mg/L	1	9/1/2016 4:16:13 PM	R36952
Chloride	260	10	*	mg/L	20	9/1/2016 4:28:38 PM	R36952
Bromide	2.2	0.10		mg/L	1	9/1/2016 4:16:13 PM	R36952
Phosphorus, Orthophosphate (As P')	2.0	2.5	JH	mg/L	5	8/27/2016 1:15:18 AM	R36827
Sulfate	340	10	*	mg/L	20	9/1/2016 4:28:38 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 5:06:38 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	978.9	20.00		mg/L CaCO3	1	8/24/2016 6:28:56 PM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/24/2016 6:28:56 PM	R36738
Total Alkalinity (as CaCO3)	978.9	20.00		mg/L CaCO3	1	8/24/2016 6:28:56 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002E

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000062	0.00020	J	mg/L	1	8/24/2016 10:42:13 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.010	0.020	J	mg/L	1	8/25/2016 1:51:55 PM	27124
Barium	0.56	0.020		mg/L	1	8/25/2016 1:51:55 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 1:51:55 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 1:51:55 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 1:51:55 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 1:51:55 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 1:51:55 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-002F

Client Sample ID: MW-34
Collection Date: 8/18/2016 11:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:44:16 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:43:57 PM	A37036
Barium	0.40	0.020		mg/L	1	9/7/2016 5:43:57 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 5:43:57 PM	A37036
Calcium	150	5.0		mg/L	5	9/7/2016 5:45:34 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 5:43:57 PM	A37036
Copper	ND	0.0060		mg/L	1	9/7/2016 5:43:57 PM	A37036
Iron	4.5	0.10		mg/L	5	9/7/2016 5:45:34 PM	A37036
Lead	ND	0.0050		mg/L	1	9/7/2016 5:43:57 PM	A37036
Magnesium	30	1.0		mg/L	1	9/7/2016 5:43:57 PM	A37036
Manganese	3.6	0.010		mg/L	5	9/7/2016 5:45:34 PM	A37036
Potassium	2.1	1.0		mg/L	1	9/7/2016 5:43:57 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 5:43:57 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 5:43:57 PM	A37036
Sodium	490	10		mg/L	10	9/12/2016 12:04:12 PM	A37126
Uranium	0.0091	0.10	J	mg/L	1	9/12/2016 12:02:43 PM	A37126
Zinc	0.011	0.020	J	mg/L	1	9/7/2016 5:43:57 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003A

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Methyl tert-butyl ether (MTBE)	0.42	1.0	J	µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2,4-Trimethylbenzene	25	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Naphthalene	0.41	2.0	J	µg/L	1	8/24/2016 4:44:00 PM	R36743
1-Methylnaphthalene	0.84	4.0	J	µg/L	1	8/24/2016 4:44:00 PM	R36743
2-Methylnaphthalene	0.79	4.0	J	µg/L	1	8/24/2016 4:44:00 PM	R36743
Acetone	ND	10		µg/L	1	8/24/2016 4:44:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
2-Butanone	ND	10		µg/L	1	8/24/2016 4:44:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 4:44:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 15 of 75

Analytical ReportLab Order: **1608C29****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003A

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
2-Hexanone	ND	10		µg/L	1	8/24/2016 4:44:00 PM	R36743
Isopropylbenzene	4.7	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
4-Isopropyltoluene	1.1	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 4:44:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
n-Butylbenzene	0.35	3.0	J	µg/L	1	8/24/2016 4:44:00 PM	R36743
n-Propylbenzene	4.1	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
sec-Butylbenzene	3.6	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
tert-Butylbenzene	1.9	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 4:44:00 PM	R36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 4:44:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	8/24/2016 4:44:00 PM	R36743
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	8/24/2016 4:44:00 PM	R36743
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	8/24/2016 4:44:00 PM	R36743
Surr: Toluene-d8	102	70-130		%Rec	1	8/24/2016 4:44:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003B

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	0.52	0.050		mg/L	1	8/26/2016 11:55:36 AM	R36808
Surr: BFB	173	66.4-120	S	%Rec	1	8/26/2016 11:55:36 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003C

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	0.62	0.20		mg/L	1	8/23/2016 6:55:08 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 6:55:08 PM	27114
Surr: DNOP	117	67.9-149		%Rec	1	8/23/2016 6:55:08 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003D

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	850	1.0	H	mg CO2/L	1	8/24/2016 7:03:43 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.47	0.10		mg/L	1	8/27/2016 1:40:07 AM	R36827
Chloride	240	10		mg/L	20	9/1/2016 5:18:16 PM	R36952
Bromide	2.2	0.10		mg/L	1	9/1/2016 5:05:52 PM	R36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/27/2016 1:40:07 AM	R36827
Sulfate	14	0.50		mg/L	1	9/1/2016 5:05:52 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 5:19:02 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	905.4	20.00		mg/L CaCO ₃	1	8/24/2016 7:03:43 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 7:03:43 PM	R36738
Total Alkalinity (as CaCO ₃)	905.4	20.00		mg/L CaCO ₃	1	8/24/2016 7:03:43 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003E

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.00010	0.00020	J	mg/L	1	8/24/2016 10:46:20 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.047	0.020		mg/L	1	8/25/2016 1:55:23 PM	27124
Barium	1.3	0.10		mg/L	5	8/25/2016 2:02:45 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 1:55:23 PM	27124
Chromium	0.0033	0.0060	J	mg/L	1	8/25/2016 1:55:23 PM	27124
Lead	0.0098	0.0050		mg/L	1	8/25/2016 1:55:23 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 1:55:23 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 1:55:23 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-003F

Client Sample ID: MW-35
Collection Date: 8/18/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:48:23 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	0.038	0.020		mg/L	1	9/7/2016 5:47:17 PM	A37036
Barium	0.82	0.020		mg/L	1	9/7/2016 5:47:17 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 5:47:17 PM	A37036
Calcium	120	5.0		mg/L	5	9/7/2016 5:48:56 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 5:47:17 PM	A37036
Copper	ND	0.0060		mg/L	1	9/7/2016 5:47:17 PM	A37036
Iron	3.4	0.10		mg/L	5	9/7/2016 5:48:56 PM	A37036
Lead	0.0044	0.0050	J	mg/L	1	9/7/2016 5:47:17 PM	A37036
Magnesium	21	1.0		mg/L	1	9/7/2016 5:47:17 PM	A37036
Manganese	2.5	0.010		mg/L	5	9/7/2016 5:48:56 PM	A37036
Potassium	2.8	1.0		mg/L	1	9/7/2016 5:47:17 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 5:47:17 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 5:47:17 PM	A37036
Sodium	380	5.0		mg/L	5	9/7/2016 5:48:56 PM	A37036
Uranium	0.0095	0.10	J	mg/L	1	9/12/2016 12:10:56 PM	A37126
Zinc	0.011	0.020	J	mg/L	1	9/7/2016 5:47:17 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004A

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Methyl tert-butyl ether (MTBE)	0.26	1.0	J	µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Acetone	ND	10		µg/L	1	8/24/2016 5:07:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
2-Butanone	ND	10		µg/L	1	8/24/2016 5:07:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 5:07:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004A

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	10		µg/L	1	8/24/2016 5:07:00 PM	R36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 5:07:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
sec-Butylbenzene	0.15	1.0	J	µg/L	1	8/24/2016 5:07:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
tert-Butylbenzene	0.55	1.0	J	µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 5:07:00 PM	R36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 5:07:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	8/24/2016 5:07:00 PM	R36743
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	8/24/2016 5:07:00 PM	R36743
Surr: Dibromofluoromethane	98.1	70-130		%Rec	1	8/24/2016 5:07:00 PM	R36743
Surr: Toluene-d8	99.1	70-130		%Rec	1	8/24/2016 5:07:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 23 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004B

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	0.043	0.050	J	mg/L	1	8/26/2016 12:20:03 PM	R36808
Surr: BFB	93.0	66.4-120		%Rec	1	8/26/2016 12:20:03 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004C

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	0.28	0.20		mg/L	1	8/23/2016 7:16:43 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 7:16:43 PM	27114
Surr: DNOP	109	67.9-149		%Rec	1	8/23/2016 7:16:43 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004D

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	450	1.0	H	mg CO2/L	1	8/24/2016 7:36:22 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.64	0.10		mg/L	1	8/27/2016 2:04:56 AM	R36827
Chloride	75	10		mg/L	20	9/1/2016 5:43:05 PM	R36952
Bromide	0.98	0.10		mg/L	1	9/1/2016 5:30:40 PM	R36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/27/2016 2:04:56 AM	R36827
Sulfate	4.6	0.50		mg/L	1	9/1/2016 5:30:40 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 5:31:27 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	497.4	20.00		mg/L CaCO ₃	1	8/24/2016 7:36:22 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 7:36:22 PM	R36738
Total Alkalinity (as CaCO ₃)	497.4	20.00		mg/L CaCO ₃	1	8/24/2016 7:36:22 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004E

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:50:27 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:04:27 PM	27124
Barium	0.60	0.020		mg/L	1	8/25/2016 2:04:27 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:04:27 PM	27124
Chromium	0.0033	0.0060	J	mg/L	1	8/25/2016 2:04:27 PM	27124
Lead	0.0093	0.0050		mg/L	1	8/25/2016 2:04:27 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:04:27 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:04:27 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004F

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 10:52:32 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:50:50 PM	A37036
Barium	0.55	0.020		mg/L	1	9/7/2016 5:50:50 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 5:50:50 PM	A37036
Calcium	98	1.0		mg/L	1	9/7/2016 5:50:50 PM	A37036
Chromium	0.0042	0.0060	J	mg/L	1	9/7/2016 5:50:50 PM	A37036
Copper	0.033	0.0060		mg/L	1	9/7/2016 5:50:50 PM	A37036
Iron	13	1.0		mg/L	50	9/12/2016 12:13:52 PM	A37126
Lead	0.014	0.0050		mg/L	1	9/7/2016 5:50:50 PM	A37036
Magnesium	16	1.0		mg/L	1	9/7/2016 5:50:50 PM	A37036
Manganese	3.0	0.010		mg/L	5	9/7/2016 5:58:15 PM	A37036
Potassium	2.8	1.0		mg/L	1	9/7/2016 5:50:50 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 5:50:50 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 5:50:50 PM	A37036
Sodium	180	5.0		mg/L	5	9/7/2016 5:58:15 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 12:12:23 PM	A37126
Zinc	0.053	0.020		mg/L	1	9/7/2016 5:50:50 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004G

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Benzoic acid	8.9	20	J	µg/L	1	8/29/2016 12:01:09 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Bis(2-ethylhexyl)phthalate	3.9	10	J	µg/L	1	8/29/2016 12:01:09 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Di-n-octyl phthalate	5.8	10	J	µg/L	1	8/29/2016 12:01:09 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-004G

Client Sample ID: MW-38
Collection Date: 8/18/2016 12:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 12:01:09 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 12:01:09 PM	27151
Surr: 2-Fluorophenol	40.7	15-123		%Rec	1	8/29/2016 12:01:09 PM	27151
Surr: Phenol-d5	31.6	4.13-124		%Rec	1	8/29/2016 12:01:09 PM	27151
Surr: 2,4,6-Tribromophenol	79.7	18.4-134		%Rec	1	8/29/2016 12:01:09 PM	27151
Surr: Nitrobenzene-d5	63.0	28.8-134		%Rec	1	8/29/2016 12:01:09 PM	27151
Surr: 2-Fluorobiphenyl	58.6	35.9-125		%Rec	1	8/29/2016 12:01:09 PM	27151
Surr: 4-Terphenyl-d14	54.8	15-146		%Rec	1	8/29/2016 12:01:09 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 30 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005A

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Acetone	ND	10		µg/L	1	8/24/2016 5:31:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
2-Butanone	ND	10		µg/L	1	8/24/2016 5:31:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 5:31:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005A

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
2-Hexanone	ND	10		µg/L	1	8/24/2016 5:31:00 PM	R36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 5:31:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 5:31:00 PM	R36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 5:31:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	8/24/2016 5:31:00 PM	R36743
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	8/24/2016 5:31:00 PM	R36743
Surr: Dibromofluoromethane	97.4	70-130		%Rec	1	8/24/2016 5:31:00 PM	R36743
Surr: Toluene-d8	99.4	70-130		%Rec	1	8/24/2016 5:31:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 32 of 75

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005B

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 1:33:14 PM	R36808
Surr: BFB	86.8	66.4-120		%Rec	1	8/26/2016 1:33:14 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005C

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 7:38:14 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 7:38:14 PM	27114
Surr: DNOP	104	67.9-149		%Rec	1	8/23/2016 7:38:14 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005D

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	130	1.0	H	mg CO2/L	1	8/24/2016 7:55:50 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.45	0.10		mg/L	1	8/27/2016 2:29:45 AM	R36827
Chloride	4.7	0.50		mg/L	1	9/1/2016 5:55:29 PM	R36952
Bromide	ND	0.10		mg/L	1	9/1/2016 5:55:29 PM	R36952
Phosphorus, Orthophosphate (As P _i)	0.35	0.50	JH	mg/L	1	8/27/2016 2:29:45 AM	R36827
Sulfate	48	10		mg/L	20	9/1/2016 6:07:53 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 5:43:51 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	149.0	20.00		mg/L CaCO ₃	1	8/24/2016 7:55:50 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 7:55:50 PM	R36738
Total Alkalinity (as CaCO ₃)	149.0	20.00		mg/L CaCO ₃	1	8/24/2016 7:55:50 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005E

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.00014	0.00020	J	mg/L	1	8/24/2016 10:54:38 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:08:08 PM	27124
Barium	0.36	0.020		mg/L	1	8/25/2016 2:08:08 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:08:08 PM	27124
Chromium	0.058	0.0060		mg/L	1	8/25/2016 2:08:08 PM	27124
Lead	0.019	0.0050		mg/L	1	8/25/2016 2:08:08 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:08:08 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:08:08 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005F

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000071	0.00020	J	mg/L	1	8/24/2016 10:56:43 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:59:57 PM	A37036
Barium	0.27	0.020		mg/L	1	9/7/2016 5:59:57 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 5:59:57 PM	A37036
Calcium	58	1.0		mg/L	1	9/7/2016 5:59:57 PM	A37036
Chromium	0.089	0.0060		mg/L	1	9/7/2016 5:59:57 PM	A37036
Copper	0.023	0.0060		mg/L	1	9/7/2016 5:59:57 PM	A37036
Iron	9.2	0.20		mg/L	10	9/12/2016 12:16:53 PM	A37126
Lead	0.032	0.0050		mg/L	1	9/7/2016 5:59:57 PM	A37036
Magnesium	11	1.0		mg/L	1	9/7/2016 5:59:57 PM	A37036
Manganese	2.1	0.010		mg/L	5	9/7/2016 6:01:40 PM	A37036
Potassium	1.6	1.0		mg/L	1	9/7/2016 5:59:57 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 5:59:57 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 5:59:57 PM	A37036
Sodium	32	1.0		mg/L	1	9/7/2016 5:59:57 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 12:15:32 PM	A37126
Zinc	0.10	0.020		mg/L	1	9/7/2016 5:59:57 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005G

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Benzoic acid	5.6	20	J	µg/L	1	8/29/2016 1:24:23 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Bis(2-ethylhexyl)phthalate	3.6	10	J	µg/L	1	8/29/2016 1:24:23 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Di-n-octyl phthalate	5.3	10	J	µg/L	1	8/29/2016 1:24:23 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-005G

Client Sample ID: MW-12
Collection Date: 8/18/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 1:24:23 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 1:24:23 PM	27151
Surr: 2-Fluorophenol	3.81	15-123	S	%Rec	1	8/29/2016 1:24:23 PM	27151
Surr: Phenol-d5	12.9	4.13-124		%Rec	1	8/29/2016 1:24:23 PM	27151
Surr: 2,4,6-Tribromophenol	7.73	18.4-134	S	%Rec	1	8/29/2016 1:24:23 PM	27151
Surr: Nitrobenzene-d5	74.1	28.8-134		%Rec	1	8/29/2016 1:24:23 PM	27151
Surr: 2-Fluorobiphenyl	62.1	35.9-125		%Rec	1	8/29/2016 1:24:23 PM	27151
Surr: 4-Terphenyl-d14	62.9	15-146		%Rec	1	8/29/2016 1:24:23 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006A

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	9.9	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Ethylbenzene	0.42	1.0	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
Methyl tert-butyl ether (MTBE)	2.5	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2,4-Trimethylbenzene	120	10		µg/L	10	8/25/2016 9:43:00 AM	R36736
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2-Dichloroethane (EDC)	0.26	1.0	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Naphthalene	70	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1-Methylnaphthalene	17	4.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
2-Methylnaphthalene	23	4.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Acetone	19	10		µg/L	1	8/24/2016 5:55:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
2-Butanone	4.4	10	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
Carbon disulfide	0.84	10	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006A

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
2-Hexanone	ND	10		µg/L	1	8/24/2016 5:55:00 PM	R36743
Isopropylbenzene	59	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
4-Isopropyltoluene	3.5	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 5:55:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
n-Butylbenzene	2.2	3.0	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
n-Propylbenzene	64	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
sec-Butylbenzene	12	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
tert-Butylbenzene	2.4	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 5:55:00 PM	R36743
Xylenes, Total	0.73	1.5	J	µg/L	1	8/24/2016 5:55:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	8/24/2016 5:55:00 PM	R36743
Surr: 4-Bromofluorobenzene	91.5	70-130		%Rec	1	8/24/2016 5:55:00 PM	R36743
Surr: Dibromofluoromethane	95.9	70-130		%Rec	1	8/24/2016 5:55:00 PM	R36743
Surr: Toluene-d8	124	70-130		%Rec	1	8/24/2016 5:55:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006B

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1.4	0.25		mg/L	5	8/26/2016 3:10:54 PM	R36808
Surr: BFB	205	66.4-120	S	%Rec	5	8/26/2016 3:10:54 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006C

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	1.8	0.20		mg/L	1	8/23/2016 7:59:56 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 7:59:56 PM	27114
Surr: DNOP	119	67.9-149		%Rec	1	8/23/2016 7:59:56 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006D

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1000	1.0	H	mg CO2/L	1	8/24/2016 8:05:29 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.41	0.10		mg/L	1	9/1/2016 6:20:18 PM	R36952
Chloride	120	10		mg/L	20	9/1/2016 6:32:42 PM	R36952
Bromide	0.92	0.10		mg/L	1	9/1/2016 6:20:18 PM	R36952
Phosphorus, Orthophosphate (As P)	2.8	2.5	H	mg/L	5	8/27/2016 3:19:23 AM	R36827
Sulfate	7.6	0.50		mg/L	1	9/1/2016 6:20:18 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 5:56:15 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1082	20.00		mg/L CaCO3	1	8/24/2016 8:05:29 PM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/24/2016 8:05:29 PM	R36738
Total Alkalinity (as CaCO3)	1082	20.00		mg/L CaCO3	1	8/24/2016 8:05:29 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006E

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000077	0.00020	J	mg/L	1	8/24/2016 10:58:49 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.047	0.020		mg/L	1	8/25/2016 2:11:54 PM	27124
Barium	0.96	0.020		mg/L	1	8/25/2016 2:11:54 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:11:54 PM	27124
Chromium	0.0035	0.0060	J	mg/L	1	8/25/2016 2:11:54 PM	27124
Lead	0.028	0.0050		mg/L	1	8/25/2016 2:11:54 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:11:54 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:11:54 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006F

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000056	0.00020	J	mg/L	1	8/24/2016 11:05:14 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	0.033	0.020		mg/L	1	9/7/2016 6:03:32 PM	A37036
Barium	0.86	0.020		mg/L	1	9/7/2016 6:03:32 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:03:32 PM	A37036
Calcium	87	1.0		mg/L	1	9/7/2016 6:03:32 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:03:32 PM	A37036
Copper	0.015	0.0060		mg/L	1	9/7/2016 6:03:32 PM	A37036
Iron	18	1.0		mg/L	50	9/12/2016 12:19:43 PM	A37126
Lead	0.027	0.0050		mg/L	1	9/7/2016 6:03:32 PM	A37036
Magnesium	21	1.0		mg/L	1	9/7/2016 6:03:32 PM	A37036
Manganese	1.8	0.010		mg/L	5	9/7/2016 6:05:07 PM	A37036
Potassium	2.8	1.0		mg/L	1	9/7/2016 6:03:32 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:03:32 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:03:32 PM	A37036
Sodium	410	5.0		mg/L	5	9/7/2016 6:05:07 PM	A37036
Uranium	0.017	0.10	J	mg/L	1	9/12/2016 12:18:14 PM	A37126
Zinc	0.063	0.020		mg/L	1	9/7/2016 6:03:32 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 46 of 75

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006G

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Benzoic acid	13	20	J	µg/L	1	8/29/2016 1:52:02 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Bis(2-ethylhexyl)phthalate	4.7	10	J	µg/L	1	8/29/2016 1:52:02 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Di-n-octyl phthalate	5.1	10	J	µg/L	1	8/29/2016 1:52:02 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-006G

Client Sample ID: MW-11
Collection Date: 8/18/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
1-Methylnaphthalene	25	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Methylnaphthalene	11	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
3+4-Methylphenol	17	10		µg/L	1	8/29/2016 1:52:02 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Naphthalene	43	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 1:52:02 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 1:52:02 PM	27151
Surr: 2-Fluorophenol	6.19	15-123	S	%Rec	1	8/29/2016 1:52:02 PM	27151
Surr: Phenol-d5	18.9	4.13-124		%Rec	1	8/29/2016 1:52:02 PM	27151
Surr: 2,4,6-Tribromophenol	14.6	18.4-134	S	%Rec	1	8/29/2016 1:52:02 PM	27151
Surr: Nitrobenzene-d5	62.6	28.8-134		%Rec	1	8/29/2016 1:52:02 PM	27151
Surr: 2-Fluorobiphenyl	45.7	35.9-125		%Rec	1	8/29/2016 1:52:02 PM	27151
Surr: 4-Terphenyl-d14	47.9	15-146		%Rec	1	8/29/2016 1:52:02 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 48 of 75

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007A

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	9.4	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Toluene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Ethylbenzene	0.37	1.0	J	µg/L	1	8/24/2016 6:18:00 PM	R36743
Methyl tert-butyl ether (MTBE)	2.6	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2,4-Trimethylbenzene	120	10		µg/L	10	8/25/2016 10:07:00 AM	R36736
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Naphthalene	69	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1-Methylnaphthalene	17	4.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
2-Methylnaphthalene	22	4.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Acetone	17	10		µg/L	1	8/24/2016 6:18:00 PM	R36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
2-Butanone	4.4	10	J	µg/L	1	8/24/2016 6:18:00 PM	R36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 6:18:00 PM	R36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007A

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
2-Hexanone	ND	10		µg/L	1	8/24/2016 6:18:00 PM	R36743
Isopropylbenzene	54	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
4-Isopropyltoluene	3.3	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 6:18:00 PM	R36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
n-Butylbenzene	2.1	3.0	J	µg/L	1	8/24/2016 6:18:00 PM	R36743
n-Propylbenzene	59	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
sec-Butylbenzene	11	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Styrene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
tert-Butylbenzene	2.3	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 6:18:00 PM	R36743
Xylenes, Total	0.67	1.5	J	µg/L	1	8/24/2016 6:18:00 PM	R36743
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	8/24/2016 6:18:00 PM	R36743
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	8/24/2016 6:18:00 PM	R36743
Surr: Dibromofluoromethane	97.1	70-130		%Rec	1	8/24/2016 6:18:00 PM	R36743
Surr: Toluene-d8	118	70-130		%Rec	1	8/24/2016 6:18:00 PM	R36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 50 of 75

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007B

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	1.4	0.25		mg/L	5	8/26/2016 3:35:20 PM	R36808
Surr: BFB	216	66.4-120	S	%Rec	5	8/26/2016 3:35:20 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007C

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	1.7	0.20		mg/L	1	8/23/2016 8:21:26 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 8:21:26 PM	27114
Surr: DNOP	117	67.9-149		%Rec	1	8/23/2016 8:21:26 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007D

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1000	1.0	H	mg CO2/L	1	8/24/2016 8:42:58 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.39	0.10		mg/L	1	9/1/2016 6:45:07 PM	R36952
Chloride	150	10		mg/L	20	9/1/2016 6:57:32 PM	R36952
Bromide	1.2	0.10		mg/L	1	9/1/2016 6:45:07 PM	R36952
Phosphorus, Orthophosphate (As P _i)	2.8	2.5	H	mg/L	5	8/27/2016 3:44:12 AM	R36827
Sulfate	12	0.50		mg/L	1	9/1/2016 6:45:07 PM	R36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 6:08:40 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	1054	20.00		mg/L CaCO ₃	1	8/24/2016 8:42:58 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 8:42:58 PM	R36738
Total Alkalinity (as CaCO ₃)	1054	20.00		mg/L CaCO ₃	1	8/24/2016 8:42:58 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C29**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007E

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000074	0.00020	J	mg/L	1	8/24/2016 11:07:13 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.038	0.020		mg/L	1	8/25/2016 2:15:13 PM	27124
Barium	0.99	0.020		mg/L	1	8/25/2016 2:15:13 PM	27124
Cadmium	0.00085	0.0020	J	mg/L	1	8/25/2016 2:15:13 PM	27124
Chromium	0.0074	0.0060		mg/L	1	8/25/2016 2:15:13 PM	27124
Lead	0.035	0.0050		mg/L	1	8/25/2016 2:15:13 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:15:13 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:15:13 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007F

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.000070	0.00020	J	mg/L	1	8/24/2016 11:09:13 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	0.036	0.020		mg/L	1	9/7/2016 6:06:51 PM	A37036
Barium	0.99	0.020		mg/L	1	9/7/2016 6:06:51 PM	A37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:06:51 PM	A37036
Calcium	98	1.0		mg/L	1	9/7/2016 6:06:51 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:06:51 PM	A37036
Copper	0.035	0.0060		mg/L	1	9/7/2016 6:06:51 PM	A37036
Iron	23	1.0		mg/L	50	9/12/2016 12:22:53 PM	A37126
Lead	0.043	0.0050		mg/L	1	9/7/2016 6:06:51 PM	A37036
Magnesium	23	1.0		mg/L	1	9/7/2016 6:06:51 PM	A37036
Manganese	2.2	0.010		mg/L	5	9/7/2016 6:08:29 PM	A37036
Potassium	2.4	1.0		mg/L	1	9/7/2016 6:06:51 PM	A37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:06:51 PM	A37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:06:51 PM	A37036
Sodium	450	5.0		mg/L	5	9/7/2016 6:08:29 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 12:21:23 PM	A37126
Zinc	0.067	0.020		mg/L	1	9/7/2016 6:06:51 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007G

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Benzoic acid	11	20	J	µg/L	1	8/29/2016 2:19:56 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Bis(2-ethylhexyl)phthalate	4.1	10	J	µg/L	1	8/29/2016 2:19:56 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Di-n-octyl phthalate	6.8	10	J	µg/L	1	8/29/2016 2:19:56 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C29

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-007G

Client Sample ID: MW-11-DUP
Collection Date: 8/18/2016 1:25:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
1-Methylnaphthalene	19	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2-Methylnaphthalene	4.4	10	J	µg/L	1	8/29/2016 2:19:56 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Naphthalene	28	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 2:19:56 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Pyrene	3.6	10	J	µg/L	1	8/29/2016 2:19:56 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 2:19:56 PM	27151
Surr: 2-Fluorophenol	1.22	15-123	S	%Rec	1	8/29/2016 2:19:56 PM	27151
Surr: Phenol-d5	2.39	4.13-124	S	%Rec	1	8/29/2016 2:19:56 PM	27151
Surr: 2,4,6-Tribromophenol	1.41	18.4-134	S	%Rec	1	8/29/2016 2:19:56 PM	27151
Surr: Nitrobenzene-d5	51.5	28.8-134		%Rec	1	8/29/2016 2:19:56 PM	27151
Surr: 2-Fluorobiphenyl	41.9	35.9-125		%Rec	1	8/29/2016 2:19:56 PM	27151
Surr: 4-Terphenyl-d14	45.0	15-146		%Rec	1	8/29/2016 2:19:56 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C29

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Down Gradient Wells 8-18-2016
Lab ID: 1608C29-008A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/24/2016 6:42:00 PM	A36743
Toluene	ND	1.0		µg/L	1	8/24/2016 6:42:00 PM	A36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 6:42:00 PM	A36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 6:42:00 PM	A36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/24/2016 6:42:00 PM	A36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/24/2016 6:42:00 PM	A36743
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	8/24/2016 6:42:00 PM	A36743
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/24/2016 6:42:00 PM	A36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36827		RunNo: 36827							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141638		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36827		RunNo: 36827							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141639		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.8	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	92.6	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36847		RunNo: 36847							
Prep Date:	Analysis Date: 8/29/2016		SeqNo: 1142224		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36847		RunNo: 36847							
Prep Date:	Analysis Date: 8/29/2016		SeqNo: 1142225		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145073		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145074		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: R36952			RunNo: 36952					
Prep Date:		Analysis Date: 9/1/2016			SeqNo: 1145074		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	107	90	110			
Chloride	4.9	0.50	5.000	0	97.7	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	LCS-27114		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 27114		RunNo: 36683					
Prep Date:	8/23/2016		Analysis Date: 8/23/2016		SeqNo: 1136777		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	112	65.4	162			
Surr: DNOP	0.26		0.2500		102	67.9	149			

Sample ID	MB-27114	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 27114			RunNo: 36683					
Prep Date:	8/23/2016	Analysis Date: 8/23/2016			SeqNo: 1136780		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.49		0.5000		97.5	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R36808		RunNo: 36808					
Prep Date:			Analysis Date: 8/26/2016		SeqNo: 1140791		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	16		20.00		82.4	66.4	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R36808		RunNo: 36808					
Prep Date:			Analysis Date: 8/26/2016		SeqNo: 1140792		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	80	120			
Surr: BFB	19		20.00		94.6	66.4	120			

Sample ID	1608C29-004BMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	MW-38		Batch ID: R36808		RunNo: 36808					
Prep Date:			Analysis Date: 8/26/2016		SeqNo: 1140802		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0.04260	97.0	70	130			
Surr: BFB	20		20.00		102	66.4	120			

Sample ID	1608C29-004BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	MW-38		Batch ID:	R36808		RunNo:	36808				
Prep Date:			Analysis Date:	8/26/2016		SeqNo:	1140803		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0.04260	95.3	70	130	1.57	20		
Surr: BFB	18		20.00		92.3	66.4	120	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	A36743	RunNo:	36743					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138955	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.7	70	130			
Surr: Toluene-d8	9.9		10.00		98.5	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	A36743	RunNo:	36743					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138956	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R36743		RunNo: 36743					
Prep Date:			Analysis Date: 8/24/2016		SeqNo: 1138860		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	94.2	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	92.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.7	70	130			
Surr: Toluene-d8	9.9		10.00		98.5	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36743			RunNo: 36743					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138861		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36743	RunNo:	36743					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138861	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	1.1	10								J
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36743	RunNo:	36743					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138861	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R36736	RunNo:	36736					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1139716	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.2	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36736	RunNo:	36736					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1139717	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trimethylbenzene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	5.9	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	3.8	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	6.9	10								J
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	100		200.0		50.6	15	123			
Surr: Phenol-d5	80		200.0		40.2	4.13	124			
Surr: 2,4,6-Tribromophenol	180		200.0		87.8	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		74.2	28.8	134			
Surr: 2-Fluorobiphenyl	67		100.0		67.2	35.9	125			
Surr: 4-Terphenyl-d14	69		100.0		69.1	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	lcs-27151		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27151		RunNo: 36825					
Prep Date:	8/24/2016		Analysis Date: 8/29/2016		SeqNo: 1141547		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	67	10	100.0	0	66.6	35	113			
4-Chloro-3-methylphenol	150	10	200.0	0	73.7	40.7	114			
2-Chlorophenol	140	10	200.0	0	68.7	37.6	113			
1,4-Dichlorobenzene	58	10	100.0	0	58.5	37.7	106			
2,4-Dinitrotoluene	75	10	100.0	0	74.7	37	91			
N-Nitrosodi-n-propylamine	58	10	100.0	0	58.0	45.4	105			
4-Nitrophenol	87	10	200.0	0	43.6	33.4	104			
Pentachlorophenol	160	20	200.0	0	82.5	29.5	94.9			
Phenol	81	10	200.0	0	40.5	30.6	119			
Pyrene	83	10	100.0	0	83.3	26.2	120			
1,2,4-Trichlorobenzene	72	10	100.0	0	72.5	39.9	125			
Surr: 2-Fluorophenol	84		200.0		41.8	15	123			
Surr: Phenol-d5	75		200.0		37.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		84.1	18.4	134			
Surr: Nitrobenzene-d5	59		100.0		59.1	28.8	134			
Surr: 2-Fluorobiphenyl	60		100.0		59.9	35.9	125			
Surr: 4-Terphenyl-d14	48		100.0		48.0	15	146			

Sample ID	1608c29-004gms		SampType: MS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	MW-38		Batch ID: 27151		RunNo: 36825					
Prep Date:	8/24/2016		Analysis Date: 8/29/2016		SeqNo: 1141969		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	53	10	100.0	0	52.8	27.6	123			
4-Chloro-3-methylphenol	76	10	200.0	0	38.0	29.3	126			
2-Chlorophenol	74	10	200.0	0	37.2	15	133			
1,4-Dichlorobenzene	37	10	100.0	0	37.4	17.6	127			
2,4-Dinitrotoluene	57	10	100.0	0	57.2	38.9	98.5			
N-Nitrosodi-n-propylamine	56	10	100.0	0	55.9	25.9	131			
4-Nitrophenol	48	10	200.0	0	23.8	15	102			
Pentachlorophenol	110	20	200.0	0	53.2	15	120			
Phenol	26	10	200.0	0	12.9	15	100			S
Pyrene	58	10	100.0	0	58.4	22.8	126			
1,2,4-Trichlorobenzene	47	10	100.0	0	47.4	15	143			
Surr: 2-Fluorophenol	33		200.0		16.5	15	123			
Surr: Phenol-d5	28		200.0		14.0	4.13	124			
Surr: 2,4,6-Tribromophenol	110		200.0		56.9	18.4	134			
Surr: Nitrobenzene-d5	59		100.0		58.6	28.8	134			
Surr: 2-Fluorobiphenyl	51		100.0		51.2	35.9	125			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	1608c29-004gms	SampType:	MS	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	MW-38	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141969	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	41		100.0		40.7	15	146			

Sample ID	1608c29-004gmsd	SampType:	MSD	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	MW-38	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141970	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	54	10	100.0	0	53.7	27.6	123	1.65	31.3	
4-Chloro-3-methylphenol	95	10	200.0	0	47.5	29.3	126	22.3	29	
2-Chlorophenol	86	10	200.0	0	43.0	15	133	14.2	28.4	
1,4-Dichlorobenzene	37	10	100.0	0	36.8	17.6	127	1.51	28.2	
2,4-Dinitrotoluene	54	10	100.0	0	54.4	38.9	98.5	5.05	22.9	
N-Nitrosodi-n-propylamine	48	10	100.0	0	48.4	25.9	131	14.5	28.8	
4-Nitrophenol	14	10	200.0	0	6.98	15	102	109	41.5	RS
Pentachlorophenol	96	20	200.0	0	47.8	15	120	10.7	45.1	
Phenol	40	10	200.0	0	20.1	15	100	43.6	33.9	R
Pyrene	62	10	100.0	0	62.3	22.8	126	6.47	33.6	
1,2,4-Trichlorobenzene	47	10	100.0	0	47.0	15	143	0.933	28.2	
Surr: 2-Fluorophenol	48		200.0		24.1	15	123	0	0	
Surr: Phenol-d5	44		200.0		22.0	4.13	124	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		65.8	18.4	134	0	0	
Surr: Nitrobenzene-d5	55		100.0		55.0	28.8	134	0	0	
Surr: 2-Fluorobiphenyl	48		100.0		48.4	35.9	125	0	0	
Surr: 4-Terphenyl-d14	43		100.0		42.7	15	146	0	0	

Sample ID	mb-27255	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27255	RunNo:	36967					
Prep Date:	8/30/2016	Analysis Date:	9/2/2016	SeqNo:	1145771	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	60		200.0		30.0	15	123			
Surr: Phenol-d5	57		200.0		28.7	4.13	124			
Surr: 2,4,6-Tribromophenol	92		200.0		46.0	18.4	134			
Surr: Nitrobenzene-d5	64		100.0		63.5	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		58.6	35.9	125			
Surr: 4-Terphenyl-d14	83		100.0		82.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	lcs-27255		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27255		RunNo: 36967					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145775		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	84		200.0		42.2	15	123			
Surr: Phenol-d5	71		200.0		35.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	18.4	134			
Surr: Nitrobenzene-d5	69		100.0		69.0	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		59.3	35.9	125			
Surr: 4-Terphenyl-d14	93		100.0		93.3	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	MB-27127	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27127	RunNo:	36730					
Prep Date:	8/23/2016	Analysis Date:	8/24/2016	SeqNo:	1138256	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27127	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27127	RunNo:	36730					
Prep Date:	8/23/2016	Analysis Date:	8/24/2016	SeqNo:	1138257	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: A37036			RunNo: 37036					
Prep Date:		Analysis Date: 9/7/2016			SeqNo: 1147837		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	0.00039	0.0050								J
Sodium	ND	1.0								
Zinc	ND	0.020								

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: A37126			RunNo: 37126					
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Sodium	ND	1.0								
Uranium	ND	0.10								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: A37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151180		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.3	80	120			
Sodium	49	1.0	50.00	0	98.9	80	120			
Uranium	0.50	0.10	0.5000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID	MB-27124	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 27124			RunNo: 36757					
Prep Date:	8/23/2016	Analysis Date: 8/25/2016			SeqNo: 1139271		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	0.0010	0.0020								J
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27124		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139272		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	100	80	120			
Barium	0.48	0.020	0.5000	0	96.6	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.47	0.0050	0.5000	0	94.2	80	120			
Selenium	0.48	0.050	0.5000	0	95.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C29

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Down Gradient Wells 8-18-2016

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138449		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	1.800	20.00								J

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138450		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138474		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	4.880	20.00								J

Sample ID lcs-2	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138475		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608C29**

RcptNo: 1

Received by/date:

AG

08/19/16

Logged By: **Lindsay Mangin**

8/19/2016 7:30:00 AM

Lindsay Mangin

Completed By: **Lindsay Mangin**

8/22/2016 10:48:12 AM

Lindsay Mangin

Reviewed By:

JC 08/22/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH: 21
(2) or >12 unless noted
- Adjusted? NO
- Checked by: as

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

[illegible]

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.

Turn-Around Time:

X Standard ☐ Rush

Project Name: Down Gradient Wells

Date: 8-18-2016

Project #: Annual

PO#12615520

Project Manager:

[illegible]

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No[illegible]

Remarks: See full analyte list.

