GW - 001

2 of 3

GW REMEDIATION & MONITORING REPORT

2014

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408B57**

24-Sep-14

Client: Western Refining Southwest, Inc.

Project: Downgradient Wells 8-21-14

Sample ID Ics-14928	SampT	ype: LC	s	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Client ID: LCSW	Batch	1D: 14 9	928	F	lunNo: 20	0778				
Prep Date: 8/25/2014	Analysis D	ate: 8/	25/2014	S	eqNo: 60	04654	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	89	10	100.0	0	89.2	50.3	109			
4-Chloro-3-methylphenol	200	10	200.0	0	101	51.2	113			
2-Chlorophenol	190	10	200.0	0	97.1	48.5	104			
1,4-Dichlorobenzene	79	10	100.0	0	79.2	39.5	106			
2,4-Dinitrotoluene	83	10	100.0	0	83.2	45.4	107			
N-Nitrosodi-n-propylamine	93	10	100.0	0	93.3	50.4	119			
4-Nitrophenol	120	10	200.0	0	59.6	15.5	62.2			
Pentachlorophenol	150	20	200.0	0	73.0	23.5	93.5			
Phenol	120	10	200.0	0	59.2	26.8	65.6			
Pyrene	93	10	100.0	0	92.6	54.4	108			
1,2,4-Trichlorobenzene	82	10	100.0	0	82.0	39.9	106			
Surr: 2-Fluorophenol	150		200.0		74.7	12.1	85.8			
Surr: Phenol-d5	110		200.0		53.8	17.7	65.8			
Surr: 2,4,6-Tribromophenol	140		200.0		71.4	26	138			
Surr: Nitrobenzene-d5	100		100.0		104	47.5	119			
Surr: 2-Fluorobiphenyl	100		100.0		101	48.1	106			
Surr: 4-Terphenyl-d14	97		100.0		97.4	44	113			

SampT	ype: LC	SD	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Batch	1D: 14 9	928	F	RunNo: 2	0778				
Analysis D	ate: 8/	25/2014	S	SeqNo: 6	04958	Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
100	10	100.0	0	104	50.3	109	15.4	27.2	
220	10	200.0	0	110	51.2	113	8.80	25.9	
160	10	200.0	0	78.7	48.5	104	21.0	22.5	
87	10	100.0	0	87.2	39.5	106	9.59	24.6	
110	10	100.0	0	111	45.4	107	28.6	25.3	RS
100	10	100.0	0	104	50.4	119	11.3	23.6	
71	10	200.0	0	35.6	15.5	62.2	50.5	34.7	R
89	20	200.0	0	44.6	23.5	93.5	48.3	32.8	R
110	10	200.0	0	56.9	26.8	65.6	3.96	25.5	
120	10	100.0	0	125	54.4	108	29.6	31.4	S
87	10	100.0	0	86.8	39.9	106	5.71	25.9	
92		200.0		46.2	12.1	85.8	0	0	
110		200.0		53.0	17.7	65.8	0	0	
100		200.0		52.2	26	138	0	0	
110		100.0		108	47.5	119	0	0	
110		100.0		112	48.1	106	0	0	S
	Batch Analysis D Result 100 220 160 87 110 100 71 89 110 120 87 92 110 100 110	Batch ID: 148 Analysis Date: 8/ Result PQL 100 10 220 10 160 10 87 10 110 10 100 10 71 10 89 20 110 10 120 10 87 10 120 10 87 10 120 10 100 110 100 110 100 110 100 110 100	100 10 100.0 220 10 200.0 160 10 200.0 87 10 100.0 110 10 100.0 100 10 100.0 71 10 200.0 89 20 200.0 110 10 200.0 87 10 100.0 92 200.0 110 200.0 100 200.0 110 100.0	Batch ID: 14928 FR Analysis Date: 8/25/2014 SPK value SPK Ref Val Result 100 PQL 100.0 SPK value 00.0 SPK Ref Val 100 10 200.0 0 220 10 200.0 0 87 10 100.0 0 110 10 100.0 0 110 10 100.0 0 89 20 200.0 0 110 10 200.0 0 110 10 200.0 0 87 10 100.0 0 92 200.0 0 110 200.0 0 110 200.0 0 110 200.0 0 110 200.0 0 110 200.0 0 110 200.0 0	Batch ID: 14928 RunNo: 21 Analysis Date: 8/25/2014 SeqNo: 6 Result PQL SPK value SPK Ref Val %REC 100 10 100.0 0 104 220 10 200.0 0 110 160 10 200.0 0 78.7 87 10 100.0 0 87.2 110 10 100.0 0 111 100 10 100.0 0 104 71 10 200.0 0 35.6 89 20 200.0 0 44.6 110 10 200.0 0 56.9 120 10 100.0 0 86.8 92 200.0 0 86.8 92 200.0 0 53.0 100 200.0 53.0 100 200.0 52.2 110 100.0 52.2 110 100.0 52.2	Batch ID: 14928 RunNo: 20778 Analysis Date: 8/25/2014 SeqNo: 604958 Result PQL SPK value SPK Ref Val %REC LowLimit 100 10 100.0 0 104 50.3 220 10 200.0 0 110 51.2 160 10 200.0 0 78.7 48.5 87 10 100.0 0 87.2 39.5 110 10 100.0 0 111 45.4 100 10 100.0 0 104 50.4 71 10 200.0 0 35.6 15.5 89 20 200.0 0 44.6 23.5 110 10 200.0 0 56.9 26.8 120 10 100.0 0 86.8 39.9 92 200.0 0 86.8 39.9 92 200.0 53.0 17.7 100	Batch ID: 14928 RunNo: 20778 Analysis Date: 8/25/2014 SeqNo: 604958 Units: μg/L Result PQL SPK value SPK Ref Val MREC LowLimit HighLimit 100 10 100.0 0 104 50.3 109 220 10 200.0 0 110 51.2 113 160 10 200.0 0 78.7 48.5 104 87 10 100.0 0 87.2 39.5 106 110 10 100.0 0 111 45.4 107 100 10 100.0 0 104 50.4 119 71 10 200.0 0 35.6 15.5 62.2 89 20 200.0 0 44.6 23.5 93.5 110 10 200.0 0 56.9 26.8 65.6 120 10 100.0 0 86.8	Batch ID: 14928 RunNo: 20778 Analysis Date: 8/25/2014 SeqNo: 604958 Units: μg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 100 10 100.0 0 104 50.3 109 15.4 220 10 200.0 0 110 51.2 113 8.80 160 10 200.0 0 78.7 48.5 104 21.0 87 10 100.0 0 87.2 39.5 106 9.59 110 10 100.0 0 11 45.4 107 28.6 100 10 100.0 0 104 50.4 119 11.3 71 10 200.0 0 35.6 15.5 62.2 50.5 89 20 200.0 0 44.6 23.5 93.5 48.3 110 10	Batch ID: 14928 RunNo: 20778 Analysis Date: 8/25/2014 SeqNo: 604958 Units: µg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 100 10 100.0 0 104 50.3 109 15.4 27.2 220 10 200.0 0 110 51.2 113 8.80 25.9 160 10 200.0 0 78.7 48.5 104 21.0 22.5 87 10 100.0 0 87.2 39.5 106 9.59 24.6 110 10 100.0 0 111 45.4 107 28.6 25.3 100 10 100.0 0 104 50.4 119 11.3 23.6 71 10 200.0 0 35.6 15.5 62.2 50.5 34.7 89 20 200.0

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Surr: 4-Terphenyl-d14

Hall Environmental Analysis Laboratory, Inc.

110

WO#: **1408B57**

24-Sep-14

Client: Western Refining Southwest, Inc.

Project: Downgradient Wells 8-21-14

Sample ID Icsd-14928 SampType: LCSD TestCode: EPA Method 8270C: Semivolatiles

Client ID: LCSS02 Batch ID: 14928 RunNo: 20778

Prep Date: **8/25/2014** Analysis Date: **8/25/2014** SeqNo: **604958** Units: **µg/L**

100.0

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

110

113

0

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408B57**

24-Sep-14

Client: Project:	Western Refining Southwest, Inc. Downgradient Wells 8-21-14
Sample ID mb-1	SampType: MBLK TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R20804 RunNo: 20804
Prep Date:	Analysis Date: 8/25/2014 SeqNo: 605425 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	O3) ND 20
Sample ID Ics-1	SampType: LCS TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R20804 RunNo: 20804
Prep Date:	Analysis Date: 8/25/2014 SeqNo: 605426 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) 80 20 80.00 0 99.7 90 110
Sample ID mb-2	SampType: MBLK TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R20804 RunNo: 20804
Prep Date:	Analysis Date: 8/25/2014 SeqNo: 605442 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	(O3) ND 20
Sample ID Ics-2	SampType: LCS TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R20804 RunNo: 20804
Prep Date:	Analysis Date: 8/25/2014 SeqNo: 605443 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	(03) 80 20 80.00 0 100 90 110

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408B57**

24-Sep-14

Client: Western Refining Southwest, Inc.

Project: Downgradient Wells 8-21-14

Sample ID MB-14958 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 14958 RunNo: 20839

Prep Date: 8/26/2014 Analysis Date: 8/27/2014 SeqNo: 606511 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-14958 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 14958 RunNo: 20839

Prep Date: 8/26/2014 Analysis Date: 8/27/2014 SeqNo: 606512 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1010 20.0 1000 0 101 80 120

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE

Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name:	Western Refining Southw	Work Order Number	: 1408E	357			RcptNo:	1
Received by/dat	e: (08/22/14					·	
Logged By:	Lindsay Mangin	8/22/2014 7:00:00 AM			Jimsky 4.	lange		
Completed By:	Lindsay Mangin	8/22/2014 7:23:49 AM	I		Smeky 4.	Harry		
Reviewed By:	To	08/22/14						
Chain of Cus		<i>('''</i>						
1 Custody sea	als intact on sample bottles?		Yes		No		Not Present 🗸	
2. Is Chain of C	Custody complete?		Yes	v	No		Not Present	
3. How was the	e sample delivered?		Cour	ier				
Log In								
4. Was an atte	empt made to cool the sample	s?	Yes	v	No		NA	
5. Were all sai	mples received at a temperatu	re of >0° C to 6.0°C	Yes	√ :	No		NA	
6. Sample(s) i	in proper container(s)?		Yes	v	No			
7. Sufficient sa	ample volume for indicated tes	t(s)?	Yes	V	No			
	s (except VOA and ONG) prop		Yes		No			
į	vative added to bottles?		Yes		No	•	NA	
10.VOA vials h	ave zero headspace?		Yes	v	No	: 1	No VOA Vials	
	sample containers received bro	oken?	Yes	·	No	V		
							# of preserved bottles checked	.0
· · · · · · · · · · · · · · · · · · ·	work match bottle labels? epancies on chain of custody)		Yes	~	No		for pH:	or >12 unless noted)
:	es correctly identified on Chain	of Custody?	Yes	~	No		Adjusted?	No
: = :	hat analyses were requested?		Yes		No			
15. Were all ho	Iding times able to be met? / customer for authorization.)		Yes	~	No		Checked by:	m
Special Hand	dling (if applicable)	•						
16. Was client	notified of all discrepancies wi	th this order?	Yes		No		NA 🗸	
Perso	on Notified:	Date:						
By W	hom:	Via:	eM	ail	Phone	Fax	In Person	
Rega	rding:							
Client	t Instructions:							
17. Additional	remarks:							
18. <u>Cooler Inf</u>	ormation							
Cooler I		Seal Intact Seal No	Seal D	ate	Signed	Ву		
: [¹	1.8 Good '	Yes			1			

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			1		Project Name						www.hallenvironmental.com	allen	ironn	ental.	Com				
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Bloo	m.f.ie	18, NI	Bloom field, NM 874/3		Project #:			•	[el. 5)5-34	Tel. 505-345-3975		Fax 5	Fax 505-345-4107	5-41	07			
Phone #:	# 50	5-6	505-632-4135									Anal	ysis F	Analysis Request	st				
email or Fax#:	Fax#:				Project Manager:	ger:							(_þ O	- ,				4	₹0
JA/QC F	JA/QC Package:										(5			SBIS		4		ָיחיִ	ر' ر
Standard Standard	dard		KLevel 4 (Full Validation)			•					VVIS)d 2		اک ِ	A).	\ ∀ 7	<u> </u>
Accreditation	tation	2			Sampler: Both MAN	かんな	1 1			(1.				808				IIA	<u>~~</u> (Ν:
NELAP	1 H				On Ice:	XXes	o(N_⊡_			311				/ S				•~	30
☐ EDD (Type)	(Type)		į		Sample Temp	erature:	2			p pc								Mo	人) へつい
Date	Time	Matrix	Sample Request ID	st ID	Container Type and #	Preservative Type	HEAL NO.	BTEX + MT	86108 H9T	TPH (Metho	EDB (Metho	PAH's (831	O,∃) anoinA	8081 Pestio	(OV) 80828 imə2) 0728	DED EX	lessiq	Gon, Ch	کویر, ک Air Bubbles
4-12	11:00	1120	NW-39		5-UOA	HC1	100-	-						-		·		-	<u> </u>
					1-500	amber	-									X			
					1-500	HNO3						\times							
		-		न्स ्र	1-250	HN03											火.		
					1-500	/												又	
					1-250	42504													
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)ate: 	Time:	Relinquished by:	hed by:		Received by:	*	Date Time												
	necessary,	samples subi	킨음	ray be subco	intracted to other ac	credited laboratorie	his serves as notice of t	/ I his possibility. Any sub-contracted data will be clearly notated on the analytical report	Any s	ub-contr	acted da	ta will b	e clearly	notated	on the	analvfii	isal repo	ا پ	

Record	I urn-Around					H	A	<u>п</u>	ENVIRONMENTA	RO.	Z	7		AL	
Western Ketining	Standard	□ Rush				₹	Ş	ANALYSIS LABORATOR	IS	5	80	2	5	X	
	Project Name					*	ww.h	www.hallenvironmental.com	ronme	ental.c	ШO				
Walling Address 井5o CR 4990	Downgr	gradient wells	ells 8-21-14	4	301 H	4901 Hawkins NE	NE 8	- Albı	Albuquerque, NM 87109	de, №	1M 87	7109			
	Project #.			_	el. 50	Tel. 505-345-3975	-3975		Fax 505-345-4107	5-34	5-410	_			
Phone #: 505-631-4135						·		Analysis Request	sis R	sanbe	st.		-		
-ax#:	Project Manager:	jer:											ک	石	F/2
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☐ Standard XLevel 4 (Full Validation)							WIS					5.5	P	[0]	/
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□ NELAP □ Other										2 / S	(A(P	·~	<u>م، (</u>
□ EDD (Type)	Sample Temp	erature: 📭											2/1	70	人) ~ 。
Date Time Matrix Sample Request ID	Container Type and #	Preservative Type	HEAL NO.	TM + X3T8	86108 H9T	odteM) H9T	EDB (Metho	RCRA 8 Me	D,∃) anoinA	8081 Pestic	imə2) 0728	DED EX	025ia	Gen. Ch	Air Bubbles
-21-14 11:30 HzO MW-38	5-WA	Hc.(-002		1	1		-	_	<u> </u>	 	,			_
	1-liter	amber									×				
	1-500	auber										×			
	1-500	HNO3						×							
- tilter	1-250	#W03											×		
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	1-250	H2504		i											\checkmark
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-31-14 HO 1 Color Frakon	1 Chrh.	a th	8/21/14 /4HB												
Date: Time: Relinquished by:	Received by:	N	Date Time												
s séldules '	contracted to other ac	100	s serves as	possibility	. Any s	ab-contra	cted da	a will be	clearly	notated	on the	analytic	al repoi	ا ا	

MAIL ENVIDONMENTAL	ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request	(**) (/*) (/*)	CB, &	S) H (C)	4 TPH (1.81) (1.40) (1.	BE-GE-COP-NO OF SIGN A-SIGN A-	TH + SOTE TPH 8015B TPH (Methor TPH (Methor TPH) (Methor TPH) (831b TPH) (831b TPH) (831b TPH) (831b TPH) (831b TPH) (801b TPH) (801b) TPH) (801b)	×	×	×	×	X					Time Remarks:	D 22	2
Lurn-Around Time:	Standard 🗆 Rush	Project Name:	Downgradien (1) 1/19 8-21-14	oject#:		Project Manager:		4	Sampler: 1306 + MeVI	ure: 🗀 认	Container Preservative HEAL No.	5-10A HCI -(7)	-/iter amber	-500 amber	1-500 HVO3		1-500	1-350 H2504			Received by: Date T	Received by: 0 Date T	
Chain-of-Custody Record	Slient: Western Refining	-	Walling Address # 56 CR 4990	Bloomfield NM 874/3	Phone #: 505-632-4/35	-ax#:	in	KLevel 4 (Full Validation)	Accreditation S	(ed/y	Matrix Sample Request ID	21-12 NW-12				Lilter	-				Date: Time: Relinguished by/	Time: Relinquished by:	inite. reguldusited by.

Project Name: Project Name	Chain-of-Custody Record	Turn-Around Time: Standard □ Rush	HALL ENVIRONMENTAL ANALYSIS LABORATORY
### Analysis Request #### Analysis Request ###################################	Projec	Project Name:	www.hallenvironmental.com
Tel. 503.345-3975 Tel. 503.3975 Tel.	Down	8	- 1
## ## ## ## ## ## ## ## ## ## ## ## ##	Project #		
## ## ## ## ## ## ## ## ## ## ## ## ##			
## ## ## ## ## ## ## ## ## ## ## ## ##	Project Manager:	anager:	(\$OO\$)
Preservative: Preservative			SMISSON S
Preservative: Type Typ	Sampler	1254 MATT	280° 20° 11° 11° 11° 11° 11° 11° 11° 11° 11° 1
##SO's Preservative Preservative		No.	1T + 1
# Treservative # Type Water # HEAL No # HEAL No # HOS # HEAL No # HOS # A Sensor # Hos # Hos	Sample Temp	empérature:	BE (GI)
## ## ## ## ## ## ## ## ## ## ## ## ##	Container Type and #	Preservative Type	TEX + MT PH 8015B PH (Method DB (Method AH's (831 PH 8 ARD D18 ARD D18 (VO) D18 ARD D18 ARD D1
HNO3 HNO3 HNO3 HNO3 HNO3 HSO4 HCL -COS X HCL	5-16A	He./	1 X X X X X X X X X X X X X X X X X X X
HWO3 HWO3 HWO3 HWO3 HLCL -COS X HCL -COS X Belle Time Remarks: Date Time Remarks:	1- 11ter	L	×
HVO3 HVO3 H4504 HCL -CO5 HCL -CO5 AU Bate Time Date Time Date Time Date Time	1-500		×
#4504 #5504 #CL -CD5 X #CL Date Time Remains	1-500	HNO	×
#504 #CL -005 X #CL -005 X Date Time Rema	1-250		X
#504 — CDS X #CL — CDS X #CL — CDS X #CL	1-500		X
#CL —CD5 X Date Time Rems	1-250		X
Date Time Rema	3-104		×
Date Time Rema 8/21/14 1440 Date Time NS har Lut (1347)	į		
	-		
8/21 /14 /14/0 Date Time Rema			
	Received by	1 8/21/14	Remarks: Trip Blank -008
	Received by		

## 1903 The Part of the Part	Standard Silent: Western Refining Project Name Hailing Address: #50 CR 4990 down graff Rangel N.M. 874/3 Project #9
## 1	4
#WO3 WO3	ार्जुक्त शंबाबधुक्तः
Paris Inne Paris (Sept.) Paris Inne Paris (Sept.) Paris Inne Paris (Sept.)	Sampler: 78 b
Type The Remarks: Part Type The Remarks: Part Type	Sample Temperature:
## ## ## ## ## ## ## ## ## ## ## ## ##	Container Type and #
#WO3 #WO3 #WO3 #WO3 #WO3 #WO3 #WO3 #WO3	5-VOA
#WO3 #WO3 #WO3 #WO3 #WO3 #WO3 #WO3 #WO3	1-500
#W03 #CL -COT X X X X X X X X X X X X X X X X X X X	1-500
4504 HV03 HV03 HV03 HV03 HV03 HV03 HV03 HV03	1-350
4504 2 ber 4003 4003 4003 4003 6504 6504 6602	1-500
12 Soy Date Time Remarks:	1-250
4003 4003 4003 45564 Date Time Remarks: LE 8/21/14 1440 Date Time	5-VOA
4003 4003 42564 Date Time 14 8/21/4 1490 Date Time	1-500
4003 4564 Date Time PL 8/21/4 1440 Date Time Date Time	1-500
12564 Date Time Park 1440 Park Time Del 22 K MAR	1-250
12564 Date Time Plat 1440	1-500
Date Time S/21/M 1440 Date Time Dat	1-350
16 "12/M Ob/22/4 M	Received by:
TZ K C	24 A
	Received big:

TABLE 2 Analytical Methods and Target Analytes

VOCs	(EPA Method 8260B) (1)
- Targe	et List
В	l'enzene
T	oluene
E	thylbenzene
X	ylenes
M	lethyl tert butyl ether (MTBE)
SVOC	s - (EPA Method 8270)
-]	Method List
TPH-G	RO (EPA Method 8015B)
	Gasoline Range Organics
	RO (EPA Method 8015B)
- I	Diesel Range Organics
	Motor Oil Range Organics
Total C	arbon Dioxide (Laboratory Calculated)
	Dissolved CO2
pecific	Conductivity (EPA Method 120.1 or field measurement)
	pecific conductance
TDS (E	PA Method 160.1 or field measurement)
	otal dissolved solids
Jeneral	Chemistry - Anions (EPA Method 300.0)
Fh	ioride
Ch.	loride
Bro	omide
Nit	rogen, Nitrite (as N)
Nit	rogen, Nitrate (as N)
Pho	osphorous, Orthophosphate (As P)
Su <u>l</u>	fate
eneral	Chemistry - Alkalinity (EPA Method 310.1)
Alk	alinity, Total
Car	bonate
Bice	arbonate

Total Recoverable Metals (E	FA INTERNOO OUTUB/7470)
- Target List (not applicable to	River Terrace Sampling Events)
Arsenic	Lead
Barium	Mercury
Cadmium	Selenium
Chromium	Silver
Target List (for River Terrace	Sampling Events Only)
Lead	
Mercury (DW-1 ON	'LY)
	· .
Dissolved Metals (EPA Metho	d 6010B / 7470)
Target List (for Refinery Con	plex, 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

NOTES:

- 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 Piezomenter Wells only, per the River Terrace Bioventing System Monitoring Plan.

TABLE 2 Analytical Methods and Target Analytes

- 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 Conductivity (EPA Method 120.1 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		VOCs (EPA Method 8260B) (1)
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 - 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		- Target List
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 - Motor Oil Range Organics Total Carbon Dioxide (Laboratory Calculated) - Dissolved CO2 Specific Conductivity (EPA Method 120.1 or field measurement) - Specific conductatory - 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		Benzene
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 - 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		Toluene
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 - 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, Nitrate (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total		Ethylbenzene
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 - 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, Nitrate (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total		Xylenes
- Method List TPH-GRO (EPA Method 8015B) - Gasoline Range Organics TPH-DRO (EPA Method 8015B) - Diesel Range Organics - Motor Oil 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		Methyl tert butyl ether (MTBE)
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, Nitrate (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total		SVOCs - (EPA Method 8270)
- Gasoline Range Organics - TPH-DRO (EPA Method 8015B) - Diesel Range Organics - Motor Oil 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		
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		
- 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		
- 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		
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		
- 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		
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	-	
- 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	-	
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	_	
- 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	_	
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		
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	-	
Chloride Bromide Nitrogen, Nitrite (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total		
Bromide Nitrogen, Nitrite (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total		- 1771
Nitrogen, Nitrite (as N) Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total	-11	• • • • • • • • • • • • • • • • • • • •
Nitrogen, Nitrate (as N) Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total	Ш	Bromide
Phosphorous, Orthophosphate (As P) Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total	П	j , , ,
Sulfate General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total	П	Nitrogen, Nitrate (as N)
General Chemistry - Alkalinity (EPA Method 310.1) Alkalinity, Total	Ш	Phosphorous, Orthophosphate (As P)
Alkalinity, Total	Ч	
11		
[Chousts	٦ſ	Alkalinity, Total
Caroonale	П	Carbonate
Bicarbonate	4	Bicarbonate

Target Liet (met emilial)	(EPA Method 6010B/7470)
- ranger List (not applicable	to River Terrace Sampling Events
Arsenic	Lead
Barium	Mercury
Cadmium	Selenium
Chromium	Silver
Target List (for River Terra	ace Sampling Events Only)
Lead	, g=:smb omy;
Mercury (DW-1	ONLY)
	·
Dissolved Metals (EPA Me	thod 6010B / 7470)
Target List (for Refinery C	omplex, Outfalls, and River)
-Arsenic	Manganese
← Barium	- Mercury
- Cadmium	- Potassium
~ Calcium	- Selenium
└ Chromium	- Silver
~ Copper	****
- Iron	Sodium
	- Uranium
	~ Zinc
LeadMagnesium	ZINC

TPH = total petroleum hydrocarbons GRO = gasoline range organics VOCs = volatile organic compounds DRO = diesel range organics TDS = total dissolved solids

NOTES:

- 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 Piezomenter Wells only, per the River Terrace Bioventing System Monitoring Plan.



