

GW – 001

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

2016

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

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: 1608C81-005G

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
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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

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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:

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ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

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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:

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ND Not Detected at the Reporting Limit
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S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
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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

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26-Sep-16

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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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation 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	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.
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-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	PQL	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 ics-1	SampType: ics			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 ics-2	SampType: ics			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 ics-1	SampType: ics			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. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation 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-2		SampType:	mbk		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



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87104
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: 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)
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

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)	DRO - 8015B	Dissolved Metals	General Chem. / Alk	Anions, CO ₂	Air Bubbles (Y or N)
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[illegible]

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.

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 Barium Cadmium Chromium Silver
Dissolved Metals (EPA Method 6010B / 7470)	Target List (for River Terrace Sampling Events Only) Mercury (DW-1 ONLY) Lead Mercury (DW-1 ONLY)
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

Analytical Report

Lab 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
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 Report

Lab 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: 1608C80-001A

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

Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-31**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 1:15:00 PM**Lab ID:** 1608C80-001B**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

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: 1608C80-001C

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

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: 1608C80-001D

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
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Analytical ReportLab Order: **1608C80**Date Reported: **9/26/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-31**Project:** Refinery Wells 8-22-2016**Collection Date:** 8/22/2016 1:15:00 PM**Lab ID:** 1608C80-001E**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
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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: 1608C80-001F

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
				Page 7 of 40

Analytical Report

Lab 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: 1608C80-002A

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
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Analytical ReportLab Order: **1608C80****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **9/26/2016****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
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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: 1608C80-002B

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

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:** 1608C80-002C**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	8/23/2016 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.
Project: Refinery Wells 8-22-2016
Lab ID: 1608C80-002D

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
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

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: 1608C80-002E

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

Analytical Report

Lab 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
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
				Page 15 of 40

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:** 1608C80-003A**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

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:** 1608C80-003B**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

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:** 1608C80-003C**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****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:** 1608C80-003D**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****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:** 1608C80-003E**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 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 Report

Lab 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

Analytical Report

Lab 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: 1608C80-003G

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

Analytical Report

Lab 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
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 Report

Lab 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: 1608C80-004A

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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation 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	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.
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-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.
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-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	ics-1	SampType:	ics	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	ics-2	SampType:	ics	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:

LC 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° 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? 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.)

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 °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	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*

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

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 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

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: 1608D63-001A

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
				Page 2 of 40

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****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016**

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

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: 1608D63-001D

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****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****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:** 1608D63-001E**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

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: 1608D63-001F

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 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: 1608D63-001F

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
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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: 1608D63-002A

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

Analytical Report

Lab 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: 1608D63-002A

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
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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: 1608D63-002B

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: 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****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****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:** 1608D63-002C**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

Analytical ReportLab Order: **1608D63****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****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:** 1608D63-002E**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 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

Analytical Report

Lab Order: 1608D63

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

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: 1608D63-002F

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 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: 1608D63-002F

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

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: 1608D63-003A

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
				Page 17 of 40

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: 1608D63-003A

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
				Page 18 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: 1608D63-003B

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 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			
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
				Page 21 of 40

Analytical Report

Lab 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

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: 1608D63-004A

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
				Page 25 of 40

Analytical Report

Lab 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: 1608D63-004A

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
				Page 26 of 40

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	PQL	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 ics-1	SampType: ics			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 ics-2	SampType: ics			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			

Turn-Around Time:

X Standard ☐ Rush

Project Name: RCRA Wells

Date: 8-23-2016

Project #: Annual

PO#12615520

Project Manager:

X Level 4 (Full Validation)

☐ Other

X EDD (Type)

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

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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9K-7-8	066	H ₂ O	1C-MM
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MW-51

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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H ₂ O	MW-31
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	H ₂ O	MW-51
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H ₂ O	MW-51
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			H ₂ O	MW-51	FI
			✓		

[illegible][illegible]

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Downloaded from <http://ajph.org/> on November 10, 2014