Received by: _____ Date: _____ Time: _____

Received by:	Date	Time

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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Cross Gradient Wells 8-19-16

OrderNo.: 1608C27

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 8/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Case Narrative

WO#: 1608C27
Date: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16

Analytical Comments for 8260_W, Sample 1608c27-004a, Batch ID B36700 : Dilution due to matrix

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001A

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Toluene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Naphthalene	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
2-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Acetone	ND	10		µg/L	1	8/23/2016 6:56:44 PM	B36700
Bromobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Bromodichloromethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Bromoform	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Bromomethane	ND	3.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
2-Butanone	ND	10		µg/L	1	8/23/2016 6:56:44 PM	B36700
Carbon disulfide	ND	10		µg/L	1	8/23/2016 6:56:44 PM	B36700
Carbon Tetrachloride	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Chlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Chloroethane	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Chloroform	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Chloromethane	ND	3.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
2-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
4-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
cis-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Dibromochloromethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Dibromomethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1-Dichloroethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1-Dichloroethene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,3-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
2,2-Dichloropropane	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Hexachlorobutadiene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001A

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/23/2016 6:56:44 PM	B36700
Isopropylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
4-Isopropyltoluene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
4-Methyl-2-pentanone	ND	10		µg/L	1	8/23/2016 6:56:44 PM	B36700
Methylene Chloride	ND	3.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
n-Butylbenzene	ND	3.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
n-Propylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
sec-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Styrene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
tert-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
trans-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Trichlorofluoromethane	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Vinyl chloride	ND	1.0		µg/L	1	8/23/2016 6:56:44 PM	B36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:56:44 PM	B36700
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 6:56:44 PM	B36700
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/23/2016 6:56:44 PM	B36700
Surr: Dibromofluoromethane	94.9	70-130		%Rec	1	8/23/2016 6:56:44 PM	B36700
Surr: Toluene-d8	97.3	70-130		%Rec	1	8/23/2016 6:56:44 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 64

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001B

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 6:56:44 PM	R36700
Surr: BFB	98.5	70-130		%Rec	1	8/23/2016 6:56:44 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 4 of 64

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001C

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 1:51:34 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 1:51:34 PM	27114
Surr: DNOP	115	67.9-149		%Rec	1	8/23/2016 1:51:34 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 64

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001D

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	240	1.0	H	mg CO2/L	1	8/24/2016 3:47:22 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.45	0.10		mg/L	1	8/26/2016 2:24:45 PM	R36816
Chloride	11	0.50		mg/L	1	8/26/2016 2:24:45 PM	R36816
Bromide	ND	0.10		mg/L	1	8/26/2016 2:24:45 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 2:24:45 PM	R36816
Sulfate	84	10		mg/L	20	8/26/2016 2:37:10 PM	R36816
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/26/2016 5:30:55 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	266.4	20.00		mg/L CaCO ₃	1	8/24/2016 3:47:22 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 3:47:22 PM	R36738
Total Alkalinity (as CaCO ₃)	266.4	20.00		mg/L CaCO ₃	1	8/24/2016 3:47:22 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001E

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:12:21 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:29:39 PM	27124
Barium	0.28	0.020		mg/L	1	8/25/2016 2:29:39 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:29:39 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:29:39 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:29:39 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:29:39 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:29:39 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 7 of 64

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-001F

Client Sample ID: MW-1
Collection Date: 8/19/2016 2:45:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:18:41 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:14:12 PM	B37036
Barium	0.022	0.020		mg/L	1	9/7/2016 6:14:12 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:14:12 PM	B37036
Calcium	65	1.0		mg/L	1	9/7/2016 6:14:12 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:14:12 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:14:12 PM	B37036
Iron	0.22	0.020		mg/L	1	9/7/2016 6:14:12 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:14:12 PM	B37036
Magnesium	16	1.0		mg/L	1	9/7/2016 6:14:12 PM	B37036
Manganese	0.20	0.0020		mg/L	1	9/7/2016 6:14:12 PM	B37036
Potassium	2.8	1.0		mg/L	1	9/7/2016 6:14:12 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:14:12 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:14:12 PM	B37036
Sodium	81	1.0		mg/L	1	9/7/2016 6:14:12 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 12:36:59 PM	B37126
Zinc	0.024	0.020		mg/L	1	9/7/2016 6:14:12 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C27

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-002A

Client Sample ID: Field Blank
Collection Date:
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Toluene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Naphthalene	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Acetone	ND	10		µg/L	1	8/24/2016 5:13:21 PM	R36737
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Bromoform	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Bromomethane	ND	3.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
2-Butanone	ND	10		µg/L	1	8/24/2016 5:13:21 PM	R36737
Carbon disulfide	ND	10		µg/L	1	8/24/2016 5:13:21 PM	R36737
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Chloroethane	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Chloroform	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Chloromethane	ND	3.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 9 of 64

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-002A

Client Sample ID: Field Blank
Collection Date:
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/24/2016 5:13:21 PM	R36737
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 5:13:21 PM	R36737
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Styrene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 5:13:21 PM	R36737
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 5:13:21 PM	R36737
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/24/2016 5:13:21 PM	R36737
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	8/24/2016 5:13:21 PM	R36737
Surr: Dibromofluoromethane	95.3	70-130		%Rec	1	8/24/2016 5:13:21 PM	R36737
Surr: Toluene-d8	100	70-130		%Rec	1	8/24/2016 5:13:21 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 10 of 64

Analytical Report

Lab Order: 1608C27

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-003A

Client Sample ID: MW-13
Collection Date: 8/19/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Toluene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Naphthalene	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
2-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Acetone	ND	10		µg/L	1	8/23/2016 7:25:28 PM	B36700
Bromobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Bromodichloromethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Bromoform	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Bromomethane	ND	3.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
2-Butanone	ND	10		µg/L	1	8/23/2016 7:25:28 PM	B36700
Carbon disulfide	ND	10		µg/L	1	8/23/2016 7:25:28 PM	B36700
Carbon Tetrachloride	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Chlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Chloroethane	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Chloroform	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Chloromethane	ND	3.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
2-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
4-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
cis-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Dibromochloromethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Dibromomethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1-Dichloroethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1-Dichloroethene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,3-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
2,2-Dichloropropane	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Hexachlorobutadiene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-13**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 10:45:00 AM**Lab ID:** 1608C27-003A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/23/2016 7:25:28 PM	B36700
Isopropylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
4-Isopropyltoluene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
4-Methyl-2-pentanone	ND	10		µg/L	1	8/23/2016 7:25:28 PM	B36700
Methylene Chloride	ND	3.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
n-Butylbenzene	ND	3.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
n-Propylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
sec-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Styrene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
tert-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
trans-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Trichlorofluoromethane	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Vinyl chloride	ND	1.0		µg/L	1	8/23/2016 7:25:28 PM	B36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 7:25:28 PM	B36700
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	8/23/2016 7:25:28 PM	B36700
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	8/23/2016 7:25:28 PM	B36700
Surr: Dibromofluoromethane	96.1	70-130		%Rec	1	8/23/2016 7:25:28 PM	B36700
Surr: Toluene-d8	99.7	70-130		%Rec	1	8/23/2016 7:25:28 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-003B

Client Sample ID: MW-13
Collection Date: 8/19/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 7:25:28 PM	R36700
Surr: BFB	101	70-130		%Rec	1	8/23/2016 7:25:28 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-003C

Client Sample ID: MW-13
Collection Date: 8/19/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 2:56:43 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 2:56:43 PM	27114
Surr: DNOP	114	67.9-149		%Rec	1	8/23/2016 2:56:43 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-13**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 10:45:00 AM**Lab ID:** 1608C27-003D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	950	1.0	H	mg CO2/L	1	8/24/2016 4:00:02 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.10		mg/L	1	8/26/2016 2:49:35 PM	R36816
Chloride	230	10		mg/L	20	8/26/2016 3:01:59 PM	R36816
Bromide	3.0	0.10		mg/L	1	8/26/2016 2:49:35 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 2:49:35 PM	R36816
Sulfate	850	10	*	mg/L	20	8/26/2016 3:01:59 PM	R36816
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	8/26/2016 5:43:19 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	954.3	20.00		mg/L CaCO ₃	1	8/24/2016 4:00:02 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 4:00:02 PM	R36738
Total Alkalinity (as CaCO ₃)	954.3	20.00		mg/L CaCO ₃	1	8/24/2016 4:00:02 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-13**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 10:45:00 AM**Lab ID:** 1608C27-003E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:20:41 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:33:08 PM	27124
Barium	0.052	0.020		mg/L	1	8/25/2016 2:33:08 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:33:08 PM	27124
Chromium	0.059	0.0060		mg/L	1	8/25/2016 2:33:08 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:33:08 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:33:08 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:33:08 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-003F

Client Sample ID: MW-13
Collection Date: 8/19/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:22:40 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:23:45 PM	B37036
Barium	0.022	0.020		mg/L	1	9/7/2016 6:23:45 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:23:45 PM	B37036
Calcium	230	5.0		mg/L	5	9/7/2016 6:25:37 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:23:45 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:23:45 PM	B37036
Iron	0.044	0.020		mg/L	1	9/7/2016 6:23:45 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:23:45 PM	B37036
Magnesium	82	1.0		mg/L	1	9/7/2016 6:23:45 PM	B37036
Manganese	0.95	0.0020		mg/L	1	9/7/2016 6:23:45 PM	B37036
Potassium	4.0	1.0		mg/L	1	9/7/2016 6:23:45 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:23:45 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:23:45 PM	B37036
Sodium	540	10		mg/L	10	9/12/2016 12:40:22 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 12:38:39 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:23:45 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-004A

Client Sample ID: MW-27
Collection Date: 8/19/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Toluene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Ethylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2,4-Trimethylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,3,5-Trimethylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2-Dichloroethane (EDC)	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2-Dibromoethane (EDB)	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Naphthalene	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1-Methylnaphthalene	ND	8.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
2-Methylnaphthalene	ND	8.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Acetone	ND	20	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Bromobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Bromodichloromethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Bromoform	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Bromomethane	ND	6.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
2-Butanone	ND	20	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Carbon disulfide	ND	20	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Carbon Tetrachloride	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Chlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Chloroethane	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Chloroform	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Chloromethane	ND	6.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
2-Chlorotoluene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
4-Chlorotoluene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
cis-1,2-DCE	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
cis-1,3-Dichloropropene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2-Dibromo-3-chloropropane	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Dibromochloromethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Dibromomethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2-Dichlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,3-Dichlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,4-Dichlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Dichlorodifluoromethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1-Dichloroethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1-Dichloroethene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2-Dichloropropane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,3-Dichloropropane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
2,2-Dichloropropane	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1-Dichloropropene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Hexachlorobutadiene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-004A

Client Sample ID: MW-27
Collection Date: 8/19/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
2-Hexanone	ND	20	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Isopropylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
4-Isopropyltoluene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
4-Methyl-2-pentanone	ND	20	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Methylene Chloride	ND	6.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
n-Butylbenzene	ND	6.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
n-Propylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
sec-Butylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Styrene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
tert-Butylbenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1,1,2-Tetrachloroethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1,2,2-Tetrachloroethane	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Tetrachloroethene (PCE)	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
trans-1,2-DCE	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
trans-1,3-Dichloropropene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2,3-Trichlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2,4-Trichlorobenzene	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1,1-Trichloroethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,1,2-Trichloroethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Trichloroethene (TCE)	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Trichlorofluoromethane	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
1,2,3-Trichloropropane	ND	4.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Vinyl chloride	ND	2.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Xylenes, Total	ND	3.0	D	µg/L	2	8/23/2016 7:54:09 PM	B36700
Surr: 1,2-Dichloroethane-d4	100	70-130	D	%Rec	2	8/23/2016 7:54:09 PM	B36700
Surr: 4-Bromofluorobenzene	96.3	70-130	D	%Rec	2	8/23/2016 7:54:09 PM	B36700
Surr: Dibromofluoromethane	94.8	70-130	D	%Rec	2	8/23/2016 7:54:09 PM	B36700
Surr: Toluene-d8	103	70-130	D	%Rec	2	8/23/2016 7:54:09 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-004B

Client Sample ID: MW-27
Collection Date: 8/19/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	0.20	0.10		mg/L	2	8/23/2016 7:54:09 PM	R36700
Surr: BFB	106	70-130		%Rec	2	8/23/2016 7:54:09 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-004C

Client Sample ID: MW-27
Collection Date: 8/19/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	2.2	0.20		mg/L	1	8/23/2016 3:18:21 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 3:18:21 PM	27114
Surr: DNOP	108	67.9-149		%Rec	1	8/23/2016 3:18:21 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-27**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:50:00 AM**Lab ID:** 1608C27-004D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	400	1.0	H	mg CO2/L	1	8/24/2016 4:35:09 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	9/1/2016 10:53:17 PM	A36952
Chloride	360	10	*	mg/L	20	8/26/2016 3:26:49 PM	R36816
Bromide	3.2	0.10		mg/L	1	8/26/2016 3:14:24 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	10	H	mg/L	20	8/26/2016 3:26:49 PM	R36816
Sulfate	2700	50	*	mg/L	100	9/1/2016 11:05:41 PM	A36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/26/2016 5:55:44 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	408.9	20.00		mg/L CaCO ₃	1	8/24/2016 4:35:09 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 4:35:09 PM	R36738
Total Alkalinity (as CaCO ₃)	408.9	20.00		mg/L CaCO ₃	1	8/24/2016 4:35:09 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-27**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:50:00 AM**Lab ID:** 1608C27-004E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:24:40 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:36:34 PM	27124
Barium	0.17	0.020		mg/L	1	8/25/2016 2:36:34 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:36:34 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:36:34 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:36:34 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:36:34 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:36:34 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-004F

Client Sample ID: MW-27
Collection Date: 8/19/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:26:42 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:27:30 PM	B37036
Barium	0.044	0.020		mg/L	1	9/7/2016 6:27:30 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:27:30 PM	B37036
Calcium	550	10		mg/L	10	9/12/2016 12:43:26 PM	B37126
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:27:30 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:27:30 PM	B37036
Iron	0.74	0.020		mg/L	1	9/7/2016 6:27:30 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:27:30 PM	B37036
Magnesium	92	1.0		mg/L	1	9/7/2016 6:27:30 PM	B37036
Manganese	2.7	0.010		mg/L	5	9/7/2016 6:29:29 PM	B37036
Potassium	5.3	1.0		mg/L	1	9/7/2016 6:27:30 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:27:30 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:27:30 PM	B37036
Sodium	720	10		mg/L	10	9/12/2016 12:43:26 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 12:41:57 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:27:30 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-005A

Client Sample ID: MW-32
Collection Date: 8/19/2016 9:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Toluene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Naphthalene	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
2-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Acetone	ND	10		µg/L	1	8/23/2016 8:22:55 PM	B36700
Bromobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Bromodichloromethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Bromoform	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Bromomethane	ND	3.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
2-Butanone	ND	10		µg/L	1	8/23/2016 8:22:55 PM	B36700
Carbon disulfide	ND	10		µg/L	1	8/23/2016 8:22:55 PM	B36700
Carbon Tetrachloride	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Chlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Chloroethane	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Chloroform	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Chloromethane	ND	3.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
2-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
4-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
cis-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Dibromochloromethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Dibromomethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1-Dichloroethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1-Dichloroethene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,3-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
2,2-Dichloropropane	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Hexachlorobutadiene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-005A

Client Sample ID: MW-32
Collection Date: 8/19/2016 9:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/23/2016 8:22:55 PM	B36700
Isopropylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
4-Isopropyltoluene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
4-Methyl-2-pentanone	ND	10		µg/L	1	8/23/2016 8:22:55 PM	B36700
Methylene Chloride	ND	3.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
n-Butylbenzene	ND	3.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
n-Propylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
sec-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Styrene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
tert-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
trans-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Trichlorofluoromethane	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Vinyl chloride	ND	1.0		µg/L	1	8/23/2016 8:22:55 PM	B36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 8:22:55 PM	B36700
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/23/2016 8:22:55 PM	B36700
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 8:22:55 PM	B36700
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	8/23/2016 8:22:55 PM	B36700
Surr: Toluene-d8	98.1	70-130		%Rec	1	8/23/2016 8:22:55 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:00:00 AM**Lab ID:** 1608C27-005B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/24/2016 3:47:04 PM	G36737
Surr: BFB	98.1	70-130		%Rec	1	8/24/2016 3:47:04 PM	G36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:00:00 AM**Lab ID:** 1608C27-005C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 3:40:13 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 3:40:13 PM	27114
Surr: DNOP	114	67.9-149		%Rec	1	8/23/2016 3:40:13 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:00:00 AM**Lab ID:** 1608C27-005D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	170	1.0	H	mg CO2/L	1	8/24/2016 4:53:34 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.10		mg/L	1	8/26/2016 3:39:13 PM	R36816
Chloride	630	25	*	mg/L	50	9/1/2016 11:18:05 PM	A36952
Bromide	4.4	0.10		mg/L	1	8/26/2016 3:39:13 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	10	H	mg/L	20	8/26/2016 3:51:38 PM	R36816
Sulfate	1600	25	*	mg/L	50	9/1/2016 11:18:05 PM	A36952
Nitrate+Nitrite as N	40	1.0	*	mg/L	5	8/26/2016 6:08:09 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	186.9	20.00		mg/L CaCO ₃	1	8/24/2016 4:53:34 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 4:53:34 PM	R36738
Total Alkalinity (as CaCO ₃)	186.9	20.00		mg/L CaCO ₃	1	8/24/2016 4:53:34 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:00:00 AM**Lab ID:** 1608C27-005E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:32:58 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:40:07 PM	27124
Barium	0.033	0.020		mg/L	1	8/25/2016 2:40:07 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:40:07 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:40:07 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:40:07 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:40:07 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:40:07 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-005F

Client Sample ID: MW-32
Collection Date: 8/19/2016 9:00:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:34:59 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:31:31 PM	B37036
Barium	ND	0.020		mg/L	1	9/7/2016 6:31:31 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:31:31 PM	B37036
Calcium	340	5.0		mg/L	5	9/7/2016 6:33:25 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:31:31 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:31:31 PM	B37036
Iron	ND	0.020		mg/L	1	9/7/2016 6:31:31 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:31:31 PM	B37036
Magnesium	50	1.0		mg/L	1	9/7/2016 6:31:31 PM	B37036
Manganese	ND	0.0020		mg/L	1	9/7/2016 6:31:31 PM	B37036
Potassium	4.0	1.0		mg/L	1	9/7/2016 6:31:31 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:31:31 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:31:31 PM	B37036
Sodium	810	10		mg/L	10	9/12/2016 12:46:47 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 12:45:03 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:31:31 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-006A

Client Sample ID: MW-32-DUP
Collection Date: 8/19/2016 9:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Toluene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Naphthalene	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
2-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Acetone	ND	10		µg/L	1	8/23/2016 8:51:43 PM	B36700
Bromobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Bromodichloromethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Bromoform	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Bromomethane	ND	3.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
2-Butanone	ND	10		µg/L	1	8/23/2016 8:51:43 PM	B36700
Carbon disulfide	ND	10		µg/L	1	8/23/2016 8:51:43 PM	B36700
Carbon Tetrachloride	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Chlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Chloroethane	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Chloroform	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Chloromethane	ND	3.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
2-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
4-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
cis-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Dibromochloromethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Dibromomethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1-Dichloroethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1-Dichloroethene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,3-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
2,2-Dichloropropane	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Hexachlorobutadiene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-006A

Client Sample ID: MW-32-DUP
Collection Date: 8/19/2016 9:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/23/2016 8:51:43 PM	B36700
Isopropylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
4-Isopropyltoluene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
4-Methyl-2-pentanone	ND	10		µg/L	1	8/23/2016 8:51:43 PM	B36700
Methylene Chloride	ND	3.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
n-Butylbenzene	ND	3.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
n-Propylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
sec-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Styrene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
tert-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
trans-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Trichlorofluoromethane	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Vinyl chloride	ND	1.0		µg/L	1	8/23/2016 8:51:43 PM	B36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 8:51:43 PM	B36700
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	8/23/2016 8:51:43 PM	B36700
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 8:51:43 PM	B36700
Surr: Dibromofluoromethane	94.0	70-130		%Rec	1	8/23/2016 8:51:43 PM	B36700
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/23/2016 8:51:43 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 33 of 64

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32-DUP**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:10:00 AM**Lab ID:** 1608C27-006B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 8:51:43 PM	R36700
Surr: BFB	99.9	70-130		%Rec	1	8/23/2016 8:51:43 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-006C

Client Sample ID: MW-32-DUP
Collection Date: 8/19/2016 9:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 4:01:53 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 4:01:53 PM	27114
Surr: DNOP	109	67.9-149		%Rec	1	8/23/2016 4:01:53 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32-DUP**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:10:00 AM**Lab ID:** 1608C27-006D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	170	1.0	H	mg CO2/L	1	8/24/2016 5:04:34 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.10		mg/L	1	8/26/2016 4:28:52 PM	R36816
Chloride	610	25	*	mg/L	50	9/1/2016 11:30:30 PM	A36952
Bromide	4.4	0.10		mg/L	1	8/26/2016 4:28:52 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	10	H	mg/L	20	8/26/2016 4:41:17 PM	R36816
Sulfate	1500	25	*	mg/L	50	9/1/2016 11:30:30 PM	A36952
Nitrate+Nitrite as N	40	1.0	*	mg/L	5	8/26/2016 6:57:47 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	185.4	20.00		mg/L CaCO ₃	1	8/24/2016 5:04:34 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:04:34 PM	R36738
Total Alkalinity (as CaCO ₃)	185.4	20.00		mg/L CaCO ₃	1	8/24/2016 5:04:34 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-32-DUP**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 9:10:00 AM**Lab ID:** 1608C27-006E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:37:02 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:43:50 PM	27124
Barium	0.028	0.020		mg/L	1	8/25/2016 2:43:50 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:43:50 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:43:50 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:43:50 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:43:50 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:43:50 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-006F

Client Sample ID: MW-32-DUP
Collection Date: 8/19/2016 9:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:39:05 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:35:28 PM	B37036
Barium	ND	0.020		mg/L	1	9/7/2016 6:35:28 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:35:28 PM	B37036
Calcium	330	5.0		mg/L	5	9/7/2016 6:37:23 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:35:28 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:35:28 PM	B37036
Iron	ND	0.020		mg/L	1	9/7/2016 6:35:28 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:35:28 PM	B37036
Magnesium	50	1.0		mg/L	1	9/7/2016 6:35:28 PM	B37036
Manganese	ND	0.0020		mg/L	1	9/7/2016 6:35:28 PM	B37036
Potassium	4.0	1.0		mg/L	1	9/7/2016 6:35:28 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:35:28 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:35:28 PM	B37036
Sodium	820	10		mg/L	10	9/12/2016 12:55:07 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 12:48:23 PM	B37126
Zinc	0.022	0.020		mg/L	1	9/7/2016 6:35:28 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-007A

Client Sample ID: MW-33
Collection Date: 8/19/2016 8:20:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Toluene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Naphthalene	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
2-Methylnaphthalene	ND	4.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Acetone	ND	10		µg/L	1	8/23/2016 9:20:30 PM	B36700
Bromobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Bromodichloromethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Bromoform	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Bromomethane	ND	3.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
2-Butanone	ND	10		µg/L	1	8/23/2016 9:20:30 PM	B36700
Carbon disulfide	ND	10		µg/L	1	8/23/2016 9:20:30 PM	B36700
Carbon Tetrachloride	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Chlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Chloroethane	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Chloroform	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Chloromethane	ND	3.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
2-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
4-Chlorotoluene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
cis-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Dibromochloromethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Dibromomethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1-Dichloroethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1-Dichloroethene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,3-Dichloropropane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
2,2-Dichloropropane	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Hexachlorobutadiene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-007A

Client Sample ID: MW-33
Collection Date: 8/19/2016 8:20:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
2-Hexanone	ND	10		µg/L	1	8/23/2016 9:20:30 PM	B36700
Isopropylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
4-Isopropyltoluene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
4-Methyl-2-pentanone	ND	10		µg/L	1	8/23/2016 9:20:30 PM	B36700
Methylene Chloride	ND	3.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
n-Butylbenzene	ND	3.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
n-Propylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
sec-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Styrene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
tert-Butylbenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
trans-1,2-DCE	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Trichlorofluoromethane	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Vinyl chloride	ND	1.0		µg/L	1	8/23/2016 9:20:30 PM	B36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 9:20:30 PM	B36700
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/23/2016 9:20:30 PM	B36700
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/23/2016 9:20:30 PM	B36700
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	8/23/2016 9:20:30 PM	B36700
Surr: Toluene-d8	98.6	70-130		%Rec	1	8/23/2016 9:20:30 PM	B36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 40 of 64

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-33**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 8:20:00 AM**Lab ID:** 1608C27-007B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 9:20:30 PM	R36700
Surr: BFB	98.2	70-130		%Rec	1	8/23/2016 9:20:30 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-007C

Client Sample ID: MW-33
Collection Date: 8/19/2016 8:20:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 4:23:35 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 4:23:35 PM	27114
Surr: DNOP	113	67.9-149		%Rec	1	8/23/2016 4:23:35 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-33**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 8:20:00 AM**Lab ID:** 1608C27-007D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	110	1.0	H	mg CO2/L	1	8/24/2016 5:15:29 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.51	0.10		mg/L	1	8/26/2016 4:53:42 PM	R36816
Chloride	250	10		mg/L	20	8/26/2016 5:06:06 PM	R36816
Bromide	1.4	0.10		mg/L	1	8/26/2016 4:53:42 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	10	H	mg/L	20	8/26/2016 5:06:06 PM	R36816
Sulfate	2500	50	*	mg/L	100	9/1/2016 11:42:55 PM	A36952
Nitrate+Nitrite as N	40	1.0	*	mg/L	5	8/26/2016 7:10:12 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	125.5	20.00		mg/L CaCO ₃	1	8/24/2016 5:15:29 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:15:29 PM	R36738
Total Alkalinity (as CaCO ₃)	125.5	20.00		mg/L CaCO ₃	1	8/24/2016 5:15:29 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-33**Project:** Cross Gradient Wells 8-19-16**Collection Date:** 8/19/2016 8:20:00 AM**Lab ID:** 1608C27-007E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:41:08 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:53:16 PM	27124
Barium	0.021	0.020		mg/L	1	8/25/2016 2:53:16 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:53:16 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:53:16 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:53:16 PM	27124
Selenium	0.063	0.050		mg/L	1	8/25/2016 2:53:16 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:53:16 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C27****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-007F

Client Sample ID: MW-33
Collection Date: 8/19/2016 8:20:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:43:12 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:39:26 PM	B37036
Barium	ND	0.020		mg/L	1	9/7/2016 6:39:26 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:39:26 PM	B37036
Calcium	480	5.0		mg/L	5	9/7/2016 6:48:28 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:39:26 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:39:26 PM	B37036
Iron	ND	0.020		mg/L	1	9/7/2016 6:39:26 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:39:26 PM	B37036
Magnesium	69	1.0		mg/L	1	9/7/2016 6:39:26 PM	B37036
Manganese	ND	0.0020		mg/L	1	9/7/2016 6:39:26 PM	B37036
Potassium	5.5	1.0		mg/L	1	9/7/2016 6:39:26 PM	B37036
Selenium	0.097	0.050		mg/L	1	9/7/2016 6:39:26 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:39:26 PM	B37036
Sodium	820	10		mg/L	10	9/12/2016 12:58:28 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 12:56:44 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:39:26 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-008A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Toluene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Naphthalene	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Acetone	ND	10		µg/L	1	8/25/2016 7:13:52 PM	W36763
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Bromoform	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Bromomethane	ND	3.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
2-Butanone	ND	10		µg/L	1	8/25/2016 7:13:52 PM	W36763
Carbon disulfide	ND	10		µg/L	1	8/25/2016 7:13:52 PM	W36763
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Chloroethane	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Chloroform	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Chloromethane	ND	3.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C27

Date Reported: 9/26/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Cross Gradient Wells 8-19-16
Lab ID: 1608C27-008A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
2-Hexanone	ND	10		µg/L	1	8/25/2016 7:13:52 PM	W36763
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 7:13:52 PM	W36763
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Styrene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 7:13:52 PM	W36763
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 7:13:52 PM	W36763
Surr: 1,2-Dichloroethane-d4	97.3	70-130		%Rec	1	8/25/2016 7:13:52 PM	W36763
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	8/25/2016 7:13:52 PM	W36763
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	8/25/2016 7:13:52 PM	W36763
Surr: Toluene-d8	96.1	70-130		%Rec	1	8/25/2016 7:13:52 PM	W36763

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 47 of 64

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: R36816			RunNo: 36816				
Prep Date:			Analysis Date: 8/26/2016			SeqNo: 1141089		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: R36816			RunNo: 36816				
Prep Date:			Analysis Date: 8/26/2016			SeqNo: 1141090		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	4.6	0.50	5.000	0	93.0	90	110			
Bromide	2.4	0.10	2.500	0	94.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.9	90	110			
Sulfate	9.4	0.50	10.00	0	94.4	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: A36952			RunNo: 36952				
Prep Date:			Analysis Date: 9/1/2016			SeqNo: 1145113		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: A36952			RunNo: 36952				
Prep Date:			Analysis Date: 9/1/2016			SeqNo: 1145114		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	10	0.50	10.00	0	99.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	LCS-27114		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 27114		RunNo: 36683					
Prep Date:	8/23/2016		Analysis Date: 8/23/2016		SeqNo: 1136777		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	112	65.4	162			
Surr: DNOP	0.26		0.2500		102	67.9	149			

Sample ID	MB-27114	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 27114			RunNo: 36683					
Prep Date:	8/23/2016	Analysis Date: 8/23/2016			SeqNo: 1136780		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.49		0.5000		97.5	67.9	149			

Sample ID	1608C27-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	MW-1		Batch ID: 27114		RunNo: 36683					
Prep Date:	8/23/2016		Analysis Date: 8/23/2016		SeqNo: 1136890		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	126	73.3	174			
Surr: DNOP	0.29		0.2500		115	67.9	149			

Sample ID	1608C27-001CMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	MW-1		Batch ID:	27114		RunNo:	36683				
Prep Date:	8/23/2016		Analysis Date:	8/23/2016		SeqNo:	1136891		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	133	73.3	174	5.44	20		
Surr: DNOP	0.30		0.2500		122	67.9	149	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: B36700			RunNo: 36700					
Prep Date:		Analysis Date: 8/23/2016			SeqNo: 1137268		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.7	70	130			
Toluene	20	1.0	20.00	0	99.6	70	130			
Chlorobenzene	19	1.0	20.00	0	93.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.0	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.0	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: B36700			RunNo: 36700					
Prep Date:		Analysis Date: 8/23/2016			SeqNo: 1137270		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: B36700			RunNo: 36700					
Prep Date:	Analysis Date: 8/23/2016			SeqNo: 1137270			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B36700			RunNo: 36700						
Prep Date:	Analysis Date: 8/23/2016			SeqNo: 1137270		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.9		10.00		98.8	70	130			

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R36737			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138521		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	18	1.0	20.00	0	89.2	70	130			
Chlorobenzene	17	1.0	20.00	0	84.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	99.0	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36737			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138522		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36737	RunNo:	36737					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138522	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36737			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138522		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.7	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Sample ID 1608c27-001ams	SampType: MS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-1	Batch ID: B36700			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138624		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	18	1.0	20.00	0	88.2	70	130			
Chlorobenzene	18	1.0	20.00	0	87.6	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	92.7	70	130			
Trichloroethene (TCE)	16	1.0	20.00	0	82.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.2		10.00		91.9	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID 1608c27-001amsd	SampType: MSD			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-1	Batch ID: B36700			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138625		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.3	70	130	7.34	20	
Toluene	17	1.0	20.00	0	85.9	70	130	2.63	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	1608c27-001amsd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	MW-1		Batch ID: B36700		RunNo: 36737					
Prep Date:			Analysis Date: 8/24/2016		SeqNo: 1138625		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	17	1.0	20.00	0	82.7	70	130	5.79	20	
1,1-Dichloroethene	17	1.0	20.00	0	85.8	70	130	7.64	20	
Trichloroethene (TCE)	16	1.0	20.00	0	80.0	70	130	2.58	20	
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.7	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	9.2		10.00		91.5	70	130	0	0	
Surr: Toluene-d8	9.5		10.00		95.1	70	130	0	0	

Sample ID	1608c27-002ams	SampType: MS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	Field Blank	Batch ID: R36737			RunNo: 36737					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138627		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.7	70	130			
Toluene	18	1.0	20.00	0	92.5	70	130			
Chlorobenzene	18	1.0	20.00	0.1294	89.0	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.6	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.7	70	130			
Surr: Toluene-d8	9.5		10.00		95.5	70	130			

Sample ID	1608c27-002amsd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	Field Blank		Batch ID: R36737		RunNo: 36737					
Prep Date:			Analysis Date: 8/24/2016		SeqNo: 1138628		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.1	70	130	1.70	20	
Toluene	18	1.0	20.00	0	91.2	70	130	1.38	20	
Chlorobenzene	17	1.0	20.00	0.1294	86.6	70	130	2.67	20	
1,1-Dichloroethene	18	1.0	20.00	0	89.4	70	130	4.54	20	
Trichloroethene (TCE)	17	1.0	20.00	0	85.2	70	130	0.0599	20	
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	9.9		10.00		98.9	70	130	0	0	
Surr: Toluene-d8	9.7		10.00		97.2	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: W36763			RunNo: 36763					
Prep Date:		Analysis Date: 8/25/2016			SeqNo: 1140132		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.6	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Chlorobenzene	18	1.0	20.00	0	90.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.8	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID	rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: W36763			RunNo: 36763					
Prep Date:		Analysis Date: 8/25/2016			SeqNo: 1140133		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W36763			RunNo: 36763						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1140133		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	W36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140133	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.4	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	MB-27283		SampType: MBLK		TestCode: EPA Method 7470: Mercury					
Client ID:	PBW		Batch ID: 27283		RunNo: 36941					
Prep Date:	8/31/2016		Analysis Date: 9/1/2016		SeqNo: 1144815		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-27283		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 27283		RunNo: 36941					
Prep Date:	8/31/2016		Analysis Date: 9/1/2016		SeqNo: 1144816		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.4	80	120			

Sample ID	1608C27-001EMS		SampType: MS		TestCode: EPA Method 7470: Mercury					
Client ID:	MW-1		Batch ID: 27283		RunNo: 36941					
Prep Date:	8/31/2016		Analysis Date: 9/1/2016		SeqNo: 1144818		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0058	0.00020	0.005000	0.0001634	112	75	125			

Sample ID	1608C27-001EMSD		SampType: MSD		TestCode: EPA Method 7470: Mercury					
Client ID:	MW-1		Batch ID: 27283		RunNo: 36941					
Prep Date:	8/31/2016		Analysis Date: 9/1/2016		SeqNo: 1144819		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0057	0.00020	0.005000	0.0001634	111	75	125	1.08	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147839	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.020								

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147840	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.4	80	120			
Barium	0.46	0.020	0.5000	0	92.1	80	120			
Cadmium	0.47	0.0020	0.5000	0	93.7	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.46	0.0060	0.5000	0	92.1	80	120			
Copper	0.45	0.0060	0.5000	0	90.9	80	120			
Iron	0.47	0.020	0.5000	0	93.2	80	120			
Lead	0.46	0.0050	0.5000	0	91.2	80	120			
Magnesium	58	1.0	50.00	0	116	80	120			
Manganese	0.45	0.0020	0.5000	0	90.2	80	120			
Potassium	56	1.0	50.00	0	112	80	120			
Selenium	0.46	0.050	0.5000	0	93.0	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			
Sodium	57	1.0	50.00	0	114	80	120			
Zinc	0.46	0.020	0.5000	0	91.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	MB-B	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: B37126			RunNo: 37126					
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151181		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Sodium	ND	1.0								
Uranium	ND	0.10								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: B37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151182		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	101	80	120			
Sodium	50	1.0	50.00	0	100	80	120			
Uranium	0.51	0.10	0.5000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	MB-27124		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139271		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27124		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139272		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	100	80	120			
Barium	0.48	0.020	0.5000	0	96.6	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.47	0.0050	0.5000	0	94.2	80	120			
Selenium	0.48	0.050	0.5000	0	95.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	2.5ug gro lcs		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R36700		RunNo: 36700					
Prep Date:			Analysis Date: 8/23/2016		SeqNo: 1137274		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.41	0.050	0.5000	0	82.5	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: R36700			RunNo: 36700					
Prep Date:		Analysis Date: 8/23/2016			SeqNo: 1137275		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		98.1	70	130			

Sample ID	2.5ug gro lcs		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: G36737		RunNo: 36737					
Prep Date:			Analysis Date: 8/24/2016		SeqNo: 1138526		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.40	0.050	0.5000	0	79.1	75.4	118			
Surr: BFB	9.9		10.00		99.0	70	130			

Sample ID	rb2	SampType:	MBLK		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	PBW	Batch ID:	G36737		RunNo:	36737				
Prep Date:		Analysis Date:	8/24/2016		SeqNo:	1138527	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.9		10.00		98.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C27

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 8-19-16

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138449	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138450	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138474	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138475	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608C27**

RcptNo: 1

Received by/date:

Logged By: **Lindsay Mangin**

08/20/16
8/20/2016 9:15:00 AM

Completed By: **Lindsay Mangin**

8/22/2016 10:11:28 AM

Reviewed By:

jc 08/22/16

Lindsay Mangin
Lindsay Mangin

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH: **18**
Adjusted? **No**
Checked by: **AT**

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.8	Good	Yes			

Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

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

☐ Standard ☐ Other

☒ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **Cross Gradient Wells**

Date: **8-19-2016**

Project #: Annual

PO#12615520

Project Manager:

Sampler: **Michael A Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **3.8**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8-19-16	0820	H ₂ O	MW-33	6-VOA	HCl	1608027
			MW-33	1-500 ml Amber	Cool	-007
			MW-33	1-500 ml	HNO ₃	-007
			MW-33	1-250 ml	HNO ₃	-007
			MW-33	1-500 ml		-007
			MW-33	1-250 ml	H ₂ SO ₄	-007
			TRIP Blank			
			03 8/22/16			

Date: **8-19-16** Time: **1545**

Date: **8/19/16** Time: **1740**

Relinquished by: *[Signature]*

Relinquished by: *[Signature]*



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 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals Total	Anions (F,Cl,NO ₃ ,NO ₂ ,PO ₄ ,SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	8015B DRO Extended	Dissolved Metals	General Chem. / Alk	Anions / CO ₂	Air Bubbles (Y or N)
		X				X			X		X			X	
														</	

Remarks: See full analyte list.

**Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery**

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
 GRO = gasoline range organics
 VOCs = volatile organic compounds
 DRO = diesel range organics
 TDS = total dissolved solids

Notes:

- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: San Juan River 8-19-2016

OrderNo.: 1608C28

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical ReportLab Order: **1608C28**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001A

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 5:19:24 AM	B36669
Toluene	ND	1.0		µg/L	1	8/23/2016 5:19:24 AM	B36669
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 5:19:24 AM	B36669
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 5:19:24 AM	B36669
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 5:19:24 AM	B36669
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	8/23/2016 5:19:24 AM	B36669
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	8/23/2016 5:19:24 AM	B36669
Surr: Dibromofluoromethane	92.8	70-130		%Rec	1	8/23/2016 5:19:24 AM	B36669
Surr: Toluene-d8	97.9	70-130		%Rec	1	8/23/2016 5:19:24 AM	B36669

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 1 of 37

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001B

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 9:29:00 AM	R36808
Surr: BFB	78.7	66.4-120		%Rec	1	8/26/2016 9:29:00 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 2 of 37

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001C

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 4:45:14 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 4:45:14 PM	27114
Surr: DNOP	120	67.9-149		%Rec	1	8/23/2016 4:45:14 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001D

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	77	1.0	H	mg CO2/L	1	8/24/2016 5:24:04 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.16	0.10		mg/L	1	8/26/2016 10:46:23 PM	R36827
Chloride	2.7	0.50		mg/L	1	9/1/2016 8:49:12 PM	A36952
Bromide	ND	0.10		mg/L	1	9/1/2016 8:49:12 PM	A36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 10:46:23 PM	R36827
Sulfate	49	10		mg/L	20	9/1/2016 9:01:37 PM	A36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 1:23:15 PM	R36847
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	290	1.0		µmhos/cm	1	8/24/2016 5:24:04 PM	R36738
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	86.16	20.00		mg/L CaCO ₃	1	8/24/2016 5:24:04 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:24:04 PM	R36738
Total Alkalinity (as CaCO ₃)	86.16	20.00		mg/L CaCO ₃	1	8/24/2016 5:24:04 PM	R36738
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	184	40.0	D	mg/L	1	8/26/2016 10:23:00 AM	27145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001E

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:45:16 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:56:58 PM	27124
Barium	0.12	0.020		mg/L	1	8/25/2016 2:56:58 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:56:58 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:56:58 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:56:58 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:56:58 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:56:58 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-001F

Client Sample ID: Downstream
Collection Date: 8/19/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:47:21 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:50:25 PM	B37036
Barium	0.085	0.020		mg/L	1	9/7/2016 6:50:25 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:50:25 PM	B37036
Calcium	34	1.0		mg/L	1	9/7/2016 6:50:25 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:50:25 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:50:25 PM	B37036
Iron	0.31	0.020		mg/L	1	9/7/2016 6:50:25 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:50:25 PM	B37036
Magnesium	5.5	1.0		mg/L	1	9/7/2016 6:50:25 PM	B37036
Manganese	0.032	0.0020		mg/L	1	9/7/2016 6:50:25 PM	B37036
Potassium	2.3	1.0		mg/L	1	9/7/2016 6:50:25 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:50:25 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:50:25 PM	B37036
Sodium	19	1.0		mg/L	1	9/7/2016 6:50:25 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:00:06 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:50:25 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C28**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** North of MW-45**Project:** San Juan River 8-19-2016**Collection Date:** 8/19/2016 12:00:00 PM**Lab ID:** 1608C28-002A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 5:48:10 AM	B36669
Toluene	ND	1.0		µg/L	1	8/23/2016 5:48:10 AM	B36669
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 5:48:10 AM	B36669
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 5:48:10 AM	B36669
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 5:48:10 AM	B36669
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%Rec	1	8/23/2016 5:48:10 AM	B36669
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	8/23/2016 5:48:10 AM	B36669
Surr: Dibromofluoromethane	93.4	70-130		%Rec	1	8/23/2016 5:48:10 AM	B36669
Surr: Toluene-d8	100	70-130		%Rec	1	8/23/2016 5:48:10 AM	B36669

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-002B

Client Sample ID: North of MW-45
Collection Date: 8/19/2016 12:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 9:53:22 AM	R36808
Surr: BFB	88.6	66.4-120		%Rec	1	8/26/2016 9:53:22 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-002C

Client Sample ID: North of MW-45
Collection Date: 8/19/2016 12:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 5:06:59 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 5:06:59 PM	27114
Surr: DNOP	111	67.9-149		%Rec	1	8/23/2016 5:06:59 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-002D

Client Sample ID: North of MW-45
Collection Date: 8/19/2016 12:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	76	1.0	H	mg CO2/L	1	8/24/2016 5:32:15 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.15	0.10		mg/L	1	8/26/2016 11:11:12 PM	R36827
Chloride	2.7	0.50		mg/L	1	9/1/2016 9:14:02 PM	A36952
Bromide	ND	0.10		mg/L	1	9/1/2016 9:14:02 PM	A36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 11:11:12 PM	R36827
Sulfate	48	10		mg/L	20	9/1/2016 9:26:26 PM	A36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 1:35:39 PM	R36847
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	280	1.0		µmhos/cm	1	8/24/2016 5:32:15 PM	R36738
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	84.80	20.00		mg/L CaCO ₃	1	8/24/2016 5:32:15 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:32:15 PM	R36738
Total Alkalinity (as CaCO ₃)	84.80	20.00		mg/L CaCO ₃	1	8/24/2016 5:32:15 PM	R36738
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	180	40.0	D	mg/L	1	8/26/2016 10:23:00 AM	27145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-002E

Client Sample ID: North of MW-45
Collection Date: 8/19/2016 12:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:49:26 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 3:00:59 PM	27124
Barium	0.14	0.020		mg/L	1	8/25/2016 3:00:59 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 3:00:59 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 3:00:59 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 3:00:59 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 3:00:59 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 3:00:59 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-002F

Client Sample ID: North of MW-45
Collection Date: 8/19/2016 12:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:51:33 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:54:27 PM	B37036
Barium	0.082	0.020		mg/L	1	9/7/2016 6:54:27 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:54:27 PM	B37036
Calcium	34	1.0		mg/L	1	9/7/2016 6:54:27 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:54:27 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:54:27 PM	B37036
Iron	0.32	0.020		mg/L	1	9/7/2016 6:54:27 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:54:27 PM	B37036
Magnesium	5.6	1.0		mg/L	1	9/7/2016 6:54:27 PM	B37036
Manganese	0.033	0.0020		mg/L	1	9/7/2016 6:54:27 PM	B37036
Potassium	2.3	1.0		mg/L	1	9/7/2016 6:54:27 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:54:27 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:54:27 PM	B37036
Sodium	20	1.0		mg/L	1	9/7/2016 6:54:27 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:01:47 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:54:27 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003A

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 6:17:06 AM	B36669
Toluene	ND	1.0		µg/L	1	8/23/2016 6:17:06 AM	B36669
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:17:06 AM	B36669
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:17:06 AM	B36669
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:17:06 AM	B36669
Surr: 1,2-Dichloroethane-d4	98.6	70-130		%Rec	1	8/23/2016 6:17:06 AM	B36669
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/23/2016 6:17:06 AM	B36669
Surr: Dibromofluoromethane	94.0	70-130		%Rec	1	8/23/2016 6:17:06 AM	B36669
Surr: Toluene-d8	97.7	70-130		%Rec	1	8/23/2016 6:17:06 AM	B36669

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003B

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 10:17:46 AM	R36808
Surr: BFB	86.5	66.4-120		%Rec	1	8/26/2016 10:17:46 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003C

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 5:28:37 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 5:28:37 PM	27114
Surr: DNOP	115	67.9-149		%Rec	1	8/23/2016 5:28:37 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003D

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	77	1.0	H	mg CO2/L	1	8/24/2016 5:40:10 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.15	0.10		mg/L	1	8/26/2016 11:36:01 PM	R36827
Chloride	2.7	0.50		mg/L	1	9/1/2016 10:03:39 PM	A36952
Bromide	ND	0.10		mg/L	1	9/1/2016 10:03:39 PM	A36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 11:36:01 PM	R36827
Sulfate	49	10		mg/L	20	9/1/2016 10:16:04 PM	A36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 1:48:04 PM	R36847
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	280	1.0		µmhos/cm	1	8/24/2016 5:40:10 PM	R36738
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	85.04	20.00		mg/L CaCO ₃	1	8/24/2016 5:40:10 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 5:40:10 PM	R36738
Total Alkalinity (as CaCO ₃)	85.04	20.00		mg/L CaCO ₃	1	8/24/2016 5:40:10 PM	R36738
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	170	40.0	D	mg/L	1	8/26/2016 10:23:00 AM	27145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003E

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:57:54 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 3:04:56 PM	27124
Barium	0.11	0.020		mg/L	1	8/25/2016 3:04:56 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 3:04:56 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 3:04:56 PM	27124
Lead	0.0058	0.0050		mg/L	1	8/25/2016 3:04:56 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 3:04:56 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 3:04:56 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-003F

Client Sample ID: North of MW-46
Collection Date: 8/19/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:59:53 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:58:29 PM	B37036
Barium	0.086	0.020		mg/L	1	9/7/2016 6:58:29 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:58:29 PM	B37036
Calcium	34	1.0		mg/L	1	9/7/2016 6:58:29 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:58:29 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:58:29 PM	B37036
Iron	0.36	0.020		mg/L	1	9/7/2016 6:58:29 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:58:29 PM	B37036
Magnesium	5.5	1.0		mg/L	1	9/7/2016 6:58:29 PM	B37036
Manganese	0.032	0.0020		mg/L	1	9/7/2016 6:58:29 PM	B37036
Potassium	2.2	1.0		mg/L	1	9/7/2016 6:58:29 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:58:29 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:58:29 PM	B37036
Sodium	19	1.0		mg/L	1	9/7/2016 6:58:29 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:03:27 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 6:58:29 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004A