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

September 09, 2014

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

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

RE: RCRA Wells 8-19-14 OrderNo.: 1408A13

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 14 sample(s) on 8/20/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 8:40:00 AM

 Lab ID:
 1408A13-001
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/20/2014 10:25:15 PM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/20/2014 10:25:15 PM	14873
Surr: DNOP	109	75.2-161	%REC	1	8/20/2014 10:25:15 PM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/21/2014 6:18:12 PM	R20730
Surr: BFB	97.5	70.9-130	%REC	1	8/21/2014 6:18:12 PM	R20730
EPA METHOD 300.0: ANIONS					Analyst	: LGP
Fluoride	0.54	0.10	mg/L	1	8/20/2014 4:17:06 PM	R20712
Chloride	15	0.50	mg/L	1	8/20/2014 4:17:06 PM	R20712
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/20/2014 4:17:06 PM	R20712
Bromide	0.12	0.10	mg/L	1	8/20/2014 4:17:06 PM	R20712
Nitrogen, Nitrate (As N)	1.4	0.10	mg/L	1	8/20/2014 4:17:06 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 4:17:06 PM	R20712
Sulfate	76	10	mg/L	20	8/20/2014 4:29:30 PM	R20712
EPA METHOD 7470: MERCURY					Analyst	MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:34:02 PM	14900
EPA METHOD 6010B: DISSOLVED M	IETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:54:24 AM	R20721
Barium	0.056	0.020	mg/L	1	8/21/2014 11:54:24 AM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:54:24 AM	R20721
Calcium	76	1.0	mg/L	1	8/21/2014 11:54:24 AM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:54:24 AM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 11:54:24 AM	R20721
Iron	ND	0.020	mg/L	1	8/21/2014 11:54:24 AM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 11:54:24 AM	R20721
Magnesium	15	1.0	mg/L	1	8/21/2014 11:54:24 AM	R20721
Manganese	1.2	0.010	mg/L	5	8/21/2014 12:32:41 PM	R20721
Potassium	1.9	1.0	mg/L	1	8/21/2014 11:54:24 AM	R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 11:54:24 AM	R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 11:54:24 AM	R20721
Sodium	55	1.0	mg/L	1	8/21/2014 11:54:24 AM	R20721
Uranium	ND	0.10	mg/L	1	8/21/2014 11:54:24 AM	R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 11:54:24 AM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:23:25 AM	14876
Barium	0.095	0.020	mg/L	1	8/21/2014 11:23:25 AM	14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:23:25 AM	14876

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 1 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 8:40:00 AM Lab ID: 1408A13-001 Matrix: AQUEOUS Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABI	LE METALS				Analys	st: ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:23:25 Al	VI 14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:23:25 Al	VI 14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:23:25 AI	M 14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:23:25 Al	M 14876
EPA METHOD 8270C: SEMIVOLAT	TILES				Analys	st: DAM
Acenaphthene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Acenaphthylene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Aniline	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Anthracene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Azobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzoic acid	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Carbazole	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Chrysene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Dibenzofuran	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P
- Page 2 of 94 Sample pH greater than 2.
- Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 8:40:00 AM Lab ID: 1408A13-001 Matrix: AQUEOUS Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual Units	DF 1	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: DAM
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4-Dichlorophenol	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4,6-Dinitro-2-methylphenol	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4-Dinitrophenol	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Fluoranthene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Fluorene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Hexachloroethane	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Isophorone	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Methylphenol	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Naphthalene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Nitrobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Pentachlorophenol	ND	21	μg/L	1	8/22/2014 6:02:48 PM	14909
Phenanthrene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Phenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Pyrene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Pyridine	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 6:02:48 PM	14909
Surr: 2-Fluorophenol	32.9	12.1-85.8	%REC	1	8/22/2014 6:02:48 PM	14909
Surr: Phenol-d5	16.7	17.7-65.8	S %REC	1	8/22/2014 6:02:48 PM	14909

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2. Reporting Detection Limit

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Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 8:40:00 AM

 Lab ID:
 1408A13-001
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	DAM
Surr: 2,4,6-Tribromophenol	52.3	26-138	%REC	1	8/22/2014 6:02:48 PM	14909
Surr: Nitrobenzene-d5	86.1	47.5-119	%REC	1	8/22/2014 6:02:48 PM	14909
Surr: 2-Fluorobiphenyl	75.6	48.1-106	%REC	1	8/22/2014 6:02:48 PM	14909
Surr: 4-Terphenyl-d14	74.1	44-113	%REC	1	8/22/2014 6:02:48 PM	14909
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 12:47:15 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 12:47:15 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 12:47:15 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 12:47:15 PM	R20875

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - of Detected at the Reporting Limit Page 4 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 8:40:00 AM

 Lab ID:
 1408A13-001
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analys	t: cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	M R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	M R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 12:47:15 PI	/ R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 12:47:15 PI	/I R20875
Surr: 1,2-Dichloroethane-d4	97.0	70-130		%REC	1	8/28/2014 12:47:15 PI	/ R20875
Surr: 4-Bromofluorobenzene	124	70-130		%REC	1	8/28/2014 12:47:15 PI	/ R20875
Surr: Dibromofluoromethane	93.8	70-130		%REC	1	8/28/2014 12:47:15 PI	/ R20875
Surr: Toluene-d8	98.1	70-130		%REC	1	8/28/2014 12:47:15 PI	M R20875
CARBON DIOXIDE						Analys	t: JRR
Total Carbon Dioxide	250	1.0	Н	mg CO2/L	1	8/22/2014 3:59:36 PM	R20763

SM2320B: ALKALINITY 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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 5 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-51

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 8:40:00 AM

 Lab ID:
 1408A13-001
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

 Analyses
 Result
 RL Qual Units
 DF Date Analyzed
 Batch

 SM2320B: ALKALINITY
 Analyst: JRR

 Bicarbonate (As CaCO3)
 270
 20
 mg/L CaCO3
 1
 8/22/2014 3:59:36 PM
 R2076:36 PM

Analyst: JRR R20763 Carbonate (As CaCO3) ND 2.0 mg/L CaCO3 8/22/2014 3:59:36 PM R20763 Total Alkalinity (as CaCO3) 270 20 mg/L CaCO3 8/22/2014 3:59:36 PM R20763 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS **Total Dissolved Solids** 8/27/2014 4:44:00 PM 438 40.0 mg/L 14958

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

Qualifiers:

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

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: RCRA Wells 8-19-14 **Collection Date:**

Lab ID: 1408A13-002 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Qua	ıl Units	DF Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst:	cadg
Benzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Toluene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Naphthalene	ND	2.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Acetone	ND	10	μg/L	1 8/28/2014 2:13:14 PM	R20875
Bromobenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Bromoform	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Bromomethane	ND	3.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
2-Butanone	ND	10	μg/L	1 8/28/2014 2:13:14 PM	R20875
Carbon disulfide	ND	10	μg/L	1 8/28/2014 2:13:14 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Chloroethane	ND	2.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Chloroform	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Chloromethane	ND	3.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Dibromomethane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,1-Dichloroethane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,1-Dichloroethene	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,2-Dichloropropane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
1,3-Dichloropropane	ND	1.0	μg/L	1 8/28/2014 2:13:14 PM	R20875
2,2-Dichloropropane	ND	2.0	μg/L	1 8/28/2014 2:13:14 PM	R20875

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 7 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: RCRA Wells 8-19-14 **Collection Date:**

Lab ID: 1408A13-002 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	cadg
1,1-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Hexachlorobutadiene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
2-Hexanone	ND	10	μg/L	1	8/28/2014 2:13:14 PM	R20875
Isopropylbenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
4-Isopropyltoluene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
4-Methyl-2-pentanone	ND	10	μg/L	1	8/28/2014 2:13:14 PM	R20875
Methylene Chloride	ND	3.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
n-Butylbenzene	ND	3.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
n-Propylbenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
sec-Butylbenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Styrene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
tert-Butylbenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
trans-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Trichlorofluoromethane	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
1,2,3-Trichloropropane	ND	2.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Vinyl chloride	ND	1.0	μg/L	1	8/28/2014 2:13:14 PM	R20875
Xylenes, Total	ND	1.5	μg/L	1	8/28/2014 2:13:14 PM	R20875
Surr: 1,2-Dichloroethane-d4	99.0	70-130	%REC	1	8/28/2014 2:13:14 PM	R20875
Surr: 4-Bromofluorobenzene	123	70-130	%REC	1	8/28/2014 2:13:14 PM	R20875
Surr: Dibromofluoromethane	87.0	70-130	%REC	1	8/28/2014 2:13:14 PM	R20875
Surr: Toluene-d8	99.9	70-130	%REC	1	8/28/2014 2:13:14 PM	R20875

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- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-52

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:00:00 AM

 Lab ID:
 1408A13-003
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

EPA METHOD 8015D: DIESEL RANGE		Analyst:	BCN
Diesel Range Organics (DRO) ND 0.20 mg/L	1	8/20/2014 11:54:34 PM	14873
Motor Oil Range Organics (MRO) ND 2.5 mg/L	1	8/20/2014 11:54:34 PM	14873
Surr: DNOP 117 75.2-161 %REC	1	8/20/2014 11:54:34 PM	14873
EPA METHOD 8015D: GASOLINE RANGE		Analyst:	NSB
Gasoline Range Organics (GRO) ND 0.050 mg/L	1	8/21/2014 6:48:23 PM	R20730
Surr: BFB 95.6 70.9-130 %REC	1	8/21/2014 6:48:23 PM	R20730
EPA METHOD 300.0: ANIONS		Analyst:	LGP
Fluoride 0.49 0.10 mg/L	1	8/20/2014 4:41:55 PM	R20712
Chloride 820 25 * mg/L	50	8/21/2014 11:43:15 AM	R20741
Nitrogen, Nitrite (As N) ND 2.0 mg/L	20	8/20/2014 4:54:21 PM	R20712
Bromide 2.0 0.10 mg/L	1	8/20/2014 4:41:55 PM	R20712
Nitrogen, Nitrate (As N) 18 2.0 * mg/L	20	8/20/2014 4:54:21 PM	R20712
Phosphorus, Orthophosphate (As P) ND 0.50 mg/L	1	8/20/2014 4:41:55 PM	R20712
Sulfate 1700 25 * mg/L	50	8/21/2014 11:43:15 AM	R20741
EPA METHOD 7470: MERCURY		Analyst:	MMD
Mercury ND 0.00020 mg/L	1	8/22/2014 2:35:50 PM	14900
EPA METHOD 6010B: DISSOLVED METALS		Analyst:	ELS
Arsenic ND 0.020 mg/L	1	8/21/2014 11:56:10 AM	R20721
Barium ND 0.020 mg/L	1	8/21/2014 11:56:10 AM	R20721
Cadmium ND 0.0020 mg/L	1	8/21/2014 11:56:10 AM	R20721
Calcium 430 5.0 mg/L	5	8/21/2014 12:34:31 PM	R20721
Chromium ND 0.0060 mg/L	1	8/21/2014 11:56:10 AM	R20721
Copper ND 0.0060 mg/L	1	8/21/2014 11:56:10 AM	R20721
Iron 4.1 0.10 mg/L	5	8/21/2014 12:34:31 PM	R20721
Lead ND 0.0050 mg/L	1	8/21/2014 11:56:10 AM	R20721
Magnesium 110 5.0 mg/L	5	8/21/2014 12:34:31 PM	R20721
Manganese 8.8 0.020 mg/L	10	8/21/2014 12:36:21 PM	R20721
Potassium 5.6 1.0 mg/L	1	8/21/2014 11:56:10 AM	R20721
Selenium ND 0.050 mg/L	1	8/21/2014 11:56:10 AM	R20721
Silver ND 0.0050 mg/L	1	8/21/2014 11:56:10 AM	R20721
Sodium 590 10 mg/L	10	8/21/2014 12:36:21 PM	R20721
Uranium ND 0.10 mg/L	1	8/21/2014 11:56:10 AM	R20721
Zinc 0.13 0.020 mg/L	1	8/21/2014 11:56:10 AM	R20721
EPA 6010B: TOTAL RECOVERABLE METALS		Analyst:	ELS
Arsenic ND 0.020 mg/L	1	8/21/2014 11:25:11 AM	14876
Barium 0.052 0.020 mg/L	1	8/21/2014 11:25:11 AM	14876
Cadmium ND 0.0020 mg/L	1	8/21/2014 11:25:11 AM	14876

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- P Sample pH greater than 2.
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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-52

 Project:
 RCRA Wells 8-19-14
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 Lab ID:
 1408A13-003
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analyst	ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:25:11 AM	14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:25:11 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:25:11 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:25:11 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Acenaphthene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Acenaphthylene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Aniline	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Anthracene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Azobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzoic acid	ND	20	μg/L	1	8/21/2014 11:27:47 PM	14881
Benzyl alcohol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Carbazole	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
4-Chloroaniline	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
2-Chlorophenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Chrysene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Dibenzofuran	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881
Diethyl phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	14881

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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-52

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:00:00 AM

 Lab ID:
 1408A13-003
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analysi	: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Fluoranthene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Fluorene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Hexachlorobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Hexachlorobutadiene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Hexachloroethane	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Isophorone	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
1-Methylnaphthalene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2-Methylnaphthalene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2-Methylphenol	ND	20	μg/L	1	8/21/2014 11:27:47 PM	1 14881
3+4-Methylphenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Naphthalene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2-Nitroaniline	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
3-Nitroaniline	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
4-Nitroaniline	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Nitrobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2-Nitrophenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
4-Nitrophenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Pentachlorophenol	ND	20	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Phenanthrene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Phenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Pyrene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Pyridine	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/21/2014 11:27:47 PM	1 14881
Surr: 2-Fluorophenol	63.5	12.1-85.8	%REC	1	8/21/2014 11:27:47 PM	1 14881
Surr: Phenol-d5	47.9	17.7-65.8	%REC	1	8/21/2014 11:27:47 PM	1 14881

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 11 of 94
- P Sample pH greater than 2.
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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-52

 Project:
 RCRA Wells 8-19-14
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 Lab ID:
 1408A13-003
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 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	:: JDC
Surr: 2,4,6-Tribromophenol	32.1	26-138	%REC	1	8/21/2014 11:27:47 PM	14881
Surr: Nitrobenzene-d5	96.5	47.5-119	%REC	1	8/21/2014 11:27:47 PM	14881
Surr: 2-Fluorobiphenyl	94.3	48.1-106	%REC	1	8/21/2014 11:27:47 PM	14881
Surr: 4-Terphenyl-d14	87.9	44-113	%REC	1	8/21/2014 11:27:47 PM	14881
EPA METHOD 8260B: VOLATILES					Analyst	:: cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 2:41:55 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 2:41:55 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 2:41:55 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 2:41:55 PM	R20875

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 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch **EPA METHOD 8260B: VOLATILES** Analyst: cadg 8/28/2014 2:41:55 PM 1,1-Dichloroethane ND 1.0 μg/L 1 R20875 1,1-Dichloroethene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 ND 1.0 1,2-Dichloropropane μg/L 1 8/28/2014 2:41:55 PM R20875 ND R20875 1,3-Dichloropropane 1.0 μg/L 1 8/28/2014 2:41:55 PM ND 2,2-Dichloropropane 2.0 μg/L 1 8/28/2014 2:41:55 PM R20875 1,1-Dichloropropene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 Hexachlorobutadiene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 2-Hexanone ND 10 μg/L 1 8/28/2014 2:41:55 PM R20875 Isopropylbenzene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 4-Isopropyltoluene ND 1.0 R20875 μg/L 1 8/28/2014 2:41:55 PM 4-Methyl-2-pentanone ND 10 μg/L 1 8/28/2014 2:41:55 PM R20875 Methylene Chloride ND 3.0 μg/L 1 8/28/2014 2:41:55 PM R20875 n-Butylbenzene ND 3.0 μg/L 8/28/2014 2:41:55 PM R20875 1 n-Propylbenzene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 sec-Butylbenzene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 ND Styrene 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 tert-Butylbenzene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 1,1,1,2-Tetrachloroethane ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 1,1,2,2-Tetrachloroethane ND 2.0 μg/L 8/28/2014 2:41:55 PM R20875 1 Tetrachloroethene (PCE) ND 1.0 μg/L 8/28/2014 2:41:55 PM R20875 ND 1.0 trans-1,2-DCE μg/L 1 8/28/2014 2:41:55 PM R20875 trans-1,3-Dichloropropene ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 ND 1.0 R20875 1,2,3-Trichlorobenzene μg/L 1 8/28/2014 2:41:55 PM ND 1.0 R20875 1,2,4-Trichlorobenzene μg/L 1 8/28/2014 2:41:55 PM ND 1.0 1,1,1-Trichloroethane μg/L 1 8/28/2014 2:41:55 PM R20875 1.1.2-Trichloroethane ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 Trichloroethene (TCE) ND 1.0 μg/L 8/28/2014 2:41:55 PM R20875 1 Trichlorofluoromethane ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 ND 2.0 8/28/2014 2:41:55 PM 1,2,3-Trichloropropane μg/L 1 R20875 Vinyl chloride ND 1.0 μg/L 1 8/28/2014 2:41:55 PM R20875 Xylenes, Total ND 1.5 μg/L 1 8/28/2014 2:41:55 PM R20875 Surr: 1,2-Dichloroethane-d4 100 70-130 %REC 1 8/28/2014 2:41:55 PM R20875 Surr: 4-Bromofluorobenzene 124 70-130 %REC 8/28/2014 2:41:55 PM R20875 Surr: Dibromofluoromethane 92.8 70-130 %REC 8/28/2014 2:41:55 PM R20875 Surr: Toluene-d8 97.3 70-130 %REC 8/28/2014 2:41:55 PM R20875 **CARBON DIOXIDE** Analyst: JRR Total Carbon Dioxide 220 1.0 mg CO2/L 8/22/2014 4:12:57 PM R20763

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

Qualifiers:

SM2320B: ALKALINITY

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Analyst: JRR

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-52

Project: RCRA Wells 8-19-14 Collection Date: 8/19/2014 9:00:00 AM

Lab ID: 1408A13-003 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	: JRR
Bicarbonate (As CaCO3)	170	20	mg/L CaCO3	1	8/22/2014 4:12:57 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 4:12:57 PM	R20763
Total Alkalinity (as CaCO3)	170	20	mg/L CaCO3	1	8/22/2014 4:12:57 PM	R20763
SM2540C MOD: TOTAL DISSOLVED SOLIDS					Analys	t: KS
Total Dissolved Solids	3760	40.0	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 14 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-53

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 9:20:00 AM Lab ID: 1408A13-004 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/21/2014 12:24:32 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 12:24:32 AM	14873
Surr: DNOP	110	75.2-161	%REC	1	8/21/2014 12:24:32 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/21/2014 7:18:38 PM	R20730
Surr: BFB	101	70.9-130	%REC	1	8/21/2014 7:18:38 PM	R20730
EPA METHOD 300.0: ANIONS					Analyst	LGP
Fluoride	0.11	0.10	mg/L	1	8/20/2014 5:06:45 PM	R20712
Chloride	1000	50	* mg/L	100	8/21/2014 12:20:29 PM	R20741
Nitrogen, Nitrite (As N)	ND	2.0	mg/L	20	8/20/2014 5:19:10 PM	R20712
Bromide	2.2	0.10	mg/L	1	8/20/2014 5:06:45 PM	R20712
Nitrogen, Nitrate (As N)	6.8	2.0	mg/L	20	8/20/2014 5:19:10 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 5:06:45 PM	R20712
Sulfate	1300	50	* mg/L	100	8/21/2014 12:20:29 PM	R20741
EPA METHOD 7470: MERCURY					Analyst	MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:37:38 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:03:18 PM	R20721
Barium	ND	0.020	mg/L	1	8/21/2014 12:03:18 PM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:03:18 PM	R20721
Calcium	340	10	mg/L	10	8/21/2014 12:38:17 PM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:03:18 PM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:03:18 PM	R20721
Iron	0.029	0.020	mg/L	1	8/21/2014 12:03:18 PM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:03:18 PM	R20721
Magnesium	59	1.0	mg/L	1	8/21/2014 12:03:18 PM	R20721
Manganese	0.10	0.0020	mg/L	1	8/21/2014 12:03:18 PM	R20721
Potassium	5.1	1.0	mg/L	1	8/21/2014 12:03:18 PM	R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 12:03:18 PM	R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 12:03:18 PM	R20721
Sodium	750	10	mg/L	10	8/21/2014 12:38:17 PM	
Uranium	ND	0.10	mg/L	1	8/21/2014 12:03:18 PM	R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 12:03:18 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:26:47 AM	14876
Barium	0.041	0.020	mg/L	1	8/21/2014 11:26:47 AM	14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:26:47 AM	14876

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2. Reporting Detection Limit

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Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-53

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:20:00 AM

 Lab ID:
 1408A13-004
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analyst	: ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:26:47 AM	14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:26:47 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:26:47 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:26:47 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: DAM
Acenaphthene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Acenaphthylene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Aniline	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Anthracene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Azobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benz(a)anthracene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzo(a)pyrene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzo(b)fluoranthene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzo(g,h,i)perylene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzo(k)fluoranthene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzoic acid	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
Benzyl alcohol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Bis(2-chloroethoxy)methane	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Bis(2-chloroethyl)ether	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Bis(2-chloroisopropyl)ether	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Bis(2-ethylhexyl)phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Bromophenyl phenyl ether	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Butyl benzyl phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Carbazole	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Chloro-3-methylphenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Chloroaniline	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Chloronaphthalene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Chlorophenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Chlorophenyl phenyl ether	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Chrysene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Di-n-butyl phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Di-n-octyl phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Dibenz(a,h)anthracene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Dibenzofuran	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
1,2-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
1,3-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
1,4-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
3,3´-Dichlorobenzidine	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Diethyl phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-53

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:20:00 AM

 Lab ID:
 1408A13-004
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: DAM
Dimethyl phthalate	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4-Dichlorophenol	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4-Dimethylphenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4,6-Dinitro-2-methylphenol	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4-Dinitrophenol	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4-Dinitrotoluene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2,6-Dinitrotoluene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Fluoranthene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Fluorene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Hexachlorobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Hexachlorobutadiene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Hexachlorocyclopentadiene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Hexachloroethane	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Indeno(1,2,3-cd)pyrene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Isophorone	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
1-Methylnaphthalene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Methylnaphthalene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Methylphenol	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
3+4-Methylphenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
N-Nitrosodi-n-propylamine	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
N-Nitrosodimethylamine	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
N-Nitrosodiphenylamine	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Naphthalene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Nitroaniline	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
3-Nitroaniline	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Nitroaniline	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Nitrobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2-Nitrophenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
4-Nitrophenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Pentachlorophenol	ND	22	μg/L	1	8/22/2014 6:31:45 PM	14909
Phenanthrene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Phenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Pyrene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Pyridine	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
1,2,4-Trichlorobenzene	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4,5-Trichlorophenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
2,4,6-Trichlorophenol	ND	11	μg/L	1	8/22/2014 6:31:45 PM	14909
Surr: 2-Fluorophenol	56.2	12.1-85.8	%REC	1	8/22/2014 6:31:45 PM	14909
Surr: Phenol-d5	42.0	17.7-65.8	%REC	1	8/22/2014 6:31:45 PM	14909

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-53

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:20:00 AM

 Lab ID:
 1408A13-004
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: DAM
Surr: 2,4,6-Tribromophenol	65.3	26-138	%REC	1	8/22/2014 6:31:45 PM	14909
Surr: Nitrobenzene-d5	76.4	47.5-119	%REC	1	8/22/2014 6:31:45 PM	14909
Surr: 2-Fluorobiphenyl	75.0	48.1-106	%REC	1	8/22/2014 6:31:45 PM	14909
Surr: 4-Terphenyl-d14	71.3	44-113	%REC	1	8/22/2014 6:31:45 PM	14909
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 3:10:37 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 3:10:37 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 3:10:37 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 3:10:37 PM	R20875

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 18 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:20:00 AM

 Lab ID:
 1408A13-004
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 3:10:37 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 3:10:37 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 3:10:37 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 3:10:37 PM	R20875
Surr: 1,2-Dichloroethane-d4	97.5	70-130		%REC	1	8/28/2014 3:10:37 PM	R20875
Surr: 4-Bromofluorobenzene	126	70-130		%REC	1	8/28/2014 3:10:37 PM	R20875
Surr: Dibromofluoromethane	89.1	70-130		%REC	1	8/28/2014 3:10:37 PM	R20875
Surr: Toluene-d8	99.0	70-130		%REC	1	8/28/2014 3:10:37 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	310	1.0	Н	mg CO2/L	1	8/22/2014 4:24:22 PM	R20763

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

Qualifiers:

SM2320B: ALKALINITY

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - ^t Page 19 of 94

Analyst: JRR

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:20:00 AM

 Lab ID:
 1408A13-004
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch SM2320B: ALKALINITY Analyst: JRR Bicarbonate (As CaCO3) 330 20 mg/L CaCO3 8/22/2014 4:24:22 PM R20763 Carbonate (As CaCO3) ND 2.0 mg/L CaCO3 8/22/2014 4:24:22 PM R20763 Total Alkalinity (as CaCO3) 330 20 mg/L CaCO3 8/22/2014 4:24:22 PM R20763 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS **Total Dissolved Solids** 8/27/2014 4:44:00 PM 3560 100 mg/L 14958

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 20 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-59

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:20:00 PM

 Lab ID:
 1408A13-005
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E					Analyst	BCN
Diesel Range Organics (DRO)	0.62	0.20		mg/L	1	8/21/2014 12:54:24 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2014 12:54:24 AM	14873
Surr: DNOP	117	75.2-161		%REC	1	8/21/2014 12:54:24 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst	NSB
Gasoline Range Organics (GRO)	0.72	0.050		mg/L	1	8/21/2014 9:49:30 PM	R20730
Surr: BFB	167	70.9-130	S	%REC	1	8/21/2014 9:49:30 PM	R20730
EPA METHOD 300.0: ANIONS						Analyst	: LGP
Fluoride	0.20	0.10		mg/L	1	8/20/2014 5:56:24 PM	R20712
Chloride	210	10		mg/L	20	8/20/2014 6:08:49 PM	R20712
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/20/2014 5:56:24 PM	R20712
Bromide	2.0	0.10		mg/L	1	8/20/2014 5:56:24 PM	R20712
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	8/20/2014 6:08:49 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/20/2014 5:56:24 PM	R20712
Sulfate	830	10	*	mg/L	20	8/20/2014 6:08:49 PM	R20712
EPA METHOD 7470: MERCURY						Analyst	MMD
Mercury	ND	0.00020		mg/L	1	8/22/2014 2:46:48 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS					Analyst	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 12:05:19 PM	R20721
Barium	0.059	0.020		mg/L	1	8/21/2014 12:05:19 PM	R20721
Cadmium	ND	0.0020		mg/L	1	8/21/2014 12:05:19 PM	R20721
Calcium	260	5.0		mg/L	5	8/21/2014 12:40:10 PM	R20721
Chromium	ND	0.0060		mg/L	1	8/21/2014 12:05:19 PM	R20721
Copper	ND	0.0060		mg/L	1	8/21/2014 12:05:19 PM	R20721
Iron	7.9	0.20		mg/L	10	8/21/2014 12:41:44 PM	R20721
Lead	ND	0.0050		mg/L	1	8/21/2014 12:05:19 PM	R20721
Magnesium	69	1.0		mg/L	1	8/21/2014 12:05:19 PM	R20721
Manganese	3.0	0.010		mg/L	5	8/21/2014 12:40:10 PM	R20721
Potassium	3.4	1.0		mg/L	1	8/21/2014 12:05:19 PM	R20721
Selenium	ND	0.050		mg/L	1	8/21/2014 12:05:19 PM	R20721
Silver	ND	0.0050		mg/L	1	8/21/2014 12:05:19 PM	R20721
Sodium	440	5.0		mg/L	5	8/21/2014 12:40:10 PM	R20721
Uranium	ND	0.10		mg/L	1	8/21/2014 12:05:19 PM	R20721
Zinc	ND	0.020		mg/L	1	8/21/2014 12:05:19 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS					Analyst	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 11:28:30 AM	14876
Barium	0.26	0.020		mg/L	1	8/21/2014 11:28:30 AM	14876
Cadmium	ND	0.0020		mg/L	1	8/21/2014 11:28:30 AM	14876

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

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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 21 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-59

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:20:00 PM

 Lab ID:
 1408A13-005
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analyst	ELS
Chromium	0.011	0.0060	mg/L	1	8/21/2014 11:28:30 AM	14876
Lead	0.011	0.0050	mg/L	1	8/21/2014 11:28:30 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:28:30 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:28:30 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881

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

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:20:00 PM

 Lab ID:
 1408A13-005
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	:: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 12:26:40 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Phenol	14	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 12:26:40 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	I 14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 12:26:40 AM	I 14881
Surr: 2-Fluorophenol	69.6	12.1-85.8	%REC	1	8/22/2014 12:26:40 AM	14881
Surr: Phenol-d5	46.7	17.7-65.8	%REC	1	8/22/2014 12:26:40 AM	14881

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- ND Not Detected at the Reporting Limit
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Page 23 of 94

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:20:00 PM

 Lab ID:
 1408A13-005
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	69.4	26-138	%REC	1	8/22/2014 12:26:40 AM	14881
Surr: Nitrobenzene-d5	90.7	47.5-119	%REC	1	8/22/2014 12:26:40 AM	14881
Surr: 2-Fluorobiphenyl	88.3	48.1-106	%REC	1	8/22/2014 12:26:40 AM	14881
Surr: 4-Terphenyl-d14	84.4	44-113	%REC	1	8/22/2014 12:26:40 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	13	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Ethylbenzene	58	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Methyl tert-butyl ether (MTBE)	750	10	μg/L	10	8/29/2014 1:48:06 PM	R20928
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2-Dichloroethane (EDC)	10	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Naphthalene	3.6	2.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 3:39:19 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 3:39:19 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 3:39:19 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 3:39:19 PM	R20875