Year	United States (%)	Japan (%)	Germany (%)
1950	10	7	12
1960	11	8	13
1970	12	10	14
1980	13	13	15
1990	14	16	16
2000	14.5	18	17
2010	15	19	17.5
2020	15.2	20	18
2030	15.4	20	18
2040	15.5	20	18
2050	15.6	20	18

Date: _____
Time: _____
Reminquired by: _____

91-57-8	2071	1000
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Date: 1
Time: 1
Relinquished by: 1

8/27/16 2015 1/25 2015

If necessary, samples submitted to Hall Environmental

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: 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 flourish at the end.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

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: 1608D53-001A

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
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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: 1608D53-001A

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
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Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-40**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 8:30:00 AM**Lab ID:** 1608D53-001B**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
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Analytical Report

Lab 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: 1608D53-001C

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
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Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-40**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 8:30:00 AM**Lab ID:** 1608D53-001D**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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Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-40**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 8:30:00 AM**Lab ID:** 1608D53-001E**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
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Analytical Report

Lab 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: 1608D53-002A

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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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: 1608D53-002A

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
				Page 8 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:** 1608D53-002B**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****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:** 1608D53-002C**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**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:** 1608D53-002E**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
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Analytical Report

Lab Order: 1608D53

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

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:** 1608D53-003A**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 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: 1608D53-003A

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
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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: 1608D53-003B

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 Report

Lab 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
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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: 1608D53-003D

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
				Page 18 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 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
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Analytical Report

Lab 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 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
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Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****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:** 1608D53-004B**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 Report

Lab 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: 1608D53-004C

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
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

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:** 1608D53-004E**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	8/26/2016 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

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 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
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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
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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: 1608D53-005D

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.**Client Sample ID:** MW-44**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 12:30:00 PM**Lab ID:** 1608D53-005E**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	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
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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 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
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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: 1608D53-006B

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.**Client Sample ID:** MW-30**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 1:50:00 PM**Lab ID:** 1608D53-006C**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

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: 1608D53-006D

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

Analytical ReportLab Order: **1608D53****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **10/3/2016****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-30**Project:** Refinery Wells 8-23-16**Collection Date:** 8/23/2016 1:50:00 PM**Lab ID:** 1608D53-006E**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	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
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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
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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: 1608D53-007A

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 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.
Project: Refinery Wells 8-23-16
Lab ID: 1608D53-007B

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: 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 Report

Lab 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: 1608D53-007C

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

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: 1608D53-007D

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
				Page 41 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:** 1608D53-007E**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	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
				Page 42 of 67

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: 1608D53-008A

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
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Analytical Report

Lab 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: 1608D53-008A

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

Analytical ReportLab Order: **1608D53**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****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:** 1608D53-008B**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

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: 1608D53-008E

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

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: 1608D53-009A

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
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Analytical Report

Lab 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: 1608D53-009A

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.
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	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#: 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	
Mercury	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.
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	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 ics-1	SampType: ics			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 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			

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 ics-1	SampType: ics			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.
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-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	Ics-2		SampType: Ics		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:

LM 08/24/14

Logged By: Ashley Gallegos

8/24/2016 8:00:00 AM

AG

Completed By: Ashley Gallegos

8/24/2016 9:42:30 AM

AG

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 ☒ *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
(2 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 ^{HNO₃} to -001E, -002E, -003E, -004E, -007E, and -008E. Also added 2 mL HNO₃ to -006E for acceptable pH. 08/24/16 @ 1500

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			<i>jc</i>

[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
Received by: <u>Phil Ward</u> Date: <u>8/23/16 1630</u> Received by: <u>[Signature]</u> Date: <u>8/24/16 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: 8-23-2016								
Project #: Annual								
PO#12615520								
Project Manager:								
Sampler: Brian Christopher								
On Ice: ☒ Yes ☐ No								
Sample Temperature: 3.4								
HEAL No 1608D53								
-008								
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	Received by:	Date	Time
8/23	1045	H ₂ O	RW-18	6-VOA	HCl	<i>[Signature]</i>	8/23/16	1613
8/23	1045	H ₂ O	RW-18	1-500 ml Amber	Cool			
8/23	1045	H ₂ O	RW-18	1-500 ml	HNO ₃			
8/23	1045	H ₂ O	RW-18	1-500 ml				
8/23	1045	H ₂ O	RW-18	1-125 ml	H ₂ SO ₄			
8/23	1045	H ₂ O	RW-18	1-125 ml	HNO ₃			
			Trip Blank					
Date:	Time:	Relinquished by:				Received by:	Date	Time
8/23	1614	<i>Brian Christopher</i>				<i>[Signature]</i>	8/23/16	1613
Date:	Time:	Relinquished by:				Received by:	Date	Time
8/23/16	1630					<i>Not Walck</i>	8/23/16	1630