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 6:45:50 AM	B36669
Toluene	ND	1.0		µg/L	1	8/23/2016 6:45:50 AM	B36669
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:45:50 AM	B36669
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:45:50 AM	B36669
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:45:50 AM	B36669
Surr: 1,2-Dichloroethane-d4	99.2	70-130		%Rec	1	8/23/2016 6:45:50 AM	B36669
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/23/2016 6:45:50 AM	B36669
Surr: Dibromofluoromethane	99.0	70-130		%Rec	1	8/23/2016 6:45:50 AM	B36669
Surr: Toluene-d8	97.4	70-130		%Rec	1	8/23/2016 6:45:50 AM	B36669

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004B

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 10:42:10 AM	R36808
Surr: BFB	85.1	66.4-120		%Rec	1	8/26/2016 10:42:10 AM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004C

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 5:50:18 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 5:50:18 PM	27114
Surr: DNOP	117	67.9-149		%Rec	1	8/23/2016 5:50:18 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.**Analytical Report**Lab Order: **1608C28**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004D

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	77	1.0	H	mg CO2/L	1	8/25/2016 1:17:11 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.16	0.10		mg/L	1	8/27/2016 12:00:50 AM	R36827
Chloride	2.7	0.50		mg/L	1	9/1/2016 10:28:28 PM	A36952
Bromide	ND	0.10		mg/L	1	9/1/2016 10:28:28 PM	A36952
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/27/2016 12:00:50 AM	R36827
Sulfate	49	10		mg/L	20	9/1/2016 10:40:52 PM	A36952
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 4:04:35 PM	R36847
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	290	1.0		µmhos/cm	1	8/25/2016 1:17:11 AM	R36738
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	86.28	20.00		mg/L CaCO ₃	1	8/25/2016 1:17:11 AM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/25/2016 1:17:11 AM	R36738
Total Alkalinity (as CaCO ₃)	86.28	20.00		mg/L CaCO ₃	1	8/25/2016 1:17:11 AM	R36738
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	178	40.0	D	mg/L	1	8/26/2016 10:23:00 AM	27145

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004E

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 2:01:55 PM	27283
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 3:08:51 PM	27124
Barium	0.11	0.020		mg/L	1	8/25/2016 3:08:51 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 3:08:51 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 3:08:51 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 3:08:51 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 3:08:51 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 3:08:51 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C28

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-004F

Client Sample ID: Upstream
Collection Date: 8/19/2016 1:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 2:03:56 PM	27283
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:02:31 PM	B37036
Barium	0.084	0.020		mg/L	1	9/7/2016 7:02:31 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:02:31 PM	B37036
Calcium	34	1.0		mg/L	1	9/7/2016 7:02:31 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:02:31 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:02:31 PM	B37036
Iron	0.29	0.020		mg/L	1	9/7/2016 7:02:31 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:02:31 PM	B37036
Magnesium	5.5	1.0		mg/L	1	9/7/2016 7:02:31 PM	B37036
Manganese	0.030	0.0020		mg/L	1	9/7/2016 7:02:31 PM	B37036
Potassium	2.1	1.0		mg/L	1	9/7/2016 7:02:31 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:02:31 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:02:31 PM	B37036
Sodium	19	1.0		mg/L	1	9/7/2016 7:02:31 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:05:09 PM	B37126
Zinc	0.024	0.020		mg/L	1	9/7/2016 7:02:31 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C28**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River 8-19-2016
Lab ID: 1608C28-005A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 7:14:40 AM	B36669
Toluene	ND	1.0		µg/L	1	8/23/2016 7:14:40 AM	B36669
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 7:14:40 AM	B36669
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 7:14:40 AM	B36669
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 7:14:40 AM	B36669
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	8/23/2016 7:14:40 AM	B36669
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	8/23/2016 7:14:40 AM	B36669
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	8/23/2016 7:14:40 AM	B36669
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/23/2016 7:14:40 AM	B36669

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36827		RunNo: 36827							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141638		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36827		RunNo: 36827							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141639		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.8	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	92.6	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36847		RunNo: 36847							
Prep Date:	Analysis Date: 8/29/2016		SeqNo: 1142224		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36847		RunNo: 36847							
Prep Date:	Analysis Date: 8/29/2016		SeqNo: 1142225		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145113		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145114		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A36952	RunNo:	36952					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145114	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.5	0.10	2.500	0	98.4	90	110			
Sulfate	10	0.50	10.00	0	99.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	LCS-27114		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27114			RunNo: 36683				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136777		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	112	65.4	162			
Surr: DNOP	0.26		0.2500		102	67.9	149			

Sample ID	MB-27114		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27114			RunNo: 36683				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136780		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.49		0.5000		97.5	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R36808	RunNo:	36808					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1140791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	16		20.00		82.4	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R36808	RunNo:	36808					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1140792	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	80	120			
Surr: BFB	19		20.00		94.6	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	100ng lcs3		SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW		Batch ID: B36669		RunNo: 36669					
Prep Date:			Analysis Date: 8/22/2016		SeqNo: 1136510		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.6	70	130			
Toluene	19	1.0	20.00	0	95.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.7	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130			
Surr: Toluene-d8	9.7		10.00		97.5	70	130			

Sample ID	rb3	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: B36669			RunNo: 36669					
Prep Date:		Analysis Date: 8/23/2016			SeqNo: 1136511		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.0	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID		1608c28-003d dup		SampType: dup		TestCode: SM2510B: Specific Conductance				
Client ID:		North of MW-46		Batch ID: R36738		RunNo: 36738				
Prep Date:		Analysis Date:		8/24/2016		SeqNo: 1138511		Units: µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	280	1.0						0.141	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	MB-27283	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27283	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144815	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27283	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27283	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144816	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.4	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147839	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.020								

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147840	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.4	80	120			
Barium	0.46	0.020	0.5000	0	92.1	80	120			
Cadmium	0.47	0.0020	0.5000	0	93.7	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.46	0.0060	0.5000	0	92.1	80	120			
Copper	0.45	0.0060	0.5000	0	90.9	80	120			
Iron	0.47	0.020	0.5000	0	93.2	80	120			
Lead	0.46	0.0050	0.5000	0	91.2	80	120			
Magnesium	58	1.0	50.00	0	116	80	120			
Manganese	0.45	0.0020	0.5000	0	90.2	80	120			
Potassium	56	1.0	50.00	0	112	80	120			
Selenium	0.46	0.050	0.5000	0	93.0	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			
Sodium	57	1.0	50.00	0	114	80	120			
Zinc	0.46	0.020	0.5000	0	91.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW		Batch ID: B37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151181		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	0.10								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: B37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151182		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.51	0.10	0.5000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	MB-27124		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139271		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27124		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139272		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	100	80	120			
Barium	0.48	0.020	0.5000	0	96.6	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.47	0.0050	0.5000	0	94.2	80	120			
Selenium	0.48	0.050	0.5000	0	95.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138449			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138450			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138474			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-2	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138475			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C28

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-19-2016

Sample ID	MB-27145	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	27145	RunNo:	36780					
Prep Date:	8/24/2016	Analysis Date:	8/26/2016	SeqNo:	1140141	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-27145	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	27145	RunNo:	36780					
Prep Date:	8/24/2016	Analysis Date:	8/26/2016	SeqNo:	1140142	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID	1608C28-004DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	Upstream	Batch ID:	27145	RunNo:	36780					
Prep Date:	8/24/2016	Analysis Date:	8/26/2016	SeqNo:	1140156	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2230	40.0	2000	178.0	102	80	120			D

Sample ID	1608C28-004DMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	Upstream	Batch ID:	27145	RunNo:	36780					
Prep Date:	8/24/2016	Analysis Date:	8/26/2016	SeqNo:	1140157	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2230	40.0	2000	178.0	103	80	120	0.269	5	D

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608C28**

RcptNo: 1

Received by/date:

Logged By: **Lindsay Mangin**

08/20/16
8/20/2016 9:15:00 AM

Completed By: **Lindsay Mangin**

8/22/2016 10:34:50 AM

Reviewed By:

jc 08/22/16

Lindsay Mangin
Lindsay Mangin

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

12
($\neq 2$ or >12 unless noted)

Adjusted?

NO

Checked by:

jc

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.8	Good	Yes			

Chain-of-Custody Record						
Client: Western Refining						
Mailing Address: 50 CR 4990 Bloomfield, NM 87413						
Phone #: 505-632-4135						
email or Fax#:						
QA/QC Package: ☐ Standard ☒ Level 4 (Full Validation) ☐ Other _____ ☒ EDD (Type) _____						
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8-19-16	1330	H ₂ O	Downstream	b-VOA	HCl	1608028
		H ₂ O	Downstream	1-500 ml Amber	Cool	-001
		H ₂ O	Downstream	1-500 ml	HNO ₃	-001
		H ₂ O	Downstream	1-500 ml	/	-001
		H ₂ O	Downstream	1-125 ml	H ₂ SO ₄	-001
		H ₂ O	Downstream	1-125 ml	HNO ₃	-001
Date:	Time:	Relinquished by:	Received by:	Date	Time	
8-19-16	1545	[Signature]	[Signature]	8/19/16	1545	
Date:	Time:	Relinquished by:	Received by:	Date	Time	
8/19/16	1740	[Signature]	[Signature]	08/20/16	0815	

4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Phone #: 505-632-4135						PO#12615520					
email or Fax#:						Project Manager:					
QA/QC Package: ☐ Standard ☒ Other _____ X EDD (Type) _____						Sampler: Michael A Wicker					
						On Ice: ☒ Yes ☐ No					
						Sample Temperature: 3.8					
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No					
8-19-16	1530	H ₂ O	Downstream	B-VOA	HCl	-001					
		H ₂ O	Downstream	1-500 ml Amber	Cool	-001					
		H ₂ O	Downstream	1-500 ml	HNO ₃	-001					
		H ₂ O	Downstream	1-500 ml	/	-001					
		H ₂ O	Downstream	1-125 ml	H ₂ SO ₄	-001					
↓	↓	H ₂ O	Downstream	1-125 ml	HNO ₃	-001					
Date:	Time:	Relinquished by:	Received by:	Date	Time						
8-19-16	1545	[Signature]	M. Wart	8/19/16	1545						
Date:	Time:	Relinquished by:	Received by:	Date	Time						
8/19/16	1740	[Signature]	M. Wart	08/20/16	0815						

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**

Project Name: **Salt Juati River**
Date: **8-19-2016**
Project #: Annual
PO#12615520

Project Manager:	
Sampler:	Michael A Wicker
On Ice:	☒ Yes ☐ No
Sample Temperature:	3, 8

Container Type and #	Preservative Type	HEAL No.
6-VOA	HCl	1608028
1-500 ml Amber	Cool	-003
1-500 ml	HNO ₃	-003
1-500 ml		-003
1-125 ml	H ₂ SO ₄	-003
1-125 ml	HNO ₃	-003

[illegible]

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.

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: San Juan River Bluff 8-19-2016

OrderNo.: 1608C26

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/20/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C26

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001A

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 5:59:12 PM	A36700
Toluene	ND	1.0		µg/L	1	8/23/2016 5:59:12 PM	A36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 5:59:12 PM	A36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 5:59:12 PM	A36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 5:59:12 PM	A36700
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	8/23/2016 5:59:12 PM	A36700
Surr: 4-Bromofluorobenzene	94.1	70-130		%Rec	1	8/23/2016 5:59:12 PM	A36700
Surr: Dibromofluoromethane	98.0	70-130		%Rec	1	8/23/2016 5:59:12 PM	A36700
Surr: Toluene-d8	97.1	70-130		%Rec	1	8/23/2016 5:59:12 PM	A36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 1 of 16

Analytical ReportLab Order: **1608C26**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001B

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	84	1.0	H	mg CO2/L	1	8/24/2016 3:38:46 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.19	0.10		mg/L	1	8/26/2016 1:59:56 PM	R36816
Chloride	3.4	0.50		mg/L	1	8/26/2016 1:59:56 PM	R36816
Bromide	ND	0.10		mg/L	1	8/26/2016 1:59:56 PM	R36816
Phosphorus, Orthophosphate (As P _i)	ND	0.50	H	mg/L	1	8/26/2016 1:59:56 PM	R36816
Sulfate	48	0.50		mg/L	1	8/26/2016 1:59:56 PM	R36816
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/26/2016 5:18:30 PM	R36816
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	93.56	20.00		mg/L CaCO ₃	1	8/24/2016 3:38:46 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 3:38:46 PM	R36738
Total Alkalinity (as CaCO ₃)	93.56	20.00		mg/L CaCO ₃	1	8/24/2016 3:38:46 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C26**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001C

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 11:11:13 AM	27127
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	8/25/2016 2:18:32 PM	27124
Barium	0.072	0.020		mg/L	1	8/25/2016 2:18:32 PM	27124
Cadmium	ND	0.0020		mg/L	1	8/25/2016 2:18:32 PM	27124
Chromium	ND	0.0060		mg/L	1	8/25/2016 2:18:32 PM	27124
Lead	ND	0.0050		mg/L	1	8/25/2016 2:18:32 PM	27124
Selenium	ND	0.050		mg/L	1	8/25/2016 2:18:32 PM	27124
Silver	ND	0.0050		mg/L	1	8/25/2016 2:18:32 PM	27124

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 16

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C26

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001D

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/24/2016 11:13:13 AM	27127
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 6:10:12 PM	B37036
Barium	0.069	0.020		mg/L	1	9/7/2016 6:10:12 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 6:10:12 PM	B37036
Calcium	34	1.0		mg/L	1	9/7/2016 6:10:12 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 6:10:12 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 6:10:12 PM	B37036
Iron	ND	0.020		mg/L	1	9/7/2016 6:10:12 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 6:10:12 PM	B37036
Magnesium	6.0	1.0		mg/L	1	9/7/2016 6:10:12 PM	B37036
Manganese	0.0032	0.0020		mg/L	1	9/7/2016 6:10:12 PM	B37036
Potassium	1.9	1.0		mg/L	1	9/7/2016 6:10:12 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 6:10:12 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 6:10:12 PM	B37036
Sodium	18	1.0		mg/L	1	9/7/2016 6:10:12 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 12:24:33 PM	B37126
Zinc	0.025	0.020		mg/L	1	9/7/2016 6:10:12 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C26**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001E

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/23/2016 2:50:27 PM	27123
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/23/2016 2:50:27 PM	27123
Surr: DNOP	107	77.1-144		%Rec	1	8/23/2016 2:50:27 PM	27123

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 16

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C26

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-001F

Client Sample ID: Outfall #3
Collection Date: 8/19/2016 2:10:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2016 5:59:12 PM	R36700
Surr: BFB	99.1	70-130		%Rec	1	8/23/2016 5:59:12 PM	R36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C26**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River Bluff 8-19-2016
Lab ID: 1608C26-002A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SHORT LIST							Analyst: AG
Benzene	ND	1.0		µg/L	1	8/23/2016 6:28:00 PM	A36700
Toluene	ND	1.0		µg/L	1	8/23/2016 6:28:00 PM	A36700
Ethylbenzene	ND	1.0		µg/L	1	8/23/2016 6:28:00 PM	A36700
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/23/2016 6:28:00 PM	A36700
Xylenes, Total	ND	1.5		µg/L	1	8/23/2016 6:28:00 PM	A36700
Surr: 1,2-Dichloroethane-d4	98.6	70-130		%Rec	1	8/23/2016 6:28:00 PM	A36700
Surr: 4-Bromofluorobenzene	98.2	70-130		%Rec	1	8/23/2016 6:28:00 PM	A36700
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	8/23/2016 6:28:00 PM	A36700
Surr: Toluene-d8	99.7	70-130		%Rec	1	8/23/2016 6:28:00 PM	A36700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 7 of 16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R36816	RunNo:	36816					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1141089	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R36816	RunNo:	36816					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1141090	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	4.6	0.50	5.000	0	93.0	90	110			
Bromide	2.4	0.10	2.500	0	94.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.9	90	110			
Sulfate	9.4	0.50	10.00	0	94.4	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	LCS-27123		SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	LCSW		Batch ID: 27123			RunNo: 36682				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136867		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	101	71.3	139			
Surr: DNOP	0.52		0.5000		104	77.1	144			

Sample ID	MB-27123		SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	PBW		Batch ID: 27123			RunNo: 36682				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136868		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		105	77.1	144			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	A36700	RunNo:	36700					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137398	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.7	70	130			
Toluene	20	1.0	20.00	0	99.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.0	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	A36700	RunNo:	36700					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137400	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.9		10.00		98.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	MB-27127	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27127	RunNo:	36730					
Prep Date:	8/23/2016	Analysis Date:	8/24/2016	SeqNo:	1138256	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27127	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27127	RunNo:	36730					
Prep Date:	8/23/2016	Analysis Date:	8/24/2016	SeqNo:	1138257	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147839	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.020								

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147840	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.47	0.020	0.5000	0	94.4	80	120			
Barium	0.46	0.020	0.5000	0	92.1	80	120			
Cadmium	0.47	0.0020	0.5000	0	93.7	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.46	0.0060	0.5000	0	92.1	80	120			
Copper	0.45	0.0060	0.5000	0	90.9	80	120			
Iron	0.47	0.020	0.5000	0	93.2	80	120			
Lead	0.46	0.0050	0.5000	0	91.2	80	120			
Magnesium	58	1.0	50.00	0	116	80	120			
Manganese	0.45	0.0020	0.5000	0	90.2	80	120			
Potassium	56	1.0	50.00	0	112	80	120			
Selenium	0.46	0.050	0.5000	0	93.0	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			
Sodium	57	1.0	50.00	0	114	80	120			
Zinc	0.46	0.020	0.5000	0	91.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37126	RunNo:	37126					
Prep Date:		Analysis Date:	9/12/2016	SeqNo:	1151181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	0.10								

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37126	RunNo:	37126					
Prep Date:		Analysis Date:	9/12/2016	SeqNo:	1151182	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.51	0.10	0.5000	0	101	80	120			

Sample ID	1608C26-001DMS	SampType:	MS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	Outfall #3	Batch ID:	B37126	RunNo:	37126					
Prep Date:		Analysis Date:	9/12/2016	SeqNo:	1151243	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.52	0.10	0.5000	0.01098	101	75	125			

Sample ID	1608C26-001DMSD	SampType:	MSD	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	Outfall #3	Batch ID:	B37126	RunNo:	37126					
Prep Date:		Analysis Date:	9/12/2016	SeqNo:	1151244	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.51	0.10	0.5000	0.01098	101	75	125	0.595	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	MB-27124		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139271		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27124		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27124		RunNo: 36757					
Prep Date:	8/23/2016		Analysis Date: 8/25/2016		SeqNo: 1139272		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	100	80	120			
Barium	0.48	0.020	0.5000	0	96.6	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.7	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.47	0.0050	0.5000	0	94.2	80	120			
Selenium	0.48	0.050	0.5000	0	95.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R36700	RunNo:	36700					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137274	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.41	0.050	0.5000	0	82.5	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R36700	RunNo:	36700					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137275	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		98.1	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C26

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-19-2016

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138449	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138450	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138474	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138475	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1808C26

RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

8/20/2016 9:15:00 AM

Completed By: Lindsay Mangin

8/22/2016 9:57:20 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

Adjusted? ☒

Checked by: *as*

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.8	Good	Yes			

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: RCRA Wells 8-22-2016

OrderNo.: 1608C81

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001A

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 2:52:59 PM	G36811
Surr: BFB	99.5	70-130		%Rec	1	8/26/2016 2:52:59 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Toluene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Acetone	ND	10		µg/L	1	8/24/2016 11:49:00 PM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
2-Butanone	ND	10		µg/L	1	8/24/2016 11:49:00 PM	B36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 11:49:00 PM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001A

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
2-Hexanone	ND	10		µg/L	1	8/24/2016 11:49:00 PM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 11:49:00 PM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Styrene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 11:49:00 PM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 11:49:00 PM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/24/2016 11:49:00 PM	B36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/24/2016 11:49:00 PM	B36743
Surr: Dibromofluoromethane	95.5	70-130		%Rec	1	8/24/2016 11:49:00 PM	B36743
Surr: Toluene-d8	99.6	70-130		%Rec	1	8/24/2016 11:49:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-64**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 11:30:00 AM**Lab ID:** 1608C81-001C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/24/2016 1:25:15 PM	27141
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/24/2016 1:25:15 PM	27141
Surr: DNOP	130	67.9-149		%Rec	1	8/24/2016 1:25:15 PM	27141

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 56

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001D

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	260	1.0	H	mg CO2/L	1	8/24/2016 10:56:06 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	10		mg/L	100	8/24/2016 4:55:06 AM	A36713
Chloride	860	50	*	mg/L	100	8/24/2016 3:13:12 PM	R36722
Nitrogen, Nitrite (As N)	ND	10		mg/L	100	8/24/2016 4:55:06 AM	A36713
Bromide	5.1	2.0		mg/L	20	8/24/2016 10:40:14 AM	R36722
Nitrogen, Nitrate (As N)	58	2.0	*	mg/L	20	8/24/2016 10:40:14 AM	R36722
Phosphorus, Orthophosphate (As P)	ND	50		mg/L	100	8/24/2016 4:55:06 AM	A36713
Sulfate	1500	50	*	mg/L	100	8/24/2016 3:13:12 PM	R36722
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	279.0	20.00		mg/L CaCO3	1	8/24/2016 10:56:06 PM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/24/2016 10:56:06 PM	R36738
Total Alkalinity (as CaCO3)	279.0	20.00		mg/L CaCO3	1	8/24/2016 10:56:06 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001E

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:26:04 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 1:44:12 PM	27180
Barium	0.095	0.020		mg/L	1	9/2/2016 1:44:12 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:44:12 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 1:44:12 PM	27180
Lead	0.0088	0.0050		mg/L	1	9/7/2016 3:03:34 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:44:12 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:44:12 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 56

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001F

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:36:26 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:49:50 PM	C37036
Barium	0.024	0.020		mg/L	1	9/7/2016 7:49:50 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:49:50 PM	C37036
Calcium	500	5.0		mg/L	5	9/7/2016 7:51:34 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:49:50 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:49:50 PM	C37036
Iron	1.8	0.10		mg/L	5	9/7/2016 7:51:34 PM	C37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:49:50 PM	C37036
Magnesium	78	1.0		mg/L	1	9/7/2016 7:49:50 PM	C37036
Manganese	0.037	0.0020		mg/L	1	9/7/2016 7:49:50 PM	C37036
Potassium	5.5	1.0		mg/L	1	9/7/2016 7:49:50 PM	C37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:49:50 PM	C37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:49:50 PM	C37036
Sodium	830	10		mg/L	10	9/12/2016 1:24:04 PM	C37126
Uranium	ND	0.10		mg/L	1	9/12/2016 1:22:31 PM	C37126
Zinc	0.038	0.020		mg/L	1	9/7/2016 7:49:50 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608C81

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001G

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 3:16:29 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-001G

Client Sample ID: MW-64
Collection Date: 8/22/2016 11:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 3:16:29 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 3:16:29 PM	27151
Surr: 2-Fluorophenol	53.3	15-123		%Rec	1	8/29/2016 3:16:29 PM	27151
Surr: Phenol-d5	36.9	4.13-124		%Rec	1	8/29/2016 3:16:29 PM	27151
Surr: 2,4,6-Tribromophenol	80.6	18.4-134		%Rec	1	8/29/2016 3:16:29 PM	27151
Surr: Nitrobenzene-d5	64.6	28.8-134		%Rec	1	8/29/2016 3:16:29 PM	27151
Surr: 2-Fluorobiphenyl	59.0	35.9-125		%Rec	1	8/29/2016 3:16:29 PM	27151
Surr: 4-Terphenyl-d14	66.9	15-146		%Rec	1	8/29/2016 3:16:29 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002A

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 4:18:44 PM	G36811
Surr: BFB	95.6	70-130		%Rec	1	8/26/2016 4:18:44 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Toluene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Methyl tert-butyl ether (MTBE)	1.3	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Naphthalene	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Acetone	ND	10		µg/L	1	8/25/2016 12:13:00 AM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Bromoform	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Bromomethane	ND	3.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
2-Butanone	ND	10		µg/L	1	8/25/2016 12:13:00 AM	B36743
Carbon disulfide	ND	10		µg/L	1	8/25/2016 12:13:00 AM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Chloroethane	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Chloroform	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Chloromethane	ND	3.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002A

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
2-Hexanone	ND	10		µg/L	1	8/25/2016 12:13:00 AM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 12:13:00 AM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Styrene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 12:13:00 AM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 12:13:00 AM	B36743
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/25/2016 12:13:00 AM	B36743
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	8/25/2016 12:13:00 AM	B36743
Surr: Dibromofluoromethane	95.2	70-130		%Rec	1	8/25/2016 12:13:00 AM	B36743
Surr: Toluene-d8	98.8	70-130		%Rec	1	8/25/2016 12:13:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 10 of 56

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-63**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 10:40:00 AM**Lab ID:** 1608C81-002C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/24/2016 2:30:14 PM	27141
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/24/2016 2:30:14 PM	27141
Surr: DNOP	128	67.9-149		%Rec	1	8/24/2016 2:30:14 PM	27141

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002D

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	470	1.0	H	mg CO2/L	1	8/24/2016 11:09:48 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.16	0.10		mg/L	1	8/24/2016 5:32:20 AM	A36713
Chloride	100	10		mg/L	20	8/24/2016 5:44:45 AM	A36713
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2016 5:32:20 AM	A36713
Bromide	1.5	0.10		mg/L	1	8/29/2016 12:33:37 PM	R36847
Nitrogen, Nitrate (As N)	39	2.0	*	mg/L	20	8/24/2016 10:15:25 AM	R36722
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2016 5:32:20 AM	A36713
Sulfate	1200	25	*	mg/L	50	8/24/2016 3:25:37 PM	R36722
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	500.7	20.00		mg/L CaCO3	1	8/24/2016 11:09:48 PM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/24/2016 11:09:48 PM	R36738
Total Alkalinity (as CaCO3)	500.7	20.00		mg/L CaCO3	1	8/24/2016 11:09:48 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-63**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 10:40:00 AM**Lab ID:** 1608C81-002E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:38:29 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 1:47:34 PM	27180
Barium	0.28	0.020		mg/L	1	9/2/2016 1:47:34 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:47:34 PM	27180
Chromium	0.016	0.0060		mg/L	1	9/2/2016 1:47:34 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:16:33 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:47:34 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:47:34 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002F

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:40:33 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:53:23 PM	C37036
Barium	0.023	0.020		mg/L	1	9/7/2016 7:53:23 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:53:23 PM	C37036
Calcium	320	5.0		mg/L	5	9/7/2016 7:55:00 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:53:23 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:53:23 PM	C37036
Iron	3.9	0.10		mg/L	5	9/7/2016 7:55:00 PM	C37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:53:23 PM	C37036
Magnesium	99	1.0		mg/L	1	9/7/2016 7:53:23 PM	C37036
Manganese	0.73	0.0020		mg/L	1	9/7/2016 7:53:23 PM	C37036
Potassium	4.1	1.0		mg/L	1	9/7/2016 7:53:23 PM	C37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:53:23 PM	C37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:53:23 PM	C37036
Sodium	420	5.0		mg/L	5	9/7/2016 7:55:00 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:25:43 PM	C37126
Zinc	0.10	0.020		mg/L	1	9/7/2016 7:53:23 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002G

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 3:44:30 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-002G

Client Sample ID: MW-63
Collection Date: 8/22/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 3:44:30 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 3:44:30 PM	27151
Surr: 2-Fluorophenol	14.5	15-123	S	%Rec	1	8/29/2016 3:44:30 PM	27151
Surr: Phenol-d5	11.9	4.13-124		%Rec	1	8/29/2016 3:44:30 PM	27151
Surr: 2,4,6-Tribromophenol	52.7	18.4-134		%Rec	1	8/29/2016 3:44:30 PM	27151
Surr: Nitrobenzene-d5	31.8	28.8-134		%Rec	1	8/29/2016 3:44:30 PM	27151
Surr: 2-Fluorobiphenyl	32.6	35.9-125	S	%Rec	1	8/29/2016 3:44:30 PM	27151
Surr: 4-Terphenyl-d14	38.3	15-146		%Rec	1	8/29/2016 3:44:30 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003A

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	20	2.5		mg/L	50	8/26/2016 4:47:16 PM	G36811
Surr: BFB	102	70-130		%Rec	50	8/26/2016 4:47:16 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	5700	200		µg/L	200	8/25/2016 12:36:00 AM	B36743
Toluene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Ethylbenzene	1200	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Methyl tert-butyl ether (MTBE)	490	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2,4-Trimethylbenzene	480	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,3,5-Trimethylbenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2-Dichloroethane (EDC)	88	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Naphthalene	46	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
1-Methylnaphthalene	130	80		µg/L	20	8/25/2016 1:00:00 AM	B36743
2-Methylnaphthalene	ND	80		µg/L	20	8/25/2016 1:00:00 AM	B36743
Acetone	ND	200		µg/L	20	8/25/2016 1:00:00 AM	B36743
Bromobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Bromodichloromethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Bromoform	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Bromomethane	ND	60		µg/L	20	8/25/2016 1:00:00 AM	B36743
2-Butanone	ND	200		µg/L	20	8/25/2016 1:00:00 AM	B36743
Carbon disulfide	ND	200		µg/L	20	8/25/2016 1:00:00 AM	B36743
Carbon Tetrachloride	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Chlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Chloroethane	ND	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
Chloroform	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Chloromethane	ND	60		µg/L	20	8/25/2016 1:00:00 AM	B36743
2-Chlorotoluene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
4-Chlorotoluene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
cis-1,2-DCE	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
cis-1,3-Dichloropropene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
Dibromochloromethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Dibromomethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2-Dichlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,3-Dichlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,4-Dichlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Dichlorodifluoromethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1-Dichloroethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1-Dichloroethene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2-Dichloropropane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003A

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
1,3-Dichloropropane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
2,2-Dichloropropane	ND	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1-Dichloropropene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Hexachlorobutadiene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
2-Hexanone	ND	200		µg/L	20	8/25/2016 1:00:00 AM	B36743
Isopropylbenzene	72	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
4-Isopropyltoluene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
4-Methyl-2-pentanone	ND	200		µg/L	20	8/25/2016 1:00:00 AM	B36743
Methylene Chloride	ND	60		µg/L	20	8/25/2016 1:00:00 AM	B36743
n-Butylbenzene	ND	60		µg/L	20	8/25/2016 1:00:00 AM	B36743
n-Propylbenzene	220	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
sec-Butylbenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Styrene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
tert-Butylbenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
Tetrachloroethene (PCE)	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
trans-1,2-DCE	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
trans-1,3-Dichloropropene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2,3-Trichlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2,4-Trichlorobenzene	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1,1-Trichloroethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,1,2-Trichloroethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Trichloroethene (TCE)	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Trichlorofluoromethane	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
1,2,3-Trichloropropane	ND	40		µg/L	20	8/25/2016 1:00:00 AM	B36743
Vinyl chloride	ND	20		µg/L	20	8/25/2016 1:00:00 AM	B36743
Xylenes, Total	65	30		µg/L	20	8/25/2016 1:00:00 AM	B36743
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	20	8/25/2016 1:00:00 AM	B36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	20	8/25/2016 1:00:00 AM	B36743
Surr: Dibromofluoromethane	94.9	70-130		%Rec	20	8/25/2016 1:00:00 AM	B36743
Surr: Toluene-d8	99.9	70-130		%Rec	20	8/25/2016 1:00:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003C

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	4.8	0.20		mg/L	1	8/24/2016 2:52:03 PM	27141
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/24/2016 2:52:03 PM	27141
Surr: DNOP	115	67.9-149		%Rec	1	8/24/2016 2:52:03 PM	27141

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003D

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	860	2.5	H	mg CO2/L	2.5	8/30/2016 1:08:20 AM	R36846
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.50		mg/L	5	8/24/2016 5:57:09 AM	A36713
Chloride	220	10		mg/L	20	8/24/2016 6:09:34 AM	A36713
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 5:57:09 AM	A36713
Bromide	4.2	0.50		mg/L	5	8/29/2016 12:46:02 PM	R36847
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 5:57:09 AM	A36713
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 5:57:09 AM	A36713
Sulfate	1600	25	*	mg/L	50	8/24/2016 3:38:01 PM	R36722
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	945.6	50.00		mg/L CaCO3	2.5	8/30/2016 1:08:20 AM	R36846
Carbonate (As CaCO3)	ND	5.000		mg/L CaCO3	2.5	8/30/2016 1:08:20 AM	R36846
Total Alkalinity (as CaCO3)	945.6	50.00		mg/L CaCO3	2.5	8/30/2016 1:08:20 AM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003E

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:42:36 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.020	0.020		mg/L	1	9/2/2016 1:50:52 PM	27180
Barium	0.11	0.020		mg/L	1	9/2/2016 1:50:52 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:50:52 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 1:50:52 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:18:17 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:50:52 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:50:52 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003F

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:44:40 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:56:56 PM	C37036
Barium	0.045	0.020		mg/L	1	9/7/2016 7:56:56 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:56:56 PM	C37036
Calcium	370	5.0		mg/L	5	9/7/2016 8:05:38 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:56:56 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:56:56 PM	C37036
Iron	6.7	0.20		mg/L	10	9/12/2016 1:36:56 PM	C37126
Lead	ND	0.0050		mg/L	1	9/7/2016 7:56:56 PM	C37036
Magnesium	110	5.0		mg/L	5	9/7/2016 8:05:38 PM	C37036
Manganese	2.7	0.010		mg/L	5	9/7/2016 8:05:38 PM	C37036
Potassium	4.1	1.0		mg/L	1	9/7/2016 7:56:56 PM	C37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:56:56 PM	C37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:56:56 PM	C37036
Sodium	800	10		mg/L	10	9/12/2016 1:36:56 PM	C37126
Uranium	ND	0.10		mg/L	1	9/12/2016 1:30:26 PM	C37126
Zinc	ND	0.020		mg/L	1	9/7/2016 7:56:56 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003G

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 4:12:17 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 23 of 56

Analytical Report

Lab Order: 1608C81

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-003G

Client Sample ID: MW-65
Collection Date: 8/22/2016 9:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
1-Methylnaphthalene	14	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 4:12:17 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 4:12:17 PM	27151
Surr: 2-Fluorophenol	26.0	15-123		%Rec	1	8/29/2016 4:12:17 PM	27151
Surr: Phenol-d5	22.6	4.13-124		%Rec	1	8/29/2016 4:12:17 PM	27151
Surr: 2,4,6-Tribromophenol	57.0	18.4-134		%Rec	1	8/29/2016 4:12:17 PM	27151
Surr: Nitrobenzene-d5	55.2	28.8-134		%Rec	1	8/29/2016 4:12:17 PM	27151
Surr: 2-Fluorobiphenyl	45.0	35.9-125		%Rec	1	8/29/2016 4:12:17 PM	27151
Surr: 4-Terphenyl-d14	44.8	15-146		%Rec	1	8/29/2016 4:12:17 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 24 of 56

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004A

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	1.8	0.050		mg/L	1	8/26/2016 5:15:42 PM	G36811
Surr: BFB	111	70-130		%Rec	1	8/26/2016 5:15:42 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	7.7	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Toluene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Ethylbenzene	65	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Methyl tert-butyl ether (MTBE)	1200	50		µg/L	50	8/25/2016 10:30:00 AM	R36736
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2-Dichloroethane (EDC)	25	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Naphthalene	2.8	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Acetone	ND	10		µg/L	1	8/25/2016 1:23:00 AM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Bromoform	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Bromomethane	ND	3.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
2-Butanone	ND	10		µg/L	1	8/25/2016 1:23:00 AM	B36743
Carbon disulfide	ND	10		µg/L	1	8/25/2016 1:23:00 AM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Chloroethane	ND	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Chloroform	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Chloromethane	ND	3.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004A

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
2-Hexanone	ND	10		µg/L	1	8/25/2016 1:23:00 AM	B36743
Isopropylbenzene	12	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
4-Isopropyltoluene	1.5	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 1:23:00 AM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
n-Propylbenzene	12	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
sec-Butylbenzene	5.4	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Styrene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 1:23:00 AM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 1:23:00 AM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/25/2016 1:23:00 AM	B36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/25/2016 1:23:00 AM	B36743
Surr: Dibromofluoromethane	94.9	70-130		%Rec	1	8/25/2016 1:23:00 AM	B36743
Surr: Toluene-d8	96.6	70-130		%Rec	1	8/25/2016 1:23:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004C

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	0.85	0.20		mg/L	1	8/24/2016 3:13:42 PM	27141
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/24/2016 3:13:42 PM	27141
Surr: DNOP	113	67.9-149		%Rec	1	8/24/2016 3:13:42 PM	27141

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-59**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 12:15:00 PM**Lab ID:** 1608C81-004D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1000	1.0	H	mg CO2/L	1	8/25/2016 12:10:12 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.10		mg/L	1	8/24/2016 6:21:59 AM	A36713
Chloride	190	10		mg/L	20	8/24/2016 6:34:24 AM	A36713
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2016 6:21:59 AM	A36713
Bromide	ND	0.10		mg/L	1	8/24/2016 10:52:38 AM	R36722
Nitrogen, Nitrate (As N)	0.60	0.10		mg/L	1	8/24/2016 10:52:38 AM	R36722
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2016 6:21:59 AM	A36713
Sulfate	200	10		mg/L	20	8/24/2016 6:34:24 AM	A36713
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1094	20.00		mg/L CaCO3	1	8/25/2016 12:10:12 AM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/25/2016 12:10:12 AM	R36738
Total Alkalinity (as CaCO3)	1094	20.00		mg/L CaCO3	1	8/25/2016 12:10:12 AM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004E

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:46:45 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 1:54:11 PM	27180
Barium	0.17	0.020		mg/L	1	9/2/2016 1:54:11 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:54:11 PM	27180
Chromium	0.0062	0.0060		mg/L	1	9/2/2016 1:54:11 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:19:54 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:54:11 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:54:11 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004F

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:48:51 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 8:07:13 PM	C37036
Barium	0.076	0.020		mg/L	1	9/7/2016 8:07:13 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 8:07:13 PM	C37036
Calcium	200	5.0		mg/L	5	9/7/2016 8:08:50 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 8:07:13 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 8:07:13 PM	C37036
Iron	5.2	0.20		mg/L	10	9/12/2016 1:40:04 PM	C37126
Lead	ND	0.0050		mg/L	1	9/7/2016 8:07:13 PM	C37036
Magnesium	56	1.0		mg/L	1	9/7/2016 8:07:13 PM	C37036
Manganese	1.9	0.010		mg/L	5	9/7/2016 8:08:50 PM	C37036
Potassium	3.7	1.0		mg/L	1	9/7/2016 8:07:13 PM	C37036
Selenium	ND	0.050		mg/L	1	9/12/2016 1:38:36 PM	C37126
Silver	ND	0.0050		mg/L	1	9/7/2016 8:07:13 PM	C37036
Sodium	480	5.0		mg/L	5	9/7/2016 8:08:50 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:38:36 PM	C37126
Zinc	0.021	0.020		mg/L	1	9/7/2016 8:07:13 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004G

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 4:39:59 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-004G

Client Sample ID: MW-59
Collection Date: 8/22/2016 12:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 4:39:59 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 4:39:59 PM	27151
Surr: 2-Fluorophenol	26.0	15-123		%Rec	1	8/29/2016 4:39:59 PM	27151
Surr: Phenol-d5	23.0	4.13-124		%Rec	1	8/29/2016 4:39:59 PM	27151
Surr: 2,4,6-Tribromophenol	45.8	18.4-134		%Rec	1	8/29/2016 4:39:59 PM	27151
Surr: Nitrobenzene-d5	67.6	28.8-134		%Rec	1	8/29/2016 4:39:59 PM	27151
Surr: 2-Fluorobiphenyl	62.7	35.9-125		%Rec	1	8/29/2016 4:39:59 PM	27151
Surr: 4-Terphenyl-d14	47.6	15-146		%Rec	1	8/29/2016 4:39:59 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 32 of 56

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-005A

Client Sample ID: MW-62
Collection Date: 8/22/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 5:44:09 PM	G36811
Surr: BFB	98.0	70-130		%Rec	1	8/26/2016 5:44:09 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Toluene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Naphthalene	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Acetone	ND	10		µg/L	1	8/25/2016 1:47:00 AM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Bromoform	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Bromomethane	ND	3.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
2-Butanone	ND	10		µg/L	1	8/25/2016 1:47:00 AM	B36743
Carbon disulfide	ND	10		µg/L	1	8/25/2016 1:47:00 AM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Chloroethane	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Chloroform	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Chloromethane	ND	3.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-62**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 1:50:00 PM**Lab ID:** 1608C81-005A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
2-Hexanone	ND	10		µg/L	1	8/25/2016 1:47:00 AM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 1:47:00 AM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Styrene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 1:47:00 AM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 1:47:00 AM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/25/2016 1:47:00 AM	B36743
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	8/25/2016 1:47:00 AM	B36743
Surr: Dibromofluoromethane	97.4	70-130		%Rec	1	8/25/2016 1:47:00 AM	B36743
Surr: Toluene-d8	100	70-130		%Rec	1	8/25/2016 1:47:00 AM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-62**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 1:50:00 PM**Lab ID:** 1608C81-005C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/24/2016 3:35:26 PM	27141
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/24/2016 3:35:26 PM	27141
Surr: DNOP	115	67.9-149		%Rec	1	8/24/2016 3:35:26 PM	27141

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-005D

Client Sample ID: MW-62
Collection Date: 8/22/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	500	1.0	H	mg CO2/L	1	8/25/2016 12:46:39 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	2.0		mg/L	20	8/24/2016 6:59:12 AM	A36713
Chloride	14	0.50		mg/L	1	8/24/2016 6:46:48 AM	A36713
Bromide	ND	0.10		mg/L	1	8/29/2016 12:58:26 PM	R36847
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/24/2016 6:59:12 AM	A36713
Sulfate	4000	50	*	mg/L	100	8/24/2016 4:15:15 PM	R36722
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/29/2016 1:10:51 PM	R36847
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	549.6	20.00		mg/L CaCO3	1	8/25/2016 12:46:39 AM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/25/2016 12:46:39 AM	R36738
Total Alkalinity (as CaCO3)	549.6	20.00		mg/L CaCO3	1	8/25/2016 12:46:39 AM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-62**Project:** RCRA Wells 8-22-2016**Collection Date:** 8/22/2016 1:50:00 PM**Lab ID:** 1608C81-005E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:50:57 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 1:57:32 PM	27180
Barium	0.33	0.020		mg/L	1	9/2/2016 1:57:32 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:57:32 PM	27180
Chromium	0.0071	0.0060		mg/L	1	9/2/2016 1:57:32 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:21:32 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:57:32 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:57:32 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-005F