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

Page 24 of 94

- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-59

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 1:20:00 PM Lab ID: 1408A13-005 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	: cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 3:39:19 PM	R20875
Isopropylbenzene	7.8	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 3:39:19 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
n-Propylbenzene	7.3	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
sec-Butylbenzene	3.8	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 3:39:19 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 3:39:19 PM	R20875
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%REC	1	8/28/2014 3:39:19 PM	R20875
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	8/28/2014 3:39:19 PM	R20875
Surr: Dibromofluoromethane	97.2	70-130		%REC	1	8/28/2014 3:39:19 PM	R20875
Surr: Toluene-d8	97.8	70-130		%REC	1	8/28/2014 3:39:19 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	910	1.0	Н	mg CO2/L	1	8/22/2014 4:39:23 PM	R20763

SM2320B: ALKALINITY 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.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 25 of 94 Sample pH greater than 2.
- Reporting Detection Limit

P

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:20:00 PM

 Lab ID:
 1408A13-005
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch SM2320B: ALKALINITY Analyst: JRR Bicarbonate (As CaCO3) R20763 950 20 mg/L CaCO3 8/22/2014 4:39:23 PM Carbonate (As CaCO3) ND 2.0 mg/L CaCO3 8/22/2014 4:39:23 PM R20763 Total Alkalinity (as CaCO3) 950 20 mg/L CaCO3 8/22/2014 4:39:23 PM R20763 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS **Total Dissolved Solids** 8/27/2014 4:44:00 PM 2370 100 mg/L 14958

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 26 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc. Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-62

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:40:00 PM

 Lab ID:
 1408A13-006
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/21/2014 1:54:20 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 1:54:20 AM	14873
Surr: DNOP	92.3	75.2-161	%REC	1	8/21/2014 1:54:20 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/21/2014 10:49:53 PM	R20730
Surr: BFB	104	70.9-130	%REC	1	8/21/2014 10:49:53 PM	R20730
EPA METHOD 300.0: ANIONS					Analyst	: LGP
Fluoride	ND	2.0	mg/L	20	8/20/2014 6:33:38 PM	R20712
Chloride	14	10	mg/L	20	8/20/2014 6:33:38 PM	R20712
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/20/2014 6:21:14 PM	R20712
Bromide	ND	0.10	mg/L	1	8/20/2014 6:21:14 PM	R20712
Nitrogen, Nitrate (As N)	0.38	0.10	mg/L	1	8/20/2014 6:21:14 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	10	mg/L	20	8/20/2014 6:33:38 PM	R20712
Sulfate	4100	50	* mg/L	100	8/21/2014 12:32:54 PM	R20741
EPA METHOD 7470: MERCURY					Analyst	MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:48:38 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:06:59 PM	R20721
Barium	ND	0.020	mg/L	1	8/21/2014 12:06:59 PM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:06:59 PM	R20721
Calcium	440	5.0	mg/L	5	8/21/2014 12:43:43 PM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:06:59 PM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:06:59 PM	R20721
Iron	ND	0.020	mg/L	1	8/21/2014 12:06:59 PM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:06:59 PM	R20721
Magnesium	39	1.0	mg/L	1	8/21/2014 12:06:59 PM	R20721
Manganese	0.49	0.0020	mg/L	1	8/21/2014 12:06:59 PM	R20721
Potassium	9.7	1.0	mg/L	1	8/21/2014 12:06:59 PM	R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 12:06:59 PM	R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 12:06:59 PM	R20721
Sodium	1400	20	mg/L	20	8/21/2014 12:45:33 PM	R20721
Uranium	ND	0.10	mg/L	1	8/21/2014 12:06:59 PM	R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 12:06:59 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:30:13 AM	14876
Barium	ND	0.020	mg/L	1	8/21/2014 11:30:13 AM	14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:30:13 AM	14876

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

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 27 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc. Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-62

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:40:00 PM

 Lab ID:
 1408A13-006
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABL	E METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:30:13 AN	1 14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:30:13 AN	1 14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:30:13 AN	1 14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:30:13 AN	1 14876
EPA METHOD 8270C: SEMIVOLAT	ILES				Analys	t: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Aniline	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Anthracene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Azobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 12:56:12 AN	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AN	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 12:56:12 AN	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Carbazole	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 12:56:12 AN	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Chrysene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AN	1 14881

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 28 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:40:00 PM

 Lab ID:
 1408A13-006
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 12:56:12 AM	14881
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 12:56:12 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Phenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 12:56:12 AM	14881
Surr: 2-Fluorophenol	71.2	12.1-85.8	%REC	1	8/22/2014 12:56:12 AM	14881
Surr: Phenol-d5	49.2	17.7-65.8	%REC	1	8/22/2014 12:56:12 AM	14881

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 29 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-62

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 1:40:00 PM Lab ID: 1408A13-006 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	59.6	26-138	%REC	1	8/22/2014 12:56:12 AM	14881
Surr: Nitrobenzene-d5	95.7	47.5-119	%REC	1	8/22/2014 12:56:12 AM	14881
Surr: 2-Fluorobiphenyl	94.5	48.1-106	%REC	1	8/22/2014 12:56:12 AM	14881
Surr: 4-Terphenyl-d14	89.3	44-113	%REC	1	8/22/2014 12:56:12 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 4:08:03 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 4:08:03 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 4:08:03 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 4:08:03 PM	R20875

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 30 of 94
- P Sample pH greater than 2.
- Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:40:00 PM

 Lab ID:
 1408A13-006
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	:: cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 4:08:03 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 4:08:03 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 4:08:03 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 4:08:03 PM	R20875
Surr: 1,2-Dichloroethane-d4	98.8	70-130		%REC	1	8/28/2014 4:08:03 PM	R20875
Surr: 4-Bromofluorobenzene	116	70-130		%REC	1	8/28/2014 4:08:03 PM	R20875
Surr: Dibromofluoromethane	92.1	70-130		%REC	1	8/28/2014 4:08:03 PM	R20875
Surr: Toluene-d8	99.4	70-130		%REC	1	8/28/2014 4:08:03 PM	R20875
CARBON DIOXIDE						Analyst	:: JRR
Total Carbon Dioxide	470	1.0	Н	mg CO2/L	1	8/22/2014 5:11:50 PM	R20763

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

Qualifiers:

SM2320B: ALKALINITY

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Analyst: JRR

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:40:00 PM

 Lab ID:
 1408A13-006
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch Analyst: JRR SM2320B: ALKALINITY Bicarbonate (As CaCO3) 8/22/2014 5:11:50 PM 500 20 mg/L CaCO3 R20763 Carbonate (As CaCO3) ND 2.0 mg/L CaCO3 8/22/2014 5:11:50 PM R20763 Total Alkalinity (as CaCO3) 500 20 mg/L CaCO3 8/22/2014 5:11:50 PM R20763 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS **Total Dissolved Solids** 8/27/2014 4:44:00 PM 5940 40.0 mg/L 14958

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

Qualifiers:

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- ND Not Detected at the Reporting Limit
 - Sample pH greater than 2.

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RL Reporting Detection Limit

P

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:00:00 PM

 Lab ID:
 1408A13-007
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E					Analyst:	BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2014 2:24:10 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2014 2:24:10 AM	14873
Surr: DNOP	109	75.2-161		%REC	1	8/21/2014 2:24:10 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/21/2014 11:20:08 PM	R20730
Surr: BFB	99.9	70.9-130		%REC	1	8/21/2014 11:20:08 PM	R20730
EPA METHOD 300.0: ANIONS						Analyst:	LGP
Fluoride	ND	0.10		mg/L	1	8/20/2014 6:46:03 PM	R20712
Chloride	390	50	*	mg/L	100	8/21/2014 12:45:18 PM	R20741
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/20/2014 6:46:03 PM	R20712
Bromide	7.3	2.0		mg/L	20	8/20/2014 6:58:27 PM	R20712
Nitrogen, Nitrate (As N)	170	2.0	*	mg/L	20	8/20/2014 6:58:27 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/20/2014 6:58:27 PM	R20712
Sulfate	2400	50	*	mg/L	100	8/21/2014 12:45:18 PM	R20741
EPA METHOD 7470: MERCURY						Analyst:	MMD
Mercury	ND	0.00020		mg/L	1	8/22/2014 2:50:29 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS					Analyst:	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 12:09:01 PM	R20721
Barium	ND	0.020		mg/L	1	8/21/2014 12:09:01 PM	R20721
Cadmium	ND	0.0020		mg/L	1	8/21/2014 12:09:01 PM	R20721
Calcium	560	10		mg/L	10	8/21/2014 12:52:45 PM	R20721
Chromium	ND	0.0060		mg/L	1	8/21/2014 12:09:01 PM	R20721
Copper	ND	0.0060		mg/L	1	8/21/2014 12:09:01 PM	R20721
Iron	0.022	0.020		mg/L	1	8/21/2014 12:09:01 PM	R20721
Lead	ND	0.0050		mg/L	1	8/21/2014 12:09:01 PM	R20721
Magnesium	180	10		mg/L	10	8/21/2014 12:52:45 PM	R20721
Manganese	1.4	0.020		mg/L	10	8/21/2014 12:52:45 PM	R20721
Potassium	5.7	1.0		mg/L	1	8/21/2014 12:09:01 PM	R20721
Selenium	ND	0.050		mg/L	1	8/21/2014 12:09:01 PM	R20721
Silver	ND	0.0050		mg/L	1	8/21/2014 12:09:01 PM	R20721
Sodium	680	10		mg/L	10	8/21/2014 12:52:45 PM	R20721
Uranium	ND	0.10		mg/L	1	8/21/2014 12:09:01 PM	R20721
Zinc	ND	0.020		mg/L	1	8/21/2014 12:09:01 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS					Analyst:	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 11:41:58 AM	14876
Barium	0.093	0.020		mg/L	1	8/21/2014 11:41:58 AM	14876
Cadmium	ND	0.0020		mg/L	1	8/21/2014 11:41:58 AM	14876

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 33 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:00:00 PM

 Lab ID:
 1408A13-007
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:41:58 AM	<i>l</i> 14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:41:58 AM	<i>l</i> 14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:41:58 AM	<i>l</i> 14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:41:58 AM	<i>l</i> 14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881

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

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-63

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:00:00 PM

 Lab ID:
 1408A13-007
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 1:25:44 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Phenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 1:25:44 AM	14881
Surr: 2-Fluorophenol	71.6	12.1-85.8	%REC	1	8/22/2014 1:25:44 AM	14881
Surr: Phenol-d5	50.2	17.7-65.8	%REC	1	8/22/2014 1:25:44 AM	14881

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Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-63

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 1:00:00 PM

 Lab ID:
 1408A13-007
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	55.6	26-138	%REC	1	8/22/2014 1:25:44 AM	14881
Surr: Nitrobenzene-d5	105	47.5-119	%REC	1	8/22/2014 1:25:44 AM	14881
Surr: 2-Fluorobiphenyl	101	48.1-106	%REC	1	8/22/2014 1:25:44 AM	14881
Surr: 4-Terphenyl-d14	91.4	44-113	%REC	1	8/22/2014 1:25:44 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 4:36:44 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 4:36:44 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 4:36:44 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 4:36:44 PM	R20875

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- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 36 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 1:00:00 PM

Lab ID: 1408A13-007 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	:: cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 4:36:44 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 4:36:44 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 4:36:44 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 4:36:44 PM	R20875
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	8/28/2014 4:36:44 PM	R20875
Surr: 4-Bromofluorobenzene	124	70-130		%REC	1	8/28/2014 4:36:44 PM	R20875
Surr: Dibromofluoromethane	92.8	70-130		%REC	1	8/28/2014 4:36:44 PM	R20875
Surr: Toluene-d8	97.1	70-130		%REC	1	8/28/2014 4:36:44 PM	R20875
CARBON DIOXIDE						Analyst	:: JRR
Total Carbon Dioxide	380	1.0	Н	mg CO2/L	1	8/22/2014 5:32:19 PM	R20763

SM2320B: ALKALINITY Analyst: JRR

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

Qualifiers:

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- E Value above quantitation range
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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 37 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Lab ID: 1408A13-007

Client Sample ID: MW-63

Collection Date: 8/19/2014 1:00:00 PM

Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	t: JRR
Bicarbonate (As CaCO3)	400	20	mg/L CaCO3	1	8/22/2014 5:32:19 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 5:32:19 PM	R20763
Total Alkalinity (as CaCO3)	400	20	mg/L CaCO3	1	8/22/2014 5:32:19 PM	R20763
SM2540C MOD: TOTAL DISSOLV	ED SOLIDS				Analys	t: KS
Total Dissolved Solids	5230	40.0	* mg/L	1	8/27/2014 4:44:00 PM	14958

Matrix: AQUEOUS

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

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- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit

Page 38 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E					Analyst:	BCN
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2014 2:54:03 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2014 2:54:03 AM	14873
Surr: DNOP	103	75.2-161		%REC	1	8/21/2014 2:54:03 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/21/2014 11:50:11 PM	R20730
Surr: BFB	100	70.9-130		%REC	1	8/21/2014 11:50:11 PM	R20730
EPA METHOD 300.0: ANIONS						Analyst:	LGP
Fluoride	ND	0.10		mg/L	1	8/20/2014 7:10:52 PM	R20712
Chloride	1100	50	*	mg/L	100	8/21/2014 12:57:43 PM	R20741
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/20/2014 7:23:17 PM	R20712
Bromide	2.6	0.10		mg/L	1	8/20/2014 7:10:52 PM	R20712
Nitrogen, Nitrate (As N)	36	2.0	*	mg/L	20	8/20/2014 7:23:17 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/20/2014 7:10:52 PM	R20712
Sulfate	1600	50	*	mg/L	100	8/21/2014 12:57:43 PM	R20741
EPA METHOD 7470: MERCURY						Analyst:	MMD
Mercury	ND	0.00020		mg/L	1	8/22/2014 2:52:20 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS					Analyst:	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 12:11:02 PM	R20721
Barium	ND	0.020		mg/L	1	8/21/2014 12:11:02 PM	R20721
Cadmium	ND	0.0020		mg/L	1	8/21/2014 12:11:02 PM	R20721
Calcium	470	10		mg/L	10	8/21/2014 12:54:31 PM	R20721
Chromium	ND	0.0060		mg/L	1	8/21/2014 12:11:02 PM	R20721
Copper	ND	0.0060		mg/L	1	8/21/2014 12:11:02 PM	R20721
Iron	0.045	0.020		mg/L	1	8/21/2014 12:11:02 PM	R20721
Lead	ND	0.0050		mg/L	1	8/21/2014 12:11:02 PM	R20721
Magnesium	69	1.0		mg/L	1	8/21/2014 12:11:02 PM	R20721
Manganese	ND	0.0020		mg/L	1	8/21/2014 12:11:02 PM	R20721
Potassium	5.4	1.0		mg/L	1	8/21/2014 12:11:02 PM	R20721
Selenium	ND	0.050		mg/L	1	8/21/2014 12:11:02 PM	R20721
Silver	ND	0.0050		mg/L	1	8/21/2014 12:11:02 PM	R20721
Sodium	840	10		mg/L	10	8/21/2014 12:54:31 PM	R20721
Uranium	ND	0.10		mg/L	1	8/21/2014 12:11:02 PM	R20721
Zinc	ND	0.020		mg/L	1	8/21/2014 12:11:02 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS					Analyst:	ELS
Arsenic	ND	0.020		mg/L	1	8/21/2014 11:43:45 AM	14876
Barium	0.11	0.020		mg/L	1	8/21/2014 11:43:45 AM	14876
Cadmium	ND	0.0020		mg/L	1	8/21/2014 11:43:45 AM	14876

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- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	BLE METALS				Analyst	ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:43:45 AM	14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:43:45 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:43:45 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:43:45 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
3,3'-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 40 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 1:55:17 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Phenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 1:55:17 AM	14881
Surr: 2-Fluorophenol	61.9	12.1-85.8	%REC	1	8/22/2014 1:55:17 AM	14881
Surr: Phenol-d5	54.4	17.7-65.8	%REC	1	8/22/2014 1:55:17 AM	14881

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

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 41 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	27.2	26-138	%REC	1	8/22/2014 1:55:17 AM	14881
Surr: Nitrobenzene-d5	105	47.5-119	%REC	1	8/22/2014 1:55:17 AM	14881
Surr: 2-Fluorobiphenyl	104	48.1-106	%REC	1	8/22/2014 1:55:17 AM	14881
Surr: 4-Terphenyl-d14	94.1	44-113	%REC	1	8/22/2014 1:55:17 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 5:05:23 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 5:05:23 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 5:05:23 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 5:05:23 PM	R20875

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Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 5:05:23 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 5:05:23 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 5:05:23 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 5:05:23 PM	R20875
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	8/28/2014 5:05:23 PM	R20875
Surr: 4-Bromofluorobenzene	126	70-130		%REC	1	8/28/2014 5:05:23 PM	R20875
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	8/28/2014 5:05:23 PM	R20875
Surr: Toluene-d8	97.0	70-130		%REC	1	8/28/2014 5:05:23 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	270	1.0	Н	mg CO2/L	1	8/22/2014 5:49:40 PM	R20763

SM2320B: ALKALINITY Analyst: JRR

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

Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-008
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qı	ıal Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	:: JRR
Bicarbonate (As CaCO3)	290	20	mg/L CaCO3	1	8/22/2014 5:49:40 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 5:49:40 PM	R20763
Total Alkalinity (as CaCO3)	290	20	mg/L CaCO3	1	8/22/2014 5:49:40 PM	R20763
SM2540C MOD: TOTAL DISSOLV				Analys	: KS	
Total Dissolved Solids	4340	40.0	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

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

Page 44 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-64 D

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-009
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF Date Analyzed Bato	ch
EPA METHOD 8015D: DIESEL RANG	E			Analyst: BCN	N
Diesel Range Organics (DRO)	ND	0.20	mg/L	1 8/21/2014 3:23:55 AM 1487	73
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1 8/21/2014 3:23:55 AM 1487	73
Surr: DNOP	85.6	75.2-161	%REC	1 8/21/2014 3:23:55 AM 1487	73
EPA METHOD 8015D: GASOLINE RA	NGE			Analyst: NSE	В
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 8/22/2014 12:20:16 AM R20)730
Surr: BFB	103	70.9-130	%REC	1 8/22/2014 12:20:16 AM R207)730
EPA METHOD 300.0: ANIONS				Analyst: LGF	Р
Fluoride	ND	0.10	mg/L	1 8/20/2014 7:35:41 PM R20)712
Chloride	1000	50	* mg/L	100 8/21/2014 1:10:07 PM R20)741
Nitrogen, Nitrite (As N)	ND	2.0	mg/L	20 8/20/2014 7:48:06 PM R20)712
Bromide	2.6	0.10	mg/L	1 8/20/2014 7:35:41 PM R20)712
Nitrogen, Nitrate (As N)	36	2.0	* mg/L	20 8/20/2014 7:48:06 PM R207)712
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1 8/20/2014 7:35:41 PM R207)712
Sulfate	1600	50	* mg/L	100 8/21/2014 1:10:07 PM R20)741
EPA METHOD 7470: MERCURY				Analyst: MM I	iD
Mercury	ND	0.00020	mg/L	1 8/22/2014 2:54:12 PM 1490	00
EPA METHOD 6010B: DISSOLVED M	IETALS			Analyst: ELS	3
Arsenic	ND	0.020	mg/L	1 8/21/2014 12:13:03 PM R207)721
Barium	ND	0.020	mg/L	1 8/21/2014 12:13:03 PM R207)721
Cadmium	ND	0.0020	mg/L	1 8/21/2014 12:13:03 PM R207)721
Calcium	470	10	mg/L	10 8/21/2014 12:56:26 PM R20)721
Chromium	ND	0.0060	mg/L	1 8/21/2014 12:13:03 PM R20)721
Copper	ND	0.0060	mg/L	1 8/21/2014 12:13:03 PM R20)721
Iron	0.039	0.020	mg/L	1 8/21/2014 12:13:03 PM R20)721
Lead	ND	0.0050	mg/L	1 8/21/2014 12:13:03 PM R20)721
Magnesium	68	1.0	mg/L	1 8/21/2014 12:13:03 PM R20)721
Manganese	ND	0.0020	mg/L	1 8/21/2014 12:13:03 PM R20)721
Potassium	5.4	1.0	mg/L	1 8/21/2014 12:13:03 PM R20	
Selenium	ND	0.050	mg/L	1 8/21/2014 12:13:03 PM R20	
Silver	ND	0.0050	mg/L	1 8/21/2014 12:13:03 PM R20	
Sodium	820	10	mg/L	10 8/21/2014 12:56:26 PM R20	
Uranium	ND	0.10	mg/L	1 8/21/2014 12:13:03 PM R20	
Zinc	ND	0.020	mg/L	1 8/21/2014 12:13:03 PM R207)721
EPA 6010B: TOTAL RECOVERABLE	METALS			Analyst: ELS	3
Arsenic	ND	0.020	mg/L	1 8/21/2014 11:45:29 AM 1487	76
Barium	0.21	0.020	mg/L	1 8/21/2014 11:45:29 AM 1487	76
Cadmium	ND	0.0020	mg/L	1 8/21/2014 11:45:29 AM 1487	76

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- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64 D

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-009
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	BLE METALS				Analyst	: ELS
Chromium	0.0083	0.0060	mg/L	1	8/21/2014 11:45:29 AM	14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:45:29 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:45:29 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:45:29 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881

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

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64 D

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-009
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4-Dimethylphenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
3+4-Methylphenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 2:24:50 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Phenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 2:24:50 AM	14881
Surr: 2-Fluorophenol	60.9	12.1-85.8	%REC	1	8/22/2014 2:24:50 AM	14881
Surr: Phenol-d5	46.1	17.7-65.8	%REC	1	8/22/2014 2:24:50 AM	14881

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64 D

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-009
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	44.5	26-138	%REC	1	8/22/2014 2:24:50 AM	14881
Surr: Nitrobenzene-d5	89.5	47.5-119	%REC	1	8/22/2014 2:24:50 AM	14881
Surr: 2-Fluorobiphenyl	93.3	48.1-106	%REC	1	8/22/2014 2:24:50 AM	14881
Surr: 4-Terphenyl-d14	85.2	44-113	%REC	1	8/22/2014 2:24:50 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 5:34:01 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 5:34:01 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 5:34:01 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 5:34:01 PM	R20875

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-64 D

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 11:11:00 AM

 Lab ID:
 1408A13-009
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 5:34:01 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 5:34:01 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 5:34:01 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 5:34:01 PM	R20875
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	8/28/2014 5:34:01 PM	R20875
Surr: 4-Bromofluorobenzene	127	70-130		%REC	1	8/28/2014 5:34:01 PM	R20875
Surr: Dibromofluoromethane	91.9	70-130		%REC	1	8/28/2014 5:34:01 PM	R20875
Surr: Toluene-d8	97.2	70-130		%REC	1	8/28/2014 5:34:01 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	270	1.0	Н	mg CO2/L	1	8/22/2014 6:03:54 PM	R20763
OMOGOOD ALIKALINITY						A 1 1	

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

Qualifiers:

SM2320B: ALKALINITY

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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Analyst: JRR

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64 D

Project: RCRA Wells 8-19-14 Collection Date: 8/19/2014 11:11:00 AM

Lab ID: 1408A13-009 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	t: JRR
Bicarbonate (As CaCO3)	290	20	mg/L CaCO3	1	8/22/2014 6:03:54 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 6:03:54 PM	R20763
Total Alkalinity (as CaCO3)	290	20	mg/L CaCO3	1	8/22/2014 6:03:54 PM	R20763
SM2540C MOD: TOTAL DISSOLVED SOLIDS					Analys	t: KS
Total Dissolved Solids	4340	40.0	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-65

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 2:40:00 PM Lab ID: 1408A13-010 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE				_	Analys	t: BCN
Diesel Range Organics (DRO)	7.4	0.20	mg/L	1	8/21/2014 3:53:36 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 3:53:36 AM	14873
Surr: DNOP	114	75.2-161	%REC	1	8/21/2014 3:53:36 AM	14873
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	t: NSB
Gasoline Range Organics (GRO)	21	2.5	mg/L	50	8/21/2014 4:17:25 PM	R20730
Surr: BFB	113	70.9-130	%REC	50	8/21/2014 4:17:25 PM	R20730
EPA METHOD 300.0: ANIONS					Analys	t: LGP
Fluoride	ND	0.10	mg/L	1	8/20/2014 8:25:19 PM	R20712
Chloride	290	10	* mg/L	20	8/20/2014 8:37:44 PM	R20712
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/20/2014 8:25:19 PM	R20712
Bromide	0.69	0.10	mg/L	1	8/20/2014 8:25:19 PM	R20712
Nitrogen, Nitrate (As N)	1.2	0.10	mg/L	1	8/21/2014 10:16:21 AM	M R20741
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 8:25:19 PM	R20712
Sulfate	530	10	* mg/L	20	8/20/2014 8:37:44 PM	R20712
EPA METHOD 7470: MERCURY					Analys	st: MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:55:56 PM	14900
EPA METHOD 6010B: DISSOLVED ME	TALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Barium	0.17	0.020	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Calcium	250	5.0	mg/L	5	8/21/2014 12:58:23 PM	M R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Iron	3.4	0.10	mg/L	5	8/21/2014 12:58:23 PM	M R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Magnesium	73	1.0	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Manganese	2.7	0.010	mg/L	5	8/21/2014 12:58:23 PM	M R20721
Potassium	4.3	1.0	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Sodium	650	10	mg/L	10	8/21/2014 1:00:10 PM	R20721
Uranium	ND	0.10	mg/L	1	8/21/2014 12:15:03 PM	M R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 12:15:03 PM	M R20721
EPA 6010B: TOTAL RECOVERABLE N	IETALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:47:23 Al	√ 14876
Barium	0.17	0.020	mg/L	1	8/21/2014 11:47:23 Al	√ 14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:47:23 AM	

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 2:40:00 PM

 Lab ID:
 1408A13-010
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	BLE METALS				Analyst	ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:47:23 AM	14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:47:23 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:47:23 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:47:23 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analyst	: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Chloro-3-methylphenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2-Chlorophenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

Page 52 of 94

- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 2:40:00 PM

 Lab ID:
 1408A13-010
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES	3				Analyst:	JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4-Dichlorophenol	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4-Dimethylphenol	210	50	μg/L	5	8/22/2014 11:49:28 AM	14881
4,6-Dinitro-2-methylphenol	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4-Dinitrophenol	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
1-Methylnaphthalene	150	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2-Methylnaphthalene	150	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2-Methylphenol	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
3+4-Methylphenol	14	10	μg/L	1	8/22/2014 2:54:01 AM	14881
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Naphthalene	430	50	μg/L	5	8/22/2014 11:49:28 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2-Nitrophenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
4-Nitrophenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Pentachlorophenol	ND	20	μg/L	1	8/22/2014 2:54:01 AM	14881
Phenanthrene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Phenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Pyrene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4,5-Trichlorophenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
2,4,6-Trichlorophenol	ND	10	μg/L	1	8/22/2014 2:54:01 AM	14881
Surr: 2-Fluorophenol	21.0	12.1-85.8	%REC	1	8/22/2014 2:54:01 AM	14881
Surr: Phenol-d5	41.2	17.7-65.8	%REC	1	8/22/2014 2:54:01 AM	14881