If necessary, samples submitted to Half 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.



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

Analysis Request

[illegible]

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

Good reaction in VAs, bubbles present.

8/23/2015 - 1/21/2016

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 flourish at the end.

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
				Page 1 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: 1608E80-001A

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
				Page 2 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: 1608E80-001B

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 Report

Lab 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: 1608E80-001C

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

Analytical ReportLab Order: **1608E80**Date Reported: **10/3/2016****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-53**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 10:25:00 AM**Lab ID:** 1608E80-001E**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
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Analytical Report

Lab Order: 1608E80

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-24-2016

Collection Date: 8/24/2016 10:25:00 AM

Lab ID: 1608E80-001F

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
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Analytical Report

Lab 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: 1608E80-002A

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
				Page 9 of 54

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: 1608E80-002A

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 Report

Lab 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: 1608E80-003A

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 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
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Analytical Report

Lab 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: 1608E80-003A

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
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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:** 1608E80-003B**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****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:** 1608E80-003C**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

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: 1608E80-003D

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
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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:** 1608E80-003E**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	8/31/2016 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
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Analytical Report

Lab 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
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 Report

Lab 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
				Page 18 of 54

Analytical Report

Lab 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: 1608E80-004A

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 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
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Analytical Report

Lab 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: 1608E80-004A

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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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: 1608E80-004B

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****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:** 1608E80-004C**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
				Page 22 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-67**Project:** RCRA Wells 8-24-2016**Collection Date:** 8/24/2016 9:50:00 AM**Lab ID:** 1608E80-004D**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

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: 1608E80-004E

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 10:05:25 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
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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: 1608E80-004F

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
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
				Page 26 of 54

Analytical Report

Lab Order: 1608E80

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/3/2016

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:** 1608E80-005A**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
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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 Report

Lab 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: 1608E80-005C

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
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

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: 1608E80-005E

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

Analytical Report

Lab 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: 1608E80-005F

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

Hall Environmental Analysis Laboratory, Inc.

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
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
				Page 34 of 54

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.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation 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	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.
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	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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation 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	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: 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	lcs-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	lcs-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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation 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-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.
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-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.
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	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	Ics-1		SampType: Ics		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	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: 1608E80

RcptNo: 1

Received by/date:

AG 08/25

Logged By: Lindsay Mangin

8/25/2016 8:00:00 AM

Judy Mangin

Completed By: Lindsay Mangin

8/25/2016 2:25:32 PM

Judy Mangin

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:

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	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 Wickv
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

Analysis Request		TPH (Method 418.1)	TPH 8015B (GRO / DRO / MRO)	BTEX + MTBE + TPH (Gas only)	BTEX + MTBE + TMB's (8021)
	BTEX + MTBE + TMB's (8021)				
	BTEX + MTBE + TPH (Gas only)		X		
	TPH (Method 418.1)				
	EDB (Method 504.1)				
	PAH (8310 or 8270SIMS)		X		
	RCRA 8 Metals Total				
	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)				
	8081 Pesticides / 8082 PCB's				
	8260B (VOA)	X			
	8270 (Semi-VOA)	X			
	DRO - 8015B		X		
	Dissolved Metals			X	
	General Chem. / Alk			X	
	Anions, CO ₂				X

Remarks: See Full Analyte List. 360
--

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						
Total Carbon Dioxide	1100	1.0	H	mg CO2/L	1	8/29/2016 9:03:20 PM
SM2320B: ALKALINITY						
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
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	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.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation 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-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#: 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.
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:	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.
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-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.