Client Sample ID: MW-62
Collection Date: 8/22/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:57:18 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 8:10:33 PM	C37036
Barium	ND	0.020		mg/L	1	9/7/2016 8:10:33 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 8:10:33 PM	C37036
Calcium	450	5.0		mg/L	5	9/7/2016 8:12:17 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 8:10:33 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 8:10:33 PM	C37036
Iron	1.3	0.10		mg/L	5	9/7/2016 8:12:17 PM	C37036
Lead	ND	0.0050		mg/L	1	9/7/2016 8:10:33 PM	C37036
Magnesium	38	1.0		mg/L	1	9/7/2016 8:10:33 PM	C37036
Manganese	1.2	0.010		mg/L	5	9/7/2016 8:12:17 PM	C37036
Potassium	10	1.0		mg/L	1	9/7/2016 8:10:33 PM	C37036
Selenium	ND	0.050		mg/L	1	9/12/2016 1:41:44 PM	C37126
Silver	ND	0.0050		mg/L	1	9/7/2016 8:10:33 PM	C37036
Sodium	1600	50		mg/L	50	9/12/2016 1:43:14 PM	C37126
Uranium	ND	0.10		mg/L	1	9/12/2016 1:41:44 PM	C37126
Zinc	0.051	0.020		mg/L	1	9/7/2016 8:10:33 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C81

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-005G

Client Sample ID: MW-62
Collection Date: 8/22/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 5:07:38 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C81****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-22-2016
Lab ID: 1608C81-005G

Client Sample ID: MW-62
Collection Date: 8/22/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 5:07:38 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 5:07:38 PM	27151
Surr: 2-Fluorophenol	30.8	15-123		%Rec	1	8/29/2016 5:07:38 PM	27151
Surr: Phenol-d5	26.4	4.13-124		%Rec	1	8/29/2016 5:07:38 PM	27151
Surr: 2,4,6-Tribromophenol	84.3	18.4-134		%Rec	1	8/29/2016 5:07:38 PM	27151
Surr: Nitrobenzene-d5	63.6	28.8-134		%Rec	1	8/29/2016 5:07:38 PM	27151
Surr: 2-Fluorobiphenyl	56.1	35.9-125		%Rec	1	8/29/2016 5:07:38 PM	27151
Surr: 4-Terphenyl-d14	58.2	15-146		%Rec	1	8/29/2016 5:07:38 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 40 of 56

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A36713	RunNo:	36713					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1137771	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A36713	RunNo:	36713					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1137772	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.6	0.50	5.000	0	91.8	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.6	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R36722	RunNo:	36722					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138040	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R36722	RunNo:	36722					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138041	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.2	90	110			
Bromide	2.4	0.10	2.500	0	96.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.8	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R36847	RunNo:	36847					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1142224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R36847	RunNo:	36847					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1142225	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.5	0.10	2.500	0	99.0	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	1608C81-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	MW-64	Batch ID:	27141	RunNo:	36708					
Prep Date:	8/24/2016	Analysis Date:	8/24/2016	SeqNo:	1138004	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	134	73.3	174			
Surr: DNOP	0.31		0.2500		122	67.9	149			

Sample ID	1608C81-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	MW-64	Batch ID:	27141	RunNo:	36708					
Prep Date:	8/24/2016	Analysis Date:	8/24/2016	SeqNo:	1138005	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.2	0.20	2.500	0	127	73.3	174	5.42	20	
Surr: DNOP	0.29		0.2500		116	67.9	149	0	0	

Sample ID	LCS-27141	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	27141	RunNo:	36708					
Prep Date:	8/24/2016	Analysis Date:	8/24/2016	SeqNo:	1138006	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.2	0.20	2.500	0	129	65.4	162			
Surr: DNOP	0.29		0.2500		117	67.9	149			

Sample ID	MB-27141	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	27141	RunNo:	36708					
Prep Date:	8/24/2016	Analysis Date:	8/24/2016	SeqNo:	1138007	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.61		0.5000		122	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	100ng lcs 2			SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW			Batch ID:	B36743		RunNo:	36743			
Prep Date:				Analysis Date:	8/24/2016		SeqNo:	1138903		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	20	1.0	20.00	0	97.5	70	130				
Toluene	20	1.0	20.00	0	102	70	130				
Chlorobenzene	21	1.0	20.00	0	104	70	130				
1,1-Dichloroethene	19	1.0	20.00	0	96.2	70	130				
Trichloroethene (TCE)	19	1.0	20.00	0	94.3	70	130				
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130				
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130				
Surr: Dibromofluoromethane	10		10.00		100	70	130				
Surr: Toluene-d8	10		10.00		99.8	70	130				

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: B36743			RunNo: 36743					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138904		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	B36743	RunNo:	36743					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138904	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: B36743			RunNo: 36743					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138904		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.9	70	130			
Surr: Toluene-d8	10		10.00		99.5	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R36736			RunNo: 36736					
Prep Date:		Analysis Date: 8/25/2016			SeqNo: 1139716			Units: %Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.2	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36736			RunNo: 36736					
Prep Date:		Analysis Date: 8/25/2016			SeqNo: 1139717		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	100		200.0		50.6	15	123			
Surr: Phenol-d5	80		200.0		40.2	4.13	124			
Surr: 2,4,6-Tribromophenol	180		200.0		87.8	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		74.2	28.8	134			
Surr: 2-Fluorobiphenyl	67		100.0		67.2	35.9	125			
Surr: 4-Terphenyl-d14	69		100.0		69.1	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	lcs-27151		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27151		RunNo: 36825					
Prep Date:	8/24/2016		Analysis Date: 8/29/2016		SeqNo: 1141547		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	67	10	100.0	0	66.6	35	113			
4-Chloro-3-methylphenol	150	10	200.0	0	73.7	40.7	114			
2-Chlorophenol	140	10	200.0	0	68.7	37.6	113			
1,4-Dichlorobenzene	58	10	100.0	0	58.5	37.7	106			
2,4-Dinitrotoluene	75	10	100.0	0	74.7	37	91			
N-Nitrosodi-n-propylamine	58	10	100.0	0	58.0	45.4	105			
4-Nitrophenol	87	10	200.0	0	43.6	33.4	104			
Pentachlorophenol	160	20	200.0	0	82.5	29.5	94.9			
Phenol	81	10	200.0	0	40.5	30.6	119			
Pyrene	83	10	100.0	0	83.3	26.2	120			
1,2,4-Trichlorobenzene	72	10	100.0	0	72.5	39.9	125			
Surr: 2-Fluorophenol	84		200.0		41.8	15	123			
Surr: Phenol-d5	75		200.0		37.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		84.1	18.4	134			
Surr: Nitrobenzene-d5	59		100.0		59.1	28.8	134			
Surr: 2-Fluorobiphenyl	60		100.0		59.9	35.9	125			
Surr: 4-Terphenyl-d14	48		100.0		48.0	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB-27318		SampType: MBLK		TestCode: EPA Method 7470: Mercury					
Client ID:	PBW		Batch ID: 27318		RunNo: 36973					
Prep Date:	9/1/2016		Analysis Date: 9/2/2016		SeqNo: 1145816		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-27318		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 27318		RunNo: 36973					
Prep Date:	9/1/2016		Analysis Date: 9/2/2016		SeqNo: 1145817		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.2	80	120			

Sample ID	1608C81-001EMS		SampType: MS		TestCode: EPA Method 7470: Mercury					
Client ID:	MW-64		Batch ID: 27318		RunNo: 36973					
Prep Date:	9/1/2016		Analysis Date: 9/2/2016		SeqNo: 1145821		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0.0001103	106	75	125			

Sample ID	1608C81-001EMSD		SampType: MSD		TestCode: EPA Method 7470: Mercury					
Client ID:	MW-64		Batch ID: 27318		RunNo: 36973					
Prep Date:	9/1/2016		Analysis Date: 9/2/2016		SeqNo: 1145822		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	0.0001103	108	75	125	1.61	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID:	PBW	Batch ID: C37036			RunNo: 37036						
Prep Date:		Analysis Date: 9/7/2016			SeqNo: 1147841		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

Sample ID	LCS-C	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals						
Client ID:	LCSW	Batch ID:	C37036	RunNo:	37036						
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147842	Units:	mg/L				
Analyte		Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.51	0.020	0.5000	0	101	80	120			
Cadmium	0.52	0.0020	0.5000	0	103	80	120			
Calcium	60	1.0	50.00	0	119	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Copper	0.50	0.0060	0.5000	0	99.8	80	120			
Iron	0.52	0.020	0.5000	0	104	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Manganese	0.49	0.0020	0.5000	0	98.7	80	120			
Potassium	59	1.0	50.00	0	119	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.10	0.0050	0.1000	0	104	80	120			
Zinc	0.50	0.020	0.5000	0	100	80	120			

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID:	PBW	Batch ID: C37126			RunNo: 37126						
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151183		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: C37126			RunNo: 37126					
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151183		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Selenium	ND	0.050								
Sodium	ND	1.0								
Uranium	ND	0.10								

Sample ID	LCS-C		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: C37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151184		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.52	0.020	0.5000	0	104	80	120			
Selenium	0.54	0.050	0.5000	0	109	80	120			
Sodium	51	1.0	50.00	0	101	80	120			
Uranium	0.54	0.10	0.5000	0	108	80	120			

Sample ID	1608C81-002FMS		SampType: MS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	MW-63		Batch ID: C37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151276		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.54	0.10	0.5000	0.04973	97.2	75	125			

Sample ID	1608C81-002FMSD		SampType: MSD		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	MW-63		Batch ID: C37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151277		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.54	0.10	0.5000	0.04973	98.0	75	125	0.692	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	MB-27180	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 27180			RunNo: 36953					
Prep Date:	8/25/2016	Analysis Date: 9/2/2016			SeqNo: 1145164		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27180		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27180		RunNo: 36953					
Prep Date:	8/25/2016		Analysis Date: 9/2/2016		SeqNo: 1145165		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.3	80	120			
Lead	0.48	0.0050	0.5000	0	97.0	80	120			
Selenium	0.51	0.050	0.5000	0	103	80	120			
Silver	0.099	0.0050	0.1000	0	99.3	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: G36811		RunNo: 36811							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141064		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		97.5	70	130			

Sample ID 2.5ug gro lcs	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: G36811		RunNo: 36811							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141065		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.7	75.4	118			
Surr: BFB	9.8		10.00		97.7	70	130			

Sample ID 1608C81-001A MS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: MW-64	Batch ID: G36811		RunNo: 36811							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141582		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0.02180	87.5	53.8	128			
Surr: BFB	9.9		10.00		98.5	70	130			

Sample ID 1608C81-001A MSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: MW-64	Batch ID: G36811		RunNo: 36811							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1141583		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0.02180	88.8	53.8	128	1.43	20	
Surr: BFB	9.8		10.00		98.2	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138449	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138450	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138474	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138475	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36846	RunNo:	36846					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1142150	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36846	RunNo:	36846					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1142151	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.76	20.00	80.00	0	98.4	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C81

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-22-2016

Sample ID	mb-2		SampType: mblk		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142174		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	Ics-2		SampType: Ics		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142175		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608C81**

RcptNo: 1

Received by/date:

LC

08/23/16

Logged By: **Lindsay Mangin**

8/23/2016 8:20:00 AM

Lindsay Mangin

Completed By: **Lindsay Mangin**

8/23/2016 9:23:03 AM

Lindsay Mangin

Reviewed By:

AS

08/24/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? ~~Yes ☒~~ No ☒ *jc* 08/24/16
9. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: *15*
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? *(<2 or >12 unless noted) yes*
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: *jc*

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks: *For metals analysis: added 1mL HNO₃ to -0032 for acceptable pH*

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

08/24/16 @ 0925

jc

Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **RCRA Wells**

Date: **8-22-2016**

Project #: Annual

PO#12615520

Project Manager:

Sampler: **Michael A. Weber**

On Ice: ☒ Yes ☐ No

Sample Temperature: **1.8**

Date Time Matrix Sample Request ID

8-22-16 1040 H₂O MW-63
 1-500 ml Amber
 1-500 ml HNO₃
 1-125 ml HNO₃
 1-500 ml
 1-125 ml H₂SO₄
 filter

Container Type and # Preservative Type HEAL No.
 6-VOA HCl -002
 1-500 ml Amber -002
 1-500 ml HNO₃ -002
 1-125 ml HNO₃ -002
 1-500 ml -002
 1-125 ml H₂SO₄ -002

Date: 8-22-16 1035

Time: 1035

Date: 8/22/16 1932

Time: 1932

Received by: **Michael A. Weber**

Date: 8/22/16 1635

Received by: **Grady Conejo**

Date: 08/23/16 0820

Remarks: **See Full Analyte List.**

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**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTEX + MTBE + TMBs (8021)
 BTEX + MTBE + TPH (Gas only)
 TPH 8015B (GRO / DRO / MRO)
 TPH (Method 418.1)
 EDB (Method 504.1)
 PAH (8310 or 8270SIMS)
 RCRA 8 Metals **Total**
 Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)
 8081 Pesticides / 8082 PCB's
 8260B (VOA)
 8270 (Semi-VOA)
 DRO - 8015B
 Dissolved Metals
 General Chem. / Alk
 Anions, CO₂
 Air Bubbles (Y or N)

Analysis Request

**Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery**

VOCS (EPA Method 8260B) (1)	Target List Benzene Toluene Ethylbenzene Xylenes Methyl tert butyl ether (MTBE)
SVOCs - (EPA Method 8270)	
Method List	
TPH-GRO (EPA Method 8015B)	
Gasoline Range Organics	
TPH-DRO (EPA Method 8015B)	
Diesel Range Organics	
Motor Oil Range Organics	
Total Carbon Dioxide (Laboratory Calculated)	
Dissolved CO₂	
Specific Conductivity (EPA Method 120.1 or Field Measurement)	
Specific Conductance	
TDS (EPA Method 160.1 or Field Measurement)	
Total Dissolved Solids	
General Chemistry - Anions (EPA method 300.0)	Fluoride Chloride Bromide Nitrogen, Nitrite (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate
General Chemistry - Alkalinity (EPA Method 310.1)	Alkalinity, Total Carbonate Bicarbonate

Notes:

- (1) VOCS Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.

Total Recoverable Metals (EPA Method 6010B/7470)	Target List Arsenic Lead Mercury Barium Cadmium Chromium Silver
Dissolved Metals (EPA Method 6010B / 7470)	Target List (for Refinery Complex, Outfalls and River) Arsenic Manganese Barium Mercury Cadmium Potassium Calcium Selenium Chromium Silver Copper Sodium Iron Uranium Lead Zinc Magnesium

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCS = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

September 26, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: Refinery Wells 8-22-2016

OrderNo.: 1608C80

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/23/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001A

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	270	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Toluene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Ethylbenzene	240	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2,4-Trimethylbenzene	600	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,3,5-Trimethylbenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Naphthalene	74	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
1-Methylnaphthalene	41	40		µg/L	10	8/24/2016 9:28:00 PM	B36743
2-Methylnaphthalene	ND	40		µg/L	10	8/24/2016 9:28:00 PM	B36743
Acetone	ND	100		µg/L	10	8/24/2016 9:28:00 PM	B36743
Bromobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Bromodichloromethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Bromoform	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Bromomethane	ND	30		µg/L	10	8/24/2016 9:28:00 PM	B36743
2-Butanone	ND	100		µg/L	10	8/24/2016 9:28:00 PM	B36743
Carbon disulfide	ND	100		µg/L	10	8/24/2016 9:28:00 PM	B36743
Carbon Tetrachloride	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Chlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Chloroethane	ND	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
Chloroform	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Chloromethane	ND	30		µg/L	10	8/24/2016 9:28:00 PM	B36743
2-Chlorotoluene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
4-Chlorotoluene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
cis-1,2-DCE	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
Dibromochloromethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Dibromomethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,3-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,4-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Dichlorodifluoromethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1-Dichloroethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1-Dichloroethene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2-Dichloropropane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,3-Dichloropropane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
2,2-Dichloropropane	ND	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1-Dichloropropene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Hexachlorobutadiene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 1 of 40

Analytical ReportLab Order: **1608C80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001A

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	100		µg/L	10	8/24/2016 9:28:00 PM	B36743
Isopropylbenzene	37	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
4-Isopropyltoluene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
4-Methyl-2-pentanone	ND	100		µg/L	10	8/24/2016 9:28:00 PM	B36743
Methylene Chloride	ND	30		µg/L	10	8/24/2016 9:28:00 PM	B36743
n-Butylbenzene	ND	30		µg/L	10	8/24/2016 9:28:00 PM	B36743
n-Propylbenzene	130	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
sec-Butylbenzene	24	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Styrene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
tert-Butylbenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
trans-1,2-DCE	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1,1-Trichloroethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,1,2-Trichloroethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Trichloroethene (TCE)	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Trichlorofluoromethane	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
1,2,3-Trichloropropane	ND	20		µg/L	10	8/24/2016 9:28:00 PM	B36743
Vinyl chloride	ND	10		µg/L	10	8/24/2016 9:28:00 PM	B36743
Xylenes, Total	73	15		µg/L	10	8/24/2016 9:28:00 PM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	10	8/24/2016 9:28:00 PM	B36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	10	8/24/2016 9:28:00 PM	B36743
Surr: Dibromofluoromethane	97.9	70-130		%Rec	10	8/24/2016 9:28:00 PM	B36743
Surr: Toluene-d8	100	70-130		%Rec	10	8/24/2016 9:28:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 2 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001B

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	3.5	1.0		mg/L	20	8/26/2016 3:59:42 PM	R36808
Surr: BFB	108	66.4-120		%Rec	20	8/26/2016 3:59:42 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001C

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	8/23/2016 8:43:14 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 8:43:14 PM	27114
Surr: DNOP	108	67.9-149		%Rec	1	8/23/2016 8:43:14 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 4 of 40

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001D

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1000	1.0	H	mg CO2/L	1	8/24/2016 9:56:53 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.10		mg/L	1	8/23/2016 7:51:02 PM	R36704
Chloride	220	10		mg/L	20	8/23/2016 8:03:27 PM	R36704
Bromide	ND	0.10		mg/L	1	8/23/2016 7:51:02 PM	R36704
Phosphorus, Orthophosphate (As P _i)	ND	0.50		mg/L	1	8/23/2016 7:51:02 PM	R36704
Sulfate	160	10		mg/L	20	8/23/2016 8:03:27 PM	R36704
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/7/2016 4:25:28 PM	R37053
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	1115	20.00		mg/L CaCO ₃	1	8/24/2016 9:56:53 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 9:56:53 PM	R36738
Total Alkalinity (as CaCO ₃)	1115	20.00		mg/L CaCO ₃	1	8/24/2016 9:56:53 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001E

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 12:47:24 PM	27282
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:58:33 PM	27180
Barium	0.70	0.020		mg/L	1	9/2/2016 1:25:18 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:25:18 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 1:25:18 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 2:58:33 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:25:18 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:25:18 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 6 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: **1608C80**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-001F

Client Sample ID: MW-31
Collection Date: 8/22/2016 1:15:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 12:53:31 PM	27282
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:32:12 PM	B37036
Barium	0.58	0.020		mg/L	1	9/7/2016 7:32:12 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:32:12 PM	B37036
Calcium	110	5.0		mg/L	5	9/7/2016 7:40:59 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:32:12 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:32:12 PM	B37036
Iron	1.2	0.10		mg/L	5	9/7/2016 7:40:59 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:32:12 PM	B37036
Magnesium	38	1.0		mg/L	1	9/7/2016 7:32:12 PM	B37036
Manganese	0.40	0.0020		mg/L	1	9/7/2016 7:32:12 PM	B37036
Potassium	4.1	1.0		mg/L	1	9/7/2016 7:32:12 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:32:12 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:32:12 PM	B37036
Sodium	540	10		mg/L	10	9/12/2016 1:09:43 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 1:08:14 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 7:32:12 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002A

Client Sample ID: MW-8
Collection Date: 8/22/2016 3:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Toluene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2,4-Trimethylbenzene	1.0	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Acetone	ND	10		µg/L	1	8/24/2016 9:51:00 PM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
2-Butanone	ND	10		µg/L	1	8/24/2016 9:51:00 PM	B36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 9:51:00 PM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-8**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 3:00:00 PM**Lab ID:** 1608C80-002A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	10		µg/L	1	8/24/2016 9:51:00 PM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 9:51:00 PM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Styrene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 9:51:00 PM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 9:51:00 PM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/24/2016 9:51:00 PM	B36743
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/24/2016 9:51:00 PM	B36743
Surr: Dibromofluoromethane	96.9	70-130		%Rec	1	8/24/2016 9:51:00 PM	B36743
Surr: Toluene-d8	100	70-130		%Rec	1	8/24/2016 9:51:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 9 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002B

Client Sample ID: MW-8
Collection Date: 8/22/2016 3:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 4:24:04 PM	R36808
Surr: BFB	93.5	66.4-120		%Rec	1	8/26/2016 4:24:04 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002C

Client Sample ID: MW-8
Collection Date: 8/22/2016 3:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 9:04:52 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 9:04:52 PM	27114
Surr: DNOP	115	67.9-149		%Rec	1	8/23/2016 9:04:52 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-8**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 3:00:00 PM**Lab ID:** 1608C80-002D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	190	1.0	H	mg CO2/L	1	8/24/2016 10:33:47 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.61	0.10		mg/L	1	8/23/2016 8:15:52 PM	R36704
Chloride	160	10		mg/L	20	8/23/2016 8:28:16 PM	R36704
Bromide	0.78	0.10		mg/L	1	8/23/2016 8:15:52 PM	R36704
Phosphorus, Orthophosphate (As P _i)	ND	0.50		mg/L	1	8/23/2016 8:15:52 PM	R36704
Sulfate	700	10	*	mg/L	20	8/23/2016 8:28:16 PM	R36704
Nitrate+Nitrite as N	13	1.0	*	mg/L	5	9/7/2016 4:37:53 PM	R37053
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	198.4	20.00		mg/L CaCO ₃	1	8/24/2016 10:33:47 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 10:33:47 PM	R36738
Total Alkalinity (as CaCO ₃)	198.4	20.00		mg/L CaCO ₃	1	8/24/2016 10:33:47 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002E

Client Sample ID: MW-8
Collection Date: 8/22/2016 3:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.0029	0.00020		mg/L	1	9/1/2016 12:55:34 PM	27282
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	0.020	0.020		mg/L	1	9/7/2016 3:00:10 PM	27180
Barium	0.063	0.020		mg/L	1	9/2/2016 1:28:44 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:28:44 PM	27180
Chromium	2.0	0.030		mg/L	5	9/2/2016 1:30:27 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:00:10 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:28:44 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:28:44 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: **1608C80**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002F

Client Sample ID: MW-8
Collection Date: 8/22/2016 3:00:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 12:57:37 PM	27282
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:42:49 PM	B37036
Barium	ND	0.020		mg/L	1	9/7/2016 7:42:49 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:42:49 PM	B37036
Calcium	180	5.0		mg/L	5	9/7/2016 7:44:24 PM	B37036
Chromium	0.016	0.0060		mg/L	1	9/7/2016 7:42:49 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:42:49 PM	B37036
Iron	1.4	0.10		mg/L	5	9/7/2016 7:44:24 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:42:49 PM	B37036
Magnesium	30	1.0		mg/L	1	9/7/2016 7:42:49 PM	B37036
Manganese	0.54	0.0020		mg/L	1	9/7/2016 7:42:49 PM	B37036
Potassium	2.9	1.0		mg/L	1	9/7/2016 7:42:49 PM	B37036
Selenium	ND	0.050		mg/L	1	9/7/2016 7:42:49 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:42:49 PM	B37036
Sodium	290	5.0		mg/L	5	9/7/2016 7:44:24 PM	B37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:16:19 PM	B37126
Zinc	ND	0.020		mg/L	1	9/7/2016 7:42:49 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003A

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Toluene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Acetone	ND	10		µg/L	1	8/24/2016 11:02:00 PM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
2-Butanone	ND	10		µg/L	1	8/24/2016 11:02:00 PM	B36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 11:02:00 PM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003A

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
2-Hexanone	ND	10		µg/L	1	8/24/2016 11:02:00 PM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 11:02:00 PM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Styrene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 11:02:00 PM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 11:02:00 PM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/24/2016 11:02:00 PM	B36743
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	8/24/2016 11:02:00 PM	B36743
Surr: Dibromofluoromethane	99.0	70-130		%Rec	1	8/24/2016 11:02:00 PM	B36743
Surr: Toluene-d8	98.3	70-130		%Rec	1	8/24/2016 11:02:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003B

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 4:48:25 PM	R36808
Surr: BFB	88.1	66.4-120		%Rec	1	8/26/2016 4:48:25 PM	R36808

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003C

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/23/2016 9:26:34 PM	27114
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/23/2016 9:26:34 PM	27114
Surr: DNOP	120	67.9-149		%Rec	1	8/23/2016 9:26:34 PM	27114

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-52**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 3:30:00 PM**Lab ID:** 1608C80-003D**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	180	1.0	H	mg CO2/L	1	8/24/2016 10:44:50 PM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	9/2/2016 1:47:00 AM	A36952
Chloride	640	25	*	mg/L	50	9/2/2016 1:59:25 AM	A36952
Bromide	4.1	0.10		mg/L	1	8/23/2016 9:05:31 PM	R36704
Phosphorus, Orthophosphate (As P _i)	ND	10		mg/L	20	8/23/2016 9:17:55 PM	R36704
Sulfate	1400	25	*	mg/L	50	9/2/2016 1:59:25 AM	A36952
Nitrate+Nitrite as N	42	1.0	*	mg/L	5	9/7/2016 4:50:17 PM	R37053
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	174.8	20.00		mg/L CaCO ₃	1	8/24/2016 10:44:50 PM	R36738
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	8/24/2016 10:44:50 PM	R36738
Total Alkalinity (as CaCO ₃)	174.8	20.00		mg/L CaCO ₃	1	8/24/2016 10:44:50 PM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003E

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 12:59:42 PM	27282
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:01:54 PM	27180
Barium	0.14	0.020		mg/L	1	9/2/2016 1:32:10 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:32:10 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 1:32:10 PM	27180
Lead	0.0059	0.0050		mg/L	1	9/7/2016 3:01:54 PM	27180
Selenium	0.065	0.050		mg/L	1	9/2/2016 1:32:10 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:32:10 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003F

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/1/2016 1:01:46 PM	27282
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 7:46:13 PM	B37036
Barium	0.021	0.020		mg/L	1	9/7/2016 7:46:13 PM	B37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 7:46:13 PM	B37036
Calcium	380	5.0		mg/L	5	9/7/2016 7:47:50 PM	B37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 7:46:13 PM	B37036
Copper	ND	0.0060		mg/L	1	9/7/2016 7:46:13 PM	B37036
Iron	3.9	0.10		mg/L	5	9/7/2016 7:47:50 PM	B37036
Lead	ND	0.0050		mg/L	1	9/7/2016 7:46:13 PM	B37036
Magnesium	100	5.0		mg/L	5	9/7/2016 7:47:50 PM	B37036
Manganese	5.7	0.020		mg/L	10	9/12/2016 1:20:52 PM	B37126
Potassium	5.6	1.0		mg/L	1	9/7/2016 7:46:13 PM	B37036
Selenium	0.057	0.050		mg/L	1	9/7/2016 7:46:13 PM	B37036
Silver	ND	0.0050		mg/L	1	9/7/2016 7:46:13 PM	B37036
Sodium	650	10		mg/L	10	9/12/2016 1:20:52 PM	B37126
Uranium	ND	0.10		mg/L	1	9/12/2016 1:19:24 PM	B37126
Zinc	0.20	0.020		mg/L	1	9/7/2016 7:46:13 PM	B37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-52**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 3:30:00 PM**Lab ID:** 1608C80-003G**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Acenaphthylene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Aniline	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Anthracene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Azobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benz(a)anthracene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzoic acid	ND	20		µg/L	1	8/29/2016 2:48:10 PM	27151
Benzyl alcohol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Carbazole	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Chloroaniline	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Chlorophenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Chrysene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Dibenzofuran	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Diethyl phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Dimethyl phthalate	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-003G

Client Sample ID: MW-52
Collection Date: 8/22/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Fluorene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Hexachlorobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Hexachloroethane	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Isophorone	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Methylphenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
3+4-Methylphenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Naphthalene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
3-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Nitroaniline	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Nitrobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2-Nitrophenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
4-Nitrophenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Pentachlorophenol	ND	20		µg/L	1	8/29/2016 2:48:10 PM	27151
Phenanthrene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Phenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Pyrene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Pyridine	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2016 2:48:10 PM	27151
Surr: 2-Fluorophenol	41.4	15-123		%Rec	1	8/29/2016 2:48:10 PM	27151
Surr: Phenol-d5	33.4	4.13-124		%Rec	1	8/29/2016 2:48:10 PM	27151
Surr: 2,4,6-Tribromophenol	76.7	18.4-134		%Rec	1	8/29/2016 2:48:10 PM	27151
Surr: Nitrobenzene-d5	55.2	28.8-134		%Rec	1	8/29/2016 2:48:10 PM	27151
Surr: 2-Fluorobiphenyl	51.0	35.9-125		%Rec	1	8/29/2016 2:48:10 PM	27151
Surr: 4-Terphenyl-d14	65.3	15-146		%Rec	1	8/29/2016 2:48:10 PM	27151

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 23 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608C80

Date Reported: 9/26/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-004A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Toluene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Naphthalene	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Acetone	ND	10		µg/L	1	8/24/2016 11:26:00 PM	B36743
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Bromoform	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Bromomethane	ND	3.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
2-Butanone	ND	10		µg/L	1	8/24/2016 11:26:00 PM	B36743
Carbon disulfide	ND	10		µg/L	1	8/24/2016 11:26:00 PM	B36743
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Chloroethane	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Chloroform	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Chloromethane	ND	3.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608C80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-004A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN
2-Hexanone	ND	10		µg/L	1	8/24/2016 11:26:00 PM	B36743
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 11:26:00 PM	B36743
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Styrene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 11:26:00 PM	B36743
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 11:26:00 PM	B36743
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/24/2016 11:26:00 PM	B36743
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/24/2016 11:26:00 PM	B36743
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	8/24/2016 11:26:00 PM	B36743
Surr: Toluene-d8	99.6	70-130		%Rec	1	8/24/2016 11:26:00 PM	B36743

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 25 of 40

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R36704	RunNo:	36704					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137300	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R36704	RunNo:	36704					
Prep Date:		Analysis Date:	8/23/2016	SeqNo:	1137301	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	5.0	0.50	5.000	0	99.4	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.1	90	110			
Sulfate	9.9	0.50	10.00	0	99.1	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A36952	RunNo:	36952					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145113	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A36952	RunNo:	36952					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145114	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	10	0.50	10.00	0	99.8	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R37053	RunNo:	37053					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1148608	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R37053	RunNo:	37053					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1148608	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R37053	RunNo:	37053					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1148609	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	LCS-27114		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27114			RunNo: 36683				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136777		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	112	65.4	162			
Surr: DNOP	0.26		0.2500		102	67.9	149			

Sample ID	MB-27114		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27114			RunNo: 36683				
Prep Date:	8/23/2016		Analysis Date: 8/23/2016			SeqNo: 1136780		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.49		0.5000		97.5	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R36808	RunNo:	36808					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1140791	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	16		20.00		82.4	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R36808	RunNo:	36808					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1140792	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	80	120			
Surr: BFB	19		20.00		94.6	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	100ng lcs 2			SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW			Batch ID:	B36743		RunNo:	36743			
Prep Date:				Analysis Date:	8/24/2016		SeqNo:	1138903	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	20	1.0	20.00	0	97.5	70	130				
Toluene	20	1.0	20.00	0	102	70	130				
Chlorobenzene	21	1.0	20.00	0	104	70	130				
1,1-Dichloroethene	19	1.0	20.00	0	96.2	70	130				
Trichloroethene (TCE)	19	1.0	20.00	0	94.3	70	130				
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130				
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130				
Surr: Dibromofluoromethane	10		10.00		100	70	130				
Surr: Toluene-d8	10		10.00		99.8	70	130				

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: B36743			RunNo: 36743					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138904		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B36743			RunNo: 36743						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138904		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B36743			RunNo: 36743						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138904		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.9	70	130			
Surr: Toluene-d8	10		10.00		99.5	70	130			

Sample ID 1608C80-002AMS	SampType: MS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-8	Batch ID: B36743			RunNo: 36743						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138908		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	19	1.0	20.00	0	97.0	70	130			
Chlorobenzene	20	1.0	20.00	0	98.2	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	88.8	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.8	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.8	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 1608C80-002AMSd	SampType: MSD			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-8	Batch ID: B36743			RunNo: 36743						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138909		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.1	70	130	0.907	20	
Toluene	19	1.0	20.00	0	95.6	70	130	1.41	20	
Chlorobenzene	19	1.0	20.00	0	96.9	70	130	1.27	20	
1,1-Dichloroethene	18	1.0	20.00	0	88.4	70	130	0.406	20	
Trichloroethene (TCE)	18	1.0	20.00	0	88.6	70	130	1.38	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130	0	0	
Surr: Dibromofluoromethane	9.6		10.00		95.6	70	130	0	0	
Surr: Toluene-d8	10		10.00		101	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	mb-27151	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27151	RunNo:	36825					
Prep Date:	8/24/2016	Analysis Date:	8/29/2016	SeqNo:	1141546	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	100		200.0		50.6	15	123			
Surr: Phenol-d5	80		200.0		40.2	4.13	124			
Surr: 2,4,6-Tribromophenol	180		200.0		87.8	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		74.2	28.8	134			
Surr: 2-Fluorobiphenyl	67		100.0		67.2	35.9	125			
Surr: 4-Terphenyl-d14	69		100.0		69.1	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	lcs-27151		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27151		RunNo: 36825					
Prep Date:	8/24/2016		Analysis Date: 8/29/2016		SeqNo: 1141547		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	67	10	100.0	0	66.6	35	113			
4-Chloro-3-methylphenol	150	10	200.0	0	73.7	40.7	114			
2-Chlorophenol	140	10	200.0	0	68.7	37.6	113			
1,4-Dichlorobenzene	58	10	100.0	0	58.5	37.7	106			
2,4-Dinitrotoluene	75	10	100.0	0	74.7	37	91			
N-Nitrosodi-n-propylamine	58	10	100.0	0	58.0	45.4	105			
4-Nitrophenol	87	10	200.0	0	43.6	33.4	104			
Pentachlorophenol	160	20	200.0	0	82.5	29.5	94.9			
Phenol	81	10	200.0	0	40.5	30.6	119			
Pyrene	83	10	100.0	0	83.3	26.2	120			
1,2,4-Trichlorobenzene	72	10	100.0	0	72.5	39.9	125			
Surr: 2-Fluorophenol	84		200.0		41.8	15	123			
Surr: Phenol-d5	75		200.0		37.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		84.1	18.4	134			
Surr: Nitrobenzene-d5	59		100.0		59.1	28.8	134			
Surr: 2-Fluorobiphenyl	60		100.0		59.9	35.9	125			
Surr: 4-Terphenyl-d14	48		100.0		48.0	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB-27282	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27282	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144803	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27282	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27282	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144804	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.5	80	120			

Sample ID	1608C80-001EMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	MW-31	Batch ID:	27282	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144806	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	106	75	125			

Sample ID	1608C80-001EMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	MW-31	Batch ID:	27282	RunNo:	36941					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144807	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	75	125	0.382	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147839	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147840	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.47	0.020	0.5000	0	94.4	80	120			
Barium	0.46	0.020	0.5000	0	92.1	80	120			
Cadmium	0.47	0.0020	0.5000	0	93.7	80	120			
Calcium	57	1.0	50.00	0	114	80	120			
Chromium	0.46	0.0060	0.5000	0	92.1	80	120			
Copper	0.45	0.0060	0.5000	0	90.9	80	120			
Iron	0.47	0.020	0.5000	0	93.2	80	120			
Lead	0.46	0.0050	0.5000	0	91.2	80	120			
Magnesium	58	1.0	50.00	0	116	80	120			
Manganese	0.45	0.0020	0.5000	0	90.2	80	120			
Potassium	56	1.0	50.00	0	112	80	120			
Selenium	0.46	0.050	0.5000	0	93.0	80	120			
Silver	0.095	0.0050	0.1000	0	95.0	80	120			
Sodium	57	1.0	50.00	0	114	80	120			
Zinc	0.46	0.020	0.5000	0	91.7	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB-B	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: B37126			RunNo: 37126					
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151181		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	ND	0.0020								
Sodium	ND	1.0								
Uranium	ND	0.10								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: B37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151182		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.49	0.0020	0.5000	0	98.3	80	120			
Sodium	50	1.0	50.00	0	100	80	120			
Uranium	0.51	0.10	0.5000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID	MB-27180	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 27180			RunNo: 36953					
Prep Date:	8/25/2016	Analysis Date: 9/2/2016			SeqNo: 1145164		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27180		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27180		RunNo: 36953					
Prep Date:	8/25/2016		Analysis Date: 9/2/2016		SeqNo: 1145165		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.3	80	120			
Lead	0.48	0.0050	0.5000	0	97.0	80	120			
Selenium	0.51	0.050	0.5000	0	103	80	120			
Silver	0.099	0.0050	0.1000	0	99.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608C80

26-Sep-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-22-2016

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138449			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138450			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138474			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-2	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36738			RunNo: 36738						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138475			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1608C80**

RcptNo: 1

Received by/date:

LC

08/23/16

Logged By: **Lindsay Mangin**

8/23/2016 8:20:00 AM

[Signature]

Completed By: **Lindsay Mangin**

8/23/2016 9:04:33 AM

[Signature]

Reviewed By:

JC 08/23/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☒
9. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

For metals analysis: Added 1mL HNO₃ to -001E for acceptable pH. JA 08/23/16 @ 1247

of preserved bottles checked for pH: *9*
(<2 or >12 unless noted)
Adjusted? *YES*
Checked by: *JA*

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Refinery Wells

Date: 8-22-2016

Project #: Annual

PO#12615520

Project Manager:

10

10

Sampler: Michael A. White

On Ice: ☒ Yes ☐ No

Container Type and #	Preservative Type	HEAL No
6-VOA	HCl	11608180 -002
1-500 ml Amber	Cool	-002
1-500 ml	HNO ₃	-002
1-500 ml		-002
1-125 ml	H ₂ SO ₄	-002
1-125 ml	HNO ₃	-002
13-Vanols	Vanols	-003
3-VOA	HCl	-004

Received by: _____ Date: _____

18

Received by: _____ Date: _____

1

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.