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 53 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-65

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 2:40:00 PM Lab ID: 1408A13-010 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S					Analyst	: JDC
Surr: 2,4,6-Tribromophenol	25.0	26-138	S	%REC	1	8/22/2014 2:54:01 AM	14881
Surr: Nitrobenzene-d5	98.7	47.5-119		%REC	1	8/22/2014 2:54:01 AM	14881
Surr: 2-Fluorobiphenyl	113	48.1-106	S	%REC	1	8/22/2014 2:54:01 AM	14881
Surr: 4-Terphenyl-d14	100	44-113		%REC	1	8/22/2014 2:54:01 AM	14881
EPA METHOD 8260B: VOLATILES						Analyst	cadg
Benzene	5100	100		μg/L	100	8/28/2014 6:02:42 PM	R20875
Toluene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Ethylbenzene	1400	100		μg/L	100	8/28/2014 6:02:42 PM	R20875
Methyl tert-butyl ether (MTBE)	480	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2,4-Trimethylbenzene	1400	100		μg/L	100	8/28/2014 6:02:42 PM	R20875
1,3,5-Trimethylbenzene	17	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2-Dichloroethane (EDC)	140	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2-Dibromoethane (EDB)	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Naphthalene	240	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
1-Methylnaphthalene	110	40		μg/L	10	8/28/2014 6:31:23 PM	R20875
2-Methylnaphthalene	50	40		μg/L	10	8/28/2014 6:31:23 PM	R20875
Acetone	ND	100		μg/L	10	8/28/2014 6:31:23 PM	R20875
Bromobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Bromodichloromethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Bromoform	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Bromomethane	ND	30		μg/L	10	8/28/2014 6:31:23 PM	R20875
2-Butanone	ND	100		μg/L	10	8/28/2014 6:31:23 PM	R20875
Carbon disulfide	ND	100		μg/L	10	8/28/2014 6:31:23 PM	R20875
Carbon Tetrachloride	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Chlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Chloroethane	ND	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
Chloroform	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Chloromethane	ND	30		μg/L	10	8/28/2014 6:31:23 PM	R20875
2-Chlorotoluene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
4-Chlorotoluene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
cis-1,2-DCE	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
cis-1,3-Dichloropropene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2-Dibromo-3-chloropropane	ND	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
Dibromochloromethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Dibromomethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2-Dichlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,3-Dichlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,4-Dichlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Dichlorodifluoromethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 54 of 94 Sample pH greater than 2.
- P
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-65

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 2:40:00 PM

 Lab ID:
 1408A13-010
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual 1	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1-Dichloroethene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2-Dichloropropane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,3-Dichloropropane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
2,2-Dichloropropane	ND	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1-Dichloropropene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Hexachlorobutadiene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
2-Hexanone	ND	100		μg/L	10	8/28/2014 6:31:23 PM	R20875
Isopropylbenzene	84	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
4-Isopropyltoluene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
4-Methyl-2-pentanone	ND	100		μg/L	10	8/28/2014 6:31:23 PM	R20875
Methylene Chloride	ND	30		μg/L	10	8/28/2014 6:31:23 PM	R20875
n-Butylbenzene	ND	30		μg/L	10	8/28/2014 6:31:23 PM	R20875
n-Propylbenzene	190	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
sec-Butylbenzene	12	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Styrene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
tert-Butylbenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1,1,2-Tetrachloroethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1,2,2-Tetrachloroethane	ND	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
Tetrachloroethene (PCE)	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
trans-1,2-DCE	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
trans-1,3-Dichloropropene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2,3-Trichlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2,4-Trichlorobenzene	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1,1-Trichloroethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,1,2-Trichloroethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Trichloroethene (TCE)	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Trichlorofluoromethane	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
1,2,3-Trichloropropane	ND	20		μg/L	10	8/28/2014 6:31:23 PM	R20875
Vinyl chloride	ND	10		μg/L	10	8/28/2014 6:31:23 PM	R20875
Xylenes, Total	280	15		μg/L	10	8/28/2014 6:31:23 PM	R20875
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%REC	10	8/28/2014 6:31:23 PM	R20875
Surr: 4-Bromofluorobenzene	72.8	70-130		%REC	10	8/28/2014 6:31:23 PM	R20875
Surr: Dibromofluoromethane	88.6	70-130		%REC	10	8/28/2014 6:31:23 PM	R20875
Surr: Toluene-d8	95.2	70-130		%REC	10	8/28/2014 6:31:23 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	1400	2.5	Н	mg CO2/L	2.5	8/25/2014 4:35:07 PM	R20804
OMOGOOD ALICALIBUTY						A 1 1	

SM2320B: ALKALINITY 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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 55 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 2:40:00 PM

 Lab ID:
 1408A13-010
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch SM2320B: ALKALINITY Analyst: JRR Bicarbonate (As CaCO3) 1500 50 mg/L CaCO3 2.5 8/25/2014 4:35:07 PM R20804 Carbonate (As CaCO3) ND 5.0 mg/L CaCO3 2.5 8/25/2014 4:35:07 PM R20804 Total Alkalinity (as CaCO3) 1500 50 mg/L CaCO3 2.5 8/25/2014 4:35:07 PM R20804 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS **Total Dissolved Solids** 8/27/2014 4:44:00 PM 2630 100 mg/L 14958

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

Page 56 of 94

- ND Not Detected at the Reporting Limit Page 4
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:40:00 AM

 Lab ID:
 1408A13-011
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst:	BCN
Diesel Range Organics (DRO)	0.64	0.20	mg/L	1	8/21/2014 4:23:10 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 4:23:10 AM	14873
Surr: DNOP	103	75.2-161	%REC	1	8/21/2014 4:23:10 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/22/2014 12:50:14 AM	R20730
Surr: BFB	102	70.9-130	%REC	1	8/22/2014 12:50:14 AM	R20730
EPA METHOD 300.0: ANIONS					Analyst	LGP
Fluoride	0.63	0.10	mg/L	1	8/20/2014 8:50:09 PM	R20712
Chloride	12	0.50	mg/L	1	8/20/2014 8:50:09 PM	R20712
Bromide	0.11	0.10	mg/L	1	8/20/2014 8:50:09 PM	R20712
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 8:50:09 PM	R20712
Sulfate	210	10	mg/L	20	8/20/2014 9:02:34 PM	R20712
Nitrate+Nitrite as N	2.7	1.0	mg/L	5	8/25/2014 5:11:54 PM	R20794
EPA METHOD 7470: MERCURY					Analyst	MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:57:41 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:16:49 PM	R20721
Barium	0.034	0.020	mg/L	1	8/21/2014 12:16:49 PM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:16:49 PM	R20721
Calcium	130	5.0	mg/L	5	8/21/2014 1:02:10 PM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:16:49 PM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:16:49 PM	R20721
Iron	ND	0.020	mg/L	1	8/21/2014 12:16:49 PM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:16:49 PM	
Magnesium	25	1.0	mg/L	1	8/21/2014 12:16:49 PM	
Manganese	0.088	0.0020	mg/L	1	8/21/2014 12:16:49 PM	
Potassium	3.2	1.0	mg/L	1	8/21/2014 12:16:49 PM	
Selenium	ND	0.050	mg/L	1	8/21/2014 12:16:49 PM	
Silver	ND	0.0050	mg/L	1	8/21/2014 12:16:49 PM	
Sodium	55	1.0	mg/L	1	8/21/2014 12:16:49 PM	
Uranium	ND	0.10	mg/L	1	8/21/2014 12:16:49 PM	
Zinc	ND	0.020	mg/L	1	8/21/2014 12:16:49 PM	R20721
EPA 6010B: TOTAL RECOVERABLE					Analyst	
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:48:59 AM	
Barium	0.047	0.020	mg/L	1	8/21/2014 11:48:59 AM	
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:48:59 AM	14876
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:48:59 AM	14876

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 57 of 94

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-67

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:40:00 AM

 Lab ID:
 1408A13-011
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analyst	:: ELS
Lead	0.0058	0.0050	mg/L	1	8/21/2014 11:48:59 AM	14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:48:59 AM	14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:48:59 AM	14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analysi	: DAM
Acenaphthene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Acenaphthylene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Aniline	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Anthracene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Azobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benz(a)anthracene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzo(a)pyrene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzo(b)fluoranthene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzo(g,h,i)perylene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzo(k)fluoranthene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzoic acid	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
Benzyl alcohol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Bis(2-chloroethoxy)methane	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Bis(2-chloroethyl)ether	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Bis(2-chloroisopropyl)ether	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Bis(2-ethylhexyl)phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Bromophenyl phenyl ether	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Butyl benzyl phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Carbazole	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Chloro-3-methylphenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Chloroaniline	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Chloronaphthalene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Chlorophenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Chlorophenyl phenyl ether	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Chrysene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Di-n-butyl phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Di-n-octyl phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Dibenz(a,h)anthracene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Dibenzofuran	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
1,2-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
1,3-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
1,4-Dichlorobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
3,3´-Dichlorobenzidine	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Diethyl phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Dimethyl phthalate	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-67

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:40:00 AM

 Lab ID:
 1408A13-011
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: DAM
2,4-Dichlorophenol	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
2,4-Dimethylphenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4,6-Dinitro-2-methylphenol	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
2,4-Dinitrophenol	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
2,4-Dinitrotoluene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2,6-Dinitrotoluene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Fluoranthene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Fluorene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Hexachlorobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Hexachlorobutadiene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Hexachlorocyclopentadiene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Hexachloroethane	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Indeno(1,2,3-cd)pyrene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Isophorone	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
1-Methylnaphthalene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Methylnaphthalene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Methylphenol	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
3+4-Methylphenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
N-Nitrosodi-n-propylamine	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
N-Nitrosodimethylamine	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
N-Nitrosodiphenylamine	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Naphthalene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Nitroaniline	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
3-Nitroaniline	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Nitroaniline	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Nitrobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2-Nitrophenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
4-Nitrophenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Pentachlorophenol	ND	23	μg/L	1	8/22/2014 7:00:40 PM	14909
Phenanthrene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Phenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Pyrene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Pyridine	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
1,2,4-Trichlorobenzene	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2,4,5-Trichlorophenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
2,4,6-Trichlorophenol	ND	11	μg/L	1	8/22/2014 7:00:40 PM	14909
Surr: 2-Fluorophenol	24.6	12.1-85.8	%REC	1	8/22/2014 7:00:40 PM	14909
Surr: Phenol-d5	24.2	17.7-65.8	%REC	1	8/22/2014 7:00:40 PM	14909
Surr: 2,4,6-Tribromophenol	34.4	26-138	%REC	1	8/22/2014 7:00:40 PM	14909

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

Qualifiers:

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- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc. Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-67

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:40:00 AM

 Lab ID:
 1408A13-011
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	:: DAM
Surr: Nitrobenzene-d5	54.8	47.5-119	%REC	1	8/22/2014 7:00:40 PM	14909
Surr: 2-Fluorobiphenyl	56.6	48.1-106	%REC	1	8/22/2014 7:00:40 PM	14909
Surr: 4-Terphenyl-d14	54.5	44-113	%REC	1	8/22/2014 7:00:40 PM	14909
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 7:28:42 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 7:28:42 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 7:28:42 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1-Dichloroethane	ND	1.0	μg/L	1	8/28/2014 7:28:42 PM	R20875

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

Qualifiers:

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- J Analyte detected below quantitation limits
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-67

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 9:40:00 AM

 Lab ID:
 1408A13-011
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 7:28:42 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 7:28:42 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 7:28:42 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 7:28:42 PM	R20875
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%REC	1	8/28/2014 7:28:42 PM	R20875
Surr: 4-Bromofluorobenzene	114	70-130		%REC	1	8/28/2014 7:28:42 PM	R20875
Surr: Dibromofluoromethane	91.3	70-130		%REC	1	8/28/2014 7:28:42 PM	R20875
Surr: Toluene-d8	95.6	70-130		%REC	1	8/28/2014 7:28:42 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	380	1.0	Н	mg CO2/L	1	8/22/2014 6:52:09 PM	R20763
SM2320B: ALKALINITY						Analyst	: JRR
Bicarbonate (As CaCO3)	410	20		mg/L CaCO3	1	8/22/2014 6:52:09 PM	R20763

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

Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 61 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-67

Project: RCRA Wells 8-19-14 Collection Date: 8/19/2014 9:40:00 AM

Lab ID: 1408A13-011 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analy	st: JRR
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 6:52:09 PM	R20763
Total Alkalinity (as CaCO3)	410	20	mg/L CaCO3	1	8/22/2014 6:52:09 PM	R20763
SM2540C MOD: TOTAL DISSOLVED SOLIDS					Analy	st: KS
Total Dissolved Solids	830	100	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Client Sample ID: Rinsate

Collection Date: 8/19/2014 3:15:00 PM

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Lab ID: 1408A13-012 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES					Analyst	: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5	μg/L	1	8/21/2014 2:47:12 PM	R20730
Benzene	ND	1.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
Toluene	ND	1.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
Ethylbenzene	ND	1.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
Xylenes, Total	ND	2.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/21/2014 2:47:12 PM	R20730
Surr: 4-Bromofluorobenzene	115	82.9-139	%REC	1	8/21/2014 2:47:12 PM	R20730

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-68

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:30:00 AM

 Lab ID:
 1408A13-013
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qı	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/21/2014 4:52:38 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 4:52:38 AM	14873
Surr: DNOP	112	75.2-161	%REC	1	8/21/2014 4:52:38 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/22/2014 1:20:16 AM	R20730
Surr: BFB	103	70.9-130	%REC	1	8/22/2014 1:20:16 AM	R20730
EPA METHOD 300.0: ANIONS					Analyst	: LGP
Fluoride	0.45	0.10	mg/L	1	8/20/2014 9:14:59 PM	R20712
Chloride	34	10	mg/L	20	8/20/2014 9:27:24 PM	R20712
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/20/2014 9:14:59 PM	R20712
Bromide	0.23	0.10	mg/L	1	8/20/2014 9:14:59 PM	R20712
Nitrogen, Nitrate (As N)	8.6	0.10	mg/L	1	8/21/2014 10:03:56 AM	R20741
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 9:14:59 PM	R20712
Sulfate	300	10	* mg/L	20	8/20/2014 9:27:24 PM	R20712
EPA METHOD 7470: MERCURY					Analyst	: MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 2:59:26 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:18:40 PM	R20721
Barium	ND	0.020	mg/L	1	8/21/2014 12:18:40 PM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:18:40 PM	R20721
Calcium	90	1.0	mg/L	1	8/21/2014 12:18:40 PM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:18:40 PM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:18:40 PM	R20721
Iron	0.031	0.020	mg/L	1	8/21/2014 12:18:40 PM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:18:40 PM	R20721
Magnesium	24	1.0	mg/L	1	8/21/2014 12:18:40 PM	R20721
Manganese	0.059	0.0020	mg/L	1	8/21/2014 12:18:40 PM	R20721
Potassium	3.0	1.0	mg/L	1	8/21/2014 12:18:40 PM	R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 12:18:40 PM	R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 12:18:40 PM	R20721
Sodium	120	5.0	mg/L	5	8/21/2014 1:04:04 PM	R20721
Uranium	ND	0.10	mg/L	1	8/21/2014 12:18:40 PM	R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 12:18:40 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	: ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:50:49 AM	14876
Barium	0.16	0.020	mg/L	1	8/21/2014 11:50:49 AM	14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:50:49 AM	14876

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 64 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:30:00 AM

 Lab ID:
 1408A13-013
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	8/21/2014 11:50:49 AM	Л 14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:50:49 AN	<i>l</i> 14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:50:49 AM	<i>l</i> 14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:50:49 AM	Л 14876
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Acenaphthene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Acenaphthylene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Aniline	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Anthracene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Azobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benz(a)anthracene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzo(a)pyrene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzo(b)fluoranthene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzo(g,h,i)perylene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzo(k)fluoranthene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzoic acid	ND	20	μg/L	1	8/22/2014 3:52:04 AM	14881
Benzyl alcohol	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Bis(2-chloroethoxy)methane	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Bis(2-chloroethyl)ether	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Bis(2-chloroisopropyl)ether	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Bis(2-ethylhexyl)phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
4-Bromophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Butyl benzyl phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Carbazole	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
4-Chloro-3-methylphenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
4-Chloroaniline	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Chloronaphthalene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Chlorophenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
4-Chlorophenyl phenyl ether	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Chrysene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Di-n-butyl phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Di-n-octyl phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Dibenz(a,h)anthracene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Dibenzofuran	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
1,2-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
1,3-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
1,4-Dichlorobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
3,3´-Dichlorobenzidine	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Diethyl phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-68

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:30:00 AM

 Lab ID:
 1408A13-013
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: JDC
Dimethyl phthalate	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2,4-Dichlorophenol	ND	22	μg/L	1	8/22/2014 7:29:24 PM	14909
2,4-Dimethylphenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
4,6-Dinitro-2-methylphenol	ND	22	μg/L	1	8/22/2014 7:29:24 PM	14909
2,4-Dinitrophenol	ND	22	μg/L	1	8/22/2014 7:29:24 PM	14909
2,4-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2,6-Dinitrotoluene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Fluoranthene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Fluorene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Hexachlorobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Hexachlorobutadiene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Hexachlorocyclopentadiene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Hexachloroethane	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Indeno(1,2,3-cd)pyrene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Isophorone	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
1-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Methylnaphthalene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Methylphenol	ND	22	μg/L	1	8/22/2014 7:29:24 PM	14909
3+4-Methylphenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
N-Nitrosodi-n-propylamine	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
N-Nitrosodimethylamine	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
N-Nitrosodiphenylamine	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Naphthalene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Nitroaniline	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
3-Nitroaniline	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
4-Nitroaniline	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Nitrobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2-Nitrophenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
4-Nitrophenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
Pentachlorophenol	ND	22	μg/L	1	8/22/2014 7:29:24 PM	14909
Phenanthrene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Phenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
Pyrene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
Pyridine	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
1,2,4-Trichlorobenzene	ND	10	μg/L	1	8/22/2014 3:52:04 AM	14881
2,4,5-Trichlorophenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
2,4,6-Trichlorophenol	ND	11	μg/L	1	8/22/2014 7:29:24 PM	14909
Surr: 2-Fluorophenol	39.5	12.1-85.8	%REC	1	8/22/2014 7:29:24 PM	14909
Surr: Phenol-d5	25.6	17.7-65.8	%REC	1	8/22/2014 7:29:24 PM	14909

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

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 66 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-68

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:30:00 AM

 Lab ID:
 1408A13-013
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: JDC
Surr: 2,4,6-Tribromophenol	62.8	26-138	%REC	1	8/22/2014 7:29:24 PM	14909
Surr: Nitrobenzene-d5	95.0	47.5-119	%REC	1	8/22/2014 3:52:04 AM	14881
Surr: 2-Fluorobiphenyl	99.5	48.1-106	%REC	1	8/22/2014 3:52:04 AM	14881
Surr: 4-Terphenyl-d14	92.7	44-113	%REC	1	8/22/2014 3:52:04 AM	14881
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 7:57:27 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 7:57:27 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 7:57:27 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 7:57:27 PM	R20875

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

Qualifiers:

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- E Value above quantitation range
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-68

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:30:00 AM

 Lab ID:
 1408A13-013
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual 1	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 7:57:27 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 7:57:27 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 7:57:27 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 7:57:27 PM	R20875
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	8/28/2014 7:57:27 PM	R20875
Surr: 4-Bromofluorobenzene	118	70-130		%REC	1	8/28/2014 7:57:27 PM	R20875
Surr: Dibromofluoromethane	92.2	70-130		%REC	1	8/28/2014 7:57:27 PM	R20875
Surr: Toluene-d8	101	70-130		%REC	1	8/28/2014 7:57:27 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	200	1.0	Н	mg CO2/L	1	8/22/2014 7:09:28 PM	R20763
OMOGOOD ALICALIBUTY						A1	

SM2320B: ALKALINITY 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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-19-14 Collection Date: 8/19/2014 10:30:00 AM

Lab ID: 1408A13-013 **Matrix:** AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	t: JRR
Bicarbonate (As CaCO3)	220	20	mg/L CaCO3	1	8/22/2014 7:09:28 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 7:09:28 PM	R20763
Total Alkalinity (as CaCO3)	220	20	mg/L CaCO3	1	8/22/2014 7:09:28 PM	R20763
SM2540C MOD: TOTAL DISSOLVED SOLIDS					Analys	t: KS
Total Dissolved Solids	790	40.0	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-70

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:00:00 AM

 Lab ID:
 1408A13-014
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	E				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/21/2014 5:22:13 AM	14873
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/21/2014 5:22:13 AM	14873
Surr: DNOP	119	75.2-161	%REC	1	8/21/2014 5:22:13 AM	14873
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/22/2014 1:50:28 AM	R20730
Surr: BFB	102	70.9-130	%REC	1	8/22/2014 1:50:28 AM	R20730
EPA METHOD 300.0: ANIONS					Analyst	: LGP
Fluoride	0.69	0.10	mg/L	1	8/20/2014 9:39:48 PM	R20712
Chloride	440	50	* mg/L	100	8/21/2014 1:22:32 PM	R20741
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/20/2014 9:39:48 PM	R20712
Bromide	0.99	0.10	mg/L	1	8/20/2014 9:39:48 PM	R20712
Nitrogen, Nitrate (As N)	ND	0.10	mg/L	1	8/21/2014 9:51:31 AM	R20741
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/20/2014 9:39:48 PM	R20712
Sulfate	2500	50	* mg/L	100	8/21/2014 1:22:32 PM	R20741
EPA METHOD 7470: MERCURY					Analyst	: MMD
Mercury	ND	0.00020	mg/L	1	8/22/2014 3:01:13 PM	14900
EPA METHOD 6010B: DISSOLVED M	ETALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 12:20:25 PM	R20721
Barium	ND	0.020	mg/L	1	8/21/2014 12:20:25 PM	R20721
Cadmium	ND	0.0020	mg/L	1	8/21/2014 12:20:25 PM	R20721
Calcium	600	10	mg/L	10	8/21/2014 1:17:49 PM	R20721
Chromium	ND	0.0060	mg/L	1	8/21/2014 12:20:25 PM	R20721
Copper	ND	0.0060	mg/L	1	8/21/2014 12:20:25 PM	R20721
Iron	18	0.40	mg/L	20	8/21/2014 1:19:35 PM	R20721
Lead	ND	0.0050	mg/L	1	8/21/2014 12:20:25 PM	R20721
Magnesium	170	5.0	mg/L	5	8/21/2014 1:05:56 PM	R20721
Manganese	3.0	0.010	mg/L	5	8/21/2014 1:05:56 PM	R20721
Potassium	5.0	1.0	mg/L	1	8/21/2014 12:20:25 PM	R20721
Selenium	ND	0.050	mg/L	1	8/21/2014 12:20:25 PM	R20721
Silver	ND	0.0050	mg/L	1	8/21/2014 12:20:25 PM	R20721
Sodium	720	10	mg/L	10	8/21/2014 1:17:49 PM	R20721
Uranium	ND	0.50	mg/L	5	8/21/2014 1:05:56 PM	R20721
Zinc	ND	0.020	mg/L	1	8/21/2014 12:20:25 PM	R20721
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	ELS
Arsenic	ND	0.020	mg/L	1	8/21/2014 11:52:32 AM	14876
Barium	0.22	0.020	mg/L	1	8/21/2014 11:52:32 AM	14876
Cadmium	ND	0.0020	mg/L	1	8/21/2014 11:52:32 AM	14876
7						

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Not Detected at the Reporting Limit Page 70 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-70

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:00:00 AM

 Lab ID:
 1408A13-014
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERAB	LE METALS				Analys	t: ELS
Chromium	0.0080	0.0060	mg/L	1	8/21/2014 11:52:32 AM	Л 14876
Lead	ND	0.0050	mg/L	1	8/21/2014 11:52:32 AM	<i>l</i> 14876
Selenium	ND	0.050	mg/L	1	8/21/2014 11:52:32 AM	<i>l</i> 14876
Silver	ND	0.0050	mg/L	1	8/21/2014 11:52:32 AM	<i>l</i> 14876
EPA METHOD 8270C: SEMIVOLAT	TILES				Analys	t: DAM
Acenaphthene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Acenaphthylene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Aniline	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Anthracene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Azobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benz(a)anthracene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzo(a)pyrene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzo(b)fluoranthene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzo(g,h,i)perylene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzo(k)fluoranthene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzoic acid	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
Benzyl alcohol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Bis(2-chloroethoxy)methane	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Bis(2-chloroethyl)ether	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Bis(2-chloroisopropyl)ether	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Bis(2-ethylhexyl)phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Bromophenyl phenyl ether	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Butyl benzyl phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Carbazole	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Chloro-3-methylphenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Chloroaniline	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Chloronaphthalene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Chlorophenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Chlorophenyl phenyl ether	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Chrysene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Di-n-butyl phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Di-n-octyl phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Dibenz(a,h)anthracene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Dibenzofuran	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
1,2-Dichlorobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
1,3-Dichlorobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
1,4-Dichlorobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
3,3´-Dichlorobenzidine	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Diethyl phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909

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- J Analyte detected below quantitation limits
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 71 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-70

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 10:00:00 AM Lab ID: 1408A13-014 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLA	TILES				Analys	t: DAM
Dimethyl phthalate	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4-Dichlorophenol	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4-Dimethylphenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4,6-Dinitro-2-methylphenol	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4-Dinitrophenol	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4-Dinitrotoluene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2,6-Dinitrotoluene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Fluoranthene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Fluorene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Hexachlorobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Hexachlorobutadiene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Hexachlorocyclopentadiene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Hexachloroethane	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Indeno(1,2,3-cd)pyrene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Isophorone	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
1-Methylnaphthalene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Methylnaphthalene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Methylphenol	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
3+4-Methylphenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
N-Nitrosodi-n-propylamine	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
N-Nitrosodimethylamine	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
N-Nitrosodiphenylamine	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Naphthalene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Nitroaniline	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
3-Nitroaniline	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Nitroaniline	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Nitrobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2-Nitrophenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
4-Nitrophenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Pentachlorophenol	ND	25	μg/L	1	8/22/2014 7:58:05 PM	14909
Phenanthrene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Phenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Pyrene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Pyridine	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
1,2,4-Trichlorobenzene	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4,5-Trichlorophenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
2,4,6-Trichlorophenol	ND	12	μg/L	1	8/22/2014 7:58:05 PM	14909
Surr: 2-Fluorophenol	47.0	12.1-85.8	%REC	1	8/22/2014 7:58:05 PM	14909
Surr: Phenol-d5	37.1	17.7-65.8	%REC	1	8/22/2014 7:58:05 PM	14909

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Qualifiers:

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- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Sample pH greater than 2.
- P Reporting Detection Limit

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Lab Order **1408A13**Date Reported: **9/9/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-70