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-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	ics-1		SampType: ics		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	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: 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° 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			

8/24/1555
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.

Appendix C

BLOOMFIELD TERMINAL SUMPS - Inspection & Repair Schedule

Sump Number	Location	Type Material	Actual Inspection Date	Inspection results Pass/Fail
16	Sump @ S.W. Side Of Tk. 3	Concrete	Not in Service	N/A
17	Sump Between Tk. 3 & 4	Concrete	Not in Service	N/A
18	Sump Between Tk. 4 & 5	Concrete	Not in Service	N/A
19	Sump @ N.Side Of Tk. 5	Concrete	7/21/2016	Pass
20	Sump Between Tk. 11 & 12	Concrete	7/20/2016	Pass
21	Sump Between Tk. 13 & 14	Concrete	7/20/2016	Pass
22	Sump @ N. Side Of Tk. 17	Sump Removed	Not in Service	N/A
23	Sump @ N.E. Side Of Tk. 18	Concrete	7/20/2016	Pass
24	Sump @ N.E. Side Of Tk. 19	Concrete	7/21/2016	Pass
25	Sump @ S.W. Side Of Tk. 20	DW Steel	7/19/2016	Pass
26	Sump @ S. Side Of Tk. 23	Concrete	7/18/2016	Pass
27	Sump @ E. Side Of Tk. 24	DW Steel	7/18/2016	Pass
28	Sump @ E. Side Of Tk. 25	DW Steel	7/18/2016	Pass
29	Sump @ N.W. Side Of Tk. 26	Concrete	Not in Service	N/A
30	Sump @ S.E. Side Of Tk. 27	Concrete	Not in Service	N/A
31	Sump @ West Side Of Tk. 28	Concrete	7/18/2016	Pass
32	Sump @ N.E. Side Of Tk. 29	Concrete	Not in Service	N/A
33	Sump @ S.W. Side Of Tk. 30	Concrete	7/25/2016	Pass
34	Sump @ N.W. Side Of Tk. 31	Concrete	7/19/2016	Pass
35	Sump @ S.E. Side Of Tk. 31	Concrete	7/18/2016	Pass
36	Sump @ East Side Of Tk. 32	Concrete	7/19/2016	Pass
37	Sump @ N.E. Side Of Tk. 35	DW Steel	7/20/2016	Pass
38	Sump @ N.E. Side Of Tk. 36	DW Steel	7/19/2016	Pass
39	Sump @ S. Side Of Tk. 18	Concrete	7/21/2016	Pass
40	Sump @ S. Side Of Tk. 19	Concrete	7/21/2016	Pass
41	Sump @ S. Side Of Flare	Concrete	Not in Service	N/A
42	Sump @ N.W. Of Precipitator	Concrete	Not in Service	N/A