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

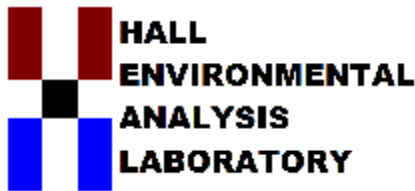
VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 03, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: RCRA Wells 8-23-2016

OrderNo.: 1608D63

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/24/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical ReportLab Order: **1608D63****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001A

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2016 6:12:41 PM	G36811
Surr: BFB	98.3	70-130		%Rec	1	8/26/2016 6:12:41 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Toluene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Naphthalene	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Acetone	ND	10		µg/L	1	8/25/2016 10:54:00 AM	R36736
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Bromoform	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Bromomethane	ND	3.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
2-Butanone	ND	10		µg/L	1	8/25/2016 10:54:00 AM	R36736
Carbon disulfide	ND	10		µg/L	1	8/25/2016 10:54:00 AM	R36736
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Chloroethane	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Chloroform	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Chloromethane	ND	3.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 1 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001A

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
2-Hexanone	ND	10		µg/L	1	8/25/2016 10:54:00 AM	R36736
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 10:54:00 AM	R36736
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Styrene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 10:54:00 AM	R36736
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 10:54:00 AM	R36736
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/25/2016 10:54:00 AM	R36736
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	8/25/2016 10:54:00 AM	R36736
Surr: Dibromofluoromethane	97.8	70-130		%Rec	1	8/25/2016 10:54:00 AM	R36736
Surr: Toluene-d8	98.5	70-130		%Rec	1	8/25/2016 10:54:00 AM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-51**Project:** RCRA Wells 8-23-2016**Collection Date:** 8/23/2016 3:30:00 PM**Lab ID:** 1608D63-001B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/29/2016 5:56:28 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 5:56:28 PM	27206
Surr: DNOP	125	67.9-149		%Rec	1	8/29/2016 5:56:28 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 40

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001C

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	220	1.0	H	mg CO2/L	1	8/25/2016 2:41:07 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.50	0.10		mg/L	1	8/24/2016 11:04:45 PM	R36752
Chloride	11	0.50		mg/L	1	8/24/2016 11:04:45 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2016 11:04:45 PM	R36752
Bromide	0.15	0.10		mg/L	1	8/24/2016 11:04:45 PM	R36752
Nitrogen, Nitrate (As N)	1.7	0.10		mg/L	1	8/24/2016 11:04:45 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2016 11:04:45 PM	R36752
Sulfate	120	10		mg/L	20	8/24/2016 11:17:09 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	243.0	20.00		mg/L CaCO3	1	8/25/2016 2:41:07 AM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/25/2016 2:41:07 AM	R36738
Total Alkalinity (as CaCO3)	243.0	20.00		mg/L CaCO3	1	8/25/2016 2:41:07 AM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001D

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 1:01:18 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 8:44:24 PM	C37036
Barium	0.063	0.020		mg/L	1	9/7/2016 8:44:24 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 8:44:24 PM	C37036
Calcium	91	1.0		mg/L	1	9/7/2016 8:44:24 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 8:44:24 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 8:44:24 PM	C37036
Iron	0.15	0.020		mg/L	1	9/7/2016 8:44:24 PM	C37036
Lead	ND	0.0050		mg/L	1	9/7/2016 8:44:24 PM	C37036
Magnesium	18	1.0		mg/L	1	9/7/2016 8:44:24 PM	C37036
Manganese	0.95	0.0020		mg/L	1	9/7/2016 8:44:24 PM	C37036
Potassium	1.8	1.0		mg/L	1	9/7/2016 8:44:24 PM	C37036
Selenium	ND	0.050		mg/L	1	9/12/2016 1:44:50 PM	C37126
Silver	ND	0.0050		mg/L	1	9/7/2016 8:44:24 PM	C37036
Sodium	51	1.0		mg/L	1	9/7/2016 8:44:24 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:44:50 PM	C37126
Zinc	0.031	0.020		mg/L	1	9/7/2016 8:44:24 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 40

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001E

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 12:59:18 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:23:17 PM	27180
Barium	0.12	0.020		mg/L	1	9/2/2016 2:07:56 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:07:56 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 2:07:56 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:23:17 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 2:07:56 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 2:07:56 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 6 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001F

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 3:45:19 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Di-n-octyl phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 7 of 40

Analytical ReportLab Order: **1608D63****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-001F

Client Sample ID: MW-51
Collection Date: 8/23/2016 3:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Naphthalene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 3:45:19 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 3:45:19 PM	27255
Surr: 2-Fluorophenol	43.8	15-123		%Rec	1	9/2/2016 3:45:19 PM	27255
Surr: Phenol-d5	32.3	4.13-124		%Rec	1	9/2/2016 3:45:19 PM	27255
Surr: 2,4,6-Tribromophenol	78.1	18.4-134		%Rec	1	9/2/2016 3:45:19 PM	27255
Surr: Nitrobenzene-d5	70.0	28.8-134		%Rec	1	9/2/2016 3:45:19 PM	27255
Surr: 2-Fluorobiphenyl	67.7	35.9-125		%Rec	1	9/2/2016 3:45:19 PM	27255
Surr: 4-Terphenyl-d14	79.6	15-146		%Rec	1	9/2/2016 3:45:19 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 8 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002A

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 1:27:10 PM	G36811
Surr: BFB	103	70-130		%Rec	1	8/29/2016 1:27:10 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Toluene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Naphthalene	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Acetone	ND	10		µg/L	1	8/25/2016 12:04:00 PM	R36736
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Bromoform	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Bromomethane	ND	3.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
2-Butanone	ND	10		µg/L	1	8/25/2016 12:04:00 PM	R36736
Carbon disulfide	ND	10		µg/L	1	8/25/2016 12:04:00 PM	R36736
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Chloroethane	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Chloroform	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Chloromethane	ND	3.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 9 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002A

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
2-Hexanone	ND	10		µg/L	1	8/25/2016 12:04:00 PM	R36736
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 12:04:00 PM	R36736
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Styrene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 12:04:00 PM	R36736
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 12:04:00 PM	R36736
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	8/25/2016 12:04:00 PM	R36736
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	8/25/2016 12:04:00 PM	R36736
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	8/25/2016 12:04:00 PM	R36736
Surr: Toluene-d8	99.0	70-130		%Rec	1	8/25/2016 12:04:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-50**Project:** RCRA Wells 8-23-2016**Collection Date:** 8/23/2016 2:40:00 PM**Lab ID:** 1608D63-002B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/29/2016 6:18:08 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 6:18:08 PM	27206
Surr: DNOP	123	67.9-149		%Rec	1	8/29/2016 6:18:08 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002C

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	230	1.0	H	mg CO2/L	1	8/25/2016 2:53:13 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.23	0.10		mg/L	1	8/24/2016 11:29:33 PM	R36752
Chloride	4.5	0.50		mg/L	1	8/24/2016 11:29:33 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2016 11:29:33 PM	R36752
Bromide	ND	0.10		mg/L	1	8/24/2016 11:29:33 PM	R36752
Nitrogen, Nitrate (As N)	0.23	0.10		mg/L	1	8/24/2016 11:29:33 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2016 11:29:33 PM	R36752
Sulfate	37	0.50		mg/L	1	8/24/2016 11:29:33 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	255.9	20.00		mg/L CaCO3	1	8/25/2016 2:53:13 AM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/25/2016 2:53:13 AM	R36738
Total Alkalinity (as CaCO3)	255.9	20.00		mg/L CaCO3	1	8/25/2016 2:53:13 AM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002D

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 1:05:20 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 8:48:28 PM	C37036
Barium	0.077	0.020		mg/L	1	9/7/2016 8:48:28 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 8:48:28 PM	C37036
Calcium	65	1.0		mg/L	1	9/7/2016 8:48:28 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 8:48:28 PM	C37036
Copper	ND	0.0060		mg/L	1	9/7/2016 8:48:28 PM	C37036
Iron	0.20	0.020		mg/L	1	9/7/2016 8:48:28 PM	C37036
Lead	ND	0.0050		mg/L	1	9/7/2016 8:48:28 PM	C37036
Magnesium	14	1.0		mg/L	1	9/7/2016 8:48:28 PM	C37036
Manganese	1.6	0.010		mg/L	5	9/7/2016 8:57:40 PM	C37036
Potassium	1.9	1.0		mg/L	1	9/7/2016 8:48:28 PM	C37036
Selenium	ND	0.050		mg/L	1	9/12/2016 1:46:27 PM	C37126
Silver	ND	0.0050		mg/L	1	9/7/2016 8:48:28 PM	C37036
Sodium	41	1.0		mg/L	1	9/7/2016 8:48:28 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:46:27 PM	C37126
Zinc	0.021	0.020		mg/L	1	9/7/2016 8:48:28 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002E

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 1:03:19 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:25:05 PM	27180
Barium	0.31	0.020		mg/L	1	9/2/2016 2:11:13 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:11:13 PM	27180
Chromium	0.0092	0.0060		mg/L	1	9/2/2016 2:11:13 PM	27180
Lead	0.0059	0.0050		mg/L	1	9/7/2016 3:25:05 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 2:11:13 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 2:11:13 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002F

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 5:10:51 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Di-n-octyl phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-002F

Client Sample ID: MW-50
Collection Date: 8/23/2016 2:40:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Naphthalene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 5:10:51 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 5:10:51 PM	27255
Surr: 2-Fluorophenol	28.4	15-123		%Rec	1	9/2/2016 5:10:51 PM	27255
Surr: Phenol-d5	27.3	4.13-124		%Rec	1	9/2/2016 5:10:51 PM	27255
Surr: 2,4,6-Tribromophenol	56.6	18.4-134		%Rec	1	9/2/2016 5:10:51 PM	27255
Surr: Nitrobenzene-d5	57.9	28.8-134		%Rec	1	9/2/2016 5:10:51 PM	27255
Surr: 2-Fluorobiphenyl	60.4	35.9-125		%Rec	1	9/2/2016 5:10:51 PM	27255
Surr: 4-Terphenyl-d14	63.3	15-146		%Rec	1	9/2/2016 5:10:51 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 16 of 40

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003A

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	29	1.0	P	mg/L	20	8/29/2016 12:58:41 PM	G36811
Surr: BFB	104	70-130	P	%Rec	20	8/29/2016 12:58:41 PM	G36811
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	180	10		µg/L	10	8/25/2016 3:39:00 PM	R36736
Toluene	1.4	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Ethylbenzene	88	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Methyl tert-butyl ether (MTBE)	380	10		µg/L	10	8/25/2016 3:39:00 PM	R36736
1,2,4-Trimethylbenzene	300	10		µg/L	10	8/25/2016 3:39:00 PM	R36736
1,3,5-Trimethylbenzene	97	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Naphthalene	52	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1-Methylnaphthalene	19	4.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
2-Methylnaphthalene	26	4.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Acetone	150	10		µg/L	1	8/25/2016 12:28:00 PM	R36736
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Bromoform	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Bromomethane	ND	3.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
2-Butanone	26	10		µg/L	1	8/25/2016 12:28:00 PM	R36736
Carbon disulfide	ND	10		µg/L	1	8/25/2016 12:28:00 PM	R36736
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Chloroethane	ND	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Chloroform	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Chloromethane	ND	3.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003A

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
2-Hexanone	ND	10		µg/L	1	8/25/2016 12:28:00 PM	R36736
Isopropylbenzene	13	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
4-Isopropyltoluene	11	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 12:28:00 PM	R36736
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
n-Butylbenzene	10	3.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
n-Propylbenzene	19	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
sec-Butylbenzene	7.8	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Styrene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 12:28:00 PM	R36736
Xylenes, Total	210	15		µg/L	10	8/25/2016 3:39:00 PM	R36736
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/25/2016 12:28:00 PM	R36736
Surr: 4-Bromofluorobenzene	87.6	70-130		%Rec	1	8/25/2016 12:28:00 PM	R36736
Surr: Dibromofluoromethane	93.0	70-130		%Rec	1	8/25/2016 12:28:00 PM	R36736
Surr: Toluene-d8	98.1	70-130		%Rec	1	8/25/2016 12:28:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003B

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	93	2.0		mg/L	10	8/29/2016 2:17:32 PM	27206
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/29/2016 2:17:32 PM	27206
Surr: DNOP	0	67.9-149	S	%Rec	10	8/29/2016 2:17:32 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608D63

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003C

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 5:39:17 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Di-n-octyl phthalate	26	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003C

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Naphthalene	16	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 5:39:17 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 5:39:17 PM	27255
Surr: 2-Fluorophenol	36.7	15-123		%Rec	1	9/2/2016 5:39:17 PM	27255
Surr: Phenol-d5	23.9	4.13-124		%Rec	1	9/2/2016 5:39:17 PM	27255
Surr: 2,4,6-Tribromophenol	76.8	18.4-134		%Rec	1	9/2/2016 5:39:17 PM	27255
Surr: Nitrobenzene-d5	69.0	28.8-134		%Rec	1	9/2/2016 5:39:17 PM	27255
Surr: 2-Fluorobiphenyl	76.4	35.9-125		%Rec	1	9/2/2016 5:39:17 PM	27255
Surr: 4-Terphenyl-d14	110	15-146		%Rec	1	9/2/2016 5:39:17 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003D

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	890	1.0	H	mg CO2/L	1	8/25/2016 3:06:01 AM	R36738
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 11:54:22 PM	R36752
Chloride	370	25	*	mg/L	50	9/1/2016 11:55:20 PM	A36952
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 11:54:22 PM	R36752
Bromide	5.0	0.50		mg/L	5	8/24/2016 11:54:22 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 11:54:22 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 11:54:22 PM	R36752
Sulfate	7.9	2.5		mg/L	5	8/24/2016 11:54:22 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	952.6	20.00		mg/L CaCO3	1	8/25/2016 3:06:01 AM	R36738
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/25/2016 3:06:01 AM	R36738
Total Alkalinity (as CaCO3)	952.6	20.00		mg/L CaCO3	1	8/25/2016 3:06:01 AM	R36738

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003E

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 1:09:24 PM	27318
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 8:59:44 PM	C37036
Barium	2.1	0.10		mg/L	5	9/7/2016 9:01:22 PM	C37036
Cadmium	ND	0.0020		mg/L	1	9/7/2016 8:59:44 PM	C37036
Calcium	110	5.0		mg/L	5	9/7/2016 9:01:22 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/7/2016 8:59:44 PM	C37036
Copper	0.082	0.0060		mg/L	1	9/7/2016 8:59:44 PM	C37036
Iron	28	2.0		mg/L	100	9/12/2016 1:49:35 PM	C37126
Lead	ND	0.0050		mg/L	1	9/7/2016 8:59:44 PM	C37036
Magnesium	50	1.0		mg/L	1	9/7/2016 8:59:44 PM	C37036
Manganese	2.8	0.010		mg/L	5	9/7/2016 9:01:22 PM	C37036
Potassium	4.4	1.0		mg/L	1	9/7/2016 8:59:44 PM	C37036
Selenium	ND	0.050		mg/L	1	9/7/2016 8:59:44 PM	C37036
Silver	ND	0.0050		mg/L	1	9/7/2016 8:59:44 PM	C37036
Sodium	460	5.0		mg/L	5	9/7/2016 9:01:22 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:48:06 PM	C37126
Zinc	0.55	0.020		mg/L	1	9/7/2016 8:59:44 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D63**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-003F

Client Sample ID: MW-56
Collection Date: 8/23/2016 3:36:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	9/2/2016 1:07:22 PM	27318
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:26:51 PM	27180
Barium	2.4	0.10		mg/L	5	9/12/2016 11:01:51 AM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:14:44 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 2:14:44 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 3:26:51 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 2:14:44 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 2:14:44 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-004A

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: DJF			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 1:55:45 PM	G36811
Surr: BFB	102	70-130		%Rec	1	8/29/2016 1:55:45 PM	G36811
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
Benzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Toluene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Naphthalene	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Acetone	ND	10		µg/L	1	8/25/2016 4:27:00 PM	R36736
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Bromoform	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Bromomethane	ND	3.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
2-Butanone	ND	10		µg/L	1	8/25/2016 4:27:00 PM	R36736
Carbon disulfide	ND	10		µg/L	1	8/25/2016 4:27:00 PM	R36736
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Chloroethane	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Chloroform	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Chloromethane	ND	3.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D63

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-23-2016
Lab ID: 1608D63-004A

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
2-Hexanone	ND	10		µg/L	1	8/25/2016 4:27:00 PM	R36736
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 4:27:00 PM	R36736
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Styrene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 4:27:00 PM	R36736
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 4:27:00 PM	R36736
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/25/2016 4:27:00 PM	R36736
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/25/2016 4:27:00 PM	R36736
Surr: Dibromofluoromethane	94.5	70-130		%Rec	1	8/25/2016 4:27:00 PM	R36736
Surr: Toluene-d8	99.2	70-130		%Rec	1	8/25/2016 4:27:00 PM	R36736

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: R36752			RunNo: 36752				
Prep Date:			Analysis Date: 8/24/2016			SeqNo: 1139120		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: R36752			RunNo: 36752				
Prep Date:			Analysis Date: 8/24/2016			SeqNo: 1139121		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.8	90	110			
Bromide	2.5	0.10	2.500	0	98.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	101	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: A36952			RunNo: 36952				
Prep Date:			Analysis Date: 9/1/2016			SeqNo: 1145113		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: A36952			RunNo: 36952				
Prep Date:			Analysis Date: 9/1/2016			SeqNo: 1145114		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	LCS-27206		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141714		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	65.4	162			
Surr: DNOP	0.28		0.2500		110	67.9	149			

Sample ID	MB-27206		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141716		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.54		0.5000		108	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R36736		RunNo: 36736					
Prep Date:			Analysis Date: 8/25/2016		SeqNo: 1139716		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.6	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	94.5	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.2	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36736			RunNo: 36736					
Prep Date:		Analysis Date: 8/25/2016			SeqNo: 1139717		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36736	RunNo:	36736					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1139717	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36736			RunNo: 36736						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1139717		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 1608d63-001ams	SampType: MS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-51	Batch ID: R36736			RunNo: 36736						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1139722		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.7	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	98.4	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	93.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.5	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.6	70	130			
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Sample ID 1608d63-001amsd	SampType: MSD			TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-51	Batch ID: R36736			RunNo: 36736						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1139723		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.5	70	130	2.28	20	
Toluene	20	1.0	20.00	0	100	70	130	1.80	20	
Chlorobenzene	20	1.0	20.00	0	101	70	130	1.01	20	
1,1-Dichloroethene	19	1.0	20.00	0	94.3	70	130	4.26	20	
Trichloroethene (TCE)	18	1.0	20.00	0	92.2	70	130	1.17	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130	0	0	
Surr: Toluene-d8	10		10.00		100	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	mb-27255	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27255	RunNo:	36967					
Prep Date:	8/30/2016	Analysis Date:	9/2/2016	SeqNo:	1145771	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	mb-27255	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27255	RunNo:	36967					
Prep Date:	8/30/2016	Analysis Date:	9/2/2016	SeqNo:	1145771	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	60		200.0		30.0	15	123			
Surr: Phenol-d5	57		200.0		28.7	4.13	124			
Surr: 2,4,6-Tribromophenol	92		200.0		46.0	18.4	134			
Surr: Nitrobenzene-d5	64		100.0		63.5	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		58.6	35.9	125			
Surr: 4-Terphenyl-d14	83		100.0		82.5	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	Ics-27255		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27255		RunNo: 36967					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145775		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	79.3	35	113			
4-Chloro-3-methylphenol	190	10	200.0	0	93.4	40.7	114			
2-Chlorophenol	170	10	200.0	0	86.7	37.6	113			
1,4-Dichlorobenzene	56	10	100.0	0	56.5	37.7	106			
2,4-Dinitrotoluene	80	10	100.0	0	80.4	37	91			
N-Nitrosodi-n-propylamine	75	10	100.0	0	75.4	45.4	105			
4-Nitrophenol	83	10	200.0	0	41.3	33.4	104			
Pentachlorophenol	160	20	200.0	0	79.4	29.5	94.9			
Phenol	100	10	200.0	0	50.3	30.6	119			
Pyrene	130	10	100.0	0	125	26.2	120			S
1,2,4-Trichlorobenzene	69	10	100.0	0	68.7	39.9	125			
Surr: 2-Fluorophenol	84		200.0		42.2	15	123			
Surr: Phenol-d5	71		200.0		35.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	18.4	134			
Surr: Nitrobenzene-d5	69		100.0		69.0	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		59.3	35.9	125			
Surr: 4-Terphenyl-d14	93		100.0		93.3	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	MB-27318	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27318	RunNo:	36973					
Prep Date:	9/1/2016	Analysis Date:	9/2/2016	SeqNo:	1145816	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27318	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27318	RunNo:	36973					
Prep Date:	9/1/2016	Analysis Date:	9/2/2016	SeqNo:	1145817	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.2	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID:	PBW	Batch ID: C37036			RunNo: 37036						
Prep Date:		Analysis Date: 9/7/2016			SeqNo: 1147841		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

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

Sample ID	LCS-C	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals						
Client ID:	LCSW	Batch ID:	C37036	RunNo:	37036						
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147842	Units:	mg/L				
Analyte		Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.52	0.020	0.5000	0	103	80	120			
Barium	0.51	0.020	0.5000	0	101	80	120			
Cadmium	0.52	0.0020	0.5000	0	103	80	120			
Calcium	60	1.0	50.00	0	119	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Copper	0.50	0.0060	0.5000	0	99.8	80	120			
Iron	0.52	0.020	0.5000	0	104	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Manganese	0.49	0.0020	0.5000	0	98.7	80	120			
Potassium	59	1.0	50.00	0	119	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.10	0.0050	0.1000	0	104	80	120			
Zinc	0.50	0.020	0.5000	0	100	80	120			

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals						
Client ID:	PBW	Batch ID: C37126			RunNo: 37126						
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151183		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	MB-C	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: C37126			RunNo: 37126					
Prep Date:		Analysis Date: 9/12/2016			SeqNo: 1151183		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Selenium	ND	0.050								
Uranium	ND	0.10								

Sample ID	LCS-C		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: C37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151184		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.52	0.020	0.5000	0	104	80	120			
Selenium	0.54	0.050	0.5000	0	109	80	120			
Uranium	0.54	0.10	0.5000	0	108	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	MB-27180	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 27180			RunNo: 36953					
Prep Date:	8/25/2016	Analysis Date: 9/2/2016			SeqNo: 1145164		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27180		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27180		RunNo: 36953					
Prep Date:	8/25/2016		Analysis Date: 9/2/2016		SeqNo: 1145165		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.3	80	120			
Lead	0.48	0.0050	0.5000	0	97.0	80	120			
Selenium	0.51	0.050	0.5000	0	103	80	120			
Silver	0.099	0.0050	0.1000	0	99.3	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G36811	RunNo:	36811					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1141064	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		97.5	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G36811	RunNo:	36811					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1141065	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.7	75.4	118			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D63

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-23-2016

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138449	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138450	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.72	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138474	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R36738	RunNo:	36738					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138475	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.16	20.00	80.00	0	99.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1608D63

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

8/24/2016 8:00:00 AM

Completed By: Ashley Gallegos

8/24/2016 10:09:10 AM

Reviewed By:

CS

08/24/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 03, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: Refinery Wells 8-23-16

OrderNo.: 1608D53

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/24/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized, flowing script.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001A

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	4.9	2.5	D	mg/L	50	8/24/2016 8:05:59 PM	G36737
Surr: BFB	99.7	70-130	D	%Rec	50	8/24/2016 8:05:59 PM	G36737
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Toluene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Ethylbenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2,4-Trimethylbenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,3,5-Trimethylbenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2-Dichloroethane (EDC)	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2-Dibromoethane (EDB)	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Naphthalene	110	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1-Methylnaphthalene	ND	200	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
2-Methylnaphthalene	ND	200	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Acetone	ND	500	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Bromobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Bromodichloromethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Bromoform	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Bromomethane	ND	150	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
2-Butanone	ND	500	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Carbon disulfide	ND	500	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Carbon Tetrachloride	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Chlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Chloroethane	ND	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Chloroform	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Chloromethane	ND	150	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
2-Chlorotoluene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
4-Chlorotoluene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
cis-1,2-DCE	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
cis-1,3-Dichloropropene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2-Dibromo-3-chloropropane	ND	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Dibromochloromethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Dibromomethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2-Dichlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,3-Dichlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,4-Dichlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Dichlorodifluoromethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1-Dichloroethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1-Dichloroethene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2-Dichloropropane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 1 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001A

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
2,2-Dichloropropane	ND	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1-Dichloropropene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Hexachlorobutadiene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
2-Hexanone	ND	500	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Isopropylbenzene	55	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
4-Isopropyltoluene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
4-Methyl-2-pentanone	ND	500	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Methylene Chloride	ND	150	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
n-Butylbenzene	ND	150	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
n-Propylbenzene	63	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
sec-Butylbenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Styrene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
tert-Butylbenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1,1,2-Tetrachloroethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1,2,2-Tetrachloroethane	ND	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Tetrachloroethene (PCE)	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
trans-1,2-DCE	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
trans-1,3-Dichloropropene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2,3-Trichlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2,4-Trichlorobenzene	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1,1-Trichloroethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,1,2-Trichloroethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Trichloroethene (TCE)	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Trichlorofluoromethane	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
1,2,3-Trichloropropane	ND	100	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Vinyl chloride	ND	50	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Xylenes, Total	ND	75	D	µg/L	50	8/24/2016 8:05:59 PM	R36737
Surr: 1,2-Dichloroethane-d4	97.7	70-130	D	%Rec	50	8/24/2016 8:05:59 PM	R36737
Surr: 4-Bromofluorobenzene	94.5	70-130	D	%Rec	50	8/24/2016 8:05:59 PM	R36737
Surr: Dibromofluoromethane	94.9	70-130	D	%Rec	50	8/24/2016 8:05:59 PM	R36737
Surr: Toluene-d8	98.6	70-130	D	%Rec	50	8/24/2016 8:05:59 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 2 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001B

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	110	2.0		mg/L	10	8/29/2016 3:23:35 PM	27206
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/29/2016 3:23:35 PM	27206
Surr: DNOP	0	67.9-149	S	%Rec	10	8/29/2016 3:23:35 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 67

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001C

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1200	1.0	H	mg CO2/L	1	8/29/2016 12:39:31 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 6:31:44 PM	R36752
Chloride	290	10	*	mg/L	20	8/24/2016 7:08:57 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 6:31:44 PM	R36752
Bromide	5.0	0.50		mg/L	5	8/24/2016 6:31:44 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 6:31:44 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 6:31:44 PM	R36752
Sulfate	ND	2.5		mg/L	5	8/24/2016 6:31:44 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1190	20.00		mg/L CaCO3	1	8/29/2016 12:39:31 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 12:39:31 PM	R36846
Total Alkalinity (as CaCO3)	1190	20.00		mg/L CaCO3	1	8/29/2016 12:39:31 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 4 of 67

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001D

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:25:27 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 10:41:38 AM	A36953
Barium	1.8	0.10		mg/L	5	9/2/2016 10:43:17 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 10:41:38 AM	A36953
Calcium	97	5.0		mg/L	5	9/2/2016 10:43:17 AM	A36953
Chromium	ND	0.0060		mg/L	1	9/2/2016 10:41:38 AM	A36953
Copper	ND	0.0060		mg/L	1	9/2/2016 10:41:38 AM	A36953
Iron	4.9	0.10		mg/L	5	9/2/2016 10:43:17 AM	A36953
Lead	ND	0.0050		mg/L	1	9/2/2016 10:41:38 AM	A36953
Magnesium	44	1.0		mg/L	1	9/2/2016 10:41:38 AM	A36953
Manganese	2.3	0.010		mg/L	5	9/2/2016 10:43:17 AM	A36953
Potassium	3.5	1.0		mg/L	1	9/2/2016 10:41:38 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 10:41:38 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 10:41:38 AM	A36953
Sodium	440	5.0		mg/L	5	9/2/2016 10:43:17 AM	A36953
Uranium	ND	0.10		mg/L	1	9/12/2016 2:09:16 PM	A37126
Zinc	0.031	0.020		mg/L	1	9/7/2016 4:08:50 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-001E

Client Sample ID: MW-40
Collection Date: 8/23/2016 8:30:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:19:20 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:34:17 PM	27180
Barium	2.3	0.10		mg/L	5	9/2/2016 12:39:02 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:33:45 PM	27180
Chromium	0.018	0.0060		mg/L	1	9/2/2016 12:33:45 PM	27180
Lead	0.0098	0.0050		mg/L	1	9/7/2016 2:34:17 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:34:17 PM	27180
Silver	0.014	0.0050		mg/L	1	9/2/2016 12:33:45 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 6 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-002A

Client Sample ID: MW-4
Collection Date: 8/23/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	6.1	0.050		mg/L	1	8/24/2016 9:03:29 PM	G36737
Surr: BFB	90.0	70-130		%Rec	1	8/24/2016 9:03:29 PM	G36737
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	37	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Toluene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Ethylbenzene	7.0	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2,4-Trimethylbenzene	1.7	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Naphthalene	71	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1-Methylnaphthalene	22	4.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
2-Methylnaphthalene	35	4.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Acetone	ND	10		µg/L	1	8/24/2016 9:03:29 PM	R36737
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Bromoform	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Bromomethane	ND	3.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
2-Butanone	ND	10		µg/L	1	8/24/2016 9:03:29 PM	R36737
Carbon disulfide	ND	10		µg/L	1	8/24/2016 9:03:29 PM	R36737
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Chloroethane	ND	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Chloroform	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Chloromethane	ND	3.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-002A

Client Sample ID: MW-4
Collection Date: 8/23/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
2-Hexanone	ND	10		µg/L	1	8/24/2016 9:03:29 PM	R36737
Isopropylbenzene	40	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 9:03:29 PM	R36737
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
n-Propylbenzene	33	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
sec-Butylbenzene	5.7	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Styrene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
tert-Butylbenzene	1.2	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 9:03:29 PM	R36737
Xylenes, Total	11	1.5		µg/L	1	8/24/2016 9:03:29 PM	R36737
Surr: 1,2-Dichloroethane-d4	92.6	70-130		%Rec	1	8/24/2016 9:03:29 PM	R36737
Surr: 4-Bromofluorobenzene	81.7	70-130		%Rec	1	8/24/2016 9:03:29 PM	R36737
Surr: Dibromofluoromethane	87.0	70-130		%Rec	1	8/24/2016 9:03:29 PM	R36737
Surr: Toluene-d8	98.5	70-130		%Rec	1	8/24/2016 9:03:29 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-002B

Client Sample ID: MW-4
Collection Date: 8/23/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	1.3	0.20		mg/L	1	8/29/2016 12:50:43 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 12:50:43 PM	27206
Surr: DNOP	113	67.9-149		%Rec	1	8/29/2016 12:50:43 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 9 of 67

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-4**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 10:40:00 AM**Lab ID:** 1608D53-002C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1200	1.0	H	mg CO2/L	1	8/29/2016 1:20:35 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 7:21:21 PM	R36752
Chloride	270	10	*	mg/L	20	8/24/2016 7:33:46 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 7:21:21 PM	R36752
Bromide	4.6	0.50		mg/L	5	8/24/2016 7:21:21 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 7:21:21 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 7:21:21 PM	R36752
Sulfate	ND	2.5		mg/L	5	8/24/2016 7:21:21 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1176	20.00		mg/L CaCO3	1	8/29/2016 1:20:35 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 1:20:35 PM	R36846
Total Alkalinity (as CaCO3)	1176	20.00		mg/L CaCO3	1	8/29/2016 1:20:35 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-002D

Client Sample ID: MW-4
Collection Date: 8/23/2016 10:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:29:32 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 10:44:59 AM	A36953
Barium	2.3	0.10		mg/L	5	9/2/2016 10:46:37 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 10:44:59 AM	A36953
Calcium	170	5.0		mg/L	5	9/2/2016 10:46:37 AM	A36953
Chromium	0.011	0.0060		mg/L	1	9/2/2016 10:44:59 AM	A36953
Copper	0.16	0.0060		mg/L	1	9/2/2016 10:44:59 AM	A36953
Iron	43	2.0		mg/L	100	9/7/2016 4:13:46 PM	A37036
Lead	0.014	0.0050		mg/L	1	9/2/2016 10:44:59 AM	A36953
Magnesium	61	1.0		mg/L	1	9/2/2016 10:44:59 AM	A36953
Manganese	8.6	0.020		mg/L	10	9/7/2016 4:12:05 PM	A37036
Potassium	4.7	1.0		mg/L	1	9/2/2016 10:44:59 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 10:44:59 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 10:44:59 AM	A36953
Sodium	380	5.0		mg/L	5	9/2/2016 10:46:37 AM	A36953
Uranium	ND	0.10		mg/L	1	9/12/2016 2:10:44 PM	A37126
Zinc	0.033	0.020		mg/L	1	9/7/2016 4:10:27 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-4**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 10:40:00 AM**Lab ID:** 1608D53-002E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:27:29 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:39:29 PM	27180
Barium	2.5	0.10		mg/L	5	9/2/2016 12:54:26 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:52:41 PM	27180
Chromium	0.071	0.0060		mg/L	1	9/2/2016 12:52:41 PM	27180
Lead	0.012	0.0050		mg/L	1	9/7/2016 2:39:29 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:39:29 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 12:52:41 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-003A

Client Sample ID: MW-04 Dup
Collection Date: 8/23/2016 10:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	6.0	0.050		mg/L	1	8/24/2016 10:00:57 PM	G36737
Surr: BFB	88.2	70-130		%Rec	1	8/24/2016 10:00:57 PM	G36737
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	39	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Toluene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Ethylbenzene	7.2	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2,4-Trimethylbenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,3,5-Trimethylbenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Naphthalene	80	20		µg/L	10	8/24/2016 9:32:10 PM	R36737
1-Methylnaphthalene	ND	40		µg/L	10	8/24/2016 9:32:10 PM	R36737
2-Methylnaphthalene	ND	40		µg/L	10	8/24/2016 9:32:10 PM	R36737
Acetone	ND	10		µg/L	1	8/24/2016 10:00:57 PM	R36737
Bromobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Bromoform	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
Bromomethane	ND	3.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
2-Butanone	ND	10		µg/L	1	8/24/2016 10:00:57 PM	R36737
Carbon disulfide	ND	10		µg/L	1	8/24/2016 10:00:57 PM	R36737
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Chloroethane	ND	2.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Chloroform	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Chloromethane	ND	3.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
2-Chlorotoluene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
4-Chlorotoluene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/24/2016 9:32:10 PM	R36737
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,3-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,4-Dichlorobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-003A

Client Sample ID: MW-04 Dup
Collection Date: 8/23/2016 10:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Hexachlorobutadiene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
2-Hexanone	ND	10		µg/L	1	8/24/2016 10:00:57 PM	R36737
Isopropylbenzene	42	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
4-Isopropyltoluene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 10:00:57 PM	R36737
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
n-Butylbenzene	ND	30		µg/L	10	8/24/2016 9:32:10 PM	R36737
n-Propylbenzene	43	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
sec-Butylbenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
Styrene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
tert-Butylbenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/24/2016 9:32:10 PM	R36737
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/24/2016 9:32:10 PM	R36737
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
1,2,3-Trichloropropane	ND	20		µg/L	10	8/24/2016 9:32:10 PM	R36737
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 10:00:57 PM	R36737
Xylenes, Total	11	1.5		µg/L	1	8/24/2016 10:00:57 PM	R36737
Surr: 1,2-Dichloroethane-d4	89.5	70-130		%Rec	1	8/24/2016 10:00:57 PM	R36737
Surr: 4-Bromofluorobenzene	90.7	70-130		%Rec	10	8/24/2016 9:32:10 PM	R36737
Surr: Dibromofluoromethane	75.6	70-130		%Rec	1	8/24/2016 10:00:57 PM	R36737
Surr: Toluene-d8	95.0	70-130		%Rec	1	8/24/2016 10:00:57 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 14 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-003B

Client Sample ID: MW-04 Dup
Collection Date: 8/23/2016 10:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	8/29/2016 4:08:01 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 4:08:01 PM	27206
Surr: DNOP	115	67.9-149		%Rec	1	8/29/2016 4:08:01 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-003C

Client Sample ID: MW-04 Dup
Collection Date: 8/23/2016 10:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1200	1.0	H	mg CO2/L	1	8/29/2016 2:01:03 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 8:11:00 PM	R36752
Chloride	250	10		mg/L	20	8/24/2016 8:23:25 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 8:11:00 PM	R36752
Bromide	4.6	0.50		mg/L	5	8/24/2016 8:11:00 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 8:11:00 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 8:11:00 PM	R36752
Sulfate	ND	2.5		mg/L	5	8/24/2016 8:11:00 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1189	20.00		mg/L CaCO3	1	8/29/2016 2:01:03 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 2:01:03 PM	R36846
Total Alkalinity (as CaCO3)	1189	20.00		mg/L CaCO3	1	8/29/2016 2:01:03 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-003D

Client Sample ID: MW-04 Dup
Collection Date: 8/23/2016 10:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:33:42 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 10:48:20 AM	A36953
Barium	2.3	0.10		mg/L	5	9/2/2016 10:49:58 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 10:48:20 AM	A36953
Calcium	170	5.0		mg/L	5	9/2/2016 10:49:58 AM	A36953
Chromium	0.0064	0.0060		mg/L	1	9/2/2016 10:48:20 AM	A36953
Copper	0.13	0.0060		mg/L	1	9/2/2016 10:48:20 AM	A36953
Iron	39	2.0		mg/L	100	9/7/2016 4:25:37 PM	A37036
Lead	0.013	0.0050		mg/L	1	9/2/2016 10:48:20 AM	A36953
Magnesium	64	1.0		mg/L	1	9/2/2016 10:48:20 AM	A36953
Manganese	7.8	0.020		mg/L	10	9/7/2016 4:23:54 PM	A37036
Potassium	4.9	1.0		mg/L	1	9/2/2016 10:48:20 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 10:48:20 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 10:48:20 AM	A36953
Sodium	390	5.0		mg/L	5	9/2/2016 10:49:58 AM	A36953
Uranium	ND	0.10		mg/L	1	9/12/2016 2:12:21 PM	A37126
Zinc	0.040	0.020		mg/L	1	9/7/2016 4:15:31 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-04 Dup**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 10:50:00 AM**Lab ID:** 1608D53-003E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:31:36 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:48:27 PM	27180
Barium	2.4	0.10		mg/L	5	9/2/2016 12:57:59 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:56:14 PM	27180
Chromium	0.057	0.0060		mg/L	1	9/2/2016 12:56:14 PM	27180
Lead	0.011	0.0050		mg/L	1	9/7/2016 2:48:27 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:48:27 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 12:56:14 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** RW-15**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 11:40:00 AM**Lab ID:** 1608D53-004A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	29	0.50		mg/L	10	8/24/2016 10:58:39 PM	G36737
Surr: BFB	100	70-130		%Rec	10	8/24/2016 10:58:39 PM	G36737
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	1800	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Toluene	18	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Ethylbenzene	2400	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2,4-Trimethylbenzene	2100	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,3,5-Trimethylbenzene	200	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Naphthalene	500	200		µg/L	100	8/24/2016 10:29:52 PM	R36737
1-Methylnaphthalene	ND	400		µg/L	100	8/24/2016 10:29:52 PM	R36737
2-Methylnaphthalene	ND	400		µg/L	100	8/24/2016 10:29:52 PM	R36737
Acetone	ND	100		µg/L	10	8/24/2016 10:58:39 PM	R36737
Bromobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Bromodichloromethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Bromoform	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Bromomethane	ND	30		µg/L	10	8/24/2016 10:58:39 PM	R36737
2-Butanone	ND	100		µg/L	10	8/24/2016 10:58:39 PM	R36737
Carbon disulfide	ND	100		µg/L	10	8/24/2016 10:58:39 PM	R36737
Carbon Tetrachloride	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Chlorobenzene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Chloroethane	ND	20		µg/L	10	8/24/2016 10:58:39 PM	R36737
Chloroform	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Chloromethane	ND	30		µg/L	10	8/24/2016 10:58:39 PM	R36737
2-Chlorotoluene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
4-Chlorotoluene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
cis-1,2-DCE	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2-Dibromo-3-chloropropane	ND	200		µg/L	100	8/24/2016 10:29:52 PM	R36737
Dibromochloromethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Dibromomethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2-Dichlorobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,3-Dichlorobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,4-Dichlorobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Dichlorodifluoromethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,1-Dichloroethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,1-Dichloroethene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2-Dichloropropane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 19 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-004A

Client Sample ID: RW-15
Collection Date: 8/23/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
2,2-Dichloropropane	ND	20		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,1-Dichloropropene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Hexachlorobutadiene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
2-Hexanone	ND	100		µg/L	10	8/24/2016 10:58:39 PM	R36737
Isopropylbenzene	100	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
4-Isopropyltoluene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
4-Methyl-2-pentanone	ND	100		µg/L	10	8/24/2016 10:58:39 PM	R36737
Methylene Chloride	ND	30		µg/L	10	8/24/2016 10:58:39 PM	R36737
n-Butylbenzene	ND	300		µg/L	100	8/24/2016 10:29:52 PM	R36737
n-Propylbenzene	350	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
sec-Butylbenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
Styrene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
tert-Butylbenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,1,2,2-Tetrachloroethane	ND	200		µg/L	100	8/24/2016 10:29:52 PM	R36737
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
trans-1,2-DCE	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2,3-Trichlorobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,2,4-Trichlorobenzene	ND	100		µg/L	100	8/24/2016 10:29:52 PM	R36737
1,1,1-Trichloroethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,1,2-Trichloroethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Trichloroethene (TCE)	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Trichlorofluoromethane	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
1,2,3-Trichloropropane	ND	200		µg/L	100	8/24/2016 10:29:52 PM	R36737
Vinyl chloride	ND	10		µg/L	10	8/24/2016 10:58:39 PM	R36737
Xylenes, Total	1300	15		µg/L	10	8/24/2016 10:58:39 PM	R36737
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%Rec	10	8/24/2016 10:58:39 PM	R36737
Surr: 4-Bromofluorobenzene	89.8	70-130		%Rec	100	8/24/2016 10:29:52 PM	R36737
Surr: Dibromofluoromethane	86.5	70-130		%Rec	10	8/24/2016 10:58:39 PM	R36737
Surr: Toluene-d8	99.8	70-130		%Rec	10	8/24/2016 10:58:39 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-004B

Client Sample ID: RW-15
Collection Date: 8/23/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	100	2.0		mg/L	10	8/29/2016 1:12:14 PM	27206
Motor Oil Range Organics (MRO)	44	25		mg/L	10	8/29/2016 1:12:14 PM	27206
Surr: DNOP	0	67.9-149	S	%Rec	10	8/29/2016 1:12:14 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** RW-15**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 11:40:00 AM**Lab ID:** 1608D53-004C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1200	2.5	H	mg CO2/L	2.5	8/31/2016 11:58:12 AM	R36928
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 8:35:50 PM	R36752
Chloride	330	10	*	mg/L	20	8/24/2016 8:48:15 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 8:35:50 PM	R36752
Bromide	8.5	0.50		mg/L	5	8/24/2016 8:35:50 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 8:35:50 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 8:35:50 PM	R36752
Sulfate	19	2.5		mg/L	5	8/24/2016 8:35:50 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1248	50.00		mg/L CaCO3	2.5	8/31/2016 11:58:12 AM	R36928
Carbonate (As CaCO3)	ND	5.000		mg/L CaCO3	2.5	8/31/2016 11:58:12 AM	R36928
Total Alkalinity (as CaCO3)	1248	50.00		mg/L CaCO3	2.5	8/31/2016 11:58:12 AM	R36928

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-004D

Client Sample ID: RW-15
Collection Date: 8/23/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:42:07 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 10:51:41 AM	A36953
Barium	1.2	0.10		mg/L	5	9/2/2016 10:53:19 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 10:51:41 AM	A36953
Calcium	150	5.0		mg/L	5	9/2/2016 10:53:19 AM	A36953
Chromium	ND	0.0060		mg/L	1	9/2/2016 10:51:41 AM	A36953
Copper	0.0098	0.0060		mg/L	1	9/2/2016 10:51:41 AM	A36953
Iron	12	1.0		mg/L	50	9/7/2016 4:30:46 PM	A37036
Lead	0.0077	0.0050		mg/L	1	9/2/2016 10:51:41 AM	A36953
Magnesium	45	1.0		mg/L	1	9/2/2016 10:51:41 AM	A36953
Manganese	3.1	0.020		mg/L	10	9/7/2016 4:29:03 PM	A37036
Potassium	3.7	1.0		mg/L	1	9/2/2016 10:51:41 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 10:51:41 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 10:51:41 AM	A36953
Sodium	560	10		mg/L	10	9/7/2016 4:29:03 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 2:20:20 PM	A37126
Zinc	1.3	0.20		mg/L	10	9/7/2016 4:29:03 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-004E

Client Sample ID: RW-15
Collection Date: 8/23/2016 11:40:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:40:02 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:50:06 PM	27180
Barium	1.4	0.10		mg/L	5	9/2/2016 1:01:20 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:59:42 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:59:42 PM	27180
Lead	0.0085	0.0050		mg/L	1	9/7/2016 2:50:06 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:50:06 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 12:59:42 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-005A

Client Sample ID: MW-44
Collection Date: 8/23/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	0.057	0.050		mg/L	1	8/24/2016 11:27:19 PM	G36737
Surr: BFB	95.6	70-130		%Rec	1	8/24/2016 11:27:19 PM	G36737
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Toluene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Ethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2,4-Trimethylbenzene	1.1	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Naphthalene	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
2-Methylnaphthalene	ND	4.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Acetone	ND	10		µg/L	1	8/24/2016 11:27:19 PM	R36737
Bromobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Bromodichloromethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Bromoform	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Bromomethane	ND	3.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
2-Butanone	ND	10		µg/L	1	8/24/2016 11:27:19 PM	R36737
Carbon disulfide	ND	10		µg/L	1	8/24/2016 11:27:19 PM	R36737
Carbon Tetrachloride	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Chlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Chloroethane	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Chloroform	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Chloromethane	ND	3.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
2-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
4-Chlorotoluene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
cis-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Dibromochloromethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Dibromomethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1-Dichloroethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1-Dichloroethene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-005A

Client Sample ID: MW-44
Collection Date: 8/23/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
2,2-Dichloropropane	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Hexachlorobutadiene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
2-Hexanone	ND	10		µg/L	1	8/24/2016 11:27:19 PM	R36737
Isopropylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
4-Isopropyltoluene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
4-Methyl-2-pentanone	ND	10		µg/L	1	8/24/2016 11:27:19 PM	R36737
Methylene Chloride	ND	3.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
n-Butylbenzene	ND	3.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
n-Propylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
sec-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Styrene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
tert-Butylbenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
trans-1,2-DCE	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Trichlorofluoromethane	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Vinyl chloride	ND	1.0		µg/L	1	8/24/2016 11:27:19 PM	R36737
Xylenes, Total	ND	1.5		µg/L	1	8/24/2016 11:27:19 PM	R36737
Surr: 1,2-Dichloroethane-d4	99.8	70-130		%Rec	1	8/24/2016 11:27:19 PM	R36737
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	8/24/2016 11:27:19 PM	R36737
Surr: Dibromofluoromethane	93.9	70-130		%Rec	1	8/24/2016 11:27:19 PM	R36737
Surr: Toluene-d8	97.2	70-130		%Rec	1	8/24/2016 11:27:19 PM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 26 of 67

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-44**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 12:30:00 PM**Lab ID:** 1608D53-005B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/29/2016 4:30:00 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 4:30:00 PM	27206
Surr: DNOP	101	67.9-149		%Rec	1	8/29/2016 4:30:00 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-44**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 12:30:00 PM**Lab ID:** 1608D53-005C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	360	1.0	H	mg CO2/L	1	8/29/2016 3:17:08 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	0.60	0.10		mg/L	1	8/24/2016 9:00:39 PM	R36752
Chloride	56	10		mg/L	20	8/24/2016 9:13:04 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/24/2016 9:00:39 PM	R36752
Bromide	0.18	0.10		mg/L	1	8/24/2016 9:00:39 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/24/2016 9:00:39 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/24/2016 9:13:04 PM	R36752
Sulfate	3000	50	*	mg/L	100	8/28/2016 7:26:55 PM	R36824
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	376.3	20.00		mg/L CaCO3	1	8/29/2016 3:17:08 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 3:17:08 PM	R36846
Total Alkalinity (as CaCO3)	376.3	20.00		mg/L CaCO3	1	8/29/2016 3:17:08 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-005D