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:00:00 AM

 Lab ID:
 1408A13-014
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILE	S				Analyst	: DAM
Surr: 2,4,6-Tribromophenol	64.3	26-138	%REC	1	8/22/2014 7:58:05 PM	14909
Surr: Nitrobenzene-d5	67.9	47.5-119	%REC	1	8/22/2014 7:58:05 PM	14909
Surr: 2-Fluorobiphenyl	66.4	48.1-106	%REC	1	8/22/2014 7:58:05 PM	14909
Surr: 4-Terphenyl-d14	58.6	44-113	%REC	1	8/22/2014 7:58:05 PM	14909
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Toluene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Ethylbenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Naphthalene	ND	2.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
2-Methylnaphthalene	ND	4.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Acetone	ND	10	μg/L	1	8/28/2014 8:26:19 PM	R20875
Bromobenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Bromodichloromethane	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Bromoform	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Bromomethane	ND	3.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
2-Butanone	ND	10	μg/L	1	8/28/2014 8:26:19 PM	R20875
Carbon disulfide	ND	10	μg/L	1	8/28/2014 8:26:19 PM	R20875
Carbon Tetrachloride	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Chlorobenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Chloroethane	ND	2.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Chloroform	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Chloromethane	ND	3.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
2-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
4-Chlorotoluene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
cis-1,2-DCE	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Dibromochloromethane	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Dibromomethane	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/28/2014 8:26:19 PM	R20875

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

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 73 of 94
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: MW-70

 Project:
 RCRA Wells 8-19-14
 Collection Date: 8/19/2014 10:00:00 AM

 Lab ID:
 1408A13-014
 Matrix: AQUEOUS
 Received Date: 8/20/2014 8:05:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst	cadg
1,1-Dichloroethane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1-Dichloroethene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,3-Dichloropropane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
2,2-Dichloropropane	ND	2.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Hexachlorobutadiene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
2-Hexanone	ND	10		μg/L	1	8/28/2014 8:26:19 PM	R20875
Isopropylbenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
4-Isopropyltoluene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
4-Methyl-2-pentanone	ND	10		μg/L	1	8/28/2014 8:26:19 PM	R20875
Methylene Chloride	ND	3.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
n-Butylbenzene	ND	3.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
n-Propylbenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
sec-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Styrene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
tert-Butylbenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1,1,2-Tetrachloroethane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
trans-1,2-DCE	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
trans-1,3-Dichloropropene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2,3-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2,4-Trichlorobenzene	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1,1-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,1,2-Trichloroethane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Trichloroethene (TCE)	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Trichlorofluoromethane	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
1,2,3-Trichloropropane	ND	2.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Vinyl chloride	ND	1.0		μg/L	1	8/28/2014 8:26:19 PM	R20875
Xylenes, Total	ND	1.5		μg/L	1	8/28/2014 8:26:19 PM	R20875
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	8/28/2014 8:26:19 PM	R20875
Surr: 4-Bromofluorobenzene	124	70-130		%REC	1	8/28/2014 8:26:19 PM	R20875
Surr: Dibromofluoromethane	90.6	70-130		%REC	1	8/28/2014 8:26:19 PM	R20875
Surr: Toluene-d8	94.5	70-130		%REC	1	8/28/2014 8:26:19 PM	R20875
CARBON DIOXIDE						Analyst	: JRR
Total Carbon Dioxide	730	1.0	Н	mg CO2/L	1	8/22/2014 7:20:53 PM	R20763

SM2320B: ALKALINITY Analyst: JRR

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- O RSD is greater than RSDlimit
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

Page 74 of 94

- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order 1408A13 Date Reported: 9/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-70

Project: RCRA Wells 8-19-14 **Collection Date:** 8/19/2014 10:00:00 AM Lab ID: 1408A13-014 Matrix: AQUEOUS **Received Date:** 8/20/2014 8:05:00 AM

Analyses	Result	RL Qual Units			Date Analyzed	Batch
SM2320B: ALKALINITY					Analys	t: JRR
Bicarbonate (As CaCO3)	780	20	mg/L CaCO3	1	8/22/2014 7:20:53 PM	R20763
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/22/2014 7:20:53 PM	R20763
Total Alkalinity (as CaCO3)	780	20	mg/L CaCO3	1	8/22/2014 7:20:53 PM	R20763
SM2540C MOD: TOTAL DISSOLV	ED SOLIDS				Analys	t: KS
Total Dissolved Solids	4960	100	* mg/L	1	8/27/2014 4:44:00 PM	14958

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 75 of 94

 - P Sample pH greater than 2.
 - Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Troject. RCRA v				
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R20712	RunNo: 20712		
Prep Date:	Analysis Date: 8/20/2014	SeqNo: 602707	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Q	ual
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 MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R20741	RunNo: 20741		
Prep Date:	Analysis Date: 8/21/2014	SeqNo: 603501	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Q	ual
Chloride	ND 0.50			
Nitrogen, Nitrate (As N)	ND 0.10			
Sulfate	ND 0.50			
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Sample ID MB Client ID: PBW	SampType: MBLK Batch ID: R20741	TestCode: EPA Method RunNo: 20741	300.0: Anions	
			300.0: Anions Units: mg/L	
Client ID: PBW	Batch ID: R20741 Analysis Date: 8/21/2014	RunNo: 20741	Units: mg/L	ual
Client ID: PBW Prep Date:	Batch ID: R20741 Analysis Date: 8/21/2014	RunNo: 20741 SeqNo: 603565	Units: mg/L	ual
Client ID: PBW Prep Date: Analyte	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value	RunNo: 20741 SeqNo: 603565	Units: mg/L	ual
Client ID: PBW Prep Date: Analyte Chloride	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50	RunNo: 20741 SeqNo: 603565	Units: mg/L	ual
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N)	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10	RunNo: 20741 SeqNo: 603565	Units: mg/L HighLimit %RPD RPDLimit Qi	ual
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit	Units: mg/L HighLimit %RPD RPDLimit Qi	ual
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method	Units: mg/L HighLimit %RPD RPDLimit Qi	ual
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794	Units: mg/L HighLimit %RPD RPDLimit Qi 300.0: Anions Units: mg/L	ual
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW Prep Date:	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794 SeqNo: 605116	Units: mg/L HighLimit %RPD RPDLimit Qi 300.0: Anions Units: mg/L	
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW Prep Date: Analyte	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014 Result PQL SPK value	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794 SeqNo: 605116	Units: mg/L HighLimit %RPD RPDLimit Quality 300.0: Anions Units: mg/L HighLimit %RPD RPDLimit Quality	
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW Prep Date: Analyte Nitrate+Nitrite as N	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014 Result PQL SPK value ND 0.20	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794 SeqNo: 605116 SPK Ref Val %REC LowLimit	Units: mg/L HighLimit %RPD RPDLimit Quality 300.0: Anions Units: mg/L HighLimit %RPD RPDLimit Quality	
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW Prep Date: Analyte Nitrate+Nitrite as N Sample ID MB	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014 Result PQL SPK value ND 0.20 SampType: MBLK	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794 SeqNo: 605116 SPK Ref Val %REC LowLimit TestCode: EPA Method	Units: mg/L HighLimit %RPD RPDLimit Quality 300.0: Anions Units: mg/L HighLimit %RPD RPDLimit Quality	
Client ID: PBW Prep Date: Analyte Chloride Nitrogen, Nitrate (As N) Sulfate Sample ID MB Client ID: PBW Prep Date: Analyte Nitrate+Nitrite as N Sample ID MB Client ID: PBW	Batch ID: R20741 Analysis Date: 8/21/2014 Result PQL SPK value ND 0.50 ND 0.10 ND 0.50 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014 Result PQL SPK value ND 0.20 SampType: MBLK Batch ID: R20794 Analysis Date: 8/25/2014	RunNo: 20741 SeqNo: 603565 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794 SeqNo: 605116 SPK Ref Val %REC LowLimit TestCode: EPA Method RunNo: 20794	Units: mg/L HighLimit %RPD RPDLimit Qi 300.0: Anions Units: mg/L HighLimit %RPD RPDLimit Qi 300.0: Anions Units: mg/L	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID MB-14873 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: **PBW** Batch ID: 14873 RunNo: 20683 Prep Date: 8/20/2014 Analysis Date: 8/20/2014 SegNo: 602569 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 0.20 ND Motor Oil Range Organics (MRO) 2.5 Surr: DNOP 0.42 0.5000 83.8 75.2 161

Sample ID 1408A13-001CMS SampType: MS TestCode: EPA Method 8015D: Diesel Range MW-51 Client ID: Batch ID: 14873 RunNo: 20683 Prep Date: 8/20/2014 Analysis Date: 8/20/2014 SeqNo: 602586 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 0.20 106 64.4 2.7 2.500 178 Surr: DNOP 0.27 0.2500 109 75.2 161

Sample ID 1408A13-001CMSD SampType: MSD TestCode: EPA Method 8015D: Diesel Range Client ID: MW-51 Batch ID: 14873 RunNo: 20683 Prep Date: 8/20/2014 Analysis Date: 8/20/2014 SeqNo: 602587 Units: mg/L 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 64.4 178 5.70 20 Surr: DNOP 0.29 0.2500 118 75.2 161 0 0

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R20730 RunNo: 20730

Prep Date: Analysis Date: 8/21/2014 SeqNo: 603220 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 20 20.00 99.1 70.9 130

Sample ID 1408A13-010BMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: MW-65 Batch ID: R20730 RunNo: 20730

Prep Date: Analysis Date: 8/21/2014 SeqNo: 603230 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

 Gasoline Range Organics (GRO)
 49
 2.5
 25.00
 21.09
 111
 70.4
 127

 Surr: BFB
 1200
 1000
 121
 70.9
 130

Sample ID 1408A13-010BMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: MW-65 Batch ID: R20730 RunNo: 20730

Prep Date: Analysis Date: 8/21/2014 SeqNo: 603231 Units: mg/L

%RPD SPK value SPK Ref Val %REC HighLimit **RPDLimit** Qual Analyte Result **PQL** LowLimit Gasoline Range Organics (GRO) 47 2.5 25.00 21.09 103 70.4 127 3.99 20 Surr: BFB 1200 1000 120 70.9 130 0 0

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8021B: Volatiles Client ID: PBW Batch ID: **R20730** RunNo: 20730 Analysis Date: 8/21/2014 SeqNo: 603246 Prep Date: Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Methyl tert-butyl ether (MTBE) ND 2.5 ND Benzene 1.0 Toluene ND 1.0 ND Ethylbenzene 1.0 Xylenes, Total ND 2.0 1,2,4-Trimethylbenzene ND 1.0 1,3,5-Trimethylbenzene ND 1.0 Surr: 4-Bromofluorobenzene 20.00 82.9 139 23 115

Sample ID 1408A13-012AMS	SampT	ype: MS	6	Tes	8021B: Volati	iles				
Client ID: Rinsate	Batch	n ID: R2	0730	F						
Prep Date:	Analysis D	ate: 8/	21/2014	S	SeqNo: 6	03255	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	18	2.5	20.00	0	89.8	45.4	143			
Benzene	20	1.0	20.00	0.4000	98.9	80	120			
Toluene	20	1.0	20.00	0.4660	99.8	80	120			
Ethylbenzene	21	1.0	20.00	0	105	79.7	126			
Xylenes, Total	66	2.0	60.00	1.180	107	80	120			
1,2,4-Trimethylbenzene	22	1.0	20.00	0.4120	106	80.3	122			
1,3,5-Trimethylbenzene	22	1.0	20.00	0.3020	109	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		122	82.9	139			

Sample ID 1408A13-012AM	SD SampType: MSD TestCode: EPA Method 8021B: Volatiles									
Client ID: Rinsate	Batch	n ID: R2	0730	F	RunNo: 2	0730				
Prep Date:	Analysis D	ate: 8/	21/2014	SeqNo: 603256 Units: μg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	18	2.5	20.00	0	89.5	45.4	143	0.290	20	
Benzene	20	1.0	20.00	0.4000	96.5	80	120	2.33	20	
Toluene	20	1.0	20.00	0.4660	96.9	80	120	2.91	20	
Ethylbenzene	21	1.0	20.00	0	103	79.7	126	2.12	20	
Xylenes, Total	64	2.0	60.00	1.180	105	80	120	2.38	20	
1,2,4-Trimethylbenzene	21	1.0	20.00	0.4120	104	80.3	122	1.79	20	
1,3,5-Trimethylbenzene	22	1.0	20.00	0.3020	107	80	120	1.97	20	
Surr: 4-Bromofluorobenzene	24		20.00		121	82.9	139	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID 5mL rb	SampT	уре: МІ	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	0875	F	RunNo: 2	0875				
Prep Date:	Analysis D	ate: 8	28/2014	S	SeqNo: 6	07425	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								
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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID 5mL rb	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batch	n ID: R2	0875	R	lunNo: 2	0875				
Prep Date:	Analysis D	ate: 8/	28/2014	S	eqNo: 6	07425	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0	0		70.120		9	70.11.2		
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		124	70	130			
Surr: Dibromofluoromethane	8.5		10.00		85.0	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			
Sample ID b4	SampT	ype: ME	BLK	TestCode: EPA Method 8			od 8260B: VOLATILES			
Client ID: PBW	Batch	n ID: R2	0875	R	tunNo: 2	0875				

Sample ID D4	Sampi	ype. we	DLN	165	resicode. EPA Wethod 6260B: VOLATILES					
Client ID: PBW	Batch	ID: R2	0875	F	tunNo: 2	0875				
Prep Date:	Analysis D	28/2014	S	SeqNo: 607445 Units: μ <u>φ</u>						
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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
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- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID b4	SampT	уре: М	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	20875	F	RunNo: 2	0875				
Prep Date:	Analysis D	ate: 8	/28/2014	S	SeqNo: 6	07445	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								
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								
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								
· ·	ND	1.0								
1,1-Dichloropropene		1.0								
Hexachlorobutadiene	ND									
2-Hexanone	ND	10								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID b4	SampT	ype: ME	BLK	Test	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R2	0875	R	RunNo: 2	0875				
Prep Date:	Analysis D	oate: 8/	28/2014	S	SeqNo: 6	07445	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		121	70	130			
Surr: Dibromofluoromethane	8.3		10.00		83.4	70	130			
Surr: Toluene-d8	9.6		10.00		95.9	70	130			

Sample ID 5mL rb	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	0928	F	RunNo: 2	0928				
Prep Date:	Analysis D	ate: 8/	29/2014	S	SeqNo: 6	08986	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	9.6		10.00		95.7	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.7		10.00		97.2	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1408A13

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID 1408a13-001a ms SampType: MS TestCode: EPA Method 8260B: VOLATILES Client ID: MW-51 Batch ID: **R20928** RunNo: 20928 Prep Date: SeqNo: **608990** Analysis Date: 8/29/2014 Units: %REC Analyte Result SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Surr: 1,2-Dichloroethane-d4 10 10.00 105 70 130 9.8 10.00 97.5 70 130 Surr: 4-Bromofluorobenzene Surr: Dibromofluoromethane 11 10.00 106 70 130 Surr: Toluene-d8 9.6 10.00 95.8 70 130

Sample ID 1408a13-001a ms	d SampT	уре: М	SD	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: MW-51	Batch	ID: R2	0928	F	RunNo: 2	0928				
Prep Date:	Analysis D	ate: 8/	29/2014	8	SeqNo: 6	08991	Units: %RE	С		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130	0	0	
Surr: Dibromofluoromethane	11		10.00		112	70	130	0	0	
Surr: Toluene-d8	10		10.00		101	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID mb-14881 SampType: MBLK TestCode: EPA Method 8270C: Semivolatiles **PBW** Client ID: Batch ID: 14881 RunNo: 20725 Analysis Date: 8/21/2014 Prep Date: 8/21/2014 SegNo: 603354 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Acenaphthene ND 10 ND 10 Acenaphthylene ND 10 Aniline Anthracene ND 10 Azobenzene ND 10 Benz(a)anthracene ND 10 Benzo(a)pyrene ND 10 Benzo(b)fluoranthene ND 10 Benzo(q,h,i)perylene ND 10 Benzo(k)fluoranthene ND 10 Benzoic acid ND 20 ND 10 Benzyl alcohol 10 Bis(2-chloroethoxy)methane ND 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 ND 10 Di-n-butyl phthalate Di-n-octyl phthalate ND 10 Dibenz(a,h)anthracene ND 10 Dibenzofuran ND 10 ND 10 1,2-Dichlorobenzene ND 10 1.3-Dichlorobenzene 1,4-Dichlorobenzene ND 10 3.3´-Dichlorobenzidine ND 10 Diethyl phthalate ND 10 Dimethyl phthalate ND 10 20 2,4-Dichlorophenol ND 2,4-Dimethylphenol ND 10 4,6-Dinitro-2-methylphenol ND 20 2,4-Dinitrophenol ND 20

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID mb-14881	SampTy	ype: MBL	K	Tes	tCode: EF	PA Method	8270C: Semi	volatiles		
Client ID: PBW	Batch	ID: 1488	1	F	RunNo: 20	0725				
Prep Date: 8/21/2014	Analysis Da				SeqNo: 60		Units: µg/L			
Analyte	Result	PQL S	PK 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	20								
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	120		200.0		58.2	12.1	85.8			
Surr: Phenol-d5	82		200.0		41.1	17.7	65.8			
Surr: 2,4,6-Tribromophenol	120		200.0		60.8	26	138			
Surr: Nitrobenzene-d5	78		100.0		78.3	47.5	119			
Surr: 2-Fluorobiphenyl	78		100.0		78.5	48.1	106			
Surr: 4-Terphenyl-d14	81		100.0		81.3	44	113			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID mb-14909	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8270C: Semi	volatiles		
Client ID: PBW	Batch	ID: 14	909	F	RunNo: 2	0759				
Prep Date: 8/22/2014	Analysis Da	ate: 8/	22/2014	S	SeqNo: 6	04193	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								
2, . 5	110	_5								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID mb-14909	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8270C: Semi	volatiles		
Client ID: PBW	Batch	ID: 14	909	F	RunNo: 2	0759				
Prep Date: 8/22/2014	Analysis Da	ate: 8/	22/2014	S	SeqNo: 6	04193	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	20								
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	130		200.0		65.4	12.1	85.8			
Surr: Phenol-d5	130		200.0		62.9	17.7	65.8			
Surr: 2,4,6-Tribromophenol	120		200.0		60.6	26	138			
Surr: Nitrobenzene-d5	77		100.0		76.8	47.5	119			
Surr: 2-Fluorobiphenyl	74		100.0		74.3	48.1	106			
Surr: 4-Terphenyl-d14	79		100.0		79.0	44	113			
22 1 to protty a 1	. 3									

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID MB-14900 SampType: MBLK TestCode: EPA Method 7470: Mercury

Client ID: **PBW** Batch ID: **14900** RunNo: **20745**

Prep Date: 8/22/2014 Analysis Date: 8/22/2014 SeqNo: 603750 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

Sample ID 1408A13-004FMS SampType: MS TestCode: EPA Method 7470: Mercury

Client ID: MW-53 Batch ID: 14900 RunNo: 20745

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0045 0.00020 0.005000 0 90.9 75 125

Sample ID 1408A13-004FMSD SampType: MSD TestCode: EPA Method 7470: Mercury

Client ID: MW-53 Batch ID: 14900 RunNo: 20745

Prep Date: 8/22/2014 Analysis Date: 8/22/2014 SeqNo: 603762 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0045 0.00020 0.005000 0 90.5 75 125 0.460 20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1408A13

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID MB	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	6010B: Disso	lved Meta	als	
Client ID: PBW	Bato	ch ID: R2	0721	F	RunNo: 2	0721				
Prep Date:	Analysis	Date: 8/	21/2014	S	SeqNo: 6	02939	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								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID 1408A13-014GMS	Samp	Type: MS	5	l es	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID: MW-70	Bato	th ID: R2	0721	F	RunNo: 2	0721				
Prep Date:	Analysis I	Date: 8/	21/2014	S	SeqNo: 6	03182	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	115	75	125		•	•
Barium	0.48	0.020	0.5000	0.01993	91.8	75	125			
Cadmium	0.48	0.0020	0.5000	0	96.7	75	125			
Chromium	0.47	0.0060	0.5000	0	93.6	75	125			
Copper	0.50	0.0060	0.5000	0	99.2	75	125			
Lead	0.45	0.0050	0.5000	0	89.1	75	125			
Potassium	57	1.0	50.00	5.001	104	75	125			
Selenium	0.55	0.050	0.5000	0	110	75	125			
Silver	0.45	0.0050	0.5000	0	91.0	75	125			
Zinc	0.48	0.020	0.5000	0.007150	93.7	75	125			

Sample ID	1408A13-014GMSD	SampTy	уре: МS	SD D	Test	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID:	MW-70	Batch	ID: R2	0721	R	tunNo: 2	0721				
Prep Date:	,	Analysis Da	ate: 8/	21/2014	S	eqNo: 6	03183	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	114	75	125	0.522	20	
Barium		0.45	0.020	0.5000	0.01993	86.6	75	125	5.64	20	

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- Sample pH greater than 2.
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID	1408A13-014GMSI	D Samp	Type: MS	SD	TestCode: EPA Method 6010B: Dissolved Metals							
Client ID:	MW-70	Bato	h ID: R2	0721	F	RunNo: 20	0721					
Prep Date:		Analysis	Date: 8 /	21/2014	8	SeqNo: 60	03183	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	95.2	75	125	1.52	20		
Chromium		0.46	0.0060	0.5000	0	92.1	75	125	1.62	20		
Copper		0.49	0.0060	0.5000	0	97.2	75	125	2.04	20		
Lead		0.44	0.0050	0.5000	0	87.8	75	125	1.42	20		
Potassium		57	1.0	50.00	5.001	104	75	125	0.171	20		
Selenium		0.52	0.050	0.5000	0	104	75	125	5.65	20		
Silver		0.44	0.0050	0.5000	0	88.1	75	125	3.28	20		
Zinc		0.47	0.020	0.5000	0.007150	92.3	75	125	1.44	20		

Sample ID '	1408A13-014GMS	SampTy	ре: М \$	3	Tes	tCode: El	PA Method	6010B: Disso	olved Meta	als	
Client ID:	MW-70	Batch I	D: R2	20721	F	RunNo: 2	0721				
Prep Date:		Analysis Da	te: 8	21/2014	S	SeqNo: 6	03203	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	·	2.1	0.50	2.500	0	83.5	75	125			

Sample ID	1408A13-014GMSD	SampType:	MSD	Tes	tCode: E	PA Method	6010B: Disso	olved Meta	als	
Client ID:	MW-70	Batch ID:	R20721	F	RunNo: 2	0721				
Prep Date:	A	nalysis Date:	8/21/2014	8	SeqNo: 6	03204	Units: mg/L			
Analyte		Result PC	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium		2.0 0	.50 2.500	0	81.4	75	125	2.47	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID MB-14876 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals PBW Client ID: Batch ID: 14876 RunNo: 20721 SeqNo: 602943 Prep Date: 8/20/2014 Analysis Date: 8/21/2014 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.020 Arsenic ND 0.020 Barium 0.0020 Cadmium ND Chromium ND 0.0060 Lead ND 0.0050 Selenium ND 0.050 Silver ND 0.0050

Sample ID 1408A13-006FMS	SampType: MS Batch ID: 14876			TestCode: EPA 6010B: Total Recoverable Metals							
Client ID: MW-62				RunNo: 20721							
Prep Date: 8/20/2014	Analysis Date: 8/21/2014			SeqNo: 602965			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.49	0.020	0.5000	0.01082	95.1	75	125				
Barium	0.45	0.020	0.5000	0.01339	86.4	75	125				
Cadmium	0.45	0.0020	0.5000	0	89.8	75	125				
Chromium	0.42	0.0060	0.5000	0	84.7	75	125				
Lead	0.42	0.0050	0.5000	0	83.1	75	125				
Selenium	0.40	0.050	0.5000	0	79.3	75	125				
Silver	0.49	0.0050	0.5000	0	97.9	75	125				

Sample ID 1408A13-006FMSD SampType: MSD TestCode: EPA 6010B: Total Recoverable Metals										
Client ID: MW-62	Batch ID: 14876			RunNo: 20721						
Prep Date: 8/20/2014	Analysis Date: 8/21/2014			SeqNo: 602969			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0.01082	99.4	75	125	4.29	20	
Barium	0.46	0.020	0.5000	0.01339	88.5	75	125	2.33	20	
Cadmium	0.46	0.0020	0.5000	0	92.4	75	125	2.86	20	
Chromium	0.44	0.0060	0.5000	0	88.0	75	125	3.73	20	
Lead	0.43	0.0050	0.5000	0	86.4	75	125	3.87	20	
Selenium	0.43	0.050	0.5000	0	86.6	75	125	8.79	20	
Silver	0.50	0.0050	0.5000	0	99.2	75	125	1.36	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 92 of 94

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID mb-1 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20763 RunNo: 20763

Prep Date: Analysis Date: 8/22/2014 SeqNo: 604272 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID mb-2 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20763 RunNo: 20763

Prep Date: Analysis Date: 8/22/2014 SeqNo: 604287 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID mb-1 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20804 RunNo: 20804

Prep Date: Analysis Date: 8/25/2014 SeqNo: 605425 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID mb-2 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20804 RunNo: 20804

Prep Date: Analysis Date: 8/25/2014 SeqNo: 605442 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 93 of 94

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408A13**

09-Sep-14

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-19-14

Sample ID MB-14958 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 14958 RunNo: 20839

Prep Date: 8/26/2014 Analysis Date: 8/27/2014 SeqNo: 606511 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID 1408A13-008EMS SampType: MS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: MW-64 Batch ID: 14958 RunNo: 20839

Prep Date: 8/26/2014 Analysis Date: 8/27/2014 SeqNo: 606520 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 6460 40.0 2000 4340 106 80 120

Sample ID 1408A13-008EMSD SampType: MSD TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: MW-64 Batch ID: 14958 RunNo: 20839

Prep Date: 8/26/2014 Analysis Date: 8/27/2014 SeqNo: 606521 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 6410 40.0 2000 4340 103 80 120 0.870 5

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 94 of 94

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Client Name:	Western Refining Southw	Work Order Num	ber: 1408A13		RcptNo: 1	
Received by/da	ate: LM	08/20/14	1	h.		
Logged By:	Ashley Gallegos	8/20/2014 8:05:00	AM	A		:
Completed By:	Ashley Gallegos	8/20/2014 10:57:19	9 AM	A		
Reviewed By:	AT 08/201	14		•		
Chain of Cu	stody					
1 Custody se	eals intact on sample bottles?		Yes	No [Not Present 🗸	
2. Is Chain of	Custody complete?		Yes 😾	No	Not Present	
3. How was th	he sample delivered?		Courier			
Log In						
4. Was an at	ttempt made to cool the sample	es?	Yes 🗸	No !	NA .	
5. Were all s	amples received at a temperat	ure 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 te	st(s)?	Yes 🗸	No L		
	es (except VOA and ONG) pro		Yes 🗸	No 📋		
9. Was prese	ervative added to bottles?		Yes	No 🔽	NA	
10.VOA vials	have zero headspace?		Yes 🗸	No	No VOA Vials	
11. Were any	sample containers received b	roken?	Yes	No 🗸	# of preserved	4
	erwork match bottle labels? crepancies on chain of custody		Yes 🗸	No []	bottles checked for pH:	36 >12 unless noted
	ces correctly identified on Chair		Yes 🗸	No	Adjus te d?	NO
	what analyses were requested		Yes 🗸	No		
1	nolding times able to be met? ify customer for authorization.)		Yes 🗸	No :	Checked by:	D
Special Hai	ndling (if applicable)					
16. Was clien	nt notified of all discrepancies w	vith this order?	Yes	No L	NA 🗸	• 1
Per	son Notified:	Da	ate:			
Ву	Whom:	Vi	a: eMail	Phone Fax	In Person	1
1 4	garding:					:
Clie	ent Instructions:					!
17. Additiona	al remarks:					
18. <u>Cooler II</u>		Seal Intact Seal N	o Seal Date	Signed By		
Coole	1 NO TEMP C CONCRION	Yes	J Jour Date	J.g., 100 DJ		

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Chain-of-Custody Record	Turn-Around Time:	HAII FNVIRONMENTAL
Client Western R. F. N. N.S.	X Standard Rush	ANALYSIS LABORATORY
	Project Name:	www.hallenvironmental.com
Mailing Address: #50 dR 4990	RCRA Wells 8-19-14	4901 Hawkins NE - Albuquerque, NM 87109
- Elogunt, e/B N M874/3 Project #:	Project #:	Tel. 505-345-3975 Fax 505-345-4107
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email or Fax#:	er:	(†°O)
ige:	Kelly Hobinson	S' [†] Oc t (SW
Standard New House A (Full Validation)		280 0 295 0 21 0 31 0 31
Accretitation □ Other □	Sample: (2004 MM) On ice: (2004 MM)	11.81 1.81 1.40 7.28 1.40 (Ac
□ EDD (Type)	Tem	by control of the con
Date Time Matrix Sample Request ID	Container Preservative HEAL No. Type and # Type IMOR A13	BTEX + MT BTEX + MT TPH 8015B TPH (Methorations (F,C) BOB1 Pestic
84-4 9:00 H2O MW-52	5-VOA HC1 -008	
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	a.te	X
	1-500 HNO3	×
	1-250 UND	× -
	1-600	
	1-250 H2504	
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Chain-of-Custody Record	Turn-Around Time:	ENVIDONMENTAL
Client: Western Refinance	Standard 🗆 Rush	
	Project Name:	www.hallenvironmental.com
Mailing Address: #50 CR 4990	RCRA Wells 8-19-14	4901 Hawkins NE - Albuquerque, NM 87109
- Blow G. 22d, N. 874/3		Tel. 505-345-3975 Fax 505-345-4107
7		Analysis Request
email or Fax#:	Project Manager:	O [†])
QA/QC Package:	Kelly Hobinson	CB.(3)*(2)*(3)*(3)*(3)*(3)*(3)*(3)*(3)*(3)*(3)*(3
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If necessary, samples submitted to Hall Environmental may be sub	ocontracted to other accredited laboratones. This serves as notice of this p	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 arialytical report.