13.0 BLOOMFIELD TERMINAL UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
1	Effluent Wtr. Transfer Line	6	3250	Effluent Pond Outlet Pump P-616	Effluent Transfer P-671	D-500-800-031	PVC	2017	Jul-10	Pass	Hydrostatic	None	N/A
2	Effluent Wtr. Trans. Pump	6	908	North Evaporation Pond Outlet	Effluent Transfer Pump P-671	D-500-800-031	PVC	2019	Aug-14	Fail	Hydrostatic	Repairs/Maint Needed	N/A
3	Effluent Wtr. Pump Disch.	6	2797	Effluent Transfer P-671	Injection Well Building	D-500-800-031	PVC	2019	Aug-14	Pass	Hydrostatic	None	N/A
4	Injection Well Recir. Line	6	2512	Injection Well Building	North Evaporation Pond	D-500-800-031	PVC	2019	Aug-14	Pass	Hydrostatic	None	N/A
5	River Terrace Transfer Line	2	277	River Terrace Processing Skid	River Pump Building Water Basin	D-500-800-043	PVC	2017	Aug-11	Pass	Hydrostatic	None	N/A
6	Crude Transfer Line	10	215	Pipe Rack East Of LPG Stg Tks.	Pipe Rack Southwest of Tk. # 31	D-700-800-106 (F-2)	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
7	Steam Header at Terminals	6	215	Pipe Rack Southwest of Tk. # 31	Pipe Rack East Of LPG Stg Tks.	N/A	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
8	Condensate Return Header	4	215	Pipe Rack East Of LPG Stg Tks.	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
9	Premium Receipts to Tk 32/36	4	218	Pipe Rack East Of LPG Bullets	Pipe Rack Southwest of Tk. # 31	D-600-800-118 (H-17)	Carbon steel	2017	May-12	Pass	Hydrostatic	None	
10	ULSD Sales Line	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (D-2)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
11	Unleaded Gasoline Sales	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
12	Transmix Sales from Tk #30	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2017					
13	Subgrade receipts to tanks 13, 14	4	218	Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	D-600-800-118 (G-17)	Carbon steel	2017	Apr-12	Pass	Hydrostatic	None	
14	VRU Effluent	3	275	Pipe Rack Southwest of Tk. # 31	East of B-21	D-600-800-114 (D-1)	Carbon steel	2017	Aug-10	Pass	Hydrostatic	None	N/A
26	VRU Effluent	4	410	East of B-21	Manifold @ VRU Unit	D-700-800-106 (D-17)	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
15	VRU Return (Former Poly Feed Lines)	2		Area Northeast of B-21	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel	*Temporarily Out of Service					
16	LPG Rerun Line	2		Area Northeast of B-21	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel	*Temporarily Out of Service					
17	Saturate To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel	*Temporarily Out of Service					
18	C-4 To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel	*Temporarily Out of Service					
19	C-3 To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel	*Temporarily Out of Service					
20	Sour Naphtha sales From Tk. 23	8	534	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-3)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
21	Dyed Diesel Sales From Tk.18	6	534	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
22	Slop Line From Loading Rack	4	180	Gasoline Rack Sump	West of Terminal Office	N/A	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
23	ULSD/Naptha receipts	6	750	South West Of Tk.# 25	West of truck unload rack	D-600-800-118 (J-1)	Carbon steel	2017	Dec-12	Pass	Hydrostatic	None	N/A
24	blinded	8	392	Pipe Rack West Of Tk. # 36	Filter Pad Area North Of Loading Pad	D-700-800-100 (E-3)	Carbon steel	*Temporarily Out of Service					
25	Premium Sales from Tk. 32	6	392	Pipe Rack West Of Tk. # 36	Filter Pad Area North Of Loading Pad	D-700-800-100 (E-3)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
27	Naptha Feed To VRU Unit	4		Transfer Pump @ Tk. # 44	Manifold @ VRU Unit	NewTech 595-M-601	Carbon steel	*Temporarily Out of Service					
28	blinded	4		Manifold @ VRU Unit	Naptha Fill Line To Tk. # 44	NewTech 595-M-601	Carbon steel	*Temporarily Out of Service					
29	Off-Road Diesel To Bays #1 & 2	8	150	From F-706 Filter Piping	To Meter Spools @ Bays # 1&2	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
30	Off road diesel To Bay # 3	6	150	From F-706 Filter Piping	To Meter Spools @ Bays # 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A