Client Sample ID: MW-44
Collection Date: 8/23/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:46:18 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 10:55:04 AM	A36953
Barium	0.020	0.020		mg/L	1	9/2/2016 10:55:04 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 10:55:04 AM	A36953
Calcium	480	5.0		mg/L	5	9/2/2016 10:56:50 AM	A36953
Chromium	ND	0.0060		mg/L	1	9/2/2016 10:55:04 AM	A36953
Copper	ND	0.0060		mg/L	1	9/2/2016 10:55:04 AM	A36953
Iron	2.9	0.10		mg/L	5	9/2/2016 10:56:50 AM	A36953
Lead	ND	0.0050		mg/L	1	9/2/2016 10:55:04 AM	A36953
Magnesium	59	1.0		mg/L	1	9/2/2016 10:55:04 AM	A36953
Manganese	1.2	0.010		mg/L	5	9/2/2016 10:56:50 AM	A36953
Potassium	7.9	1.0		mg/L	1	9/2/2016 10:55:04 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 10:55:04 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 10:55:04 AM	A36953
Sodium	990	10		mg/L	10	9/7/2016 4:34:15 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 2:21:50 PM	A37126
Zinc	0.056	0.020		mg/L	1	9/7/2016 4:32:30 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-005E

Client Sample ID: MW-44
Collection Date: 8/23/2016 12:30:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:44:12 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:51:44 PM	27180
Barium	0.17	0.020		mg/L	1	9/2/2016 1:03:04 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:03:04 PM	27180
Chromium	0.026	0.0060		mg/L	1	9/2/2016 1:03:04 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 2:51:44 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:51:44 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:03:04 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608D53

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006A

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	100	5.0		mg/L	100	8/25/2016 4:50:09 PM	G36763
Surr: BFB	100	70-130		%Rec	100	8/25/2016 4:50:09 PM	G36763
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	2700	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Toluene	1800	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Ethylbenzene	4400	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Methyl tert-butyl ether (MTBE)	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2,4-Trimethylbenzene	4200	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,3,5-Trimethylbenzene	860	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2-Dichloroethane (EDC)	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2-Dibromoethane (EDB)	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Naphthalene	700	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
1-Methylnaphthalene	ND	400		µg/L	100	8/25/2016 2:20:08 AM	R36737
2-Methylnaphthalene	ND	400		µg/L	100	8/25/2016 2:20:08 AM	R36737
Acetone	ND	1000		µg/L	100	8/25/2016 2:20:08 AM	R36737
Bromobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Bromodichloromethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Bromoform	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Bromomethane	ND	300		µg/L	100	8/25/2016 2:20:08 AM	R36737
2-Butanone	ND	1000		µg/L	100	8/25/2016 2:20:08 AM	R36737
Carbon disulfide	ND	1000		µg/L	100	8/25/2016 2:20:08 AM	R36737
Carbon Tetrachloride	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Chlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Chloroethane	ND	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
Chloroform	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Chloromethane	ND	300		µg/L	100	8/25/2016 2:20:08 AM	R36737
2-Chlorotoluene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
4-Chlorotoluene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
cis-1,2-DCE	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
cis-1,3-Dichloropropene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2-Dibromo-3-chloropropane	ND	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
Dibromochloromethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Dibromomethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,3-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,4-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Dichlorodifluoromethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1-Dichloroethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1-Dichloroethene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2-Dichloropropane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006A

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
2,2-Dichloropropane	ND	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1-Dichloropropene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Hexachlorobutadiene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
2-Hexanone	ND	1000		µg/L	100	8/25/2016 2:20:08 AM	R36737
Isopropylbenzene	190	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
4-Isopropyltoluene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
4-Methyl-2-pentanone	ND	1000		µg/L	100	8/25/2016 2:20:08 AM	R36737
Methylene Chloride	ND	300		µg/L	100	8/25/2016 2:20:08 AM	R36737
n-Butylbenzene	ND	300		µg/L	100	8/25/2016 2:20:08 AM	R36737
n-Propylbenzene	710	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
sec-Butylbenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Styrene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
tert-Butylbenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1,1,2-Tetrachloroethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1,2,2-Tetrachloroethane	ND	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
Tetrachloroethene (PCE)	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
trans-1,2-DCE	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
trans-1,3-Dichloropropene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2,3-Trichlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2,4-Trichlorobenzene	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1,1-Trichloroethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,1,2-Trichloroethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Trichloroethene (TCE)	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Trichlorofluoromethane	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
1,2,3-Trichloropropane	ND	200		µg/L	100	8/25/2016 2:20:08 AM	R36737
Vinyl chloride	ND	100		µg/L	100	8/25/2016 2:20:08 AM	R36737
Xylenes, Total	14000	150		µg/L	100	8/25/2016 2:20:08 AM	R36737
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	100	8/25/2016 2:20:08 AM	R36737
Surr: 4-Bromofluorobenzene	84.8	70-130		%Rec	100	8/25/2016 2:20:08 AM	R36737
Surr: Dibromofluoromethane	96.6	70-130		%Rec	100	8/25/2016 2:20:08 AM	R36737
Surr: Toluene-d8	95.9	70-130		%Rec	100	8/25/2016 2:20:08 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 32 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006B

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	71	2.0		mg/L	10	8/30/2016 2:31:01 PM	27206
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/30/2016 2:31:01 PM	27206
Surr: DNOP	0	67.9-149	S	%Rec	10	8/30/2016 2:31:01 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006C

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1300	2.5	H	mg CO2/L	2.5	8/31/2016 12:18:01 PM	R36928
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 9:25:28 PM	R36752
Chloride	230	10		mg/L	20	8/24/2016 9:37:53 PM	R36752
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 9:25:28 PM	R36752
Bromide	3.8	0.50		mg/L	5	8/24/2016 9:25:28 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 9:25:28 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 9:25:28 PM	R36752
Sulfate	69	2.5		mg/L	5	8/24/2016 9:25:28 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1403	50.00		mg/L CaCO3	2.5	8/31/2016 12:18:01 PM	R36928
Carbonate (As CaCO3)	ND	5.000		mg/L CaCO3	2.5	8/31/2016 12:18:01 PM	R36928
Total Alkalinity (as CaCO3)	1403	50.00		mg/L CaCO3	2.5	8/31/2016 12:18:01 PM	R36928

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006D

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:50:37 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 11:06:57 AM	A36953
Barium	0.56	0.020		mg/L	1	9/2/2016 11:06:57 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 11:06:57 AM	A36953
Calcium	150	5.0		mg/L	5	9/7/2016 4:37:48 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 11:06:57 AM	A36953
Copper	ND	0.0060		mg/L	1	9/2/2016 11:06:57 AM	A36953
Iron	7.4	0.20		mg/L	10	9/7/2016 4:39:32 PM	A37036
Lead	0.0066	0.0050		mg/L	1	9/2/2016 11:06:57 AM	A36953
Magnesium	36	1.0		mg/L	1	9/2/2016 11:06:57 AM	A36953
Manganese	1.2	0.010		mg/L	5	9/2/2016 11:08:34 AM	A36953
Potassium	3.3	1.0		mg/L	1	9/2/2016 11:06:57 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 11:06:57 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 11:06:57 AM	A36953
Sodium	590	10		mg/L	10	9/7/2016 4:39:32 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 2:23:21 PM	A37126
Zinc	0.031	0.020		mg/L	1	9/7/2016 4:36:10 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-006E

Client Sample ID: MW-30
Collection Date: 8/23/2016 1:50:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:48:30 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:53:38 PM	27180
Barium	0.74	0.020		mg/L	1	9/2/2016 1:06:26 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:06:26 PM	27180
Chromium	0.010	0.0060		mg/L	1	9/2/2016 1:06:26 PM	27180
Lead	0.019	0.0050		mg/L	1	9/7/2016 2:53:38 PM	27180
Selenium	ND	0.050		mg/L	1	9/7/2016 2:53:38 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:06:26 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608D53

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-007A

Client Sample ID: MW-21
Collection Date: 8/23/2016 1:44:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	0.42	0.25	D	mg/L	5	8/25/2016 5:18:55 PM	G36763
Surr: BFB	101	70-130	D	%Rec	5	8/25/2016 5:18:55 PM	G36763
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	20	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Toluene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Ethylbenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Methyl tert-butyl ether (MTBE)	16	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2,4-Trimethylbenzene	16	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Naphthalene	34	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1-Methylnaphthalene	ND	20	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
2-Methylnaphthalene	ND	20	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Acetone	ND	50	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Bromobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Bromodichloromethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Bromoform	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Bromomethane	ND	15	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
2-Butanone	ND	50	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Carbon disulfide	ND	50	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Carbon Tetrachloride	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Chlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Chloroethane	ND	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Chloroform	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Chloromethane	ND	15	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
2-Chlorotoluene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
4-Chlorotoluene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
cis-1,2-DCE	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Dibromochloromethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Dibromomethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1-Dichloroethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1-Dichloroethene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2-Dichloropropane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 37 of 67

Analytical Report

Lab Order: 1608D53

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.**Client Sample ID:** MW-21**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 1:44:00 PM**Lab ID:** 1608D53-007A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
2,2-Dichloropropane	ND	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1-Dichloropropene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Hexachlorobutadiene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
2-Hexanone	ND	50	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Isopropylbenzene	6.8	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
4-Isopropyltoluene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
4-Methyl-2-pentanone	ND	50	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Methylene Chloride	ND	15	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
n-Butylbenzene	ND	15	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
n-Propylbenzene	11	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
sec-Butylbenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Styrene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
tert-Butylbenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
trans-1,2-DCE	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Trichlorofluoromethane	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
1,2,3-Trichloropropane	ND	10	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Vinyl chloride	ND	5.0	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Xylenes, Total	ND	7.5	D	µg/L	5	8/25/2016 5:18:55 PM	W36763
Surr: 1,2-Dichloroethane-d4	99.2	70-130	D	%Rec	5	8/25/2016 5:18:55 PM	W36763
Surr: 4-Bromofluorobenzene	93.4	70-130	D	%Rec	5	8/25/2016 5:18:55 PM	W36763
Surr: Dibromofluoromethane	96.5	70-130	D	%Rec	5	8/25/2016 5:18:55 PM	W36763
Surr: Toluene-d8	99.4	70-130	D	%Rec	5	8/25/2016 5:18:55 PM	W36763

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 38 of 67

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-21**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 1:44:00 PM**Lab ID:** 1608D53-007B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	2.0	0.20		mg/L	1	8/29/2016 5:13:18 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 5:13:18 PM	27206
Surr: DNOP	114	67.9-149		%Rec	1	8/29/2016 5:13:18 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-007C

Client Sample ID: MW-21
Collection Date: 8/23/2016 1:44:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1100	1.0	H	mg CO2/L	1	8/29/2016 4:06:26 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.10		mg/L	1	8/24/2016 9:50:17 PM	R36752
Chloride	510	25	*	mg/L	50	8/28/2016 7:39:19 PM	R36824
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/24/2016 10:02:42 PM	R36752
Bromide	10	2.0		mg/L	20	8/24/2016 10:02:42 PM	R36752
Nitrogen, Nitrate (As N)	0.93	0.10		mg/L	1	8/24/2016 9:50:17 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/24/2016 9:50:17 PM	R36752
Sulfate	94	10		mg/L	20	8/24/2016 10:02:42 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1186	20.00		mg/L CaCO3	1	8/29/2016 4:06:26 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 4:06:26 PM	R36846
Total Alkalinity (as CaCO3)	1186	20.00		mg/L CaCO3	1	8/29/2016 4:06:26 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-007D

Client Sample ID: MW-21
Collection Date: 8/23/2016 1:44:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:54:36 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 11:10:18 AM	A36953
Barium	0.27	0.020		mg/L	1	9/2/2016 11:10:18 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 11:10:18 AM	A36953
Calcium	230	5.0		mg/L	5	9/7/2016 4:49:12 PM	A37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 11:10:18 AM	A36953
Copper	ND	0.0060		mg/L	1	9/2/2016 11:10:18 AM	A36953
Iron	0.71	0.020		mg/L	1	9/2/2016 11:10:18 AM	A36953
Lead	ND	0.0050		mg/L	1	9/2/2016 11:10:18 AM	A36953
Magnesium	54	1.0		mg/L	1	9/2/2016 11:10:18 AM	A36953
Manganese	2.0	0.010		mg/L	5	9/2/2016 11:11:55 AM	A36953
Potassium	4.8	1.0		mg/L	1	9/2/2016 11:10:18 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 11:10:18 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 11:10:18 AM	A36953
Sodium	600	10		mg/L	10	9/7/2016 4:51:05 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 2:24:50 PM	A37126
Zinc	ND	0.020		mg/L	1	9/7/2016 4:47:17 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-007E

Client Sample ID: MW-21
Collection Date: 8/23/2016 1:44:00 PM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/26/2016 11:52:36 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:55:16 PM	27180
Barium	0.30	0.020		mg/L	1	9/2/2016 1:18:24 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:18:24 PM	27180
Chromium	ND	0.0060		mg/L	1	9/2/2016 1:18:24 PM	27180
Lead	ND	0.0050		mg/L	1	9/7/2016 2:55:16 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:18:24 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:18:24 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-008A

Client Sample ID: RW-18
Collection Date: 8/23/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG
Gasoline Range Organics (GRO)	8.8	0.50		mg/L	10	8/25/2016 9:08:37 PM	G36763
Surr: BFB	103	70-130		%Rec	10	8/25/2016 9:08:37 PM	G36763
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	1400	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Toluene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Ethylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Methyl tert-butyl ether (MTBE)	1900	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2,4-Trimethylbenzene	120	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,3,5-Trimethylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2-Dichloroethane (EDC)	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2-Dibromoethane (EDB)	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Naphthalene	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
1-Methylnaphthalene	ND	400		µg/L	100	8/25/2016 3:17:31 AM	R36737
2-Methylnaphthalene	ND	400		µg/L	100	8/25/2016 3:17:31 AM	R36737
Acetone	ND	1000		µg/L	100	8/25/2016 3:17:31 AM	R36737
Bromobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Bromodichloromethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Bromoform	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Bromomethane	ND	300		µg/L	100	8/25/2016 3:17:31 AM	R36737
2-Butanone	ND	1000		µg/L	100	8/25/2016 3:17:31 AM	R36737
Carbon disulfide	ND	1000		µg/L	100	8/25/2016 3:17:31 AM	R36737
Carbon Tetrachloride	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Chlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Chloroethane	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
Chloroform	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Chloromethane	ND	300		µg/L	100	8/25/2016 3:17:31 AM	R36737
2-Chlorotoluene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
4-Chlorotoluene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
cis-1,2-DCE	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
cis-1,3-Dichloropropene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2-Dibromo-3-chloropropane	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
Dibromochloromethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Dibromomethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,3-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,4-Dichlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Dichlorodifluoromethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1-Dichloroethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1-Dichloroethene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2-Dichloropropane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-008A

Client Sample ID: RW-18
Collection Date: 8/23/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
2,2-Dichloropropane	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1-Dichloropropene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Hexachlorobutadiene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
2-Hexanone	ND	1000		µg/L	100	8/25/2016 3:17:31 AM	R36737
Isopropylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
4-Isopropyltoluene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
4-Methyl-2-pentanone	ND	1000		µg/L	100	8/25/2016 3:17:31 AM	R36737
Methylene Chloride	ND	300		µg/L	100	8/25/2016 3:17:31 AM	R36737
n-Butylbenzene	ND	300		µg/L	100	8/25/2016 3:17:31 AM	R36737
n-Propylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
sec-Butylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Styrene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
tert-Butylbenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1,1,2-Tetrachloroethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1,2,2-Tetrachloroethane	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
Tetrachloroethene (PCE)	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
trans-1,2-DCE	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
trans-1,3-Dichloropropene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2,3-Trichlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2,4-Trichlorobenzene	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1,1-Trichloroethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,1,2-Trichloroethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Trichloroethene (TCE)	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Trichlorofluoromethane	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
1,2,3-Trichloropropane	ND	200		µg/L	100	8/25/2016 3:17:31 AM	R36737
Vinyl chloride	ND	100		µg/L	100	8/25/2016 3:17:31 AM	R36737
Xylenes, Total	240	150		µg/L	100	8/25/2016 3:17:31 AM	R36737
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	100	8/25/2016 3:17:31 AM	R36737
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	100	8/25/2016 3:17:31 AM	R36737
Surr: Dibromofluoromethane	104	70-130		%Rec	100	8/25/2016 3:17:31 AM	R36737
Surr: Toluene-d8	98.5	70-130		%Rec	100	8/25/2016 3:17:31 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 44 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-008B

Client Sample ID: RW-18
Collection Date: 8/23/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	19	0.20		mg/L	1	8/29/2016 5:34:58 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 5:34:58 PM	27206
Surr: DNOP	123	67.9-149		%Rec	1	8/29/2016 5:34:58 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** RW-18**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 10:45:00 AM**Lab ID:** 1608D53-008C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	1000	1.0	H	mg CO2/L	1	8/29/2016 4:46:44 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	ND	0.50		mg/L	5	8/24/2016 10:39:55 PM	R36752
Chloride	610	25	*	mg/L	50	9/2/2016 4:41:25 PM	R36994
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/24/2016 10:39:55 PM	R36752
Bromide	5.5	0.50		mg/L	5	8/24/2016 10:39:55 PM	R36752
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/24/2016 10:39:55 PM	R36752
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/24/2016 10:39:55 PM	R36752
Sulfate	140	2.5		mg/L	5	8/24/2016 10:39:55 PM	R36752
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	1110	20.00		mg/L CaCO3	1	8/29/2016 4:46:44 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 4:46:44 PM	R36846
Total Alkalinity (as CaCO3)	1110	20.00		mg/L CaCO3	1	8/29/2016 4:46:44 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 46 of 67

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-008D

Client Sample ID: RW-18
Collection Date: 8/23/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.00029	0.00020		mg/L	1	8/26/2016 11:58:38 AM	27171
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 11:13:46 AM	A36953
Barium	1.2	0.10		mg/L	5	9/2/2016 11:15:25 AM	A36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 11:13:46 AM	A36953
Calcium	100	10		mg/L	10	9/7/2016 4:54:39 PM	A37036
Chromium	0.014	0.0060		mg/L	1	9/2/2016 11:13:46 AM	A36953
Copper	0.020	0.0060		mg/L	1	9/2/2016 11:13:46 AM	A36953
Iron	42	2.0		mg/L	100	9/12/2016 11:43:43 AM	A37126
Lead	ND	0.0050		mg/L	1	9/2/2016 11:13:46 AM	A36953
Magnesium	75	1.0		mg/L	1	9/2/2016 11:13:46 AM	A36953
Manganese	0.79	0.0020		mg/L	1	9/2/2016 11:13:46 AM	A36953
Potassium	4.7	1.0		mg/L	1	9/2/2016 11:13:46 AM	A36953
Selenium	ND	0.050		mg/L	1	9/2/2016 11:13:46 AM	A36953
Silver	ND	0.0050		mg/L	1	9/2/2016 11:13:46 AM	A36953
Sodium	700	10		mg/L	10	9/7/2016 4:54:39 PM	A37036
Uranium	ND	0.10		mg/L	1	9/12/2016 2:26:18 PM	A37126
Zinc	0.55	0.020		mg/L	1	9/7/2016 4:52:59 PM	A37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-008E

Client Sample ID: RW-18
Collection Date: 8/23/2016 10:45:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	0.00059	0.00020		mg/L	1	8/26/2016 11:56:37 AM	27171
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 2:56:55 PM	27180
Barium	4.0	0.10		mg/L	5	9/2/2016 1:23:34 PM	27180
Cadmium	ND	0.0020		mg/L	1	9/2/2016 1:21:56 PM	27180
Chromium	0.038	0.0060		mg/L	1	9/2/2016 1:21:56 PM	27180
Lead	0.0072	0.0050		mg/L	1	9/7/2016 2:56:55 PM	27180
Selenium	ND	0.050		mg/L	1	9/2/2016 1:21:56 PM	27180
Silver	ND	0.0050		mg/L	1	9/2/2016 1:21:56 PM	27180

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-009A

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2016 10:34:50 PM	G36763
Surr: BFB	98.2	70-130		%Rec	1	8/25/2016 10:34:50 PM	G36763
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Toluene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Ethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Naphthalene	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
2-Methylnaphthalene	ND	4.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Acetone	ND	10		µg/L	1	8/25/2016 4:44:03 AM	R36737
Bromobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Bromodichloromethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Bromoform	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Bromomethane	ND	3.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
2-Butanone	ND	10		µg/L	1	8/25/2016 4:44:03 AM	R36737
Carbon disulfide	ND	10		µg/L	1	8/25/2016 4:44:03 AM	R36737
Carbon Tetrachloride	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Chlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Chloroethane	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Chloroform	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Chloromethane	ND	3.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
2-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
4-Chlorotoluene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
cis-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Dibromochloromethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Dibromomethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1-Dichloroethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1-Dichloroethene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608D53

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-009A

Client Sample ID: TRIP BLANK
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
2,2-Dichloropropane	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Hexachlorobutadiene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
2-Hexanone	ND	10		µg/L	1	8/25/2016 4:44:03 AM	R36737
Isopropylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
4-Isopropyltoluene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
4-Methyl-2-pentanone	ND	10		µg/L	1	8/25/2016 4:44:03 AM	R36737
Methylene Chloride	ND	3.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
n-Butylbenzene	ND	3.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
n-Propylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
sec-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Styrene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
tert-Butylbenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
trans-1,2-DCE	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Trichlorofluoromethane	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Vinyl chloride	ND	1.0		µg/L	1	8/25/2016 4:44:03 AM	R36737
Xylenes, Total	ND	1.5		µg/L	1	8/25/2016 4:44:03 AM	R36737
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/25/2016 4:44:03 AM	R36737
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	8/25/2016 4:44:03 AM	R36737
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/25/2016 4:44:03 AM	R36737
Surr: Toluene-d8	100	70-130		%Rec	1	8/25/2016 4:44:03 AM	R36737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 50 of 67

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36752		RunNo: 36752							
Prep Date:	Analysis Date: 8/24/2016		SeqNo: 1139120		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36752		RunNo: 36752							
Prep Date:	Analysis Date: 8/24/2016		SeqNo: 1139121		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrite (As N)	1.0	0.10	1.000	0	99.8	90	110			
Bromide	2.5	0.10	2.500	0	98.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P)	5.1	0.50	5.000	0	101	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Sample ID 1608D53-001CMS	SampType: MS		TestCode: EPA Method 300.0: Anions							
Client ID: MW-40	Batch ID: R36752		RunNo: 36752							
Prep Date:	Analysis Date: 8/24/2016		SeqNo: 1139124		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.50	2.500	0	98.6	74.5	121			
Nitrogen, Nitrite (As N)	5.5	0.50	5.000	0	110	79.8	108			S
Bromide	17	0.50	12.50	4.965	93.1	74.6	115			
Nitrogen, Nitrate (As N)	12	0.50	12.50	0	93.0	82.9	118			
Phosphorus, Orthophosphate (As P)	24	2.5	25.00	0	94.2	80.8	114			
Sulfate	45	2.5	50.00	0	90.1	83	118			

Sample ID 1608D53-001CMSD	SampType: MSD		TestCode: EPA Method 300.0: Anions							
Client ID: MW-40	Batch ID: R36752		RunNo: 36752							
Prep Date:	Analysis Date: 8/24/2016		SeqNo: 1139125		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.50	2.500	0	98.4	74.5	121	0.162	20	
Nitrogen, Nitrite (As N)	5.5	0.50	5.000	0	110	79.8	108	0.0547	20	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	1608D53-001CMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions				
Client ID:	MW-40		Batch ID:	R36752		RunNo:	36752				
Prep Date:			Analysis Date:	8/24/2016		SeqNo:	1139125		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Bromide	17	0.50	12.50	4.965	92.9	74.6	115	0.136	20		
Nitrogen, Nitrate (As N)	12	0.50	12.50	0	92.9	82.9	118	0.0215	20		
Phosphorus, Orthophosphate (As P	24	2.5	25.00	0	94.4	80.8	114	0.178	20		
Sulfate	45	2.5	50.00	0	90.2	83	118	0.175	20		

Sample ID	MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions						
Client ID:	PBW	Batch ID: R36824		RunNo: 36824						
Prep Date:		Analysis Date: 8/28/2016		SeqNo: 1141482		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R36824		RunNo: 36824					
Prep Date:			Analysis Date: 8/28/2016		SeqNo: 1141483		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.6	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions						
Client ID:	PBW	Batch ID: R36994			RunNo: 36994						
Prep Date:		Analysis Date: 9/2/2016			SeqNo: 1146375		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	0.50								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R36994		RunNo: 36994					
Prep Date:			Analysis Date: 9/2/2016		SeqNo: 1146376		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.5	0.50	5.000	0	90.7	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	LCS-27206		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141714		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	65.4	162			
Surr: DNOP	0.28		0.2500		110	67.9	149			

Sample ID	MB-27206		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141716		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.54		0.5000		108	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	100ng lcs2		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R36737		RunNo: 36737					
Prep Date:			Analysis Date: 8/24/2016		SeqNo: 1138521		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	18	1.0	20.00	0	89.2	70	130			
Chlorobenzene	17	1.0	20.00	0	84.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	99.0	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID	rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36737			RunNo: 36737					
Prep Date:		Analysis Date: 8/24/2016			SeqNo: 1138522		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36737	RunNo:	36737					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138522	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36737			RunNo: 36737						
Prep Date:	Analysis Date: 8/24/2016			SeqNo: 1138522		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.7	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: W36763			RunNo: 36763						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1140132		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.6	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Chlorobenzene	18	1.0	20.00	0	90.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.8	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W36763			RunNo: 36763						
Prep Date:	Analysis Date: 8/25/2016			SeqNo: 1140133		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	W36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140133	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	W36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140133	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.4	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	MB-27171	SampType: MBLK			TestCode: EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID: 27171			RunNo: 36788					
Prep Date:	8/25/2016	Analysis Date: 8/26/2016			SeqNo: 1140344		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-27171	SampType: LCS			TestCode: EPA Method 7470: Mercury						
Client ID:	LCSW	Batch ID: 27171			RunNo: 36788						
Prep Date:	8/25/2016	Analysis Date: 8/26/2016			SeqNo: 1140345		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0050	0.00020	0.005000	0	99.8	80	120				

Sample ID	1608D53-001EMS	SampType: MS			TestCode: EPA Method 7470: Mercury						
Client ID:	MW-40	Batch ID: 27171			RunNo: 36788						
Prep Date:	8/25/2016	Analysis Date: 8/26/2016			SeqNo: 1140347		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0052	0.00020	0.005000	.00009848	102	75	125				

Sample ID	1608D53-001EMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury						
Client ID:	MW-40	Batch ID:	27171	RunNo:	36788						
Prep Date:	8/25/2016	Analysis Date:	8/26/2016	SeqNo:	1140348	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0051	0.00020	0.005000	.00009848	100	75	125	1.88	20		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A36953	RunNo:	36953					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1145168	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-A	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A36953	RunNo:	36953					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1145169	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.51	0.020	0.5000	0	102	80	120			
Barium	0.50	0.020	0.5000	0	99.4	80	120			
Cadmium	0.50	0.0020	0.5000	0	101	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.50	0.0060	0.5000	0	99.8	80	120			
Copper	0.49	0.0060	0.5000	0	97.9	80	120			
Iron	0.50	0.020	0.5000	0	99.1	80	120			
Lead	0.50	0.0050	0.5000	0	99.8	80	120			
Magnesium	50	1.0	50.00	0	101	80	120			
Manganese	0.49	0.0020	0.5000	0	97.3	80	120			
Potassium	50	1.0	50.00	0	99.5	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.099	0.0050	0.1000	0	99.4	80	120			
Sodium	50	1.0	50.00	0	99.0	80	120			

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	A37036	RunNo:	37036					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1147837	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: A37036			RunNo: 37036					
Prep Date:		Analysis Date: 9/7/2016			SeqNo: 1147837		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Manganese	ND	0.0020								
Sodium	ND	1.0								
Zinc	ND	0.020								

Sample ID	MB-A		SampType: MBLK		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW		Batch ID: A37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Uranium	ND	0.10								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: A37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151180		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.3	80	120			
Uranium	0.50	0.10	0.5000	0	101	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	MB-27180		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	PBW		Batch ID:	27180		RunNo:	36953			
Prep Date:	8/25/2016		Analysis Date:	9/2/2016		SeqNo:	1145164	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27180		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	LCSW		Batch ID:	27180		RunNo:	36953			
Prep Date:	8/25/2016		Analysis Date:	9/2/2016		SeqNo:	1145165	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	97.7	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.1	80	120			
Chromium	0.49	0.0060	0.5000	0	98.3	80	120			
Lead	0.48	0.0050	0.5000	0	97.0	80	120			
Selenium	0.51	0.050	0.5000	0	103	80	120			
Silver	0.099	0.0050	0.1000	0	99.3	80	120			

Sample ID	1608D53-001EMS		SampType:	MS		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	MW-40		Batch ID:	27180		RunNo:	36953			
Prep Date:	8/25/2016		Analysis Date:	9/2/2016		SeqNo:	1145648	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.51	0.0020	0.5000	0	101	75	125			
Chromium	0.53	0.0060	0.5000	0.01754	102	75	125			
Silver	0.10	0.0050	0.1000	0.01350	89.3	75	125			

Sample ID	1608D53-001EMSD		SampType:	MSD		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	MW-40		Batch ID:	27180		RunNo:	36953			
Prep Date:	8/25/2016		Analysis Date:	9/2/2016		SeqNo:	1145649	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.53	0.0020	0.5000	0	106	75	125	4.54	20	
Chromium	0.55	0.0060	0.5000	0.01754	107	75	125	4.70	20	
Silver	0.11	0.0050	0.1000	0.01350	95.4	75	125	5.77	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	1608D53-001EMS	SampType:	MS	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	MW-40	Batch ID:	27180	RunNo:	37036					
Prep Date:	8/25/2016	Analysis Date:	9/7/2016	SeqNo:	1147844	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	103	75	125			
Lead	0.47	0.0050	0.5000	0.009760	91.5	75	125			
Selenium	0.45	0.050	0.5000	0	89.6	75	125			

Sample ID	1608D53-001EMSD	SampType:	MSD	TestCode:	EPA 6010B: Total Recoverable Metals					
Client ID:	MW-40	Batch ID:	27180	RunNo:	37036					
Prep Date:	8/25/2016	Analysis Date:	9/7/2016	SeqNo:	1147845	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.57	0.020	0.5000	0	113	75	125	8.87	20	
Lead	0.50	0.0050	0.5000	0.009760	98.9	75	125	7.65	20	
Selenium	0.51	0.050	0.5000	0	102	75	125	12.6	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G36737	RunNo:	36737					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138526	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.40	0.050	0.5000	0	79.1	75.4	118			
Surr: BFB	9.9		10.00		99.0	70	130			

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G36737	RunNo:	36737					
Prep Date:		Analysis Date:	8/24/2016	SeqNo:	1138527	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.9		10.00		98.7	70	130			

Sample ID	2.5ug lcs gro	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.39	0.050	0.5000	0	77.4	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.8		10.00		98.2	70	130			

Sample ID	1608d53-008ams	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	RW-18	Batch ID:	G36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140057	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	0.50	5.000	8.836	85.4	53.8	128			
Surr: BFB	98		100.0		98.1	70	130			

Sample ID	1608d53-008amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	RW-18	Batch ID:	G36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140058	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	1608d53-008amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	RW-18	Batch ID:	G36763	RunNo:	36763					
Prep Date:		Analysis Date:	8/25/2016	SeqNo:	1140058	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	14	0.50	5.000	8.836	95.5	53.8	128	3.79	20	
Surr: BFB	100		100.0		101	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36846			RunNo: 36846						
Prep Date:	Analysis Date: 8/29/2016			SeqNo: 1142150			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36846			RunNo: 36846						
Prep Date:	Analysis Date: 8/29/2016			SeqNo: 1142151			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.76	20.00	80.00	0	98.4	90	110			

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36846			RunNo: 36846						
Prep Date:	Analysis Date: 8/29/2016			SeqNo: 1142174			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-2	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36846			RunNo: 36846						
Prep Date:	Analysis Date: 8/29/2016			SeqNo: 1142175			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R36928			RunNo: 36928						
Prep Date:	Analysis Date: 8/31/2016			SeqNo: 1144307			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R36928			RunNo: 36928						
Prep Date:	Analysis Date: 8/31/2016			SeqNo: 1144308			Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.40	20.00	80.00	0	98.0	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608D53

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-23-16

Sample ID	mb-2		SampType: mblk		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R36928		RunNo: 36928					
Prep Date:			Analysis Date: 8/31/2016		SeqNo: 1144331		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36928		RunNo: 36928					
Prep Date:			Analysis Date: 8/31/2016		SeqNo: 1144332		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.00	20.00	80.00	0	100	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1608D53

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

8/24/2016 8:00:00 AM

Completed By: Ashley Gallegos

8/24/2016 9:42:30 AM

Reviewed By:

CS

08/24/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? ~~Yes~~ ☒ No ☒ jc
9. Was preservative added to bottles? Yes ☒ ~~No~~ ☒ 08/24/16 NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 24
($\geq$ or >12 unless noted)
Adjusted? yes
Checked by: jc

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO_3 to -001E, -002E, -003E, -004E, -007E, and -008E.
Also added 2 mL HNO_3 to -006E for acceptable pH. 08/24/16 @ 1500

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			<u>jc</u>

[illegible]

Turn-Around Time:	
☒ Standard	☐ Rush
Project Name: Refinery Wells	
Date:	<u>8-23-2016</u>
Project #: Annual	
PO#12615520	
Project Manager:	
Sampler: <u>Michael A Wicker</u>	
On Ice:	☒ Yes ☐ No
Sample Temperature: <u>3.4</u>	
Container Type and #	Preservative Type
6-VOA	HCl
1-500 ml Amber	Cool
1-500 ml	HNO ₃
1-500 ml	
1-125 ml	H ₂ SO ₄
1-125 ml	HNO ₃
HEAL No. <u>11008053</u>	
<u>0010</u>	
Received by: <u>Phil Ward</u> Date: <u>8/23/16</u> Time: <u>1630</u>	
Received by: <u>[Signature]</u> Date: <u>8/24/16</u> Time: <u>0800</u>	

Chain-of-Custody Record					
Client: Western Refining					
Mailing Address: 50 CR 4990					
Bloomfield, NM 87413					
Phone #: 505-632-4135					
email or Fax#:					
QA/QC Package:					
☐ Standard ☒ Level 4 (Full Validation)					
☐ Other _____					
☒ EDD (Type) _____					
Date	Time	Matrix	Sample Request ID		
8-23-16	1350	H ₂ O	MW-30		
↓	↓	H ₂ O	MW-30		
↓	↓	H ₂ O	MW-30		
↓	↓	H ₂ O	MW-30		
↓	↓	H ₂ O	MW-30		
↓	↓	H ₂ O	MW-30 filter		
Date:	Time:	Relinquished by:			
8-23-16	1030				
Date:	Time:	Relinquished by:			
8/23/16	2015				

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 #: 505-632-4135					
email or Fax#:					
QA/QC Package: ☒ Level 4 (Full Validation)					
☐ Standard					
☐ Other					
☒ EDD (Type) _____					
Turn-Around Time:					
☒ Standard ☐ Rush					
Project Name: Refinery Wells					
Date: <u>8-23-2016</u>					
Project #: Annual					
PO#12615520					
Project Manager:					
Sampler: <u>Brian Christopher</u>					
On Ice ☒ Yes ☐ No					
Sample Temperature: <u>32</u>					
HEAL No <u>11008053</u>					
-007					
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type
8/23	1344	H ₂ O	MW-21	6-VOA	HCl
8/23	1344	H ₂ O	MW-21	1-500 ml Amber	Cool
8/23	1344	H ₂ O	MW-21	1-500 ml	HNO ₃
8/23	1344	H ₂ O	MW-21	1-500 ml	
8/23	1344	H ₂ O	MW-21	1-125 ml	H ₂ SO ₄
8/23	1344	H ₂ O	MW-21 filter	1-125 ml	HNO ₃
Date:	Time:	Relinquished by: <u>Brian Christopher</u>		Received by: <u>[Signature]</u>	Date
8-23-16	1615				8-23-16 1615
Date:	Time:	Relinquished by:		Received by: <u>[Signature]</u>	Date
8/23/16	1630				8/23/16 1630

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.

8/23/16 2015 ^ lot 150000

18/11/2011



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

Analysis Request

[illegible]

Remarks: See full analyte list.
and reaction in VOA's, bubbles present.

Chain-of-Custody Record						
Client: Western Refining						
Mailing Address: 50 CR 4990						
Bloomfield, NM 87413						
Phone #: 505-632-4135						
email or Fax#:						
QA/QC Package:						
☐ Standard						
☐ Other						
☒ EDD (Type) _____						
X Level 4 (Full Validation)						
Turn-Around Time:						
X Standard ☐ Rush						
Project Name: Refinery Wells						
Date: 8-23-2016						
Project #: Annual						
PO#12615520						
Project Manager:						
Sampler: <i>Brian Christopher</i>						
On Ice: ☒ Yes ☐ No						
Sample Temperature: <i>3.4</i>						
HEAL No 1608D53						
-008						
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	6-VOA	HCl	
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	1-500 ml Amber	Cool	
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	1-500 ml	HNO ₃	
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	1-500 ml		
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	1-125 ml	H ₂ SO ₄	
<i>8/23</i>	<i>1045</i>	H ₂ O	RW-18	1-125 ml	HNO ₃	
			<i>Trip Blank</i>			-009
Date:	Time:	Relinquished by:	Relinquished by:	Received by:	Date	Time
<i>8/23</i>	<i>1614</i>	<i>Brian Christopher</i>	<i>Brian Christopher</i>	<i>[Signature]</i>	<i>8-23-16</i>	<i>1613</i>
Date:	Time:	Relinquished by:	Relinquished by:	Received by:	Date	Time
<i>8/23/16</i>	<i>1630</i>			<i>Not Walek</i>	<i>8/23/16</i>	<i>1630</i>

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.

[illegible]

and fraction in VAs, bubbles present.