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Mailing Address: #50	25#s	OR 4990		PCRA		8-14-19	4	1901 H	4901 Hawkins NE	ч Щ	Albuquerque, NM 87109	ierque	Σ̈́	87109	•		
Kloom Gold	e B	87448 MN		Project #:			·	Tel. 50	Tel. 505-345-3975	3975	Fax	505-345-4107	45-41	107			
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12/20m C. J.J. N.M. 874/3	Project #:			 	Tel. 505-345-3975	5-345	-3975	ш	3X 5C	Fax 505-345-4107	5-410	7			
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Mailing Address: #56	dress:	#50	ı	CR 4590	90	12CR	Pacrawells 8-19-1	41-61-8		49(1 Ha	4901 Hawkins NE	- 빌	Albuquerque, NM 87109	nerque	N.	18710	6			
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Chain-of-Custody Record	Lurn-Around Lime:	TATUBOUNDATA
Client: Western Cofining	X Standard	ANALYSIS LABORATORY
	Project Name:	www.hallenvironmental.com
Mailing Address: #50 CR 4990	RCRA wells 8-19-14	4901 Hawkins NE - Albuquerque, NM 87109
Rloomfield NM 874/3	Project #:	Tel. 505-345-3975 Fax 505-345-4107
632-		Analysis Request
	Project Manager:	(((((((((((((((((((
QA/QC Package:	Kelly Hobinson	CB, ES, OR
☐ Standard XLevel 4 (Full Validation)		(G) (1) (G) (G) (G) (G) (G) (G) (G) (G) (G) (G
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3-19-4 2:40 HAO MW- 65	5-VOA HC/ -010	
	1-liter amber	X
	1-500 amber	×
	1-500 HNO3	X
124/id	-1-250 HNO3	×
	1-500	×
	1-250 H2504	X
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Time:	Received by: Date Time	
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HAII ENVIEDNMENTAL	_	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis	(†O)) t (SI	35 br	ON's (1.4) (1.4) (1.4) (1.4)	(GR des // (VO)	BTEX + MTI BTEX + MTI TPH 8015B TPH (Metho PPH's (8310 RCRA 8 Me RCRA 8 Me ROSTO (Semi- 8270 (Semi- 8270 (Semi- 6000 (VOA 8270 (×	X	×	×	X	×	× .	×				
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cord	Client: Western Ref. vivo		Mailing Address: #500p. 4990	R/2 C. 18 NIM 974/3	25-4/35	9 6	QA/QC Package:	☐ Standard ★Level 4 (Full Validation)	Accreditation Other		Date Time Matrix Sample Request ID	1-19-14 Pixo Ha 0 NW -67				4)5			19-14 3:15 Riverite			Date: Time: Relinquished by:	ate: Time: Relinquished by:

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Client: Western Refining	Standard Rush	h		18.33	S S	ľ	SI	7	BC	X	<u> </u>	N.	
	Project Name:				WW	www.hallenvironmental.com	nviron	nental	com				
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Bloom 614 NM 87413	Project #:		Т	el. 505	Tel. 505-345-3975	975	Fax	Fax 505-345-4107	5-41(27			
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Analytical Methods and Target Analytes

VC	OCs (EPA Method 8260B) (1)
	arget List
- 1	Benzene
	Toluene
	Ethylbenzene
ı	Xylenes
	Methyl tert butyl ether (MTBE)
SV	OCs - (EPA Method 8270)
	- Method List
TP	H-GRO (EPA Method 8015B)
	- Gasoline Range Organics
TPI	1-DRO (EPA Method 8015B)
1	- Diesel Range Organics
	- Motor Oil Range Organics
Tota	al Carbon Dioxide (Laboratory Calculated)
	- Dissolved CO2
Spec	effic Conductivity (EPA Method 120.1 or field measurement)
<u> </u>	- Specific conductance
TDS	(EPA Method 160.1 or field measurement)
	- Total dissolved solids
Gen	eral Chemistry - Anions (EPA Method 300.0)
1	Fluoride
	Chloride
i	Bromide
ŀ	Nitrogen, Nitrite (as N)
1	Nitrogen, Nitrate (as N)
	Phosphorous, Orthophosphate (As P)
	Sulfate
Gene	ral Chemistry - Alkalinity (EPA Method 310.1)
	Alkalinity, Total
1	Carbonate

Total Passymetals March of	
Total Recoverable Metals (E	PA Method 6010B/7470)
anger List (not applicable to	River Terrace Sampling Events)
Arsenic	Lead
Barium	Mercury
Cadmium	Selenium
Chromium	Silver
- Target List (for River Terrace	Sampling Events Only)
Lead	
Mercury (DW-1 ON	VI.Y)
L	· 1
Dissolved Metals (EPA Metho	od 6010B / 7470)
- Target List (for Refinery Con	pplex. Outfalls and Piver
Arsenic	Manganese
Barium	Mercury
Cadmium	Potassium
Calcium	Selenium
Chromium	
Copper	Silver
Iron	Sodium
Lead	Uranium
	Zinc
Magnesium	· I
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TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

NOTES:

- 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 Piezomenter 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

April 29, 2014

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

Bloomfield, NM 87413 TEL: (505) 632-4135 FAX (505) 632-3911

RE: CW Wells 4-15-14 OrderNo.: 1404738

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/16/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

 $Website: \underline{www.hallenvironmental.com}$

Workorder Sample Summary

WO#: **1404738 29-Apr-14**

CLIENT: Western Refining Southwest, Inc.

Project: CW Wells 4-15-14

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1404738-001	CW 0+60		4/15/2014 9:30:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404738-001	CW 0+60		4/15/2014 9:30:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404738-002	CW 25+95		4/15/2014 1:00:00 PM	4/16/2014 10:10:00 AM	Aqueous
1404738-002	CW 25+95		4/15/2014 1:00:00 PM	4/16/2014 10:10:00 AM	Aqueous

Lab Order **1404738**

Date Reported: 4/29/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60

 Project:
 CW Wells 4-15-14
 Collection Date: 4/15/2014 9:30:00 AM

 Lab ID:
 1404738-001
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	1.7	0.20	mg/L	1	4/17/2014 2:19:01 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 2:19:01 PM	12735
Surr: DNOP	106	76-161	%REC	1	4/17/2014 2:19:01 PM	12735
EPA METHOD 8260B: VOLATILES					Analyst	RAA
Benzene	5.6	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Toluene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Ethylbenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2,4-Trimethylbenzene	4.0	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Naphthalene	120	20	μg/L	10	4/18/2014 3:06:45 PM	R18099
1-Methylnaphthalene	22	4.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
2-Methylnaphthalene	41	4.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Acetone	ND	10	μg/L	1	4/22/2014 5:29:11 PM	R18153
Bromobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Bromodichloromethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Bromoform	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Bromomethane	ND	3.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
2-Butanone	ND	10	μg/L	1	4/22/2014 5:29:11 PM	R18153
Carbon disulfide	ND	10	μg/L	1	4/22/2014 5:29:11 PM	R18153
Carbon Tetrachloride	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Chlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Chloroethane	ND	2.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Chloroform	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Chloromethane	ND	3.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
2-Chlorotoluene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
4-Chlorotoluene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
cis-1,2-DCE	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Dibromochloromethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Dibromomethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2-Dichlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,3-Dichlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,4-Dichlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Dichlorodifluoromethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1-Dichloroethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404738**Date Reported: **4/29/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60

 Project:
 CW Wells 4-15-14
 Collection Date: 4/15/2014 9:30:00 AM

 Lab ID:
 1404738-001
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	RAA
1,1-Dichloroethene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2-Dichloropropane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,3-Dichloropropane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
2,2-Dichloropropane	ND	2.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1-Dichloropropene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Hexachlorobutadiene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
2-Hexanone	ND	10	μg/L	1	4/22/2014 5:29:11 PM	R18153
Isopropylbenzene	110	10	μg/L	10	4/18/2014 3:06:45 PM	R18099
4-Isopropyltoluene	1.1	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
4-Methyl-2-pentanone	ND	10	μg/L	1	4/22/2014 5:29:11 PM	R18153
Methylene Chloride	ND	3.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
n-Butylbenzene	4.9	3.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
n-Propylbenzene	120	10	μg/L	10	4/18/2014 3:06:45 PM	R18099
sec-Butylbenzene	14	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Styrene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
tert-Butylbenzene	3.3	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
trans-1,2-DCE	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Trichlorofluoromethane	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
1,2,3-Trichloropropane	ND	2.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Vinyl chloride	ND	1.0	μg/L	1	4/22/2014 5:29:11 PM	R18153
Xylenes, Total	ND	1.5	μg/L	1	4/22/2014 5:29:11 PM	R18153
Surr: 1,2-Dichloroethane-d4	95.1	70-130	%REC	1	4/22/2014 5:29:11 PM	R18153
Surr: 4-Bromofluorobenzene	102	70-130	%REC	1	4/22/2014 5:29:11 PM	R18153
Surr: Dibromofluoromethane	94.2	70-130	%REC	1	4/22/2014 5:29:11 PM	R18153
Surr: Toluene-d8	93.2	70-130	%REC	1	4/22/2014 5:29:11 PM	R18153

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 3 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404738**

Date Reported: 4/29/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 25+95

 Project:
 CW Wells 4-15-14
 Collection Date: 4/15/2014 1:00:00 PM

 Lab ID:
 1404738-002
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/17/2014 2:49:30 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 2:49:30 PM	12735
Surr: DNOP	106	76-161	%REC	1	4/17/2014 2:49:30 PM	12735
EPA METHOD 8260B: VOLATILES					Analyst	: RAA
Benzene	280	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Toluene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Ethylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Methyl tert-butyl ether (MTBE)	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2,4-Trimethylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,3,5-Trimethylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2-Dichloroethane (EDC)	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2-Dibromoethane (EDB)	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Naphthalene	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
1-Methylnaphthalene	ND	40	μg/L	10	4/22/2014 6:25:10 PM	R18153
2-Methylnaphthalene	ND	40	μg/L	10	4/22/2014 6:25:10 PM	R18153
Acetone	ND	100	μg/L	10	4/22/2014 6:25:10 PM	R18153
Bromobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Bromodichloromethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Bromoform	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Bromomethane	ND	30	μg/L	10	4/22/2014 6:25:10 PM	R18153
2-Butanone	ND	100	μg/L	10	4/22/2014 6:25:10 PM	R18153
Carbon disulfide	ND	100	μg/L	10	4/22/2014 6:25:10 PM	R18153
Carbon Tetrachloride	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Chlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Chloroethane	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
Chloroform	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Chloromethane	ND	30	μg/L	10	4/22/2014 6:25:10 PM	R18153
2-Chlorotoluene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
4-Chlorotoluene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
cis-1,2-DCE	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
cis-1,3-Dichloropropene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2-Dibromo-3-chloropropane	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
Dibromochloromethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Dibromomethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2-Dichlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,3-Dichlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,4-Dichlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Dichlorodifluoromethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1-Dichloroethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404738**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/29/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: CW 25+95

 Project:
 CW Wells 4-15-14
 Collection Date: 4/15/2014 1:00:00 PM

 Lab ID:
 1404738-002
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: RAA
1,1-Dichloroethene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2-Dichloropropane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,3-Dichloropropane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
2,2-Dichloropropane	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1-Dichloropropene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Hexachlorobutadiene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
2-Hexanone	ND	100	μg/L	10	4/22/2014 6:25:10 PM	R18153
Isopropylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
4-Isopropyltoluene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
4-Methyl-2-pentanone	ND	100	μg/L	10	4/22/2014 6:25:10 PM	R18153
Methylene Chloride	ND	30	μg/L	10	4/22/2014 6:25:10 PM	R18153
n-Butylbenzene	ND	30	μg/L	10	4/22/2014 6:25:10 PM	R18153
n-Propylbenzene	10	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
sec-Butylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Styrene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
tert-Butylbenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1,1,2-Tetrachloroethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1,2,2-Tetrachloroethane	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
Tetrachloroethene (PCE)	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
trans-1,2-DCE	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
trans-1,3-Dichloropropene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2,3-Trichlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2,4-Trichlorobenzene	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1,1-Trichloroethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,1,2-Trichloroethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Trichloroethene (TCE)	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Trichlorofluoromethane	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
1,2,3-Trichloropropane	ND	20	μg/L	10	4/22/2014 6:25:10 PM	R18153
Vinyl chloride	ND	10	μg/L	10	4/22/2014 6:25:10 PM	R18153
Xylenes, Total	ND	15	μg/L	10	4/22/2014 6:25:10 PM	R18153
Surr: 1,2-Dichloroethane-d4	92.5	70-130	%REC	10	4/22/2014 6:25:10 PM	R18153
Surr: 4-Bromofluorobenzene	94.4	70-130	%REC	10	4/22/2014 6:25:10 PM	R18153
Surr: Dibromofluoromethane	93.5	70-130	%REC	10	4/22/2014 6:25:10 PM	R18153
Surr: Toluene-d8	91.3	70-130	%REC	10	4/22/2014 6:25:10 PM	R18153

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1404738 29-Apr-14

Client: Western Refining Southwest, Inc.

Project: CW Wells 4-15-14

Sample ID MB-12735 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: PBW Batch ID: 12735 RunNo: 18017 Prep Date: 4/16/2014 Analysis Date: 4/17/2014 SegNo: 520905 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 0.20 ND Motor Oil Range Organics (MRO) 2.5 Surr: DNOP 0.59 0.5000 76 117 161

Sample ID 1404738-001BMS SampType: MS TestCode: EPA Method 8015D: Diesel Range Client ID: CW 0+60 Batch ID: 12735 RunNo: 18017 Prep Date: 4/16/2014 Analysis Date: 4/17/2014 SeqNo: 520948 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 0.20 1.677 100 4.2 2.500 72.1 156 Surr: DNOP 0.28 0.2500 111 76 161

Sample ID 1404738-001BMSD SampType: MSD TestCode: EPA Method 8015D: Diesel Range Client ID: CW 0+60 Batch ID: 12735 RunNo: 18017 Prep Date: 4/16/2014 Analysis Date: 4/17/2014 SeqNo: 520949 Units: mg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 4.1 0.20 2.500 1.677 96.6 72.1 156 2.08 20 Surr: DNOP 0.30 0.2500 118 76 161 0 0

Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
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- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404738**

29-Apr-14

Client: Western Refining Southwest, Inc.

Project: CW Wells 4-15-14

Sample ID 5mL-rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R1	8099	F	RunNo: 1	8099				
Prep Date:	Analysis D	oate: 4/	18/2014	S	SeqNo: 5	22540	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
Isopropylbenzene	ND	1.0								
n-Propylbenzene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.3	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.0	70	130			
Surr: Toluene-d8	9.1		10.00		90.9	70	130			
Sample ID b3	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R1	8099	F	RunNo: 1	8099				
Prep Date:	Analysis D	oate: 4/	18/2014	5	SeqNo: 5	22545	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
Isopropylbenzene	ND	1.0								
n-Propylbenzene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.8	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.5	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.5	70	130			
Surr: Toluene-d8	9.3		10.00		92.6	70	130			
Sample ID 5mL-rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R1	8153	F	RunNo: 1	8153				
Prep Date:	Analysis D	oate: 4/	22/2014	5	SeqNo: 5	23911	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								

Qualifiers:

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- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404738**

29-Apr-14

Client: Western Refining Southwest, Inc.

Project: CW Wells 4-15-14

Sample ID 5mL-rb	SampT	ype: MBLK	Tes	stCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R18153		RunNo: 1	8153				
Prep Date:	Analysis D	ate: 4/22/2014		SeqNo: 5	23911	Units: µg/L			
Analyte	Result		alue SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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 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							
1,1,2,2-Tellacillol0elliane	טאו	2.0							

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404738**

29-Apr-14

Client: Western Refining Southwest, Inc.

Project: CW Wells 4-15-14

Sample ID 5mL-rb	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: R1	8153	F	lunNo: 1	8153				
Prep Date:	Analysis D	ate: 4/	22/2014	S	eqNo: 5	23911	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	9.2		10.00		92.4	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.6	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.4	70	130			
Surr: Toluene-d8	9.2		10.00		91.6	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

RcptNo: 1 Western Refining Southw Work Order Number: 1404738 Client Name: Received by/date: **Ashley Gallegos** 4/16/2014 10:10:00 AM Logged By: **Ashley Gallegos** 4/16/2014 10:58:35 AM Completed By: Reviewed By: Chain of Custody Not Present ▼ 1. Custody seals intact on sample bottles? No Yes Not Present No Yes V 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier <u>Log In</u> NA I 4. Was an attempt made to cool the samples? NA ... Yes 🗸 Were all samples received at a temperature of >0° C to 6.0°C No 6. Sample(s) in proper container(s)? Yes No 7. Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? NA Yes No 9. Was preservative added to bottles? No VOA Vials No 10. VOA vials have zero headspace? Nο Yes 📖 11. Were any sample containers received broken? # of preserved bottles checked for pH: No 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? 13 Are matrices correctly identified on Chain of Custody? No No 14. Is it clear what analyses were requested? Checked by: No 15. Were all holding times able to be met? Yes 🗸 (If no, notify customer for authorization.) Special Handling (if applicable) Yes 🗔 No 16. Was client notified of all discrepancies with this order? Date: Person Notified: Phone In Person Via: Fax By Whom: eMail Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Good Yes

Chain-of-Custody Record	Turn-Around Time:	HALL ENVIRONMENTAL ANALYSIS LABORATORY
7	Project Name:	www.hallenvironmental.com
Mailing Address: 井50 CR 4990	CW Wells 4-15-14	4901 Hawkins NE - Albuquerque, NM 87109
Bloomfield NM 97413	Project #:	Tel. 505-345-3975 Fax 505-345-4107
) . ``		Analysis Request
	Project Manager:	FO)
QA/QC Package:		(SV)
☐ Standard M Level 4 (Full Validation)	(uc	9) (G
Accreditation	Sampler: MATL + Bab On ice: ZYes	HPT + (1 \ OP (1 \ 81 \) (1 \ 40 \) (1 \ 40 \) (1 \ 40 \) (2 \ 40 \) (3 \ 40 \) (4 \ 60 \)
□ EDD (Type)	Sample Temperature: Z, L	BE (G)
Date Time Matrix Sample Request ID	D Container Preservative HEAL No. Type and # Type 14,047.58	BTEX + MT BTEX + MT BTEX + MT TPH 8015B TPH (Methorent of the
09+0 MO 077 08.6 H-31-	100- 10H HOV-8	X
		\(\times \)
79+70 WD 001 W.31	-	X
	1-500ml amber	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Date: Time: Relinquished by: -15-14 Kyg Robert Kraker	Received by: Date 1 Must Label 4/15/14	Time Remarks:
_	Defie Defie	Time (/)
If necessary, (samples submitted to Hall Environmental may b	e subcontracted to other accredited laboratories. This serves as	if necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



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

April 30, 2014

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

Bloomfield, NM 87413 TEL: (505) 632-4135 FAX (505) 632-3911

RE: OW Wells 4/15/14 OrderNo.: 1404740

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/16/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: **1404740** 30-Apr-14

CLIENT: Western Refining Southwest, Inc.

Project: OW Wells 4/15/14

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1404740-001	OW-3+85		4/15/2014 9:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-001	OW-3+85		4/15/2014 9:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-001	OW-3+85		4/15/2014 9:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-002	OW-16+60		4/15/2014 10:30:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-002	OW-16+60		4/15/2014 10:30:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-002	OW-16+60		4/15/2014 10:30:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-003	OW-22+00		4/15/2014 10:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-003	OW-22+00		4/15/2014 10:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-003	OW-22+00		4/15/2014 10:45:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-004	OW-23+10		4/15/2014 11:00:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-004	OW-23+10		4/15/2014 11:00:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-004	OW-23+10		4/15/2014 11:00:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-005	OW-23+90		4/15/2014 11:15:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-005	OW-23+90		4/15/2014 11:15:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-005	OW-23+90		4/15/2014 11:15:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-006	OW-25+70		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-006	OW-25+70		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-006	OW-25+70		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-007	OW-25+70D		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-007	OW-25+70D		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-007	OW-25+70D		4/15/2014 11:40:00 AM	4/16/2014 10:10:00 AM	Aqueous
1404740-008	Rinsate		4/15/2014 2:30:00 PM	4/16/2014 10:10:00 AM	Aqueous
1404740-009	TRIP BLANK			4/16/2014 10:10:00 AM	Aqueous
1404740-009	TRIP BLANK			4/16/2014 10:10:00 AM	Aqueous

Analytical ReportLab Order **1404740**

Date Reported: 4/30/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-3+85

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 9:45:00 AM

 Lab ID:
 1404740-001
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst	: JME
Diesel Range Organics (DRO)	110	2.0		mg/L	10	4/21/2014 2:04:56 PM	12735
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	4/21/2014 2:04:56 PM	12735
Surr: DNOP	0	76-161	S	%REC	10	4/21/2014 2:04:56 PM	12735
EPA METHOD 8015D: GASOLINE RAN	GE					Analyst	: NSB
Gasoline Range Organics (GRO)	5.0	0.50		mg/L	10	4/21/2014 1:22:22 PM	R18124
Surr: BFB	187	80.4-118	S	%REC	10	4/21/2014 1:22:22 PM	R18124
EPA METHOD 8260: VOLATILES SHOP	RT LIST					Analyst	cadg
Benzene	ND	10		μg/L	10	4/18/2014 5:37:34 PM	R18092
Toluene	ND	10		μg/L	10	4/18/2014 5:37:34 PM	R18092
Ethylbenzene	25	10		μg/L	10	4/18/2014 5:37:34 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	10		μg/L	10	4/18/2014 5:37:34 PM	R18092
Xylenes, Total	ND	15		μg/L	10	4/18/2014 5:37:34 PM	R18092
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	10	4/18/2014 5:37:34 PM	R18092
Surr: 4-Bromofluorobenzene	81.1	70-130		%REC	10	4/18/2014 5:37:34 PM	R18092
Surr: Dibromofluoromethane	103	70-130		%REC	10	4/18/2014 5:37:34 PM	R18092
Surr: Toluene-d8	90.2	70-130		%REC	10	4/18/2014 5:37:34 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 13

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-16+60

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 10:30:00 AM

 Lab ID:
 1404740-002
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	40	0.20	mg/L	1	4/17/2014 4:21:54 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 4:21:54 PM	12735
Surr: DNOP	117	76-161	%REC	1	4/17/2014 4:21:54 PM	12735
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	: NSB
Gasoline Range Organics (GRO)	2.9	0.50	mg/L	10	4/21/2014 3:16:49 PM	R18124
Surr: BFB	227	80.4-118	S %REC	10	4/21/2014 3:16:49 PM	R18124
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	cadg
Benzene	ND	2.0	μg/L	2	4/24/2014 3:57:58 PM	R18198
Toluene	ND	2.0	μg/L	2	4/24/2014 3:57:58 PM	R18198
Ethylbenzene	8.2	2.0	μg/L	2	4/24/2014 3:57:58 PM	R18198
Methyl tert-butyl ether (MTBE)	660	10	μg/L	10	4/18/2014 6:34:51 PM	R18092
Xylenes, Total	ND	3.0	μg/L	2	4/24/2014 3:57:58 PM	R18198
Surr: 1,2-Dichloroethane-d4	91.8	70-130	%REC	2	4/24/2014 3:57:58 PM	R18198
Surr: 4-Bromofluorobenzene	105	70-130	%REC	2	4/24/2014 3:57:58 PM	R18198
Surr: Dibromofluoromethane	101	70-130	%REC	2	4/24/2014 3:57:58 PM	R18198
Surr: Toluene-d8	98.6	70-130	%REC	2	4/24/2014 3:57:58 PM	R18198

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-22+00

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 10:45:00 AM

 Lab ID:
 1404740-003
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/17/2014 4:52:39 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 4:52:39 PM	12735
Surr: DNOP	115	76-161	%REC	1	4/17/2014 4:52:39 PM	12735
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/21/2014 4:14:02 PM	R18124
Surr: BFB	85.4	80.4-118	%REC	1	4/21/2014 4:14:02 PM	R18124
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 7:32:08 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 7:32:08 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 7:32:08 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 7:32:08 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 7:32:08 PM	R18092
Surr: 1,2-Dichloroethane-d4	106	70-130	%REC	1	4/18/2014 7:32:08 PM	R18092
Surr: 4-Bromofluorobenzene	104	70-130	%REC	1	4/18/2014 7:32:08 PM	R18092
Surr: Dibromofluoromethane	107	70-130	%REC	1	4/18/2014 7:32:08 PM	R18092
Surr: Toluene-d8	94.3	70-130	%REC	1	4/18/2014 7:32:08 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-23+10

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 11:00:00 AM

 Lab ID:
 1404740-004
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	1.0	0.20	mg/L	1	4/17/2014 5:23:14 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 5:23:14 PM	12735
Surr: DNOP	113	76-161	%REC	1	4/17/2014 5:23:14 PM	12735
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	0.15	0.050	mg/L	1	4/21/2014 4:42:39 PM	R18124
Surr: BFB	86.3	80.4-118	%REC	1	4/21/2014 4:42:39 PM	R18124
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 8:00:45 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 8:00:45 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 8:00:45 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 8:00:45 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 8:00:45 PM	R18092
Surr: 1,2-Dichloroethane-d4	97.5	70-130	%REC	1	4/18/2014 8:00:45 PM	R18092
Surr: 4-Bromofluorobenzene	96.1	70-130	%REC	1	4/18/2014 8:00:45 PM	R18092
Surr: Dibromofluoromethane	97.0	70-130	%REC	1	4/18/2014 8:00:45 PM	R18092
Surr: Toluene-d8	96.4	70-130	%REC	1	4/18/2014 8:00:45 PM	R18092