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13.0 BLOOMFIELD TERMINAL UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
31	Premium Sales Line	10	150	From F-705 Filter Piping	To Meter Spools @ Bays # 1, 2 & 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
32	Unleaded Gasoline Sales Line	10	150	From F-704 Filter Piping	To Meter Spools @ Bays # 1, 2 & 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
33	ULSD To Bay # 4	8	150	From F-703 Filter Piping	To Meter Spool @ Bay # 4	D-700-800-100 (D-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
34	Ethanol Pump Suction Line	8	160	From Tk. # 45 Outlet Nozzle	To P-707 & P-707A Pump Suction	D-700-800-007	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
35	Ethanol Unloading Line	4	160	From P-706 Pump Discharge	To Tk. # 45 Inlet Nozzle	D-700-800-007	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
36	Naphtha Unloading Line	6		Suction Manifold @ P-607A	Unloading line @ Tk. #18 and 19	B-600-500-296	Carbon steel	*Temporarily Out of Service					
37	Naphtha Rundown To Tk. # 35	3		Line From North Pipe Rack Area	To Tk. # 35 Fill Nozzle	B-600-500-232	Carbon steel	*Temporarily Out of Service					
38	Naphtha Feed Line to Unit	4		From P-607A Pump Discharge	To North Pipe Rack Feed To Units	B-600-500-236	Carbon steel	*Temporarily Out of Service					
39	Cooling Water Supply Line	12		From # 1 Cooling Tower Pumps	To Rack Area @ Reformer Unit	D-500-500-011	Carbon steel	*Temporarily Out of Service					
40	Cooling Water Return Line	12		From Rack Area @ Reformer	To #1 Cooling Tower Water Inlet	D-500-500-011	Carbon steel	*Temporarily Out of Service					
41	Cooling Water Supply Line	20		From # 2 Cooling Tower Pumps	To S. End of FCC Unit @ Twr. 207 Area	D-201-500-123	Carbon steel	*Temporarily Out of Service					
42	Cooling Water Return Line	20		From South End of FCC Unit	To # 2 Cooling Tower Water Inlet	D-201-500-123	Carbon steel	*Temporarily Out of Service					
43	Sewer Transfer Line	10	54	From Main Sewer Box # 12	To Main Sewer Box # 11	D-500-500-402	Carbon steel	2017					
44	Sewer Transfer Line	10	46	From Main Sewer Box # 11	To Observation Access Can # 10	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
45	Sewer Transfer Line	12	33	From Observation Access Can #10	To Observation Access Can # 6	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
46	Sewer Transfer Line	12	73	From Observation Access Can # 6	To Main Sewer Box # 5	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
47	Sewer Transfer Line	14	69	From Main Sewer Box # 5	To Observation Access Can # 4	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
48	Sewer Transfer Line	14	86	From Observation Access Can # 4	To Main Sewer Box # 3	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
49	Sewer Transfer Line	12	62	From Main Sewer Box # 9	To main Sewer Box # 8	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
50	Sewer Transfer Line	12	66	From Main Sewer Box # 8	To Main Sewer Box # 7	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
51	Sewer Transfer Line	14	86	From Main Sewer Box # 7	To Main Sewer Box # 3	D-500-500-402	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
52	Sewer Transfer Line	14	145	From Main Sewer Box # 3	To Observation Access Can #2	D-500-500-402	Carbon steel	2017					
53	Sewer Transfer Line	14	100	From Observation Access Can #2	To Main Sewer Box # 1	D-500-500-402	Carbon steel	2017					
54	Sewer Transfer Line	12/10	56	From Main Sewer Box # 1	To Inlet @ API Separator	D-500-500-106	Carbon steel	2017					
55	Sewer Collection Manifold	8>4	56	Area East Side of # 4 Boiler	To North Side of Sewer Box # 12	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
56	Sewer Collection Manifold	10>4	164	Area @ & Around Crude Twr.	To North Side Of Sewer Box # 11	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
57	Sewer Collection Manifold	8>4	100	Area @ & Around E-106A & B	To Northwest Of Sewer Box # 10	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
58	Sewer Collection Manifold	6	10	Area @ V-101A Desalter	To East Side Of Sewer Box # 10	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A