Received by: _____ Date _____ Time _____

Date:	Time:	Relinquished by:
-------	-------	------------------

8/23/2015 11:41 AM

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B)⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 03, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: RCRA Wells 8-24-2016

OrderNo.: 1608E80

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/25/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized, flowing script.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001A

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 5:30:01 PM	G36840
Surr: BFB	97.9	70-130		%Rec	1	8/29/2016 5:30:01 PM	G36840
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Toluene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Ethylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Naphthalene	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
2-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Acetone	ND	10		µg/L	1	8/29/2016 5:30:01 PM	R36840
Bromobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Bromodichloromethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Bromoform	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Bromomethane	ND	3.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
2-Butanone	ND	10		µg/L	1	8/29/2016 5:30:01 PM	R36840
Carbon disulfide	ND	10		µg/L	1	8/29/2016 5:30:01 PM	R36840
Carbon Tetrachloride	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Chlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Chloroethane	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Chloroform	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Chloromethane	ND	3.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
2-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
4-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
cis-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Dibromochloromethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Dibromomethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1-Dichloroethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1-Dichloroethene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001A

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
2,2-Dichloropropane	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Hexachlorobutadiene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
2-Hexanone	ND	10		µg/L	1	8/29/2016 5:30:01 PM	R36840
Isopropylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
4-Isopropyltoluene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
4-Methyl-2-pentanone	ND	10		µg/L	1	8/29/2016 5:30:01 PM	R36840
Methylene Chloride	ND	3.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
n-Butylbenzene	ND	3.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
n-Propylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
sec-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Styrene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
tert-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
trans-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Trichlorofluoromethane	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Vinyl chloride	ND	1.0		µg/L	1	8/29/2016 5:30:01 PM	R36840
Xylenes, Total	ND	1.5		µg/L	1	8/29/2016 5:30:01 PM	R36840
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	8/29/2016 5:30:01 PM	R36840
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	8/29/2016 5:30:01 PM	R36840
Surr: Dibromofluoromethane	96.2	70-130		%Rec	1	8/29/2016 5:30:01 PM	R36840
Surr: Toluene-d8	99.4	70-130		%Rec	1	8/29/2016 5:30:01 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001B

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/29/2016 7:01:05 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 7:01:05 PM	27206
Surr: DNOP	139	67.9-149		%Rec	1	8/29/2016 7:01:05 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 3 of 54

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001C

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	290	1.0	H	mg CO2/L	1	8/29/2016 11:14:34 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.10		mg/L	1	8/26/2016 2:43:52 AM	A36775
Chloride	960	50	*	mg/L	100	9/2/2016 2:11:50 AM	A36952
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/26/2016 3:21:06 AM	A36775
Bromide	2.1	0.10		mg/L	1	8/26/2016 2:43:52 AM	A36775
Nitrogen, Nitrate (As N)	9.3	2.0		mg/L	20	8/26/2016 3:21:06 AM	A36775
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/26/2016 3:21:06 AM	A36775
Sulfate	1000	50	*	mg/L	100	8/30/2016 8:13:13 PM	A36890
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	318.5	20.00		mg/L CaCO3	1	8/29/2016 11:14:34 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 11:14:34 PM	R36846
Total Alkalinity (as CaCO3)	318.5	20.00		mg/L CaCO3	1	8/29/2016 11:14:34 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 4 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001D

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:59:17 AM	27260
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 9:14:30 PM	C37036
Barium	0.026	0.020		mg/L	1	9/2/2016 12:10:25 PM	B36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:10:25 PM	B36953
Calcium	360	5.0		mg/L	5	9/7/2016 9:24:03 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:10:25 PM	B36953
Copper	ND	0.0060		mg/L	1	9/2/2016 12:10:25 PM	B36953
Iron	0.21	0.020		mg/L	1	9/2/2016 12:10:25 PM	B36953
Lead	ND	0.0050		mg/L	1	9/7/2016 9:14:30 PM	C37036
Magnesium	54	1.0		mg/L	1	9/2/2016 12:10:25 PM	B36953
Manganese	0.41	0.0020		mg/L	1	9/2/2016 12:10:25 PM	B36953
Potassium	5.3	1.0		mg/L	1	9/2/2016 12:10:25 PM	B36953
Selenium	ND	0.050		mg/L	1	9/7/2016 9:14:30 PM	C37036
Silver	ND	0.0050		mg/L	1	9/2/2016 12:10:25 PM	B36953
Sodium	800	10		mg/L	10	9/7/2016 9:25:58 PM	C37036
Uranium	ND	0.10		mg/L	1	9/12/2016 1:51:13 PM	C37126
Zinc	0.028	0.020		mg/L	1	9/7/2016 9:14:30 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 5 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001E

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 9:48:58 AM	27260
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/2/2016 2:48:34 PM	27268
Barium	0.64	0.020		mg/L	1	9/7/2016 4:02:01 PM	27268
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:48:34 PM	27268
Chromium	0.012	0.0060		mg/L	1	9/2/2016 2:48:34 PM	27268
Lead	0.010	0.0050		mg/L	1	9/7/2016 4:02:01 PM	27268
Selenium	ND	0.050		mg/L	1	9/7/2016 4:02:01 PM	27268
Silver	ND	0.0050		mg/L	1	9/2/2016 2:48:34 PM	27268

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 6 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001F

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 6:07:40 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Bis(2-ethylhexyl)phthalate	12	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Di-n-octyl phthalate	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 7 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-001F

Client Sample ID: MW-53
Collection Date: 8/24/2016 10:25:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Fluoranthene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Naphthalene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 6:07:40 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 6:07:40 PM	27255
Surr: 2-Fluorophenol	36.9	15-123		%Rec	1	9/2/2016 6:07:40 PM	27255
Surr: Phenol-d5	25.6	4.13-124		%Rec	1	9/2/2016 6:07:40 PM	27255
Surr: 2,4,6-Tribromophenol	98.9	18.4-134		%Rec	1	9/2/2016 6:07:40 PM	27255
Surr: Nitrobenzene-d5	59.1	28.8-134		%Rec	1	9/2/2016 6:07:40 PM	27255
Surr: 2-Fluorobiphenyl	62.6	35.9-125		%Rec	1	9/2/2016 6:07:40 PM	27255
Surr: 4-Terphenyl-d14	91.2	15-146		%Rec	1	9/2/2016 6:07:40 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 8 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-002A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 6:56:12 PM	G36840
Surr: BFB	98.3	70-130		%Rec	1	8/29/2016 6:56:12 PM	G36840
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Toluene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Ethylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Naphthalene	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
2-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Acetone	ND	10		µg/L	1	8/29/2016 6:56:12 PM	R36840
Bromobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Bromodichloromethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Bromoform	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Bromomethane	ND	3.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
2-Butanone	ND	10		µg/L	1	8/29/2016 6:56:12 PM	R36840
Carbon disulfide	ND	10		µg/L	1	8/29/2016 6:56:12 PM	R36840
Carbon Tetrachloride	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Chlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Chloroethane	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Chloroform	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Chloromethane	ND	3.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
2-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
4-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
cis-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Dibromochloromethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Dibromomethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1-Dichloroethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1-Dichloroethene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-002A

Client Sample ID: Trip Blank
Collection Date:
Matrix: Trip Blank

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
2,2-Dichloropropane	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Hexachlorobutadiene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
2-Hexanone	ND	10		µg/L	1	8/29/2016 6:56:12 PM	R36840
Isopropylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
4-Isopropyltoluene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
4-Methyl-2-pentanone	ND	10		µg/L	1	8/29/2016 6:56:12 PM	R36840
Methylene Chloride	ND	3.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
n-Butylbenzene	ND	3.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
n-Propylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
sec-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Styrene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
tert-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
trans-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Trichlorofluoromethane	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Vinyl chloride	ND	1.0		µg/L	1	8/29/2016 6:56:12 PM	R36840
Xylenes, Total	ND	1.5		µg/L	1	8/29/2016 6:56:12 PM	R36840
Surr: 1,2-Dichloroethane-d4	98.0	70-130		%Rec	1	8/29/2016 6:56:12 PM	R36840
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/29/2016 6:56:12 PM	R36840
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/29/2016 6:56:12 PM	R36840
Surr: Toluene-d8	97.9	70-130		%Rec	1	8/29/2016 6:56:12 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 10 of 54

Analytical ReportLab Order: **1608E80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-57**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:14:00 AM**Lab ID:** 1608E80-003A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	17	2.5		mg/L	50	9/7/2016 1:19:20 PM	R37047
Surr: BFB	90.7	66.4-120		%Rec	50	9/7/2016 1:19:20 PM	R37047
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	2900	100		µg/L	100	9/1/2016 6:56:26 PM	R36926
Toluene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Ethylbenzene	270	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Methyl tert-butyl ether (MTBE)	33	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2,4-Trimethylbenzene	37	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,3,5-Trimethylbenzene	16	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Naphthalene	160	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
1-Methylnaphthalene	100	40		µg/L	10	9/1/2016 7:25:09 PM	R36926
2-Methylnaphthalene	95	40		µg/L	10	9/1/2016 7:25:09 PM	R36926
Acetone	ND	100		µg/L	10	9/1/2016 7:25:09 PM	R36926
Bromobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Bromodichloromethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Bromoform	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Bromomethane	ND	30		µg/L	10	9/1/2016 7:25:09 PM	R36926
2-Butanone	ND	100		µg/L	10	9/1/2016 7:25:09 PM	R36926
Carbon disulfide	ND	100		µg/L	10	9/1/2016 7:25:09 PM	R36926
Carbon Tetrachloride	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Chlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Chloroethane	ND	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
Chloroform	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Chloromethane	ND	30		µg/L	10	9/1/2016 7:25:09 PM	R36926
2-Chlorotoluene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
4-Chlorotoluene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
cis-1,2-DCE	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
cis-1,3-Dichloropropene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
Dibromochloromethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Dibromomethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2-Dichlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,3-Dichlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,4-Dichlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Dichlorodifluoromethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1-Dichloroethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1-Dichloroethene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2-Dichloropropane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003A

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
2,2-Dichloropropane	ND	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1-Dichloropropene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Hexachlorobutadiene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
2-Hexanone	ND	100		µg/L	10	9/1/2016 7:25:09 PM	R36926
Isopropylbenzene	40	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
4-Isopropyltoluene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
4-Methyl-2-pentanone	ND	100		µg/L	10	9/1/2016 7:25:09 PM	R36926
Methylene Chloride	ND	30		µg/L	10	9/1/2016 7:25:09 PM	R36926
n-Butylbenzene	ND	30		µg/L	10	9/1/2016 7:25:09 PM	R36926
n-Propylbenzene	53	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
sec-Butylbenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Styrene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
tert-Butylbenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
Tetrachloroethene (PCE)	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
trans-1,2-DCE	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
trans-1,3-Dichloropropene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2,3-Trichlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2,4-Trichlorobenzene	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1,1-Trichloroethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,1,2-Trichloroethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Trichloroethene (TCE)	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Trichlorofluoromethane	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
1,2,3-Trichloropropane	ND	20		µg/L	10	9/1/2016 7:25:09 PM	R36926
Vinyl chloride	ND	10		µg/L	10	9/1/2016 7:25:09 PM	R36926
Xylenes, Total	57	15		µg/L	10	9/1/2016 7:25:09 PM	R36926
Surr: 1,2-Dichloroethane-d4	96.6	70-130		%Rec	10	9/1/2016 7:25:09 PM	R36926
Surr: 4-Bromofluorobenzene	75.6	70-130		%Rec	10	9/1/2016 7:25:09 PM	R36926
Surr: Dibromofluoromethane	90.9	70-130		%Rec	10	9/1/2016 7:25:09 PM	R36926
Surr: Toluene-d8	95.6	70-130		%Rec	10	9/1/2016 7:25:09 PM	R36926

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
				Page 12 of 54

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003B

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	520	20		mg/L	100	8/29/2016 3:45:37 PM	27206
Motor Oil Range Organics (MRO)	ND	250		mg/L	100	8/29/2016 3:45:37 PM	27206
Surr: DNOP	0	67.9-149	S	%Rec	100	8/29/2016 3:45:37 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-57**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:14:00 AM**Lab ID:** 1608E80-003C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	940	1.0	H	mg CO2/L	1	8/29/2016 11:39:11 PM	R36846
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.50		mg/L	5	8/26/2016 3:33:30 AM	A36775
Chloride	340	10	*	mg/L	20	8/26/2016 3:45:55 AM	A36775
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/26/2016 3:33:30 AM	A36775
Bromide	2.8	0.50		mg/L	5	8/26/2016 3:33:30 AM	A36775
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/26/2016 3:33:30 AM	A36775
Phosphorus, Orthophosphate (As P)	3.1	2.5		mg/L	5	8/26/2016 3:33:30 AM	A36775
Sulfate	ND	2.5		mg/L	5	8/26/2016 3:33:30 AM	A36775
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	981.8	20.00		mg/L CaCO3	1	8/29/2016 11:29:11 PM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 11:29:11 PM	R36846
Total Alkalinity (as CaCO3)	981.8	20.00		mg/L CaCO3	1	8/29/2016 11:29:11 PM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: **1608E80**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003D

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:03:22 AM	27260
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 9:27:52 PM	C37036
Barium	1.9	0.10		mg/L	5	9/2/2016 12:15:57 PM	B36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:14:18 PM	B36953
Calcium	120	5.0		mg/L	5	9/7/2016 9:29:31 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:14:18 PM	B36953
Copper	ND	0.0060		mg/L	1	9/2/2016 12:14:18 PM	B36953
Iron	2.6	0.10		mg/L	5	9/2/2016 12:15:57 PM	B36953
Lead	ND	0.0050		mg/L	1	9/7/2016 9:27:52 PM	C37036
Magnesium	44	1.0		mg/L	1	9/2/2016 12:14:18 PM	B36953
Manganese	3.3	0.010		mg/L	5	9/2/2016 12:15:57 PM	B36953
Potassium	4.1	1.0		mg/L	1	9/2/2016 12:14:18 PM	B36953
Selenium	ND	0.050		mg/L	1	9/7/2016 9:27:52 PM	C37036
Silver	ND	0.0050		mg/L	1	9/2/2016 12:14:18 PM	B36953
Sodium	410	5.0		mg/L	5	9/2/2016 12:15:57 PM	B36953
Uranium	ND	0.10		mg/L	1	9/12/2016 1:58:01 PM	C37126
Zinc	0.081	0.020		mg/L	1	9/7/2016 9:27:52 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003E

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:01:19 AM	27260
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 4:03:54 PM	27268
Barium	2.1	0.10		mg/L	5	9/2/2016 3:02:20 PM	27268
Cadmium	ND	0.0020		mg/L	1	9/2/2016 3:00:41 PM	27268
Chromium	ND	0.0060		mg/L	1	9/2/2016 3:00:41 PM	27268
Lead	ND	0.0050		mg/L	1	9/7/2016 4:03:54 PM	27268
Selenium	ND	0.050		mg/L	1	9/7/2016 4:03:54 PM	27268
Silver	ND	0.0050		mg/L	1	9/2/2016 3:00:41 PM	27268

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003F

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Acenaphthylene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Aniline	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Anthracene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Azobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benz(a)anthracene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzo(a)pyrene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzo(b)fluoranthene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzo(g,h,i)perylene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzo(k)fluoranthene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzoic acid	ND	100		µg/L	1	9/2/2016 6:36:03 PM	27255
Benzyl alcohol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Bis(2-chloroethoxy)methane	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Bis(2-chloroethyl)ether	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Bis(2-chloroisopropyl)ether	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Bis(2-ethylhexyl)phthalate	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Bromophenyl phenyl ether	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Butyl benzyl phthalate	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Carbazole	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Chloro-3-methylphenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Chloroaniline	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Chloronaphthalene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Chlorophenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Chlorophenyl phenyl ether	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Chrysene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Di-n-butyl phthalate	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Di-n-octyl phthalate	83	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Dibenz(a,h)anthracene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Dibenzofuran	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
1,2-Dichlorobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
1,3-Dichlorobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
1,4-Dichlorobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
3,3'-Dichlorobenzidine	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Diethyl phthalate	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Dimethyl phthalate	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4-Dichlorophenol	ND	100		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4-Dimethylphenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4,6-Dinitro-2-methylphenol	ND	100		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4-Dinitrophenol	ND	100		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4-Dinitrotoluene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2,6-Dinitrotoluene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-003F

Client Sample ID: MW-57
Collection Date: 8/24/2016 9:14:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Fluorene	76	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Hexachlorobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Hexachlorobutadiene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Hexachlorocyclopentadiene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Hexachloroethane	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Indeno(1,2,3-cd)pyrene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Isophorone	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
1-Methylnaphthalene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Methylnaphthalene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Methylphenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
3+4-Methylphenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
N-Nitrosodi-n-propylamine	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
N-Nitrosodimethylamine	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
N-Nitrosodiphenylamine	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Naphthalene	240	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Nitroaniline	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
3-Nitroaniline	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Nitroaniline	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Nitrobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2-Nitrophenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
4-Nitrophenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Pentachlorophenol	ND	100		µg/L	1	9/2/2016 6:36:03 PM	27255
Phenanthrene	150	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Phenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Pyrene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Pyridine	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
1,2,4-Trichlorobenzene	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4,5-Trichlorophenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
2,4,6-Trichlorophenol	ND	50		µg/L	1	9/2/2016 6:36:03 PM	27255
Surr: 2-Fluorophenol	11.6	15-123	S	%Rec	1	9/2/2016 6:36:03 PM	27255
Surr: Phenol-d5	12.6	4.13-124		%Rec	1	9/2/2016 6:36:03 PM	27255
Surr: 2,4,6-Tribromophenol	24.8	18.4-134		%Rec	1	9/2/2016 6:36:03 PM	27255
Surr: Nitrobenzene-d5	0	28.8-134	S	%Rec	1	9/2/2016 6:36:03 PM	27255
Surr: 2-Fluorobiphenyl	49.9	35.9-125		%Rec	1	9/2/2016 6:36:03 PM	27255
Surr: 4-Terphenyl-d14	98.3	15-146		%Rec	1	9/2/2016 6:36:03 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-67**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:50:00 AM**Lab ID:** 1608E80-004A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 7:24:56 PM	G36840
Surr: BFB	100	70-130		%Rec	1	8/29/2016 7:24:56 PM	G36840
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Toluene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Ethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Naphthalene	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
2-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Acetone	ND	10		µg/L	1	8/29/2016 7:24:56 PM	R36840
Bromobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Bromodichloromethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Bromoform	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Bromomethane	ND	3.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
2-Butanone	ND	10		µg/L	1	8/29/2016 7:24:56 PM	R36840
Carbon disulfide	ND	10		µg/L	1	8/29/2016 7:24:56 PM	R36840
Carbon Tetrachloride	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Chlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Chloroethane	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Chloroform	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Chloromethane	ND	3.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
2-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
4-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
cis-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Dibromochloromethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Dibromomethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1-Dichloroethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1-Dichloroethene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-004A

Client Sample ID: MW-67
Collection Date: 8/24/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
2,2-Dichloropropane	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Hexachlorobutadiene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
2-Hexanone	ND	10		µg/L	1	8/29/2016 7:24:56 PM	R36840
Isopropylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
4-Isopropyltoluene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
4-Methyl-2-pentanone	ND	10		µg/L	1	8/29/2016 7:24:56 PM	R36840
Methylene Chloride	ND	3.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
n-Butylbenzene	ND	3.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
n-Propylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
sec-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Styrene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
tert-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
trans-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Trichlorofluoromethane	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Vinyl chloride	ND	1.0		µg/L	1	8/29/2016 7:24:56 PM	R36840
Xylenes, Total	ND	1.5		µg/L	1	8/29/2016 7:24:56 PM	R36840
Surr: 1,2-Dichloroethane-d4	99.8	70-130		%Rec	1	8/29/2016 7:24:56 PM	R36840
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	8/29/2016 7:24:56 PM	R36840
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/29/2016 7:24:56 PM	R36840
Surr: Toluene-d8	98.7	70-130		%Rec	1	8/29/2016 7:24:56 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-004B

Client Sample ID: MW-67
Collection Date: 8/24/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	0.64	0.20		mg/L	1	8/29/2016 7:22:37 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 7:22:37 PM	27206
Surr: DNOP	143	67.9-149		%Rec	1	8/29/2016 7:22:37 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-004C

Client Sample ID: MW-67
Collection Date: 8/24/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	290	1.0	H	mg CO2/L	1	8/30/2016 12:04:37 AM	R36846
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	ND	0.10		mg/L	1	8/26/2016 3:58:19 AM	A36775
Chloride	12	0.50		mg/L	1	8/26/2016 3:58:19 AM	A36775
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/26/2016 3:58:19 AM	A36775
Bromide	0.16	0.10		mg/L	1	8/26/2016 3:58:19 AM	A36775
Nitrogen, Nitrate (As N)	9.9	2.0		mg/L	20	8/26/2016 4:10:44 AM	A36775
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/26/2016 3:58:19 AM	A36775
Sulfate	270	10	*	mg/L	20	8/26/2016 4:10:44 AM	A36775
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	314.7	20.00		mg/L CaCO3	1	8/30/2016 12:04:37 AM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/30/2016 12:04:37 AM	R36846
Total Alkalinity (as CaCO3)	314.7	20.00		mg/L CaCO3	1	8/30/2016 12:04:37 AM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: **1608E80**Date Reported: **10/3/2016**

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-004D

Client Sample ID: MW-67
Collection Date: 8/24/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:07:28 AM	27260
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 9:31:30 PM	C37036
Barium	0.043	0.020		mg/L	1	9/2/2016 12:26:23 PM	B36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:26:23 PM	B36953
Calcium	140	5.0		mg/L	5	9/7/2016 9:33:19 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:26:23 PM	B36953
Copper	ND	0.0060		mg/L	1	9/2/2016 12:26:23 PM	B36953
Iron	0.29	0.020		mg/L	1	9/2/2016 12:26:23 PM	B36953
Lead	ND	0.0050		mg/L	1	9/7/2016 9:31:30 PM	C37036
Magnesium	28	1.0		mg/L	1	9/2/2016 12:26:23 PM	B36953
Manganese	0.40	0.0020		mg/L	1	9/2/2016 12:26:23 PM	B36953
Potassium	3.4	1.0		mg/L	1	9/2/2016 12:26:23 PM	B36953
Selenium	ND	0.050		mg/L	1	9/7/2016 9:31:30 PM	C37036
Silver	ND	0.0050		mg/L	1	9/2/2016 12:26:23 PM	B36953
Sodium	79	1.0		mg/L	1	9/2/2016 12:26:23 PM	B36953
Uranium	ND	0.10		mg/L	1	9/12/2016 1:59:32 PM	C37126
Zinc	ND	0.020		mg/L	1	9/7/2016 9:31:30 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-67**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:50:00 AM**Lab ID:** 1608E80-004E**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:05:25 AM	27260
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 4:05:32 PM	27268
Barium	0.23	0.020		mg/L	1	9/2/2016 3:04:03 PM	27268
Cadmium	ND	0.0020		mg/L	1	9/2/2016 3:04:03 PM	27268
Chromium	0.0089	0.0060		mg/L	1	9/2/2016 3:04:03 PM	27268
Lead	0.0050	0.0050		mg/L	1	9/7/2016 4:05:32 PM	27268
Selenium	ND	0.050		mg/L	1	9/7/2016 4:05:32 PM	27268
Silver	ND	0.0050		mg/L	1	9/2/2016 3:04:03 PM	27268

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-004F

Client Sample ID: MW-67
Collection Date: 8/24/2016 9:50:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 7:04:23 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Di-n-octyl phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-67**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:50:00 AM**Lab ID:** 1608E80-004F**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Naphthalene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 7:04:23 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 7:04:23 PM	27255
Surr: 2-Fluorophenol	14.4	15-123	S	%Rec	1	9/2/2016 7:04:23 PM	27255
Surr: Phenol-d5	11.6	4.13-124		%Rec	1	9/2/2016 7:04:23 PM	27255
Surr: 2,4,6-Tribromophenol	36.0	18.4-134		%Rec	1	9/2/2016 7:04:23 PM	27255
Surr: Nitrobenzene-d5	40.4	28.8-134		%Rec	1	9/2/2016 7:04:23 PM	27255
Surr: 2-Fluorobiphenyl	50.3	35.9-125		%Rec	1	9/2/2016 7:04:23 PM	27255
Surr: 4-Terphenyl-d14	26.3	15-146		%Rec	1	9/2/2016 7:04:23 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-005A

Client Sample ID: MW-68
Collection Date: 8/24/2016 11:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE				Analyst: AG			
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/29/2016 7:53:45 PM	G36840
Surr: BFB	97.0	70-130		%Rec	1	8/29/2016 7:53:45 PM	G36840
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Benzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Toluene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Ethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Naphthalene	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
2-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Acetone	ND	10		µg/L	1	8/29/2016 7:53:45 PM	R36840
Bromobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Bromodichloromethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Bromoform	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Bromomethane	ND	3.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
2-Butanone	ND	10		µg/L	1	8/29/2016 7:53:45 PM	R36840
Carbon disulfide	ND	10		µg/L	1	8/29/2016 7:53:45 PM	R36840
Carbon Tetrachloride	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Chlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Chloroethane	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Chloroform	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Chloromethane	ND	3.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
2-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
4-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
cis-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Dibromochloromethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Dibromomethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1-Dichloroethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1-Dichloroethene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-005A

Client Sample ID: MW-68
Collection Date: 8/24/2016 11:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,3-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
2,2-Dichloropropane	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Hexachlorobutadiene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
2-Hexanone	ND	10		µg/L	1	8/29/2016 7:53:45 PM	R36840
Isopropylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
4-Isopropyltoluene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
4-Methyl-2-pentanone	ND	10		µg/L	1	8/29/2016 7:53:45 PM	R36840
Methylene Chloride	ND	3.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
n-Butylbenzene	ND	3.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
n-Propylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
sec-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Styrene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
tert-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
trans-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Trichlorofluoromethane	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Vinyl chloride	ND	1.0		µg/L	1	8/29/2016 7:53:45 PM	R36840
Xylenes, Total	ND	1.5		µg/L	1	8/29/2016 7:53:45 PM	R36840
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/29/2016 7:53:45 PM	R36840
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/29/2016 7:53:45 PM	R36840
Surr: Dibromofluoromethane	104	70-130		%Rec	1	8/29/2016 7:53:45 PM	R36840
Surr: Toluene-d8	94.7	70-130		%Rec	1	8/29/2016 7:53:45 PM	R36840

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-68**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 11:10:00 AM**Lab ID:** 1608E80-005B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/29/2016 7:44:07 PM	27206
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 7:44:07 PM	27206
Surr: DNOP	143	67.9-149		%Rec	1	8/29/2016 7:44:07 PM	27206

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-68**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 11:10:00 AM**Lab ID:** 1608E80-005C**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
CARBON DIOXIDE							Analyst: JRR
Total Carbon Dioxide	210	1.0	H	mg CO2/L	1	8/30/2016 12:18:30 AM	R36846
EPA METHOD 300.0: ANIONS							Analyst: MRA
Fluoride	0.41	0.10		mg/L	1	8/26/2016 4:23:08 AM	A36775
Chloride	38	10		mg/L	20	8/26/2016 4:35:33 AM	A36775
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/26/2016 4:23:08 AM	A36775
Bromide	0.21	0.10		mg/L	1	8/26/2016 4:23:08 AM	A36775
Nitrogen, Nitrate (As N)	5.6	0.10		mg/L	1	8/26/2016 4:23:08 AM	A36775
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/26/2016 4:23:08 AM	A36775
Sulfate	260	10	*	mg/L	20	8/26/2016 4:35:33 AM	A36775
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO3)	236.3	20.00		mg/L CaCO3	1	8/30/2016 12:18:30 AM	R36846
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/30/2016 12:18:30 AM	R36846
Total Alkalinity (as CaCO3)	236.3	20.00		mg/L CaCO3	1	8/30/2016 12:18:30 AM	R36846

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-005D

Client Sample ID: MW-68
Collection Date: 8/24/2016 11:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:11:37 AM	27260
EPA METHOD 6010B: DISSOLVED METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 9:35:23 PM	C37036
Barium	0.029	0.020		mg/L	1	9/2/2016 12:30:05 PM	B36953
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:30:05 PM	B36953
Calcium	90	1.0		mg/L	1	9/7/2016 9:35:23 PM	C37036
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:30:05 PM	B36953
Copper	ND	0.0060		mg/L	1	9/2/2016 12:30:05 PM	B36953
Iron	0.25	0.020		mg/L	1	9/2/2016 12:30:05 PM	B36953
Lead	ND	0.0050		mg/L	1	9/7/2016 9:35:23 PM	C37036
Magnesium	21	1.0		mg/L	1	9/2/2016 12:30:05 PM	B36953
Manganese	0.060	0.0020		mg/L	1	9/2/2016 12:30:05 PM	B36953
Potassium	2.7	1.0		mg/L	1	9/2/2016 12:30:05 PM	B36953
Selenium	ND	0.050		mg/L	1	9/7/2016 9:35:23 PM	C37036
Silver	ND	0.0050		mg/L	1	9/2/2016 12:30:05 PM	B36953
Sodium	110	5.0		mg/L	5	9/2/2016 12:31:55 PM	B36953
Uranium	ND	0.10		mg/L	1	9/12/2016 2:01:10 PM	C37126
Zinc	ND	0.020		mg/L	1	9/7/2016 9:35:23 PM	C37036

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-005E

Client Sample ID: MW-68
Collection Date: 8/24/2016 11:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:09:32 AM	27260
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 4:07:08 PM	27268
Barium	0.28	0.020		mg/L	1	9/2/2016 3:07:21 PM	27268
Cadmium	ND	0.0020		mg/L	1	9/2/2016 3:07:21 PM	27268
Chromium	0.012	0.0060		mg/L	1	9/2/2016 3:07:21 PM	27268
Lead	ND	0.0050		mg/L	1	9/7/2016 4:07:08 PM	27268
Selenium	ND	0.050		mg/L	1	9/7/2016 4:07:08 PM	27268
Silver	ND	0.0050		mg/L	1	9/2/2016 3:07:21 PM	27268

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-24-2016
Lab ID: 1608E80-005F

Client Sample ID: MW-68
Collection Date: 8/24/2016 11:10:00 AM
Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES				Analyst: DAM			
Acenaphthene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Acenaphthylene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Aniline	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Anthracene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Azobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benz(a)anthracene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzo(a)pyrene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzo(b)fluoranthene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzo(g,h,i)perylene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzo(k)fluoranthene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzoic acid	ND	20		µg/L	1	9/2/2016 7:32:50 PM	27255
Benzyl alcohol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Bis(2-chloroethyl)ether	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Bromophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Butyl benzyl phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Carbazole	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Chloro-3-methylphenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Chloroaniline	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Chloronaphthalene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Chlorophenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Chrysene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Di-n-butyl phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Di-n-octyl phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Dibenz(a,h)anthracene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Dibenzofuran	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
1,2-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
1,3-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
1,4-Dichlorobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
3,3'-Dichlorobenzidine	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Diethyl phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Dimethyl phthalate	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4-Dichlorophenol	ND	20		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4-Dimethylphenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4-Dinitrophenol	ND	20		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2,6-Dinitrotoluene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Analytical Report

Lab Order: 1608E80

Date Reported: 10/3/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-24-2016

Collection Date: 8/24/2016 11:10:00 AM

Lab ID: 1608E80-005F

Matrix: Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM
Fluoranthene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Fluorene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Hexachlorobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Hexachlorobutadiene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Hexachlorocyclopentadiene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Hexachloroethane	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Isophorone	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
1-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Methylnaphthalene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Methylphenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
3+4-Methylphenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
N-Nitrosodimethylamine	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
N-Nitrosodiphenylamine	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Naphthalene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
3-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Nitroaniline	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Nitrobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2-Nitrophenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
4-Nitrophenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Pentachlorophenol	ND	20		µg/L	1	9/2/2016 7:32:50 PM	27255
Phenanthrene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Phenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Pyrene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Pyridine	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
1,2,4-Trichlorobenzene	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4,5-Trichlorophenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
2,4,6-Trichlorophenol	ND	10		µg/L	1	9/2/2016 7:32:50 PM	27255
Surr: 2-Fluorophenol	11.9	15-123	S	%Rec	1	9/2/2016 7:32:50 PM	27255
Surr: Phenol-d5	9.14	4.13-124		%Rec	1	9/2/2016 7:32:50 PM	27255
Surr: 2,4,6-Tribromophenol	30.0	18.4-134		%Rec	1	9/2/2016 7:32:50 PM	27255
Surr: Nitrobenzene-d5	32.6	28.8-134		%Rec	1	9/2/2016 7:32:50 PM	27255
Surr: 2-Fluorobiphenyl	31.1	35.9-125	S	%Rec	1	9/2/2016 7:32:50 PM	27255
Surr: 4-Terphenyl-d14	36.7	15-146		%Rec	1	9/2/2016 7:32:50 PM	27255

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/25/2016		SeqNo: 1140001		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/25/2016		SeqNo: 1140002		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.3	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.3	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.3	90	110			
Sulfate	9.6	0.50	10.00	0	95.9	90	110			

Sample ID 1608E80-001CMS	SampType: ms		TestCode: EPA Method 300.0: Anions							
Client ID: MW-53	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1140031		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.40	0.10	0.5000	0	80.7	74.5	121			
Bromide	4.4	0.10	2.500	2.059	95.0	74.6	115			

Sample ID 1608E80-001CMSD	SampType: msd		TestCode: EPA Method 300.0: Anions							
Client ID: MW-53	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1140032		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.41	0.10	0.5000	0	81.3	74.5	121	0.718	20	
Bromide	4.4	0.10	2.500	2.059	95.3	74.6	115	0.182	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A36890		RunNo: 36890							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1143244		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A36890		RunNo: 36890							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1143245		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.3	0.50	10.00	0	92.7	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145113		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A36952		RunNo: 36952							
Prep Date:	Analysis Date: 9/1/2016		SeqNo: 1145114		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	LCS-27206		SampType: LCS			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141714		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	65.4	162			
Surr: DNOP	0.28		0.2500		110	67.9	149			

Sample ID	MB-27206		SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID: 27206			RunNo: 36819				
Prep Date:	8/29/2016		Analysis Date: 8/29/2016			SeqNo: 1141716		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.54		0.5000		108	67.9	149			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R37021	RunNo:	37021					
Prep Date:		Analysis Date:	9/6/2016	SeqNo:	1147571	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	18		20.00		88.0	66.4	120			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R37021	RunNo:	37021					
Prep Date:		Analysis Date:	9/6/2016	SeqNo:	1147572	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	16		20.00		82.2	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R37047	RunNo:	37047					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1148171	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	80	120			
Surr: BFB	19		20.00		94.9	66.4	120			

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R37047	RunNo:	37047					
Prep Date:		Analysis Date:	9/7/2016	SeqNo:	1148172	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		85.6	66.4	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R36840		RunNo: 36840					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1141998		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.7	70	130			
Toluene	19	1.0	20.00	0	92.7	70	130			
Chlorobenzene	18	1.0	20.00	0	90.1	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	98.3	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	88.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.9	70	130			
Surr: Toluene-d8	9.4		10.00		94.2	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36840			RunNo: 36840					
Prep Date:		Analysis Date: 8/29/2016			SeqNo: 1141999		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	rb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES				
Client ID:	PBW	Batch ID: R36840				RunNo: 36840				
Prep Date:		Analysis Date: 8/29/2016				SeqNo: 1141999	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36840			RunNo: 36840						
Prep Date:	Analysis Date: 8/29/2016			SeqNo: 1141999		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.3	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R36926			RunNo: 36926						
Prep Date:	Analysis Date: 9/1/2016			SeqNo: 1145028		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.1	70	130			
Toluene	18	1.0	20.00	0	89.6	70	130			
Chlorobenzene	17	1.0	20.00	0	85.5	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	87.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R36926			RunNo: 36926						
Prep Date:	Analysis Date: 9/1/2016			SeqNo: 1145029		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36926	RunNo:	36926					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145029	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36926	RunNo:	36926					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145029	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		97.8	70	130			

Sample ID	1608e80-003ams	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-57	Batch ID:	R36926	RunNo:	36926					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145032	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3100	10	200.0	2721	177	70	130			ES
Toluene	190	10	200.0	6.800	90.2	70	130			
Chlorobenzene	170	10	200.0	0	86.7	70	130			
1,1-Dichloroethene	190	10	200.0	0	92.8	70	130			
Trichloroethene (TCE)	170	10	200.0	0	85.2	70	130			
Surr: 1,2-Dichloroethane-d4	95		100.0		94.9	70	130			
Surr: 4-Bromofluorobenzene	88		100.0		87.9	70	130			
Surr: Dibromofluoromethane	90		100.0		89.7	70	130			
Surr: Toluene-d8	93		100.0		92.5	70	130			

Sample ID	1608e80-003amsd	SampType:	MSD	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-57	Batch ID:	R36926	RunNo:	36926					
Prep Date:		Analysis Date:	9/1/2016	SeqNo:	1145033	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3000	10	200.0	2721	132	70	130	2.98	20	ES
Toluene	180	10	200.0	6.800	84.5	70	130	6.28	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	1608e80-003amsd	SampType: MSD			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	MW-57	Batch ID: R36926			RunNo: 36926					
Prep Date:		Analysis Date: 9/1/2016			SeqNo: 1145033		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	170	10	200.0	0	82.9	70	130	4.48	20	
1,1-Dichloroethene	180	10	200.0	0	91.2	70	130	1.71	20	
Trichloroethene (TCE)	170	10	200.0	0	83.0	70	130	2.57	20	
Surr: 1,2-Dichloroethane-d4	100		100.0		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	85		100.0		85.3	70	130	0	0	
Surr: Dibromofluoromethane	93		100.0		92.7	70	130	0	0	
Surr: Toluene-d8	93		100.0		92.7	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	mb-27255	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27255	RunNo:	36967					
Prep Date:	8/30/2016	Analysis Date:	9/2/2016	SeqNo:	1145771	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	mb-27255	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27255	RunNo:	36967					
Prep Date:	8/30/2016	Analysis Date:	9/2/2016	SeqNo:	1145771	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	60		200.0		30.0	15	123			
Surr: Phenol-d5	57		200.0		28.7	4.13	124			
Surr: 2,4,6-Tribromophenol	92		200.0		46.0	18.4	134			
Surr: Nitrobenzene-d5	64		100.0		63.5	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		58.6	35.9	125			
Surr: 4-Terphenyl-d14	83		100.0		82.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	Ics-27255		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27255		RunNo: 36967					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145775		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	79.3	35	113			
4-Chloro-3-methylphenol	190	10	200.0	0	93.4	40.7	114			
2-Chlorophenol	170	10	200.0	0	86.7	37.6	113			
1,4-Dichlorobenzene	56	10	100.0	0	56.5	37.7	106			
2,4-Dinitrotoluene	80	10	100.0	0	80.4	37	91			
N-Nitrosodi-n-propylamine	75	10	100.0	0	75.4	45.4	105			
4-Nitrophenol	83	10	200.0	0	41.3	33.4	104			
Pentachlorophenol	160	20	200.0	0	79.4	29.5	94.9			
Phenol	100	10	200.0	0	50.3	30.6	119			
Pyrene	130	10	100.0	0	125	26.2	120			S
1,2,4-Trichlorobenzene	69	10	100.0	0	68.7	39.9	125			
Surr: 2-Fluorophenol	84		200.0		42.2	15	123			
Surr: Phenol-d5	71		200.0		35.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	18.4	134			
Surr: Nitrobenzene-d5	69		100.0		69.0	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		59.3	35.9	125			
Surr: 4-Terphenyl-d14	93		100.0		93.3	15	146			

Sample ID	mb-27393		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 27393		RunNo: 37106					
Prep Date:	9/8/2016		Analysis Date: 9/10/2016		SeqNo: 1150318		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	160		200.0		77.7	15	123			
Surr: Phenol-d5	180		200.0		88.5	4.13	124			
Surr: 2,4,6-Tribromophenol	190		200.0		96.7	18.4	134			
Surr: Nitrobenzene-d5	85		100.0		84.8	28.8	134			
Surr: 2-Fluorobiphenyl	93		100.0		92.8	35.9	125			
Surr: 4-Terphenyl-d14	65		100.0		65.0	15	146			

Sample ID	Ics-27393			SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSW			Batch ID: 27393		RunNo: 37106				
Prep Date:	9/8/2016			Analysis Date: 9/10/2016		SeqNo: 1150319		Units: %Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	140		200.0		68.1	15	123			
Surr: Phenol-d5	150		200.0		77.2	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		81.4	18.4	134			
Surr: Nitrobenzene-d5	72		100.0		71.8	28.8	134			
Surr: 2-Fluorobiphenyl	83		100.0		83.2	35.9	125			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	Ics-27393		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27393		RunNo: 37106					
Prep Date:	9/8/2016		Analysis Date: 9/10/2016		SeqNo: 1150319		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	54		100.0		54.3	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	MB-27260	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143322	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27260	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143323	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Sample ID	1608E80-001EMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	MW-53	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143325	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	.00007184	107	75	125			

Sample ID	1608E80-001EMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	MW-53	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143326	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	.00007184	107	75	125	0.197	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	MB-B		SampType:	MBLK		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	PBW		Batch ID:	B36953		RunNo:	36953			
Prep Date:			Analysis Date:	9/2/2016		SeqNo:	1145170	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-B		SampType:	LCS		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	LCSW		Batch ID:	B36953		RunNo:	36953			
Prep Date:			Analysis Date:	9/2/2016		SeqNo:	1145256	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.020	0.5000	0	98.8	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.1	80	120			
Chromium	0.49	0.0060	0.5000	0	97.8	80	120			
Copper	0.48	0.0060	0.5000	0	96.6	80	120			
Iron	0.49	0.020	0.5000	0	97.6	80	120			
Magnesium	51	1.0	50.00	0	101	80	120			
Manganese	0.48	0.0020	0.5000	0	96.3	80	120			
Potassium	50	1.0	50.00	0	99.8	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	50	1.0	50.00	0	99.4	80	120			

Sample ID	MB-C		SampType:	MBLK		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	PBW		Batch ID:	C37036		RunNo:	37036			
Prep Date:			Analysis Date:	9/7/2016		SeqNo:	1147841	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Calcium	ND	1.0								
Lead	ND	0.0050								
Selenium	ND	0.050								
Sodium	ND	1.0								
Zinc	ND	0.020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	LCS-C		SampType: LCS			TestCode: EPA Method 6010B: Dissolved Metals				
Client ID:	LCSW		Batch ID: C37036			RunNo: 37036				
Prep Date:	Analysis Date: 9/7/2016			SeqNo: 1147842		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	103	80	120			
Calcium	60	1.0	50.00	0	119	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Zinc	0.50	0.020	0.5000	0	100	80	120			

Sample ID	MB-C		SampType: MBLK		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW		Batch ID: C37126		RunNo: 37126					
Prep Date:			Analysis Date: 9/12/2016		SeqNo: 1151183		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	0.10								

Sample ID	LCS-C		SampType: LCS			TestCode: EPA Method 6010B: Dissolved Metals				
Client ID:	LCSW		Batch ID: C37126			RunNo: 37126				
Prep Date:			Analysis Date: 9/12/2016			SeqNo: 1151184		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.54	0.10	0.5000	0	108	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	MB-27268		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 27268		RunNo: 36953					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145166		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27268		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27268		RunNo: 36953					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145167		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	99.8	80	120			
Barium	0.49	0.020	0.5000	0	98.5	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.8	80	120			
Chromium	0.49	0.0060	0.5000	0	97.9	80	120			
Lead	0.48	0.0050	0.5000	0	96.4	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	99.7	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	2.5ug gro lcs		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: G36840		RunNo: 36840					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142053		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.39	0.050	0.5000	0	77.6	75.4	118			
Surr: BFB	9.8		10.00		98.0	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: G36840			RunNo: 36840					
Prep Date:		Analysis Date: 8/29/2016			SeqNo: 1142054		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.9		10.00		99.1	70	130			

Sample ID	1608e80-001ams		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	MW-53		Batch ID: G36840		RunNo: 36840					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142056		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.41	0.050	0.5000	0.02500	77.0	53.8	128			
Surr: BFB	9.9		10.00		99.2	70	130			

Sample ID	1608e80-001amsd		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	MW-53		Batch ID: G36840		RunNo: 36840					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142057		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.37	0.050	0.5000	0.02500	68.2	53.8	128	11.2	20	
Surr: BFB	9.9		10.00		99.1	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E80

03-Oct-16

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-24-2016

Sample ID	mb-1		SampType:	mblk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW		Batch ID:	R36846		RunNo:	36846				
Prep Date:			Analysis Date:	8/29/2016		SeqNo:	1142150	Units:	mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20.00									

Sample ID	lcs-1		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142151		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.76	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2		SampType: mblk		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142174		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142175		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1608E80

RcptNo: 1

Received by/date:

AG 08/25

Logged By: Lindsay Mangin

8/25/2016 8:00:00 AM

[Signature]

Completed By: Lindsay Mangin

8/25/2016 2:25:32 PM

[Signature]

Reviewed By:

JC 08/26/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

12

or >12 unless noted)

Adjusted?

No

Checked by:

aJ

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Yes			

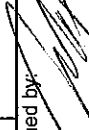
Chain-of-Custody Record		Turn-Around Time:
Client: Western Refining	☒ Standard ☐ Rush	
Mailing Address: 50 CR 4990	Project Name: RCRA Wells	
Bloomfield, NM 87413	Date: <u>8-24-2016</u>	
Phone #: 505-632-4135	Project #: Annual	
email or Fax#:	PO#12615520	
QA/QC Package:	Project Manager:	
☐ Standard ☒ Level 4 (Full Validation)		
☐ Other _____		
☒ EDD (Type) _____		
Sampler: <u>Michael A Wike</u>		
On Ice: ☒ Yes ☐ No		
Sample Temperature: <u>3.5</u>		

Turn-Around Time:	☒ Standard ☐ Rush
Project Name:	RCRA Wells
Date:	8 - 24 - 2016
Project #:	Annual
PO#	12615520
Project Manager:	
Sampler:	Michael A Wicks
On Ice:	☒ Yes ☐ No
Sample Temperature:	3.5

Chain-of-Custody Record
Client: Western Refining
Mailing Address: 50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4135
email or Fax#:
QA/QC Package:
☐ Standard
☐ Other _____
☒ EDD (Type) _____

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8-24-16	1110	H ₂ O	MW-68	6-VOA	HCl	1608580
		H ₂ O	MW-68	4-500 ml Amber	Cool	-005
		H ₂ O	MW-68	1-500 ml	HNO ₃	-005
		H ₂ O	MW-68	1-125 ml	HNO ₃	-005
		H ₂ O	MW-68	1-500 ml		-005
		H ₂ O	MW-68	1-125 ml	H ₂ SO ₄	-005

Date	Time	Matrix	Sample Request ID
8-24-16	110	H ₂ O	MW-68
		H ₂ O	MW-68
		H ₂ O	MW-68
		H ₂ O	MW-68
		H ₂ O	MW-68
	V	H ₂ O	MW-68 filter
↓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
8-24-16	1650			8/24/16	1650
Date:	Time:	Relinquished by:	Received by:	Date	Time
8/24/16	2031			08/25/16	0800

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this.