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-23+90

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 11:15:00 AM

 Lab ID:
 1404740-005
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/17/2014 5:54:05 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 5:54:05 PM	12735
Surr: DNOP	111	76-161	%REC	1	4/17/2014 5:54:05 PM	12735
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/21/2014 5:11:13 PM	R18124
Surr: BFB	83.7	80.4-118	%REC	1	4/21/2014 5:11:13 PM	R18124
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 8:29:30 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 8:29:30 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 8:29:30 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 8:29:30 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 8:29:30 PM	R18092
Surr: 1,2-Dichloroethane-d4	98.9	70-130	%REC	1	4/18/2014 8:29:30 PM	R18092
Surr: 4-Bromofluorobenzene	105	70-130	%REC	1	4/18/2014 8:29:30 PM	R18092
Surr: Dibromofluoromethane	102	70-130	%REC	1	4/18/2014 8:29:30 PM	R18092
Surr: Toluene-d8	93.9	70-130	%REC	1	4/18/2014 8:29:30 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 6 of 13

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-25+70

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 11:40:00 AM

 Lab ID:
 1404740-006
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RAN	GE				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/17/2014 6:24:50 PM	12735
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/17/2014 6:24:50 PM	12735
Surr: DNOP	113	76-161	%REC	1	4/17/2014 6:24:50 PM	12735
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	0.20	0.050	mg/L	1	4/21/2014 5:39:48 PM	R18124
Surr: BFB	88.4	80.4-118	%REC	1	4/21/2014 5:39:48 PM	R18124
EPA METHOD 8260: VOLATILES SH	HORT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 8:58:17 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 8:58:17 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 8:58:17 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 8:58:17 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 8:58:17 PM	R18092
Surr: 1,2-Dichloroethane-d4	97.6	70-130	%REC	1	4/18/2014 8:58:17 PM	R18092
Surr: 4-Bromofluorobenzene	101	70-130	%REC	1	4/18/2014 8:58:17 PM	R18092
Surr: Dibromofluoromethane	102	70-130	%REC	1	4/18/2014 8:58:17 PM	R18092
Surr: Toluene-d8	92.8	70-130	%REC	1	4/18/2014 8:58:17 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 7 of 13

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-25+70D

 Project:
 OW Wells 4/15/14
 Collection Date: 4/15/2014 11:40:00 AM

 Lab ID:
 1404740-007
 Matrix: AQUEOUS
 Received Date: 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	GE				Analyst	BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/17/2014 6:55:51 PM	12735
Motor Oil Range Organics (MRO)	3.0	2.5	mg/L	1	4/17/2014 6:55:51 PM	12735
Surr: DNOP	116	76-161	%REC	1	4/17/2014 6:55:51 PM	12735
EPA METHOD 8015D: GASOLINE R	ANGE				Analyst	: NSB
Gasoline Range Organics (GRO)	0.18	0.050	mg/L	1	4/21/2014 6:08:20 PM	R18124
Surr: BFB	88.3	80.4-118	%REC	1	4/21/2014 6:08:20 PM	R18124
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 9:27:03 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 9:27:03 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 9:27:03 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 9:27:03 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 9:27:03 PM	R18092
Surr: 1,2-Dichloroethane-d4	98.8	70-130	%REC	1	4/18/2014 9:27:03 PM	R18092
Surr: 4-Bromofluorobenzene	106	70-130	%REC	1	4/18/2014 9:27:03 PM	R18092
Surr: Dibromofluoromethane	98.6	70-130	%REC	1	4/18/2014 9:27:03 PM	R18092
Surr: Toluene-d8	91.4	70-130	%REC	1	4/18/2014 9:27:03 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**Date Reported: **4/30/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Rinsate

Project: OW Wells 4/15/14 **Collection Date:** 4/15/2014 2:30:00 PM

Lab ID: 1404740-008 **Matrix:** AQUEOUS **Received Date:** 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SH			Analyst	cadg		
Benzene	ND	1.0	μg/L	1	4/18/2014 9:55:41 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 9:55:41 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 9:55:41 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 9:55:41 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 9:55:41 PM	R18092
Surr: 1,2-Dichloroethane-d4	102	70-130	%REC	1	4/18/2014 9:55:41 PM	R18092
Surr: 4-Bromofluorobenzene	102	70-130	%REC	1	4/18/2014 9:55:41 PM	R18092
Surr: Dibromofluoromethane	106	70-130	%REC	1	4/18/2014 9:55:41 PM	R18092
Surr: Toluene-d8	93.4	70-130	%REC	1	4/18/2014 9:55:41 PM	R18092

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 9 of 13

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404740**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/30/2014

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: OW Wells 4/15/14 **Collection Date:**

Lab ID: 1404740-009 **Matrix:** AQUEOUS **Received Date:** 4/16/2014 10:10:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE R	ANGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/21/2014 6:37:00 PM	R18124
Surr: BFB	86.0	80.4-118	%REC	1	4/21/2014 6:37:00 PM	R18124
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/18/2014 5:08:52 PM	R18092
Toluene	ND	1.0	μg/L	1	4/18/2014 5:08:52 PM	R18092
Ethylbenzene	ND	1.0	μg/L	1	4/18/2014 5:08:52 PM	R18092
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/18/2014 5:08:52 PM	R18092
Xylenes, Total	ND	1.5	μg/L	1	4/18/2014 5:08:52 PM	R18092
Surr: 1,2-Dichloroethane-d4	103	70-130	%REC	1	4/18/2014 5:08:52 PM	R18092
Surr: 4-Bromofluorobenzene	104	70-130	%REC	1	4/18/2014 5:08:52 PM	R18092
Surr: Dibromofluoromethane	106	70-130	%REC	1	4/18/2014 5:08:52 PM	R18092
Surr: Toluene-d8	90.1	70-130	%REC	1	4/18/2014 5:08:52 PM	R18092

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 10 of 13
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404740**

30-Apr-14

Client: Western Refining Southwest, Inc.

Project: OW Wells 4/15/14

Sample ID MB-12735 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range PBW Client ID: Batch ID: 12735 RunNo: 18017 4/16/2014 Analysis Date: 4/17/2014 SeqNo: 520905 Prep Date: 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 0.59 0.5000 117 76 161

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1404740

30-Apr-14

Client: Western Refining Southwest, Inc.

Project: OW Wells 4/15/14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R18124 RunNo: 18124

Prep Date: Analysis Date: 4/21/2014 SeqNo: 523149 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 83.8 80.4 Surr: BFB 17 118

Sample ID 1404740-001BMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range Client ID: OW-3+85 Batch ID: R18124 RunNo: 18124

Analysis Date: 4/21/2014 SeqNo: 523152

Prep Date: Units: mg/L

LowLimit Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 8.2 0.50 5.000 5.048 63.2 79 121 S 300 200.0 S Surr: BFB 151 80.4 118

Sample ID 1404740-001BMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range Client ID: OW-3+85 Batch ID: R18124 RunNo: 18124 Prep Date: Analysis Date: 4/21/2014 SeqNo: 523153 Units: mg/L %REC %RPD Result SPK value SPK Ref Val HighLimit **RPDLimit** Qual Analyte **PQL** LowLimit

Gasoline Range Organics (GRO) 8.8 0.50 5.000 5.048 74.3 79 121 6.55 20 S Surr: BFB 320 200.0 159 80.4 118 0 0 S

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404740**

30-Apr-14

Client: Western Refining Southwest, Inc.

Project: OW Wells 4/15/14

Sample ID 5mL rb	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	8260: Volatil	es Short I	ist	
Client ID: PBW	Batch	1D: R1	8092	F	RunNo: 1	8092				
Prep Date:	Analysis D	ate: 4/	18/2014	S	SeqNo: 5	22367	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.4		10.00		94.3	70	130			
Sample ID 5mL rb	SampT	уре: М	BLK	Tes	tCode: E	PA Method	8260: Volatil	es Short I	ist	
Client ID: PBW	Batch	1D: R1	8198	F	RunNo: 1	8198				
Draw Date:	A I ! D		10.410.0.4.4	,	N		11-24-			

Client ID: PBW	Batcr	1 IU: R1	8198	F	kunino: 1	8198				
Prep Date:	Analysis D	ate: 4/	24/2014	S	SeqNo: 5	25242	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.0	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.9	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com

Client Name: Western Refining Southw	Work Order Numbe	r: 1404740		ReptNo: 1
Received by/date:	04/16/14		,	
Logged By: Ashley Gallegos	4/16/2014 10:10:00 A	M	A	•
Completed By: Ashley Gallegos	4/16/2014 11:03:18 A	M	A	
Reviewed By:	1116114		d	
Chain of Custody				
1 Custody seals intact on sample bottles?		Yes	No	Not Present ✓
2. Is Chain of Custody complete?		Yes 🗸	No · i	Not Present
3. How was the sample delivered?		<u>Courier</u>		
l og la				
Log In 4. Was an attempt made to cool the samp	oles?	Yes 🔽	No 🗔	NA 🚉
5. Were all samples received at a tempera	ature 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 t	est(s)?	Yes 🗸	No .	
8. Are samples (except VOA and ONG) pr	operly 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 i	oroken?	Yes	No 🗹	# of preserved
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody	۸	Yes 🗸	No	bottles checked for pH: (<2 or >12 unless not
13 Are matrices correctly identified on Cha		Yes 🗸	No :	Adjusted?
14. Is it clear what analyses were requested	1?	Yes 🗸	No :	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗹	No Li	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:		enterminenteriore enterminente de la constitución d		oraniana manana magambala da Malada A. A Malada A. A da Bara a Malada magambala da Malada magambala da Malada Malada A. A da Bara a Malada magambala da Malada Mala
Client Instructions:	_			VARIANCE CONTRACTOR CO
17. Additional remarks:			- · · · · · · · · · · · · · · · · · · ·	
18. <u>Cooler Information</u>				
	Seal Intact Seal No	Seal Date	Signed By	
1 2.1 Good	Yes		PT 148-111-11 18P1-11111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	

HALL ENVIRONMENTAL ANALYSIS LABORATORY	4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107	Analysis Request	Gas only	1.81 (1.81 (1.40 ((GF)	BTEX + MT BTEX + MT TPH 8015B TPH (Methor (B31) PAH's (831) RCRA 8 Methor (B081) RCRA 8 Metho	X			スーー	3	× .	4	*	X X	X	Time Remarks:	5	Time ()/()	The first of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
Turn-Around Time: Standard □ Rush Project Name:	OW LUELLS 4-15-14		Project Manager:	Sampler: Matta-Bab On toe	Tempela	Container Preservative HEAL No Type and #	5-16A Hal -001	1-50m auber		1-50ml amber	5-404 HCI -003	1 amber	5-10A HCI -004	(-500m) amber	-		Racewed hv Date Ti	de World HISIM	el la	-
Chain-of-Custody Record	Mailing Address: # 50 CR 4990 Bloom Pield, NM 87413	55-632-4135	email or Fax#: QA/QC Package: ☐ Standard	Other	□ EDD (Type)	Date Time Matrix Sample Request ID	1-15-4 9:45 Had OW-3+85	/	15-14 10:30 OW - 16+60		1-15-14 10:45 0W-22+00		-15-14 11:00 OW-23+90	\rightarrow	-15-14 11:15 OW-23+90	/	Doko. Timo. Dolerinichod hv.	-14 1549 (Color Fraker	Relinquished by:	If necessary samples submitted to Hall En

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-	ANALYSIS	www.hallenvironmental.com	Ä	3975	•		(S	WIS)168) s'HA9							4		\perp	_		Rip BANK	ed data
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			4901 Hawkins NE	Tel. 505-345-3975		(£	# 				TPH 8015B	×		×				4	\dashv	+		_	_ <u>;;</u>	. Any
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			4-12-14						9 No		HEAL NO.	700-		100-		800							Date Time Date Time	10 L-f () () This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.
Time:	□ Rush		wells			iger:			ATT + Bob	perature: 7	Preservative Type	Hcl	amber	176	amber	151		-					the Wee	ccredited laboratories
Tum-Around Tim	Standard	Project Name:	<u>></u> 0	Project #:		Project Manager:			Sampler: MAT	Sample Terhperature	Container Type and #	5-VOA	1-500ml	4-VOA	(-500 m)	3-10A							Received by:	ontracted to other a
Chain-of-Custody Record	Client: Western Refining		Mailing Address:#50 CC 4990	Bloomfield, NN 874/3	14-52		ackage:	lard Level 4 (Full Validation)	□ Other		Time Matrix Sample Request ID	11:40 HD OM-35+70	/ -	11:40 OM-35+20D	\(\)	a:20 Rinsate							Time: Relinquished by: 1549 Cefert Knake Time: Relinquished by:	1 · ·
S	Client:		Mailing	Bla	Phone ‡	email or Fax#:	QA/QC Package:	☐ Standard	Accreditation	□ EDD (Type)	Date	1-15-19		OH:11 H-51-		-(5-14							Date: -15-14 Date: -1	if necessary



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

September 10, 2014

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

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

RE: Collection Wells 8-27-14 OrderNo.: 1408E58

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/28/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1408E58**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: CW-0+60

 Project:
 Collection Wells 8-27-14
 Collection Date: 8/27/2014 8:45:00 AM

 Lab ID:
 1408E58-001
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qı	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	GE				Analyst	: JME
Diesel Range Organics (DRO)	0.74	0.20	mg/L	1	8/30/2014 1:02:04 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 1:02:04 AM	15015
Surr: DNOP	113	75.2-161	%REC	1	8/30/2014 1:02:04 AM	15015
EPA METHOD 8015D: GASOLINE R	ANGE				Analyst	: NSB
Gasoline Range Organics (GRO)	2.9	0.050	mg/L	1	8/29/2014 5:02:48 PM	R20897
Surr: BFB	1020	70.9-130	S %REC	1	8/29/2014 5:02:48 PM	R20897
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analyst	: KJH
Benzene	2.0	1.0	μg/L	1	9/4/2014 4:01:29 PM	R20995
Toluene	ND	1.0	μg/L	1	9/4/2014 4:01:29 PM	R20995
Ethylbenzene	1.8	1.0	μg/L	1	9/4/2014 4:01:29 PM	R20995
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 4:01:29 PM	R20995
Xylenes, Total	ND	1.5	μg/L	1	9/4/2014 4:01:29 PM	R20995
Surr: 1,2-Dichloroethane-d4	108	70-130	%REC	1	9/4/2014 4:01:29 PM	R20995
Surr: 4-Bromofluorobenzene	91.5	70-130	%REC	1	9/4/2014 4:01:29 PM	R20995
Surr: Dibromofluoromethane	112	70-130	%REC	1	9/4/2014 4:01:29 PM	R20995
Surr: Toluene-d8	80.3	70-130	%REC	1	9/4/2014 4:01:29 PM	R20995

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 6

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E58**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: CW-25+95

 Project:
 Collection Wells 8-27-14
 Collection Date: 8/27/2014 11:15:00 AM

 Lab ID:
 1408E58-002
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	: JME
Diesel Range Organics (DRO)	0.24	0.20	mg/L	1	8/30/2014 1:44:40 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 1:44:40 AM	15015
Surr: DNOP	116	75.2-161	%REC	1	8/30/2014 1:44:40 AM	15015
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	: NSB
Gasoline Range Organics (GRO)	0.80	0.25	mg/L	5	8/29/2014 5:33:03 PM	R20897
Surr: BFB	109	70.9-130	%REC	5	8/29/2014 5:33:03 PM	R20897
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	: KJH
Benzene	330	50	μg/L	50	9/3/2014 10:40:55 PM	R20971
Toluene	ND	50	μg/L	50	9/3/2014 10:40:55 PM	R20971
Ethylbenzene	ND	50	μg/L	50	9/3/2014 10:40:55 PM	R20971
Methyl tert-butyl ether (MTBE)	ND	50	μg/L	50	9/3/2014 10:40:55 PM	R20971
Xylenes, Total	ND	75	μg/L	50	9/3/2014 10:40:55 PM	R20971
Surr: 1,2-Dichloroethane-d4	98.1	70-130	%REC	50	9/3/2014 10:40:55 PM	R20971
Surr: 4-Bromofluorobenzene	91.5	70-130	%REC	50	9/3/2014 10:40:55 PM	R20971
Surr: Dibromofluoromethane	89.5	70-130	%REC	50	9/3/2014 10:40:55 PM	R20971
Surr: Toluene-d8	88.0	70-130	%REC	50	9/3/2014 10:40:55 PM	R20971

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 6

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1408E58

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-27-14

Sample ID MB-15015 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: **PBW** Batch ID: 15015 RunNo: 20880 Prep Date: 8/28/2014 Analysis Date: 8/29/2014 SeqNo: 608537 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 75.2 161

Sample ID LCS-15015 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 15015 RunNo: 20880 Prep Date: 8/28/2014 Analysis Date: 8/29/2014 SeqNo: 608538 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 2.7 0.20 0 107 65.8 2.500 162 Surr: DNOP 0.27 0.2500 107 75.2 161

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E58**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-27-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range
Client ID: PBW Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608571 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 20 20.00 100 70.9 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range
Client ID: LCSW Batch ID: R20897 RunNo: 20897

Client ID: LCSW Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608572 Units: mg/L

SPK value SPK Ref Val Analyte Result **PQL** %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.48 0.050 0.5000 95.2 80 120

Surr: BFB 19 20.00 95.4 70.9 130

Sample ID 1408E58-002AMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: CW-25+95 Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608580 Units: mg/L

Result SPK Ref Val %RPD **RPDLimit** Analyte **PQL** SPK value %REC LowLimit HighLimit Qual Gasoline Range Organics (GRO) 3.5 0.25 2.500 0.7990 108 70.4 127 Surr: BFB 120 100.0 124 70.9 130

Sample ID 1408E58-002AMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: CW-25+95 Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608581 Units: mg/L

%REC Analyte Result **PQL** SPK value SPK Ref Val LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 3.5 0.25 2.500 0.7990 108 70.4 127 0.515 20 Surr: BFB 110 100.0 112 70.9 130 0 0

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E58**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-27-14

Sample ID 5mL-rb	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260: Volatile	es Short I	_ist	
Client ID: PBW	Batch	n ID: R2	0971	F	RunNo: 2	0971				
Prep Date:	Analysis D	oate: 9/	3/2014	S	SeqNo: 6	10448	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
mp-Xylenes	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
o-Xylene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.5	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	8.5		10.00		85.4	70	130			
Sample ID 100ng Ics3	SampT	ype: LC	s	Tes	tCode: EI	PA Method	8260: Volatile	es Short L	_ist	
Client ID: LCSW	Batch	n ID: R2	0971	F	RunNo: 2	0971				
Prep Date:	Analysis D	oate: 9/	3/2014	S	SeqNo: 6	10449	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.4	70	130			

Toluene	19	1.0	20.00	0	92.8	80	120	
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.8	70	130	
Surr: 4-Bromofluorobenzene	9.0		10.00		90.2	70	130	
Surr: Dibromofluoromethane	8.8		10.00		87.6	70	130	
Surr: Toluene-d8	9.1		10.00		91.3	70	130	
Sample ID 5mL-rb	SampTy	pe: MBLK		Test0	Code: EPA N	lethod 82	60: Volatiles Short List	
Client ID: PBW	Batch I	ID: R2099	5	Rı	unNo: 20995	}		
Prep Date:	Analysis Da	te: 9/4/20	14	Se	eqNo: 61131	5 U	nits: μg/L	

Prep Date:	Analysis D	ate: 9/	4/2014	S	SeqNo: 61	11315	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
mp-Xylenes	ND	1.0								
o-Xylene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.7	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130			
Surr: Toluene-d8	8.9		10.00		89.3	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E58**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-27-14

Sample ID 100ng lcs2 Client ID: LCSW	·	ype: LC			tCode: El		8260: Volatile	es Short L	ist	
Prep Date:	Analysis D	ate: 9/	4/2014	S	SeqNo: 6	11316	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	20	1.0	20.00	0	100	80	120			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	8.9		10.00		89.1	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com RcptNo: 1 Work Order Number: 1408E58 Western Refining Southw Client Name: MG- U8/28/14 Received by/date: anne Ham 8/28/2014 8:15:00 AM Logged By: **Anne Thorne** anne Am 8/28/2014 Completed By: Anne Thorne Reviewed By: Chain of Custody Not Present 🗹 Yes 1. Custody seals intact on sample bottles? No 🗌 Yes 🗸 Not Present 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In NA \square Yes 🗹 No 4. Was an attempt made to cool the samples? NA 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C No 🗌 Yes 🗸 6. Sample(s) in proper container(s)? Yes 🗸 No 7. Sufficient sample volume for indicated test(s)? V No 8. Are samples (except VOA and ONG) properly preserved? Yes No 🔽 NA 🗌 9. Was preservative added to bottles? Yes No VOA Vials 🗹 No 10. VOA vials have zero headspace? Yes No 🗸 Yes 11 Were any sample containers received broken? # of preserved bottles checked Yes 🗸 No for pH: 12. Does paperwork match bottle labels? (<2 or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 13. Are matrices correctly identified on Chain of Custody? No 🗌 **V** 14. Is it clear what analyses were requested? Yes Checked by: Yes 🗸 No 🗀 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🗹 No 🗔 16. Was client notified of all discrepancies with this order? Date Person Notified: Phone Fax Via: ☐ eMail By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Temp °C | Condition | Seal Intact | Seal No. Seal Date Cooler No 3.4 Good Yes

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Turn-Around Time:	X Standard	Project Name	Collect,	Project #:		Project Manager:			Sampler: 🔀	On loe:	Sample-Temperature:	Container Type and #	5-VOA	1-50bm	5-VOA	1-500m							Received by:	Received by:
Chain-of-Custody Record	Client: Nestern R.P. 13119		120	NN 87413	2-4/35			Level 4 (Full Validation)				Sample Request ID	CW-6+80		CW-25+95					,			Let Krehon	quished by: Motor And B
of-Cus	ers K		4-50	J.e.B	505-63				, d			Matrix	140	1									Relinguished by:	Relinquished by
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ပ	Client:		Mailing	13/6	Phone #:	email or Fax#:	QA/QC Package:	□ Standard	Accreditation		□ EDD (Type)	Date	8.27.14 8: 15		-27-lu								Date:	$\frac{\text{pate.}}{2\pi/\mathcal{A}}$



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

September 10, 2014

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

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

RE: Observation Wells 8-27-14 OrderNo.: 1408E55

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/28/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1408E55**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-22+00

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 10:10:00 AM

 Lab ID:
 1408E55-001
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch **EPA METHOD 8015D: DIESEL RANGE** Analyst: JME Diesel Range Organics (DRO) ND 0.20 mg/L 1 8/29/2014 10:32:36 PM 15015 Motor Oil Range Organics (MRO) ND 2.5 mg/L 8/29/2014 10:32:36 PM 15015 Surr: DNOP 114 %REC 8/29/2014 10:32:36 PM 15015 75.2-161 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) 8/29/2014 2:32:02 PM ND 0.050 mg/L 1 R20897 8/29/2014 2:32:02 PM Surr: BFB 100 70.9-130 %REC R20897 **EPA METHOD 8260: VOLATILES SHORT LIST** Analyst: KJH Benzene 9/3/2014 11:10:36 PM R20971 ND 1.0 μg/L 1 Toluene ND 1.0 μg/L 9/3/2014 11:10:36 PM R20971 1 Ethylbenzene ND 1.0 μg/L 9/3/2014 11:10:36 PM R20971 Methyl tert-butyl ether (MTBE) 1.7 1.0 μg/L 9/3/2014 11:10:36 PM R20971 Xylenes, Total ND 1.5 μg/L 9/3/2014 11:10:36 PM R20971 Surr: 1,2-Dichloroethane-d4 95.8 %REC R20971 70-130 9/3/2014 11:10:36 PM Surr: 4-Bromofluorobenzene 98.3 70-130 %REC R20971 1 9/3/2014 11:10:36 PM Surr: Dibromofluoromethane 96.7 70-130 %REC 1 9/3/2014 11:10:36 PM R20971 Surr: Toluene-d8 97.2 70-130 %REC 9/3/2014 11:10:36 PM R20971

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 8

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E55**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-23+10

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 10:20:00 AM

 Lab ID:
 1408E55-002
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analyst	: JME
Diesel Range Organics (DRO)	2.1	0.20	mg/L	1	8/29/2014 11:36:35 PM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/29/2014 11:36:35 PM	15015
Surr: DNOP	115	75.2-161	%REC	1	8/29/2014 11:36:35 PM	15015
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	0.16	0.050	mg/L	1	8/29/2014 3:02:10 PM	R20897
Surr: BFB	118	70.9-130	%REC	1	8/29/2014 3:02:10 PM	R20897
EPA METHOD 8260: VOLATILES SHO	RT LIST				Analyst	: KJH
Benzene	ND	1.0	μg/L	1	9/3/2014 11:40:18 PM	R20971
Toluene	ND	1.0	μg/L	1	9/3/2014 11:40:18 PM	R20971
Ethylbenzene	ND	1.0	μg/L	1	9/3/2014 11:40:18 PM	R20971
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/3/2014 11:40:18 PM	R20971
Xylenes, Total	ND	1.5	μg/L	1	9/3/2014 11:40:18 PM	R20971
Surr: 1,2-Dichloroethane-d4	106	70-130	%REC	1	9/3/2014 11:40:18 PM	R20971
Surr: 4-Bromofluorobenzene	94.7	70-130	%REC	1	9/3/2014 11:40:18 PM	R20971
Surr: Dibromofluoromethane	102	70-130	%REC	1	9/3/2014 11:40:18 PM	R20971
Surr: Toluene-d8	94.1	70-130	%REC	1	9/3/2014 11:40:18 PM	R20971

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 8

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E55**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-23+90

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 10:40:00 AM

 Lab ID:
 1408E55-003
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	GE				Analys	t: JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/29/2014 11:57:55 PM	1 15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/29/2014 11:57:55 PM	1 15015
Surr: DNOP	114	75.2-161	%REC	1	8/29/2014 11:57:55 PM	1 15015
EPA METHOD 8015D: GASOLINE R	ANGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/29/2014 3:32:23 PM	R20897
Surr: BFB	110	70.9-130	%REC	1	8/29/2014 3:32:23 PM	R20897
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analys	t: KJH
Benzene	ND	1.0	μg/L	1	9/4/2014 12:10:01 AM	R20971
Toluene	ND	1.0	μg/L	1	9/4/2014 12:10:01 AM	R20971
Ethylbenzene	ND	1.0	μg/L	1	9/4/2014 12:10:01 AM	R20971
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 12:10:01 AM	R20971
Xylenes, Total	ND	1.5	μg/L	1	9/4/2014 12:10:01 AM	R20971
Surr: 1,2-Dichloroethane-d4	110	70-130	%REC	1	9/4/2014 12:10:01 AM	R20971
Surr: 4-Bromofluorobenzene	93.8	70-130	%REC	1	9/4/2014 12:10:01 AM	R20971
Surr: Dibromofluoromethane	102	70-130	%REC	1	9/4/2014 12:10:01 AM	R20971
Surr: Toluene-d8	97.4	70-130	%REC	1	9/4/2014 12:10:01 AM	R20971

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E55**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-25+70