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59	Sewer Collection Manifold	10>4	452	Area Thru Reformer Pump Row	To Observation Access Can # 6	D-500-500-098	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
60	Sewer Collection Manifold	10>4	316	Area Along East Side of Reformer	To Observation Access Can # 6	D-500-500-098	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
61	Sewer Collection Manifold	8>4	60	Area @ & Around V101 Desalter	To Observation Access Can #4	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
62	Sewer Collection Manifold	8>4	140	Area @ & Around T-101 Tower	To West Side Of Sewer Box # 9	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
63	Sewer Collection Manifold	8>4	104	Area @ & Around P101 Charge P.	To North Side Of Sewer Box # 9	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
64	Sewer Collection Manifold	8>4	88	Area @ & Around T-103 Tower	To Northwest Side Of Sewer Box # 8	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
65	Sewer Collection Manifold	8>4	92	Area @ & Around Heavy Oil Exch.	To North Side Of Sewer Box # 8	D-500-500-402	Carbon steel	2017	Jul-10	Pass	Hydrostatic	None	N/A
66	Sewer Collection Manifold	8>4	41	Area @ & Around Main Air Blower	To Northwest Side Of Sewer Box # 3	D-500-500-134	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
67	Sewer Collection Manifold	6>3	324	Area @ Burner Fuel Loading and Manifold	To Observation Access Can (Precipitator)	D-600-500-127	Carbon steel	2017					
68	Sewer Collection Manifold	4	141	Area Drains @ Air Building	To Sewer Transfer Line (Box # 11 to API)	D-500-500-160	Carbon steel	2017					
69	Sewer Collection Manifold	4	86	P-224 Pump & Cat Surface Drain	To Sewer Transfer Line From FCC	D-201-500-001	Carbon steel	2017	Jul-09	Pass	Hydrostatic	None	N/A
70	Sewer Collect./Transfer Line	6	896	Gas Con Unit Collection M.H.	To FCC Sewer Box Manhole # 13	D-201-500-001	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
71	Sewer Transfer Line	10	35	From FCC Sewer Box M.H. # 13	To FCC Sewer Box # 14 (Roadway)	D-201-500-001	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
72	Sewer Transfer Line	10	235	From FCC Sewer Box M.H. #14	To 20" Inlet @ API	D-500-500-106	Carbon steel	---	Cannot be Accessed				
73	Sewer Collection Manifold	6/4	335	Area @ & Around Gas Con. Unit	To Gas Con. Unit Sewer Collection	D-200-200-233	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
74	Sewer Transfer Line	10	159	From Treater Main Sewer Box # 16	To Sewer Box #15 - S.E. Of C-204	D-500-500-166	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
75	Sewer Transfer Line	10	162	Sewer Box #15 - S.E. Of C-204	To 20" Inlet @ API	D-500-500-105	Carbon steel	---	Cannot be Accessed				
76	Sewer Collection Manifold	10>4	411	Area In & Around Treater Unit	To Treater Sewer Box At South Side Of Unit	D-500-500-122	Carbon steel	2017	Aug-11	Pass	Hydrostatic	None	N/A
77	Sewer Collection Manifold	6>2		Area In & Around Poly Unit	To Inlet Bay @ API	D-500-500-126	Carbon steel	out of service	May-09	Pass	Hydrostatic	None	N/A
78	Sewer Transfer Line	10	130	From Sewer Box # 17 @ DHT Unit	To Sewer Box # 18 @ S.E. Corner of Poly	D-500-500-097	Carbon steel	2017	Aug-11	Pass	Replaced with Stainless Steel Piping	None	N/A
79	Sewer Transfer Line	12	35	From Sewer Box # 18	To Inlet Manifold @ API Basin Area		Carbon steel	---	Cannot be Accessed				
80	Sewer Collection Manifold	10>4	635	Area In & Around DHT/Larox Unit	To Sewer Box # 18 @ S.E. Corner of DHT		Carbon steel	2017	Aug-11	Pass	Hydrotest	None	N/A
81	Crude Transfer Line	12	99	Pipe Rack East Of LPG Stg Tks.	Pipe Rack South of Crude Unloading Bays	D-000-900-023	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
82	Crude Transfer Line	12	194	Pipe Rack South of Crude Unloading Bays	Berm South of Tank #43	D-000-900-023	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
83	Sewer Transfer Line	4	822	Discharge at Tk #37	Valve box at corner Northeast of DHT	AMEC 6/7	Carbon Steel/PVC	2017	Jun-10	Pass	Hydrostatic	None	N/A
84	Sales Line from Tk #3 & 4	8	300	Area West of API Separator	DHT Option City		Carbon Steel	*Temporarily Out of Service					
85	Diesel Receipts (truck)	6	25	Roadway SW of Tk #17	Piperack btwn Tk #34 and Tk #25	D-800-600-104(F-1)	Carbon Steel	2017	Jun-10	Pass	Hydrotest	None	N/A
86	Premium/Unleaded Receipts	6	25	Roadway SW of Tk #17	Piperack btwn Tk #24 and Tk #25	D-600-800-099 D-600-800-113	Carbon Steel	2017	Jun-10	Pass	Hydrotest	None	N/A
87	Groundwater Recovery Transfer Line	3	970	Tk #38	Slop Line NE of Tk #31	D-600-800-121	Carbon Steel	2017	Aug-10	Pass	Hydrotest	None	N/A
88	Injection Well Transfer	4	45	Injection Well Building	Downhole Injection Well	D-500-800-031	Carbon Steel	2017	Oct-10	Pass	Hydrotest	None	N/A