[illegible]
**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

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

[illegible]

Remarks: See Full Analyte List. 360
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If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

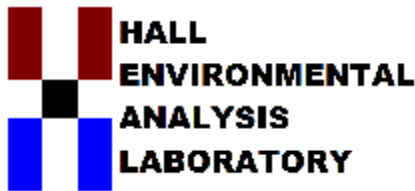
VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

October 06, 2016

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: Refinery Wells 8-24-2016

OrderNo.: 1608E76

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/25/2016 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. In order to properly interpret your results it is imperative that you review this report in its entirety. 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. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:00:00 AM

Lab ID: 1608E76-001

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	85	2.0		mg/L	10	8/29/2016 2:39:33 PM
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/29/2016 2:39:33 PM
Surr: DNOP	0	67.9-149	S	%Rec	10	8/29/2016 2:39:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	24	2.5		mg/L	50	8/30/2016 2:30:02 PM
Surr: BFB	99.0	66.4-120		%Rec	50	8/30/2016 2:30:02 PM
EPA METHOD 300.0: ANIONS						Analyst: MRA
Fluoride	0.62	0.50		mg/L	5	8/26/2016 12:14:54 AM
Chloride	260	10	*	mg/L	20	8/26/2016 12:52:09 AM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/26/2016 12:14:54 AM
Bromide	4.6	0.50		mg/L	5	8/26/2016 12:14:54 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/26/2016 12:14:54 AM
Phosphorus, Orthophosphate (As P)	3.4	2.5		mg/L	5	8/26/2016 12:14:54 AM
Sulfate	ND	2.5		mg/L	5	8/26/2016 12:14:54 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:15:49 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:13:43 AM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 4:56:20 PM
Barium	6.4	0.20		mg/L	10	9/12/2016 2:27:47 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 11:40:46 AM
Calcium	120	5.0		mg/L	5	9/7/2016 5:01:43 PM
Chromium	0.014	0.0060		mg/L	1	9/2/2016 11:40:46 AM
Copper	ND	0.0060		mg/L	1	9/2/2016 11:40:46 AM
Iron	69	2.0		mg/L	100	9/7/2016 5:12:36 PM
Lead	0.036	0.0050		mg/L	1	9/7/2016 4:56:20 PM
Magnesium	74	5.0		mg/L	5	9/2/2016 11:45:57 AM
Manganese	4.0	0.010		mg/L	5	9/2/2016 11:45:57 AM
Potassium	5.4	1.0		mg/L	1	9/2/2016 11:40:46 AM
Selenium	ND	0.050		mg/L	1	9/7/2016 4:56:20 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 11:40:46 AM
Sodium	400	5.0		mg/L	5	9/2/2016 11:45:57 AM
Uranium	ND	0.10		mg/L	1	9/12/2016 11:50:23 AM
Zinc	0.17	0.020		mg/L	1	9/7/2016 4:56:20 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: ELS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:00:00 AM

Lab ID: 1608E76-001

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: ELS
Arsenic	0.094	0.020		mg/L	1	10/4/2016 7:26:16 AM
Barium	13	0.40		mg/L	20	10/4/2016 7:41:30 AM
Cadmium	ND	0.0020		mg/L	1	10/4/2016 7:26:16 AM
Chromium	0.16	0.0060		mg/L	1	10/4/2016 7:26:16 AM
Lead	0.092	0.0050		mg/L	1	10/4/2016 7:26:16 AM
Selenium	ND	0.050		mg/L	1	10/4/2016 7:26:16 AM
Silver	ND	0.0050		mg/L	1	10/4/2016 7:26:16 AM
EPA METHOD 8260B: VOLATILES						Analyst: BCN
Benzene	6300	100		µg/L	100	8/29/2016 4:03:00 PM
Toluene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Ethylbenzene	160	10		µg/L	10	8/29/2016 5:14:00 PM
Methyl tert-butyl ether (MTBE)	14	10		µg/L	10	8/29/2016 5:14:00 PM
1,2,4-Trimethylbenzene	120	10		µg/L	10	8/29/2016 5:14:00 PM
1,3,5-Trimethylbenzene	13	10		µg/L	10	8/29/2016 5:14:00 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Naphthalene	300	20		µg/L	10	8/29/2016 5:14:00 PM
1-Methylnaphthalene	160	40		µg/L	10	8/29/2016 5:14:00 PM
2-Methylnaphthalene	220	40		µg/L	10	8/29/2016 5:14:00 PM
Acetone	ND	100		µg/L	10	8/29/2016 5:14:00 PM
Bromobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Bromodichloromethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Bromoform	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Bromomethane	ND	30		µg/L	10	8/29/2016 5:14:00 PM
2-Butanone	ND	100		µg/L	10	8/29/2016 5:14:00 PM
Carbon disulfide	ND	100		µg/L	10	8/29/2016 5:14:00 PM
Carbon Tetrachloride	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Chlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Chloroethane	ND	20		µg/L	10	8/29/2016 5:14:00 PM
Chloroform	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Chloromethane	ND	30		µg/L	10	8/29/2016 5:14:00 PM
2-Chlorotoluene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
4-Chlorotoluene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
cis-1,2-DCE	ND	10		µg/L	10	8/29/2016 5:14:00 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/29/2016 5:14:00 PM
Dibromochloromethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Dibromomethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:00:00 AM

Lab ID: 1608E76-001

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BCN
1,3-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Dichlorodifluoromethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1-Dichloroethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1-Dichloroethene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2-Dichloropropane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,3-Dichloropropane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
2,2-Dichloropropane	ND	20		µg/L	10	8/29/2016 5:14:00 PM
1,1-Dichloropropene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Hexachlorobutadiene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
2-Hexanone	ND	100		µg/L	10	8/29/2016 5:14:00 PM
Isopropylbenzene	65	10		µg/L	10	8/29/2016 5:14:00 PM
4-Isopropyltoluene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	8/29/2016 5:14:00 PM
Methylene Chloride	ND	30		µg/L	10	8/29/2016 5:14:00 PM
n-Butylbenzene	ND	30		µg/L	10	8/29/2016 5:14:00 PM
n-Propylbenzene	110	10		µg/L	10	8/29/2016 5:14:00 PM
sec-Butylbenzene	17	10		µg/L	10	8/29/2016 5:14:00 PM
Styrene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
tert-Butylbenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/29/2016 5:14:00 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/29/2016 5:14:00 PM
trans-1,2-DCE	ND	10		µg/L	10	8/29/2016 5:14:00 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Trichloroethene (TCE)	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Trichlorofluoromethane	ND	10		µg/L	10	8/29/2016 5:14:00 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	8/29/2016 5:14:00 PM
Vinyl chloride	ND	10		µg/L	10	8/29/2016 5:14:00 PM
Xylenes, Total	41	15		µg/L	10	8/29/2016 5:14:00 PM
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	10	8/29/2016 5:14:00 PM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	10	8/29/2016 5:14:00 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	10	8/29/2016 5:14:00 PM
Surr: Toluene-d8	98.4	70-130		%Rec	10	8/29/2016 5:14:00 PM

CARBON DIOXIDE

Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608E76**

Date Reported: **10/6/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:00:00 AM

Lab ID: 1608E76-001

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
CARBON DIOXIDE						Analyst: JRR
Total Carbon Dioxide	1100	1.0	H	mg CO2/L	1	8/29/2016 9:03:20 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO3)	1130	20.00		mg/L CaCO3	1	8/29/2016 9:03:20 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 9:03:20 PM
Total Alkalinity (as CaCO3)	1130	20.00		mg/L CaCO3	1	8/29/2016 9:03:20 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42-DUP

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:10:00 AM

Lab ID: 1608E76-002

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	55	2.0		mg/L	10	8/29/2016 3:01:33 PM
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/29/2016 3:01:33 PM
Surr: DNOP	0	67.9-149	S	%Rec	10	8/29/2016 3:01:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	20	2.5		mg/L	50	8/30/2016 3:40:31 PM
Surr: BFB	97.9	66.4-120		%Rec	50	8/30/2016 3:40:31 PM
EPA METHOD 300.0: ANIONS						Analyst: MRA
Fluoride	0.74	0.50		mg/L	5	8/26/2016 1:04:34 AM
Chloride	230	10		mg/L	20	8/26/2016 1:16:59 AM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/26/2016 1:04:34 AM
Bromide	4.6	0.50		mg/L	5	8/26/2016 1:04:34 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/26/2016 1:04:34 AM
Phosphorus, Orthophosphate (As P)	4.0	2.5		mg/L	5	8/26/2016 1:04:34 AM
Sulfate	ND	2.5		mg/L	5	8/26/2016 1:04:34 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:24:16 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:17:55 AM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:14:35 PM
Barium	6.4	2.0		mg/L	100	9/7/2016 5:18:06 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 11:59:54 AM
Calcium	120	5.0		mg/L	5	9/7/2016 5:16:22 PM
Chromium	0.015	0.0060		mg/L	1	9/2/2016 11:59:54 AM
Copper	ND	0.0060		mg/L	1	9/2/2016 11:59:54 AM
Iron	67	2.0		mg/L	100	9/7/2016 5:18:06 PM
Lead	0.033	0.0050		mg/L	1	9/7/2016 5:14:35 PM
Magnesium	69	1.0		mg/L	1	9/2/2016 11:59:54 AM
Manganese	3.9	0.010		mg/L	5	9/2/2016 12:01:34 PM
Potassium	5.4	1.0		mg/L	1	9/2/2016 11:59:54 AM
Selenium	ND	0.050		mg/L	1	9/7/2016 5:14:35 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 11:59:54 AM
Sodium	400	5.0		mg/L	5	9/2/2016 12:01:34 PM
Uranium	ND	0.10		mg/L	1	9/12/2016 11:56:40 AM
Zinc	0.20	0.020		mg/L	1	9/7/2016 5:14:35 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: ELS

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42-DUP

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:10:00 AM

Lab ID: 1608E76-002

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: ELS
Arsenic	0.058	0.020		mg/L	1	10/4/2016 7:42:51 AM
Barium	6.5	0.40		mg/L	20	10/4/2016 7:45:37 AM
Cadmium	ND	0.0020		mg/L	1	10/4/2016 7:42:51 AM
Chromium	0.060	0.0060		mg/L	1	10/4/2016 7:42:51 AM
Lead	0.038	0.0050		mg/L	1	10/4/2016 7:42:51 AM
Selenium	ND	0.050		mg/L	1	10/4/2016 7:42:51 AM
Silver	ND	0.0050		mg/L	1	10/4/2016 7:42:51 AM
EPA METHOD 8260B: VOLATILES						Analyst: BCN
Benzene	6100	100		µg/L	100	8/29/2016 5:38:00 PM
Toluene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Ethylbenzene	140	10		µg/L	10	8/29/2016 6:02:00 PM
Methyl tert-butyl ether (MTBE)	16	10		µg/L	10	8/29/2016 6:02:00 PM
1,2,4-Trimethylbenzene	83	10		µg/L	10	8/29/2016 6:02:00 PM
1,3,5-Trimethylbenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Naphthalene	310	20		µg/L	10	8/29/2016 6:02:00 PM
1-Methylnaphthalene	180	40		µg/L	10	8/29/2016 6:02:00 PM
2-Methylnaphthalene	230	40		µg/L	10	8/29/2016 6:02:00 PM
Acetone	ND	100		µg/L	10	8/29/2016 6:02:00 PM
Bromobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Bromodichloromethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Bromoform	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Bromomethane	ND	30		µg/L	10	8/29/2016 6:02:00 PM
2-Butanone	ND	100		µg/L	10	8/29/2016 6:02:00 PM
Carbon disulfide	ND	100		µg/L	10	8/29/2016 6:02:00 PM
Carbon Tetrachloride	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Chlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Chloroethane	ND	20		µg/L	10	8/29/2016 6:02:00 PM
Chloroform	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Chloromethane	ND	30		µg/L	10	8/29/2016 6:02:00 PM
2-Chlorotoluene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
4-Chlorotoluene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
cis-1,2-DCE	ND	10		µg/L	10	8/29/2016 6:02:00 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/29/2016 6:02:00 PM
Dibromochloromethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Dibromomethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42-DUP

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:10:00 AM

Lab ID: 1608E76-002

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BCN
1,3-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Dichlorodifluoromethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1-Dichloroethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1-Dichloroethene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2-Dichloropropane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,3-Dichloropropane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
2,2-Dichloropropane	ND	20		µg/L	10	8/29/2016 6:02:00 PM
1,1-Dichloropropene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Hexachlorobutadiene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
2-Hexanone	ND	100		µg/L	10	8/29/2016 6:02:00 PM
Isopropylbenzene	66	10		µg/L	10	8/29/2016 6:02:00 PM
4-Isopropyltoluene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	8/29/2016 6:02:00 PM
Methylene Chloride	ND	30		µg/L	10	8/29/2016 6:02:00 PM
n-Butylbenzene	ND	30		µg/L	10	8/29/2016 6:02:00 PM
n-Propylbenzene	110	10		µg/L	10	8/29/2016 6:02:00 PM
sec-Butylbenzene	18	10		µg/L	10	8/29/2016 6:02:00 PM
Styrene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
tert-Butylbenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/29/2016 6:02:00 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/29/2016 6:02:00 PM
trans-1,2-DCE	ND	10		µg/L	10	8/29/2016 6:02:00 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Trichloroethene (TCE)	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Trichlorofluoromethane	ND	10		µg/L	10	8/29/2016 6:02:00 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	8/29/2016 6:02:00 PM
Vinyl chloride	ND	10		µg/L	10	8/29/2016 6:02:00 PM
Xylenes, Total	31	15		µg/L	10	8/29/2016 6:02:00 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	10	8/29/2016 6:02:00 PM
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	10	8/29/2016 6:02:00 PM
Surr: Dibromofluoromethane	98.1	70-130		%Rec	10	8/29/2016 6:02:00 PM
Surr: Toluene-d8	100	70-130		%Rec	10	8/29/2016 6:02:00 PM

CARBON DIOXIDE

Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1608E76**

Date Reported: **10/6/2016**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-42-DUP

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 9:10:00 AM

Lab ID: 1608E76-002

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
CARBON DIOXIDE						
Total Carbon Dioxide	1100	1.0	H	mg CO2/L	1	8/29/2016 9:42:33 PM
SM2320B: ALKALINITY						
Bicarbonate (As CaCO3)	1111	20.00		mg/L CaCO3	1	8/29/2016 9:42:33 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 9:42:33 PM
Total Alkalinity (as CaCO3)	1111	20.00		mg/L CaCO3	1	8/29/2016 9:42:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 12:10:00 PM

Lab ID: 1608E76-003

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	0.28	0.20		mg/L	1	8/29/2016 6:39:32 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/29/2016 6:39:32 PM
Surr: DNOP	135	67.9-149		%Rec	1	8/29/2016 6:39:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/30/2016 4:03:58 PM
Surr: BFB	87.9	66.4-120		%Rec	1	8/30/2016 4:03:58 PM
EPA METHOD 300.0: ANIONS						Analyst: MRA
Fluoride	0.32	0.10		mg/L	1	8/26/2016 1:29:24 AM
Chloride	45	10		mg/L	20	8/26/2016 1:41:49 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/26/2016 1:29:24 AM
Bromide	0.38	0.10		mg/L	1	8/26/2016 1:29:24 AM
Nitrogen, Nitrate (As N)	1.2	0.10		mg/L	1	8/26/2016 1:29:24 AM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/26/2016 1:29:24 AM
Sulfate	180	10		mg/L	20	8/26/2016 1:41:49 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:28:15 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:26:15 AM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:20:04 PM
Barium	0.023	0.020		mg/L	1	9/2/2016 12:03:19 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:03:19 PM
Calcium	83	5.0		mg/L	5	9/7/2016 5:22:00 PM
Chromium	ND	0.0060		mg/L	1	9/2/2016 12:03:19 PM
Copper	ND	0.0060		mg/L	1	9/2/2016 12:03:19 PM
Iron	0.12	0.020		mg/L	1	9/2/2016 12:03:19 PM
Lead	ND	0.0050		mg/L	1	9/7/2016 5:20:04 PM
Magnesium	18	1.0		mg/L	1	9/2/2016 12:03:19 PM
Manganese	1.4	0.010		mg/L	5	9/2/2016 12:05:03 PM
Potassium	2.1	1.0		mg/L	1	9/2/2016 12:03:19 PM
Selenium	ND	0.050		mg/L	1	9/7/2016 5:20:04 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 12:03:19 PM
Sodium	120	5.0		mg/L	5	9/2/2016 12:05:03 PM
Uranium	ND	0.10		mg/L	1	9/12/2016 11:58:08 AM
Zinc	ND	0.020		mg/L	1	9/7/2016 5:20:04 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 12:10:00 PM

Lab ID: 1608E76-003

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:46:54 PM
Barium	0.24	0.020		mg/L	1	9/2/2016 2:41:38 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:41:38 PM
Chromium	0.0088	0.0060		mg/L	1	9/2/2016 2:41:38 PM
Lead	ND	0.0050		mg/L	1	9/7/2016 3:46:54 PM
Selenium	ND	0.050		mg/L	1	9/7/2016 3:46:54 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 2:41:38 PM
EPA METHOD 8260B: VOLATILES						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Toluene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Ethylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Naphthalene	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/30/2016 9:58:00 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/30/2016 9:58:00 AM
Acetone	ND	10		µg/L	1	8/30/2016 9:58:00 AM
Bromobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Bromoform	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Bromomethane	ND	3.0		µg/L	1	8/30/2016 9:58:00 AM
2-Butanone	ND	10		µg/L	1	8/30/2016 9:58:00 AM
Carbon disulfide	ND	10		µg/L	1	8/30/2016 9:58:00 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Chlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Chloroethane	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
Chloroform	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Chloromethane	ND	3.0		µg/L	1	8/30/2016 9:58:00 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Dibromomethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 12:10:00 PM

Lab ID: 1608E76-003

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BCN
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
2-Hexanone	ND	10		µg/L	1	8/30/2016 9:58:00 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/30/2016 9:58:00 AM
Methylene Chloride	ND	3.0		µg/L	1	8/30/2016 9:58:00 AM
n-Butylbenzene	ND	3.0		µg/L	1	8/30/2016 9:58:00 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Styrene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/30/2016 9:58:00 AM
Vinyl chloride	ND	1.0		µg/L	1	8/30/2016 9:58:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/30/2016 9:58:00 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/30/2016 9:58:00 AM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	8/30/2016 9:58:00 AM
Surr: Dibromofluoromethane	98.4	70-130		%Rec	1	8/30/2016 9:58:00 AM
Surr: Toluene-d8	98.8	70-130		%Rec	1	8/30/2016 9:58:00 AM

CARBON DIOXIDE

Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 12:10:00 PM

Lab ID: 1608E76-003

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
CARBON DIOXIDE						
Total Carbon Dioxide	260	1.0	H	mg CO2/L	1	8/29/2016 10:20:41 PM
SM2320B: ALKALINITY						
Bicarbonate (As CaCO3)	284.2	20.00		mg/L CaCO3	1	8/29/2016 10:20:41 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 10:20:41 PM
Total Alkalinity (as CaCO3)	284.2	20.00		mg/L CaCO3	1	8/29/2016 10:20:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-43

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 1:18:00 PM

Lab ID: 1608E76-004

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: DIESEL RANGE						Analyst: TOM
Diesel Range Organics (DRO)	1200	20		mg/L	100	8/29/2016 1:34:09 PM
Motor Oil Range Organics (MRO)	ND	250		mg/L	100	8/29/2016 1:34:09 PM
Surr: DNOP	0	67.9-149	S	%Rec	100	8/29/2016 1:34:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	27	1.0		mg/L	20	8/30/2016 4:27:26 PM
Surr: BFB	128	66.4-120	S	%Rec	20	8/30/2016 4:27:26 PM
EPA METHOD 300.0: ANIONS						Analyst: MRA
Fluoride	ND	0.50		mg/L	5	8/26/2016 1:54:14 AM
Chloride	390	10	*	mg/L	20	8/26/2016 2:06:39 AM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/26/2016 1:54:14 AM
Bromide	3.9	0.50		mg/L	5	8/26/2016 1:54:14 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/26/2016 1:54:14 AM
Phosphorus, Orthophosphate (As P)	3.1	2.5		mg/L	5	8/26/2016 1:54:14 AM
Sulfate	6.9	2.5		mg/L	5	8/26/2016 1:54:14 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	0.00021	0.00020		mg/L	1	8/31/2016 10:32:16 AM
EPA METHOD 7470: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/31/2016 10:30:16 AM
EPA METHOD 6010B: DISSOLVED METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 5:25:51 PM
Barium	1.1	0.10		mg/L	5	9/2/2016 12:08:40 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 12:06:55 PM
Calcium	180	5.0		mg/L	5	9/7/2016 5:27:37 PM
Chromium	0.27	0.0060		mg/L	1	9/2/2016 12:06:55 PM
Copper	0.017	0.0060		mg/L	1	9/2/2016 12:06:55 PM
Iron	27	1.0		mg/L	50	9/13/2016 6:57:29 AM
Lead	0.015	0.0050		mg/L	1	9/7/2016 5:25:51 PM
Magnesium	63	1.0		mg/L	1	9/2/2016 12:06:55 PM
Manganese	6.5	0.020		mg/L	10	9/7/2016 5:35:08 PM
Potassium	14	1.0		mg/L	1	9/2/2016 12:06:55 PM
Selenium	ND	0.050		mg/L	1	9/7/2016 5:25:51 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 12:06:55 PM
Sodium	440	5.0		mg/L	5	9/2/2016 12:08:40 PM
Uranium	ND	0.10		mg/L	1	9/12/2016 11:59:44 AM
Zinc	3.0	0.10		mg/L	5	9/7/2016 5:27:37 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-43

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 1:18:00 PM

Lab ID: 1608E76-004

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: MED
Arsenic	ND	0.020		mg/L	1	9/7/2016 3:48:29 PM
Barium	13	1.0		mg/L	50	9/7/2016 3:50:18 PM
Cadmium	ND	0.0020		mg/L	1	9/2/2016 2:44:57 PM
Chromium	0.37	0.0060		mg/L	1	9/2/2016 2:44:57 PM
Lead	0.055	0.0050		mg/L	1	9/7/2016 3:48:29 PM
Selenium	ND	0.050		mg/L	1	9/7/2016 3:48:29 PM
Silver	ND	0.0050		mg/L	1	9/2/2016 2:44:57 PM
EPA METHOD 8260B: VOLATILES						Analyst: BCN
Benzene	2600	50		µg/L	50	8/29/2016 6:49:00 PM
Toluene	51	50		µg/L	50	8/29/2016 6:49:00 PM
Ethylbenzene	320	50		µg/L	50	8/29/2016 6:49:00 PM
Methyl tert-butyl ether (MTBE)	670	50		µg/L	50	8/29/2016 6:49:00 PM
1,2,4-Trimethylbenzene	770	50		µg/L	50	8/29/2016 6:49:00 PM
1,3,5-Trimethylbenzene	180	50		µg/L	50	8/29/2016 6:49:00 PM
1,2-Dichloroethane (EDC)	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2-Dibromoethane (EDB)	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Naphthalene	370	100		µg/L	50	8/29/2016 6:49:00 PM
1-Methylnaphthalene	ND	200		µg/L	50	8/29/2016 6:49:00 PM
2-Methylnaphthalene	ND	200		µg/L	50	8/29/2016 6:49:00 PM
Acetone	ND	500		µg/L	50	8/29/2016 6:49:00 PM
Bromobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Bromodichloromethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Bromoform	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Bromomethane	ND	150		µg/L	50	8/29/2016 6:49:00 PM
2-Butanone	ND	500		µg/L	50	8/29/2016 6:49:00 PM
Carbon disulfide	ND	500		µg/L	50	8/29/2016 6:49:00 PM
Carbon Tetrachloride	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Chlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Chloroethane	ND	100		µg/L	50	8/29/2016 6:49:00 PM
Chloroform	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Chloromethane	ND	150		µg/L	50	8/29/2016 6:49:00 PM
2-Chlorotoluene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
4-Chlorotoluene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
cis-1,2-DCE	ND	50		µg/L	50	8/29/2016 6:49:00 PM
cis-1,3-Dichloropropene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2-Dibromo-3-chloropropane	ND	100		µg/L	50	8/29/2016 6:49:00 PM
Dibromochloromethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Dibromomethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2-Dichlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-43

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 1:18:00 PM

Lab ID: 1608E76-004

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BCN
1,3-Dichlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,4-Dichlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Dichlorodifluoromethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1-Dichloroethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1-Dichloroethene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2-Dichloropropane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,3-Dichloropropane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
2,2-Dichloropropane	ND	100		µg/L	50	8/29/2016 6:49:00 PM
1,1-Dichloropropene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Hexachlorobutadiene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
2-Hexanone	ND	500		µg/L	50	8/29/2016 6:49:00 PM
Isopropylbenzene	89	50		µg/L	50	8/29/2016 6:49:00 PM
4-Isopropyltoluene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
4-Methyl-2-pentanone	ND	500		µg/L	50	8/29/2016 6:49:00 PM
Methylene Chloride	ND	150		µg/L	50	8/29/2016 6:49:00 PM
n-Butylbenzene	ND	150		µg/L	50	8/29/2016 6:49:00 PM
n-Propylbenzene	84	50		µg/L	50	8/29/2016 6:49:00 PM
sec-Butylbenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Styrene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
tert-Butylbenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1,1,2-Tetrachloroethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1,2,2-Tetrachloroethane	ND	100		µg/L	50	8/29/2016 6:49:00 PM
Tetrachloroethene (PCE)	ND	50		µg/L	50	8/29/2016 6:49:00 PM
trans-1,2-DCE	ND	50		µg/L	50	8/29/2016 6:49:00 PM
trans-1,3-Dichloropropene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2,3-Trichlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2,4-Trichlorobenzene	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1,1-Trichloroethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,1,2-Trichloroethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Trichloroethene (TCE)	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Trichlorofluoromethane	ND	50		µg/L	50	8/29/2016 6:49:00 PM
1,2,3-Trichloropropane	ND	100		µg/L	50	8/29/2016 6:49:00 PM
Vinyl chloride	ND	50		µg/L	50	8/29/2016 6:49:00 PM
Xylenes, Total	1100	75		µg/L	50	8/29/2016 6:49:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	50	8/29/2016 6:49:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	50	8/29/2016 6:49:00 PM
Surr: Dibromofluoromethane	96.7	70-130		%Rec	50	8/29/2016 6:49:00 PM
Surr: Toluene-d8	99.7	70-130		%Rec	50	8/29/2016 6:49:00 PM

CARBON DIOXIDE

Analyst: **JRR**

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-43

Project: Refinery Wells 8-24-2016

Collection Date: 8/24/2016 1:18:00 PM

Lab ID: 1608E76-004

Matrix: AQUEOUS

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
CARBON DIOXIDE						
Total Carbon Dioxide	1100	1.0	H	mg CO2/L	1	8/29/2016 10:34:11 PM
SM2320B: ALKALINITY						
Bicarbonate (As CaCO3)	1165	20.00		mg/L CaCO3	1	8/29/2016 10:34:11 PM
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	8/29/2016 10:34:11 PM
Total Alkalinity (as CaCO3)	1165	20.00		mg/L CaCO3	1	8/29/2016 10:34:11 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Refinery Wells 8-24-2016

Collection Date:

Lab ID: 1608E76-005

Matrix: TRIP BLANK

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/30/2016 4:50:50 PM
Surr: BFB	88.0	66.4-120		%Rec	1	8/30/2016 4:50:50 PM
EPA METHOD 8260B: VOLATILES						Analyst: BCN
Benzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Toluene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Ethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Naphthalene	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:12:00 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/29/2016 7:12:00 PM
Acetone	ND	10		µg/L	1	8/29/2016 7:12:00 PM
Bromobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Bromoform	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Bromomethane	ND	3.0		µg/L	1	8/29/2016 7:12:00 PM
2-Butanone	ND	10		µg/L	1	8/29/2016 7:12:00 PM
Carbon disulfide	ND	10		µg/L	1	8/29/2016 7:12:00 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Chlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Chloroethane	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
Chloroform	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Chloromethane	ND	3.0		µg/L	1	8/29/2016 7:12:00 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Dibromomethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1608E76

Date Reported: 10/6/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Refinery Wells 8-24-2016

Collection Date:

Lab ID: 1608E76-005

Matrix: TRIP BLANK

Received Date: 8/25/2016 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: BCN
1,2-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
2-Hexanone	ND	10		µg/L	1	8/29/2016 7:12:00 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/29/2016 7:12:00 PM
Methylene Chloride	ND	3.0		µg/L	1	8/29/2016 7:12:00 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/29/2016 7:12:00 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Styrene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/29/2016 7:12:00 PM
Vinyl chloride	ND	1.0		µg/L	1	8/29/2016 7:12:00 PM
Xylenes, Total	ND	1.5		µg/L	1	8/29/2016 7:12:00 PM
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	8/29/2016 7:12:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/29/2016 7:12:00 PM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	8/29/2016 7:12:00 PM
Surr: Toluene-d8	99.7	70-130		%Rec	1	8/29/2016 7:12:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/25/2016		SeqNo: 1140001		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/25/2016		SeqNo: 1140002		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.3	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.3	90	110			
Phosphorus, Orthophosphate (As P)	5.0	0.50	5.000	0	99.3	90	110			
Sulfate	9.6	0.50	10.00	0	95.9	90	110			

Sample ID 1608E76-001CMS	SampType: ms		TestCode: EPA Method 300.0: Anions							
Client ID: RW-42	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1140019		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.0	0.50	2.500	0.6161	97.2	74.5	121			
Nitrogen, Nitrite (As N)	4.7	0.50	5.000	0	93.3	79.8	108			
Bromide	16	0.50	12.50	4.584	94.1	74.6	115			
Nitrogen, Nitrate (As N)	12	0.50	12.50	0	98.7	82.9	118			
Phosphorus, Orthophosphate (As P)	26	2.5	25.00	3.408	89.2	80.8	114			
Sulfate	50	2.5	50.00	0	99.4	83	118			

Sample ID 1608E76-001CMSD	SampType: msd		TestCode: EPA Method 300.0: Anions							
Client ID: RW-42	Batch ID: A36775		RunNo: 36775							
Prep Date:	Analysis Date: 8/26/2016		SeqNo: 1140020		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.1	0.50	2.500	0.6161	99.9	74.5	121	2.15	20	
Nitrogen, Nitrite (As N)	4.8	0.50	5.000	0	95.4	79.8	108	2.26	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	1608E76-001CMSD	SampType:	msd	TestCode:	EPA Method 300.0: Anions					
Client ID:	RW-42	Batch ID:	A36775	RunNo:	36775					
Prep Date:		Analysis Date:	8/26/2016	SeqNo:	1140020	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	17	0.50	12.50	4.584	96.6	74.6	115	1.94	20	
Nitrogen, Nitrate (As N)	13	0.50	12.50	0	101	82.9	118	2.36	20	
Phosphorus, Orthophosphate (As P	27	2.5	25.00	3.408	92.6	80.8	114	3.23	20	
Sulfate	52	2.5	50.00	0	105	83	118	5.22	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	LCS-27206		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 27206		RunNo: 36819					
Prep Date:	8/29/2016		Analysis Date: 8/29/2016		SeqNo: 1141714		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	65.4	162			
Surr: DNOP	0.28		0.2500		110	67.9	149			

Sample ID	MB-27206		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 27206		RunNo: 36819					
Prep Date:	8/29/2016		Analysis Date: 8/29/2016		SeqNo: 1141716		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.54		0.5000		108	67.9	149			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID B14	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: G36859		RunNo: 36859							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1142821		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		85.2	66.4	120			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: G36859		RunNo: 36859							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1142822		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.9	80	120			
Surr: BFB	18		20.00		92.3	66.4	120			

Sample ID 1608E76-001AMS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: RW-42	Batch ID: G36859		RunNo: 36859							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1142824		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	47	2.5	25.00	24.30	92.6	70	130			
Surr: BFB	1100		1000		110	66.4	120			

Sample ID 1608E76-001AMSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: RW-42	Batch ID: G36859		RunNo: 36859							
Prep Date:	Analysis Date: 8/30/2016		SeqNo: 1142825		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	51	2.5	25.00	24.30	105	70	130	6.48	20	
Surr: BFB	1100		1000		111	66.4	120	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R36829			RunNo: 36829					
Prep Date:		Analysis Date: 8/29/2016			SeqNo: 1141696		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.5	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	96.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.6	70	130			
Surr: Toluene-d8	9.7		10.00		97.5	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36829			RunNo: 36829					
Prep Date:		Analysis Date: 8/29/2016			SeqNo: 1141697		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36829			RunNo: 36829					
Prep Date:		Analysis Date: 8/29/2016			SeqNo: 1141697	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36829	RunNo:	36829					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1141697	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.4	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	1608e76-001ams	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	RW-42	Batch ID:	R36829	RunNo:	36829					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1141948	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	8200	100	2000	6303	93.7	70	130			
Toluene	2100	100	2000	0	104	70	130			
Chlorobenzene	2100	100	2000	0	104	70	130			
1,1-Dichloroethene	2100	100	2000	0	106	70	130			
Trichloroethene (TCE)	2100	100	2000	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	1100		1000		107	70	130			
Surr: 4-Bromofluorobenzene	1000		1000		101	70	130			
Surr: Dibromofluoromethane	990		1000		99.3	70	130			
Surr: Toluene-d8	990		1000		99.4	70	130			

Sample ID	1608e76-001amsd	SampType:	MSD	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	RW-42	Batch ID:	R36829	RunNo:	36829					
Prep Date:		Analysis Date:	8/29/2016	SeqNo:	1141949	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	7800	100	2000	6303	74.2	70	130	4.88	20	
Toluene	2000	100	2000	0	99.7	70	130	4.55	20	
Chlorobenzene	2000	100	2000	0	101	70	130	3.68	20	
1,1-Dichloroethene	2000	100	2000	0	99.5	70	130	6.74	20	
Trichloroethene (TCE)	2000	100	2000	0	98.4	70	130	4.44	20	
Surr: 1,2-Dichloroethane-d4	1100		1000		105	70	130	0	0	
Surr: 4-Bromofluorobenzene	1000		1000		101	70	130	0	0	
Surr: Dibromofluoromethane	1000		1000		102	70	130	0	0	
Surr: Toluene-d8	990		1000		98.9	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R36879			RunNo: 36879					
Prep Date:		Analysis Date: 8/30/2016			SeqNo: 1142847		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	21	1.0	20.00	0	106	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.0	70	130			
Surr: Dibromofluoromethane	10		10.00		99.8	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36879			RunNo: 36879					
Prep Date:		Analysis Date: 8/30/2016			SeqNo: 1142848		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36879			RunNo: 36879					
Prep Date:		Analysis Date: 8/30/2016			SeqNo: 1142848	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36879	RunNo:	36879					
Prep Date:		Analysis Date:	8/30/2016	SeqNo:	1142848	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.9		10.00		98.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	MB-27260	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143322	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-27260	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	27260	RunNo:	36894					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143323	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID:	B36953	RunNo:	36953					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1145170	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID	LCS-B	SampType:	LCS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B36953	RunNo:	36953					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1145256	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.49	0.020	0.5000	0	98.8	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.1	80	120			
Chromium	0.49	0.0060	0.5000	0	97.8	80	120			
Copper	0.48	0.0060	0.5000	0	96.6	80	120			
Iron	0.49	0.020	0.5000	0	97.6	80	120			
Magnesium	51	1.0	50.00	0	101	80	120			
Manganese	0.48	0.0020	0.5000	0	96.3	80	120			
Potassium	50	1.0	50.00	0	99.8	80	120			
Silver	0.099	0.0050	0.1000	0	99.2	80	120			
Sodium	50	1.0	50.00	0	99.4	80	120			

Sample ID	1608E76-001DMS	SampType:	MS	TestCode:	EPA Method 6010B: Dissolved Metals					
Client ID:	RW-42	Batch ID:	B36953	RunNo:	36953					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1145414	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Cadmium	0.48	0.0020	0.5000	0	95.3	75	125			
Chromium	0.49	0.0060	0.5000	0.01370	95.5	75	125			
Copper	0.48	0.0060	0.5000	0.004690	96.0	75	125			
Potassium	58	1.0	50.00	5.365	105	75	125			
Silver	0.085	0.0050	0.1000	0	84.6	75	125			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	1608E76-001DMSD		SampType: MSD		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	RW-42		Batch ID: B36953		RunNo: 36953					
Prep Date:			Analysis Date: 9/2/2016		SeqNo: 1145415		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.46	0.0020	0.5000	0	93.0	75	125	2.50	20	
Chromium	0.48	0.0060	0.5000	0.01370	93.2	75	125	2.37	20	
Copper	0.48	0.0060	0.5000	0.004690	95.0	75	125	0.962	20	
Potassium	58	1.0	50.00	5.365	105	75	125	0.780	20	
Silver	0.083	0.0050	0.1000	0	83.0	75	125	1.92	20	

Sample ID	1608E76-001DMS		SampType:	MS		TestCode:	EPA Method 6010B: Dissolved Metals				
Client ID:	RW-42		Batch ID:	B36953		RunNo:	36953				
Prep Date:			Analysis Date:	9/2/2016		SeqNo:	1145417	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Magnesium	320	5.0	250.0	74.31	97.0	75	125				

Sample ID	1608E76-001DMSD		SampType: MSD		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	RW-42		Batch ID: B36953		RunNo: 36953					
Prep Date:			Analysis Date: 9/2/2016		SeqNo: 1145418		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	320	5.0	250.0	74.31	97.2	75	125	0.101	20	

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: A37036			RunNo: 37036					
Prep Date:		Analysis Date: 9/7/2016			SeqNo: 1147837		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Calcium	ND	1.0								
Iron	ND	0.020								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Selenium	ND	0.050								
Zinc	ND	0.020								

Sample ID	1608E76-001DMS		SampType: MS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	RW-42		Batch ID: A37036		RunNo: 37036					
Prep Date:			Analysis Date: 9/7/2016		SeqNo: 1148449		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.56	0.020	0.5000	0.01890	108	75	125			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	1608E76-001DMS		SampType:	MS		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	RW-42		Batch ID:	A37036		RunNo:	37036			
Prep Date:			Analysis Date:	9/7/2016		SeqNo:	1148449	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0.03632	92.5	75	125			
Selenium	0.54	0.050	0.5000	0	108	75	125			
Zinc	0.64	0.020	0.5000	0.1697	94.5	75	125			

Sample ID	1608E76-001DMSD		SampType:	MSD		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	RW-42		Batch ID:	A37036		RunNo:	37036			
Prep Date:			Analysis Date:	9/7/2016		SeqNo:	1148450	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	0.020	0.5000	0.01890	105	75	125	3.03	20	
Lead	0.50	0.0050	0.5000	0.03632	92.5	75	125	0.0301	20	
Selenium	0.53	0.050	0.5000	0	105	75	125	2.06	20	
Zinc	0.64	0.020	0.5000	0.1697	94.5	75	125	0	20	

Sample ID	MB-A		SampType:	MBLK		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	PBW		Batch ID:	A37126		RunNo:	37126			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1151179	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Uranium	ND	0.10								

Sample ID	LCS-A		SampType:	LCS		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	LCSW		Batch ID:	A37126		RunNo:	37126			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1151180	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.020	0.5000	0	99.9	80	120			
Uranium	0.50	0.10	0.5000	0	101	80	120			

Sample ID	1608E76-001DMS		SampType:	MS		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	RW-42		Batch ID:	A37126		RunNo:	37126			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1151219	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.45	0.10	0.5000	0	89.0	75	125			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	1608E76-001DMSD			SampType:	MSD		TestCode:	EPA Method 6010B: Dissolved Metals			
Client ID:	RW-42			Batch ID:	A37126		RunNo:	37126			
Prep Date:				Analysis Date:	9/12/2016		SeqNo:	1151220	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Uranium	0.47	0.10	0.5000	0	93.4	75	125	4.76	20		

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	PBW	Batch ID: A37141			RunNo: 37141					
Prep Date:		Analysis Date: 9/13/2016			SeqNo: 1151810		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 6010B: Dissolved Metals					
Client ID:	LCSW		Batch ID: A37141		RunNo: 37141					
Prep Date:			Analysis Date: 9/13/2016		SeqNo: 1151811		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.51	0.020	0.5000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	MB-27268	SampType: MBLK			TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW	Batch ID: 27268			RunNo: 36953					
Prep Date:	8/30/2016	Analysis Date: 9/2/2016			SeqNo: 1145166		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27268		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27268		RunNo: 36953					
Prep Date:	8/30/2016		Analysis Date: 9/2/2016		SeqNo: 1145167		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	99.8	80	120			
Barium	0.49	0.020	0.5000	0	98.5	80	120			
Cadmium	0.49	0.0020	0.5000	0	97.8	80	120			
Chromium	0.49	0.0060	0.5000	0	97.9	80	120			
Lead	0.48	0.0050	0.5000	0	96.4	80	120			
Selenium	0.51	0.050	0.5000	0	101	80	120			
Silver	0.10	0.0050	0.1000	0	99.7	80	120			

Sample ID	MB-27771		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 27771		RunNo: 37682					
Prep Date:	9/28/2016		Analysis Date: 10/4/2016		SeqNo: 1173513		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-27771		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27771		RunNo: 37682					
Prep Date:	9/28/2016		Analysis Date: 10/4/2016		SeqNo: 1173514		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.53	0.020	0.5000	0	106	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	LCS-27771		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 27771		RunNo: 37682					
Prep Date:	9/28/2016		Analysis Date: 10/4/2016		SeqNo: 1173514		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.020	0.5000	0	101	80	120			
Cadmium	0.51	0.0020	0.5000	0	101	80	120			
Chromium	0.50	0.0060	0.5000	0	99.6	80	120			
Lead	0.50	0.0050	0.5000	0	99.0	80	120			
Selenium	0.52	0.050	0.5000	0	105	80	120			
Silver	0.10	0.0050	0.1000	0	105	80	120			

Sample ID	1608E76-001EMS		SampType: MS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	RW-42		Batch ID: 27771		RunNo: 37682					
Prep Date:	9/28/2016		Analysis Date: 10/4/2016		SeqNo: 1173516		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0.09380	84.2	75	125			
Cadmium	0.41	0.0020	0.5000	0	82.6	75	125			
Chromium	0.56	0.0060	0.5000	0.1575	80.3	75	125			
Lead	0.47	0.0050	0.5000	0.09250	75.5	75	125			
Selenium	0.33	0.050	0.5000	0	65.2	75	125			S
Silver	0.088	0.0050	0.1000	0	87.6	75	125			

Sample ID	1608E76-001EMSD		SampType: MSD		TestCode: EPA 6010B: Total Recoverable Metals						
Client ID:	RW-42		Batch ID: 27771		RunNo: 37682						
Prep Date:	9/28/2016		Analysis Date: 10/4/2016		SeqNo: 1173517		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.52	0.020	0.5000	0.09380	85.7	75	125	1.43	20		
Cadmium	0.43	0.0020	0.5000	0	85.3	75	125	3.14	20		
Chromium	0.57	0.0060	0.5000	0.1575	82.3	75	125	1.81	20		
Lead	0.48	0.0050	0.5000	0.09250	77.3	75	125	1.89	20		
Selenium	0.34	0.050	0.5000	0	68.6	75	125	5.01	20	S	
Silver	0.091	0.0050	0.1000	0	90.8	75	125	3.51	20		

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608E76

06-Oct-16

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8-24-2016

Sample ID	mb-1		SampType:	mblk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW		Batch ID:	R36846		RunNo:	36846				
Prep Date:			Analysis Date:	8/29/2016		SeqNo:	1142150	Units:	mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20.00									

Sample ID	lcs-1		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142151		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.76	20.00	80.00	0	98.4	90	110			

Sample ID	mb-2		SampType: mblk		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142174		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R36846		RunNo: 36846					
Prep Date:			Analysis Date: 8/29/2016		SeqNo: 1142175		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.88	20.00	80.00	0	98.6	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1608E76

RcptNo: 1

Received by/date:

AG 08/25/16

Logged By: Lindsay Mangin

8/25/2016 8:00:00 AM

Lindsay Mangin

Completed By: Lindsay Mangin

8/25/2016 2:01:29 PM

Lindsay Mangin

Reviewed By:

fc 08/26/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 12
(≤ 2 or >12 unless noted)
Adjusted? yes
Checked by: AS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: For metals analysis: added 1 mL HNO₃ to -001E, -002E -004E for acceptable pH.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Yes			

8/24/16 1555
AS

Analytical Methods and Target Analytes
Facility-Wide Groundwater Monitoring Plan - June 2012
Western Refining - Bloomfield Refinery

VOCs (EPA Method 8260B) ⁽¹⁾
Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
SVOCs - (EPA Method 8270)
Method List
TPH-GRO (EPA Method 8015B)
Gasoline Range Organics
TPH-DRO (EPA Method 8015B)
Diesel Range Organics
Motor Oil Range Organics
Total Carbon Dioxide (Laboratory Calculated)
Dissolved CO ₂
Specific Conductivity (EPA Method 120.1 or Field Measurement)
Specific Conductance
TDS (EPA Method 160.1 or Field Measurement)
Total Dissolved Solids
General Chemistry - Anions (EPA method 300.0)
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
General Chemistry - Alkalinity (EPA Method 310.1)
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

Total Recoverable Metals (EPA Method 6010B/7470)
Target List
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
Dissolved Metals (EPA Method 6010B / 7470)
Target List (for Refinery Complex, Outfalls and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

Notes:

- ⁽¹⁾ VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009
- ⁽²⁾ Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.