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Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
89	VRU Return to Tanks 13 and 14	3	32	Pipe Bridge South of Tanks 13 and 14	Exits inside South Wall of Containment Berm	B-600-500-532	Carbon Steel	2017	Jan-11	Pass	Hydrostatic	None	N/A
90	Tie-in Tank 11 Crude to LACT	6	116	Pipe Bridge North of LACT Unit	10 ft East of Tie-in to LACT Unit	B-600-500-561	Carbon Steel	2017	Dec-11	Pass	Hydrostatic	None	N/A
91	Crude to Tank 11	6	34	Under Pipe Rack South of Tank 11	Exits Berm South of Tank 11	B-600-500-558	Carbon Steel	2017	11-Nov	Pass	Hydrostatic	None	N/A

Appendix D

I. Hazardous Waste								
Pick-up Date	Manifest #	Description	Containers		Quantity	Destination	Treatment	Cert. of Disposal/Consumption
			No.	Type				
1/12/2016	009574443	UN1993, Waste Flammable Liquids, N.O.S., (Benzene), 3, PG III, (Crude Oil Contaminated Soil) (RQ D001) (Tank 31 Spill)	2	DM	880 P	Clean Harbors Deer Park, LLC, 2027 Independence Parkway South La Porte, TX 77571	H040- Incineration	X
		UN1993, Waste Flammable Liquids, N.O.S., (Benzene), 3, PG III, (RQ D018) (BLM Vac Truck)	10	DM	4500 P			
		NA3077, Hazardous Waste, Solid, N.O.S., (Benzene), 9, PG III (RQ D001, D018) (Pipeline Waste)	8	DM	5800 P			
		NA3082 Hazardous Waste Liquid, N.O.S., (Gasoline Tank Bottoms w Benzene), 9 PG III (RQ D018) (Tank 14)	3	DM	1600 P			
3/18/2016	008217833	UN1993, Waste Flammable Liquids, N.O.S., (Crude, Benzene), 3, PG II, (RQ D001=100LBS) (Tk-35 Cleanout)	5	DM	260 G	Clean Harbors Aragonite LLC 11600 N Aftus Road Aragonite, UT 84029		X
6/24/2016	009451563	NA3082 Hazardous Waste Liquid, N.O.S., (Benzene, Lead), 9 PG III	6	DM	4585 P	Clean Harbors Aragonite LLC 11600 N Aftus Road Aragonite, UT 84029		X
6/24/2016	009451564	UN3190 Waste Self-Heating Solid, Inorganic, N.O.S. (Alumina, Nickel) 4.2 PGII RQ(D003=100LBS) (Unicat - NSR - 116 Catalyst)	2	DM	340 P	21st Centruy Envir. Mgmt. of Nevada, LLC 2095 Newlands Dr. E Fernley, NV 89468		X
		UN1993, Waste Flammable Liquids, N.O.S., (LABPACK), 3, PG II	1	DF	18 P			
		UN3264 Waste Corrosive Liquid, Acidic, Inorganic, N.O.S. (Labpack) 8 PGII	1	DF	11 P			
9/12/2016	005037080	RQ, NA3077, Waste Environmentally Hazardous Substances, Solid, N.O.S., (Benzene), 9, PG III	4	DM	2800 P	Clean Harbors Arizona, LLC TSDF 1340 West Lincoln Street Phoenix, AZ 85007		X

P = Pounds

CY = Cubic Yard Box

DF = Plastic drum

CF = Fiber board yard box

DM = Drum

G = Gallons