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 11:00:00 AM

 Lab ID:
 1408E55-004
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	GE				Analys	t: JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/30/2014 12:19:18 AM	1 15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 12:19:18 AM	1 15015
Surr: DNOP	109	75.2-161	%REC	1	8/30/2014 12:19:18 AM	1 15015
EPA METHOD 8015D: GASOLINE R	ANGE				Analys	t: NSB
Gasoline Range Organics (GRO)	0.14	0.050	mg/L	1	8/29/2014 4:02:35 PM	R20897
Surr: BFB	115	70.9-130	%REC	1	8/29/2014 4:02:35 PM	R20897
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analys	t: KJH
Benzene	ND	1.0	μg/L	1	9/4/2014 12:39:41 AM	R20971
Toluene	ND	1.0	μg/L	1	9/4/2014 12:39:41 AM	R20971
Ethylbenzene	ND	1.0	μg/L	1	9/4/2014 12:39:41 AM	R20971
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 12:39:41 AM	R20971
Xylenes, Total	ND	1.5	μg/L	1	9/4/2014 12:39:41 AM	R20971
Surr: 1,2-Dichloroethane-d4	98.3	70-130	%REC	1	9/4/2014 12:39:41 AM	R20971
Surr: 4-Bromofluorobenzene	99.2	70-130	%REC	1	9/4/2014 12:39:41 AM	R20971
Surr: Dibromofluoromethane	96.5	70-130	%REC	1	9/4/2014 12:39:41 AM	R20971
Surr: Toluene-d8	90.7	70-130	%REC	1	9/4/2014 12:39:41 AM	R20971

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 8

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E55**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-25+70D

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 11:00:00 AM

 Lab ID:
 1408E55-005
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch **EPA METHOD 8015D: DIESEL RANGE** Analyst: JME Diesel Range Organics (DRO) ND 0.20 mg/L 1 8/30/2014 12:40:36 AM 15015 Motor Oil Range Organics (MRO) ND 2.5 mg/L 8/30/2014 12:40:36 AM 15015 Surr: DNOP 128 %REC 8/30/2014 12:40:36 AM 15015 75.2-161 **EPA METHOD 8015D: GASOLINE RANGE** Analyst: NSB Gasoline Range Organics (GRO) 8/29/2014 4:32:39 PM 0.14 0.050 mg/L 1 R20897 Surr: BFB 116 70.9-130 %REC 8/29/2014 4:32:39 PM R20897 **EPA METHOD 8260: VOLATILES SHORT LIST** Analyst: KJH Benzene ND 9/4/2014 1:09:20 AM R20971 1.0 μg/L 1 Toluene ND 1.0 μg/L 9/4/2014 1:09:20 AM R20971 1 Ethylbenzene ND 1.0 μg/L 9/4/2014 1:09:20 AM R20971 Methyl tert-butyl ether (MTBE) ND 1.0 μg/L 9/4/2014 1:09:20 AM R20971 Xylenes, Total ND 1.5 μg/L 9/4/2014 1:09:20 AM R20971 Surr: 1,2-Dichloroethane-d4 105 %REC 9/4/2014 1:09:20 AM R20971 70-130 Surr: 4-Bromofluorobenzene 101 70-130 %REC 9/4/2014 1:09:20 AM R20971 1 Surr: Dibromofluoromethane 103 70-130 %REC 1 9/4/2014 1:09:20 AM R20971 Surr: Toluene-d8 89.5 70-130 %REC 9/4/2014 1:09:20 AM R20971

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 5 of 8

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

0.28

0.2500

WO#: **1408E55**

10-Sep-14

Client: Project:		Refining S ation Wells									
Sample ID	MB-15015	SampT	ype: ME	3LK	Tes	tCode: E	PA Method	8015D: Diese	I Range		
Client ID:	PBW	Batch	n ID: 15	015	F	RunNo: 2	0880				
Prep Date:	8/28/2014	Analysis D	ate: 8/	29/2014	5	SeqNo: 6	08537	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 Rang	e Organics (MRO)	ND	2.5								
Surr: DNOP		0.54		0.5000		108	75.2	161			
Sample ID	LCS-15015	SampT	ype: LC	s	Tes	tCode: E	PA Method	8015D: Diese	l Range		
Client ID:	LCSW	Batch	n ID: 15	015	F	RunNo: 2	0880				
Prep Date:	8/28/2014	Analysis D	ate: 8/	29/2014	5	SeqNo: 6	08538	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	2.7	0.20	2.500	0	107	65.8	162			
Surr: DNOP		0.27		0.2500		107	75.2	161			
Sample ID	1408E55-001BM	S SampT	ype: M \$	 S	Tes	tCode: E	PA Method	8015D: Diese	l Range		
Client ID:	OW-22+00	Batch	n ID: 15	015	F	RunNo: 2	0880				
Prep Date:	8/28/2014	Analysis D	ate: 8/	29/2014	5	SeqNo: 6	08539	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	2.7	0.20	2.500	0	109	64.4	178			
Surr: DNOP		0.27		0.2500		108	75.2	161			
Sample ID	1408E55-001BM	SD SampT	ype: MS	SD	Tes	tCode: E	PA Method	8015D: Diese	l Range		
Client ID:	OW-22+00	Batch	n ID: 15	015	F	RunNo: 2	0880				
Prep Date:	8/28/2014	Analysis D	ate: 8/	29/2014	5	SeqNo: 6	08540	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	3.0	0.20	2.500	0	118	64.4	178	7.79	20	

Qualifiers:

Surr: DNOP

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

75.2

161

0

114

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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0

Hall Environmental Analysis Laboratory, Inc.

WO#: 1408E55

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608571 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 20 20.00 100 70.9 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R20897 RunNo: 20897

19

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608572 Units: mg/L

20.00

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.48 0.050 0.5000 95.2 80 120

95.4

70.9

130

Qualifiers:

Surr: BFB

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2.

RL Reporting Detection Limit

Page 7 of 8

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E55**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Sample ID 5mL-rb	SampT	уре: МЕ	BLK	Test	tCode: El	PA Method	8260: Volatile	es Short L	.ist	
Client ID: PBW	Batch	1D: R2	0971	R	tunNo: 2	0971				
Prep Date:	Analysis D	ate: 9/	3/2014	S	eqNo: 6	10448	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
mp-Xylenes	ND	1.0								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
o-Xylene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.5	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	8.5		10.00		85.4	70	130			

Sample ID 100ng Ics3	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260: Volatile	es Short L	.ist	
Client ID: LCSW	Batch	n ID: R2	0971	F	RunNo: 2	0971				
Prep Date:	Analysis D	ate: 9/	3/2014	8	SeqNo: 6	10449	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.4	70	130			
Toluene	19	1.0	20.00	0	92.8	80	120			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.2	70	130			
Surr: Dibromofluoromethane	8.8		10.00		87.6	70	130			
Surr: Toluene-d8	9.1		10.00		91.3	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 8 of 8



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Clien	t Name:	Western Ref	ining Southw	Work O	rder Numbei	: 1408E	55			Rcpt	:No:	1
Recei	ived by/dat	te: ///	5/80 2	28/14			•			.,		
Logge	ed By:	Anne Thorr	ne	8/28/2014	8:15:00 AN	I		Arne , Arne	Am	_		
Comp	oleted By:	Anne Thorr	nę	8/28/2014	ı			Ann.	Am			
Revie	wed By:	No.	Ł	00/28	14			J, J				
Chai	n of Cus	tody								-		
1. C	ustody sea	als intact on sa	hole bottles?			Yes		No		Not Present	V	
2. Is	Chain of	Custody compl	ete?			Yes	✓	No		Not Present		
3. H	low was the	e sample deliv	ered?			Couri	<u>er</u>					
<u>Log</u>	<u>In</u>											
4. v	Vas an atte	empt made to	cool the sample	es?		Yes	✓	No		NA		
5. V	Vere all sa	mples received	l at a temperat	ure of >0° C	to 6.0°C	Yes	✓	No		NA [
6. s	Sample(s) i	in proper conta	iner(s)?			Yes	✓	No				
7. S	Sufficient sa	ampie volume i	for indicated te	st(s)?		Yes	✓	No				
8. A	re sample	s (except VOA	and ONG) pro	perly preserve	ed?	Yes	V	No				
9. v	Vas preser	vative added to	bottles?			Yes		No	✓	NA		
10.v	/OA vials h	ave zero head	space?			Yes		No		No VOA Vials	V	
			ers received br	oken?		Yes		No	V			
	-	·								# of preserved bottles checked		
		work match bo				Yes	V	No		for pH:	(<2.0)	>12 unless noted)
			ain of custody)			Yes		No		Adjusted	•	> 12 unless noted)
			ntified on Chair			Yes		No		•	_	
		nat analyses w Iding times abl	ere requested?			Yes		No		Checked	by:	
		customer for				100						<u> </u>
_												
		dling (if app										
16. V	Vas client	notified of all d	iscrepancies w	ith this order?		Yes	<u> </u>	No		NA 	Y	1
	Perso	on Notified:			Date		* 15 54 5 4 1785	ern news a record	1			
	By W	hom:			Via:	eMa	il 🗌	Phone _] Fax	_ In Person		
	Rega	rding:	er par serva e e en en en estado a diba	add at Parket and Co. 18 of No. 1	and the state of the second section is	. Carlos articles	a a succession	Same and the state of the same and	San a Sin a series	control Mathematics and Admitted Control of the Control	1	
	Clien	t Instructions:				_ 120 - 121 - 120 - 1		a 27. 28. 2. 27				
17.	Additional	remarks:										
18.	Cooler Inf			projectory	ran i li consumulati i consulta di escala	an germann	g - 0.00	politytopre nie n	e najarjawa	•		
	Cooler I			Seal Intact	Seal No	Seal Da	ite	Signed	Ву			
	[1	3.4	Good	Yes			i			l		

Chain-of-Custody Record	Turn-Around Lime:			J	HAL	2	VIR	NO	ME	FNVTRONMENTA		
Slient: Western Refining	X Standard □	Rush		: «	A	YSI	SL	ABC	JRA	ANALYSIS LABORATORY	7	
	Project Name:			> ■	ww.ha	www.hallenvironmental.com	ımenta	al.com				
Vailing Address: # 50 CP. 4990	observation	Wells 8-27-14	4901	4901 Hawkins NE	s NE		Albuquerque, NM 87109	, NM 8	37109			
Bloomf. eld, NM 87413	Project #:		Tel.	Tel. 505-345-3975	-3975	Fax		505-345-4107	07	١		
120					٩	Analysis	Request	est				
email or Fax#:	Project Manager:					(70		hore	8.5			
l					(SN	S'C		<i>₽</i> ∃9	198			
☐ Standard ★ Level 4 (Full Validation)	- 1			-	VIS)d ~		STA	P		:	
Accreditation	Sampler: 75.6 + 1 On Ice: 47 Yes		-IdT +						ewa.		Or M)	(NL 10
□ EDD (Type)	Sample Temperature:	3-4 September 18 18 18 18 18 18 18 18 18 18 18 18 18	BE								Λ):	11
	Container Type and #	Preservative HEAL No. Type HREAL No.	BTEX + MT	TPH 8015B	EDB (Methor (831	RCRA 8 Me	bitseq 1808	OV) 8260B (VO m92) 0728			eelddu8 זוֹA	VII DODDICE
12-14 10:10 HzD OW-22+00	5-10A HCI	1 2						X				
	1-500 ambe	Der				_			X			
10:30 00-23+10	5-10A HC	702-1		X				×				
	1-500 am	702							X			.
10:40 0W-23+90		502		X				X				- 1
	g	100							X			
11:00	#	,		$\overline{\times}$				X				
	1-500 and	200 Log							X			
11:00 GW-25+70D		1 205		×				×				
	1-500 amb	591)_							X			
Date: Time: Relipquished by:	Received by:		Remarks									
2	1/ Motor	Just 8/27/14 1323										
Time: Relinquished by:	Received by:	Tim										
12/14/130 / Moto Walter	Il Whille G	True 08/28/14 0815	in 1956.		400	(d 115.		4 4 4	1000	1000		- 1
to be reconstructed the section of t	The state of the s		A VIIII VISSION	10000	201111111111111111111111111111111111111	WILL CR.			T	2000		

TABLE 2 Analytical Methods and Target Analytes

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 meas	IIremont)
- Specific conductance	ar cinetity
TDS (EPA Method 160.1 or field measurement)	
- Total dissolved solids	
General Chemistry - Anions (EPA Method 300.0)	
Fluoride	
Chloride	ĺ
Bromide	- 1
Nitrogen, Nitrite (as N)	
Nitrogen, Nitrate (as N)	1
Phosphorous, Orthophosphate (As P)	
Sulfate	- 1
General Chemistry - Alkalinity (EPA Method 310.1)	
Alkalinity, Total	
Carbonate]
Bicarbonate	

Total Recoverable Metals (EPA Method 6010B/7470)

- Target List (not applicable to River Terrace Sampling Events)

Arsenic Lead

Barium Mercury

Cadmium Selenium

Chromium Silver

- Target List (for River Terrace Sampling Events Only)

Lead

Mercury (DW-1 ONLY)

Dissolved Metals (EPA Method 6010B / 7470)

- Target List (for Refinery Complex, Outfalls, and River) Arsenic Manganese Barium Mercury Cadmium Potassium Calcium Selenium Chromium Silver Copper Sodium Iron Uranium Lead Zinc Magnesium

TPH = total petroleum hydrocarbons
GRO = gasoline range organics
VOCs = volatile organic compounds
DRO = diesel range organics
TDS = total dissolved solids

NOTES:

- 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 Piezomenter Wells only, per the River Terrace Bioventing System Monitoring Plan.



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

September 10, 2014

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

Bloomfield, NM 87413 TEL: (505) 632-4166 FAX (505) 632-3911

RE: Observation Wells 8-27-14 OrderNo.: 1408E60

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/28/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1408E60**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-0+60

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 9:00:00 AM

 Lab ID:
 1408E60-001
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RAN	GE				Analyst	: JME
Diesel Range Organics (DRO)	1.5	0.20	mg/L	1	8/30/2014 2:05:58 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 2:05:58 AM	15015
Surr: DNOP	106	75.2-161	%REC	1	8/30/2014 2:05:58 AM	15015
EPA METHOD 8015D: GASOLINE R	ANGE				Analyst	: NSB
Gasoline Range Organics (GRO)	0.23	0.050	mg/L	1	8/29/2014 7:03:49 PM	R20897
Surr: BFB	202	70.9-130	S %REC	1	8/29/2014 7:03:49 PM	R20897
EPA METHOD 8260: VOLATILES SI	HORT LIST				Analyst	: KJH
Benzene	ND	1.0	μg/L	1	9/5/2014 7:16:31 PM	R21044
Toluene	ND	1.0	μg/L	1	9/5/2014 7:16:31 PM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/5/2014 7:16:31 PM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/5/2014 7:16:31 PM	R21044
Xylenes, Total	ND	1.5	μg/L	1	9/5/2014 7:16:31 PM	R21044
Surr: 1,2-Dichloroethane-d4	103	70-130	%REC	1	9/5/2014 7:16:31 PM	R21044
Surr: 4-Bromofluorobenzene	96.7	70-130	%REC	1	9/5/2014 7:16:31 PM	R21044
Surr: Dibromofluoromethane	95.8	70-130	%REC	1	9/5/2014 7:16:31 PM	R21044
Surr: Toluene-d8	82.9	70-130	%REC	1	9/5/2014 7:16:31 PM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E60**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-11+15

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 9:40:00 AM

 Lab ID:
 1408E60-002
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RAN	GE				Analyst	: JME
Diesel Range Organics (DRO)	34	0.20	mg/L	1	8/30/2014 2:27:19 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 2:27:19 AM	15015
Surr: DNOP	120	75.2-161	%REC	1	8/30/2014 2:27:19 AM	15015
EPA METHOD 8015D: GASOLINE R	ANGE				Analyst	: NSB
Gasoline Range Organics (GRO)	3.7	0.50	mg/L	10	8/29/2014 7:33:56 PM	R20897
Surr: BFB	124	70.9-130	%REC	10	8/29/2014 7:33:56 PM	R20897
EPA METHOD 8260: VOLATILES SI	HORT LIST				Analyst	: KJH
Benzene	840	100	μg/L	100	9/8/2014 12:04:54 PM	R21080
Toluene	ND	10	μg/L	10	9/5/2014 7:46:14 PM	R21044
Ethylbenzene	ND	10	μg/L	10	9/5/2014 7:46:14 PM	R21044
Methyl tert-butyl ether (MTBE)	870	10	μg/L	10	9/5/2014 7:46:14 PM	R21044
Xylenes, Total	ND	15	μg/L	10	9/5/2014 7:46:14 PM	R21044
Surr: 1,2-Dichloroethane-d4	96.2	70-130	%REC	10	9/5/2014 7:46:14 PM	R21044
Surr: 4-Bromofluorobenzene	98.2	70-130	%REC	10	9/5/2014 7:46:14 PM	R21044
Surr: Dibromofluoromethane	90.1	70-130	%REC	10	9/5/2014 7:46:14 PM	R21044
Surr: Toluene-d8	94.3	70-130	%REC	10	9/5/2014 7:46:14 PM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E60**Date Reported: **9/10/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: OW-16+60

 Project:
 Observation Wells 8-27-14
 Collection Date: 8/27/2014 10:50:00 AM

 Lab ID:
 1408E60-003
 Matrix: AQUEOUS
 Received Date: 8/28/2014 8:15:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	GE				Analyst	: JME
Diesel Range Organics (DRO)	35	0.20	mg/L	1	8/30/2014 2:48:38 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 2:48:38 AM	15015
Surr: DNOP	118	75.2-161	%REC	1	8/30/2014 2:48:38 AM	15015
EPA METHOD 8015D: GASOLINE RANGE					Analyst	: NSB
Gasoline Range Organics (GRO)	2.7	0.25	mg/L	5	8/29/2014 8:04:09 PM	R20897
Surr: BFB	347	70.9-130	S %REC	5	8/29/2014 8:04:09 PM	R20897
EPA METHOD 8260: VOLATILES SHORT LIST					Analyst	: KJH
Benzene	ND	5.0	μg/L	5	9/8/2014 12:34:33 PM	R21080
Toluene	ND	5.0	μg/L	5	9/8/2014 12:34:33 PM	R21080
Ethylbenzene	5.6	5.0	μg/L	5	9/8/2014 12:34:33 PM	R21080
Methyl tert-butyl ether (MTBE)	730	5.0	μg/L	5	9/8/2014 12:34:33 PM	R21080
Xylenes, Total	ND	7.5	μg/L	5	9/8/2014 12:34:33 PM	R21080
Surr: 1,2-Dichloroethane-d4	104	70-130	%REC	5	9/8/2014 12:34:33 PM	R21080
Surr: 4-Bromofluorobenzene	98.1	70-130	%REC	5	9/8/2014 12:34:33 PM	R21080
Surr: Dibromofluoromethane	96.6	70-130	%REC	5	9/8/2014 12:34:33 PM	R21080
Surr: Toluene-d8	91.1	70-130	%REC	5	9/8/2014 12:34:33 PM	R21080

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- RL Reporting Detection Limit

Lab Order **1408E60**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Rinsate

Project: Observation Wells 8-27-14 **Collection Date:** 8/27/2014 1:00:00 PM

Lab ID: 1408E60-004 **Matrix:** AQUEOUS **Received Date:** 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST					Analys	t: KJH
Benzene	ND	1.0	μg/L	1	9/5/2014 8:45:36 PM	R21044
Toluene	ND	1.0	μg/L	1	9/5/2014 8:45:36 PM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/5/2014 8:45:36 PM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/5/2014 8:45:36 PM	R21044
Xylenes, Total	ND	1.5	μg/L	1	9/5/2014 8:45:36 PM	R21044
Surr: 1,2-Dichloroethane-d4	93.7	70-130	%REC	1	9/5/2014 8:45:36 PM	R21044
Surr: 4-Bromofluorobenzene	89.4	70-130	%REC	1	9/5/2014 8:45:36 PM	R21044
Surr: Dibromofluoromethane	88.9	70-130	%REC	1	9/5/2014 8:45:36 PM	R21044
Surr: Toluene-d8	93.2	70-130	%REC	1	9/5/2014 8:45:36 PM	R21044

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1408E60**

Date Reported: 9/10/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Observation Wells 8-27-14 **Collection Date:**

Lab ID: 1408E60-005 **Matrix:** AQUEOUS **Received Date:** 8/28/2014 8:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST					Analys	t: KJH
Benzene	ND	1.0	μg/L	1	9/5/2014 9:15:16 PM	R21044
Toluene	ND	1.0	μg/L	1	9/5/2014 9:15:16 PM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/5/2014 9:15:16 PM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/5/2014 9:15:16 PM	R21044
Xylenes, Total	ND	1.5	μg/L	1	9/5/2014 9:15:16 PM	R21044
Surr: 1,2-Dichloroethane-d4	101	70-130	%REC	1	9/5/2014 9:15:16 PM	R21044
Surr: 4-Bromofluorobenzene	99.1	70-130	%REC	1	9/5/2014 9:15:16 PM	R21044
Surr: Dibromofluoromethane	94.0	70-130	%REC	1	9/5/2014 9:15:16 PM	R21044
Surr: Toluene-d8	91.1	70-130	%REC	1	9/5/2014 9:15:16 PM	R21044

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E60**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Sample ID MB-15015 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: **PBW** Batch ID: 15015 RunNo: 20880 Prep Date: 8/28/2014 Analysis Date: 8/29/2014 SeqNo: 608537 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 75.2 161

Sample ID LCS-15015 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 15015 RunNo: 20880 Analysis Date: 8/29/2014 Prep Date: 8/28/2014 SeqNo: 608538 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 2.7 0.20 0 107 65.8 2.500 162 Surr: DNOP 0.27 0.2500 107 75.2 161

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E60**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608571 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 20 20.00 100 70.9 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R20897 RunNo: 20897

Prep Date: Analysis Date: 8/29/2014 SeqNo: 608572 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 95.2 80 120 19 20.00 95.4 70.9 Surr: BFB 130

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 14

1408E60 10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Prep Date: Analysis Date: 9/5/2014 SeqNo: 612441 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Manalyte enzene ND 1.0	Sample ID b3	SampType: MBLK TestCode: EPA Method 8260: Volatiles Short List										
Name	Client ID: PBW	Batch	n ID: R2	1044	F	RunNo: 2	1044					
ND 1.0 ND ND 1.0 ND ND ND ND ND ND ND	Prep Date:	Analysis D	ate: 9/	5/2014	S	SeqNo: 6	12441	Units: µg/L	Units: µg/L			
Surriculation ND 1.0 ND 1.5 ND 1.0 ND ND 1.0 ND ND 1.0 ND ND ND ND ND ND ND N	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
ND 1.0	Benzene	ND	1.0									
Surri 2-Diction ND 1.0 ND 1.5 ND 1.0 ND 1.5 ND 1.0 ND ND ND ND ND ND ND N	Toluene	ND	1.0									
ND	Ethylbenzene	ND	1.0									
ND	Methyl tert-butyl ether (MTBE)	ND	1.0									
ND 1.0 ND 1.0 ND 1.0 Surr; 1,2-Dichloroethane-d4 9.0 10.00 90.3 70 130	Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4 9.0 10.00 90.3 70 130 Surr: 4-Bromofluorobenzene 9.1 10.00 91.4 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.5 70 130 Surr: Toluene-d8 9.2 10.00 91.8 70 130 Sample ID 100ng Ics SampType: LCS TestCode: EPA Method 8260: Volatiles Short List Client ID: LCSW Batch ID: R21044 RunNo: 21044 Prep Date: Analysis Date: 9/5/2014 SeqNo: 612445 Units: μg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Poluene Qual Poluene 20 1.0 20.00 0 104 70 130 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	mp-Xylenes	ND	1.0									
Surr: 4-Bromofluorobenzene 9.1 10.00 91.4 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.5 70 130 Surr: Toluene-d8 9.2 10.00 91.8 70 130 Sample ID 100ng Ics SampType: LCs TestCode: EPA Method 8260: Volatiles Short List Client ID: LCSW Batch ID: R21044 RunNo: 21044 Prep Date: Analysis Date: 9/5/2014 SeqNo: 612445 Units: μg/L Analyte Result PQL SPK value SPK Ref Val REC LowLimit HighLimit Republication (No.1) Republication (No.1) NRPD RPDLimit Qual Republication (No.1) Enzene 21 1.0 20.00 0 104 70 130 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	o-Xylene	ND	1.0									
Surr: Dibromofluoromethane 8.9 10.00 88.5 70 130 Surr: Toluene-d8 9.2 10.00 91.8 70 130 Sample ID 100ng Ics SampType: LCS TestCode: EPA Method 8260: Volatiles Short List Client ID: LCSW Batch ID: R21044 RunNo: 21044 Prep Date: Analysis Date: 9/5/2014 SeqNo: 612445 Units: μg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual enzene 21 1.0 20.00 0 101 80 120 surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.3	70	130				
Surr: Toluene-d8 9.2 10.00 91.8 70 130 Sample ID 100ng Ics SampType: LCS TestCode: EPA Method 8260: Volatiles Short List Client ID: LCSW Batch ID: R21044 RunNo: 21044 Prep Date: Analysis Date: 9/5/2014 S∈qNo: 612445 Units: μg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual enzene Qual 20 enzene 21 1.0 20.00 0 104 70 130 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Surr: 4-Bromofluorobenzene	9.1		10.00		91.4	70	130				
Sample ID 100ng Ics SampType: LCSW Batch ID: R≥1044 RunNo: 21044 Prep Date: Analysis Date: 9/5/2014 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual PQL MRPD RPDLimit Qual enzene 21 1.0 20.00 0 104 70 130 surr: 1,2-Dichloroethane-d4 Surr: 1,2-Dichloroethane-d4 Surr: 2-Bromofluorobenzene 9.7 10.00 96.5 70 130 Surr: 4-Bromofluoromethane 8.9 10.00 88.8 70 130	Surr: Dibromofluoromethane	8.9		10.00		88.5	70	130				
Republic Result PQL SPK value SPK Ref Val Republic Republic Republic Result PQL SPK value SPK Ref Val Republic Repu	Surr: Toluene-d8	9.2		10.00		91.8	70	130				
Prep Date: Analysis Date: 9/5/2014 SeqNo: 612445 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual enzene 21 1.0 20.00 0 104 70 130 bluene 20 1.0 20.00 0 101 80 120 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260: Volatile	es Short I	List		
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Public enzene 21 1.0 20.00 0 104 70 130 bluene 20 1.0 20.00 0 101 80 120 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Client ID: LCSW	Batch	n ID: R2	1044	F	RunNo: 2	1044					
Penzene 21 1.0 20.00 0 104 70 130 Oluene 20 1.0 20.00 0 101 80 120 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Prep Date:	Analysis D	ate: 9/	5/2014	S	SeqNo: 6	12445	Units: µg/L				
bluene 20 1.0 20.00 0 101 80 120 Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: 1,2-Dichloroethane-d4 9.7 10.00 96.5 70 130 Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Benzene	21	1.0	20.00	0	104	70	130				
Surr: 4-Bromofluorobenzene 9.7 10.00 96.8 70 130 Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Toluene	20	1.0	20.00	0	101	80	120				
Surr: Dibromofluoromethane 8.9 10.00 88.8 70 130	Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.5	70	130				
	Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130				
Surr: Toluene-d8 9.0 10.00 90.4 70 130	Surr: Dibromofluoromethane	8.9		10.00		88.8	70	130				
	Surr: Toluene-d8	9.0		10.00		90.4	70	130				

Sample ID b4	SampT	SampType: MBLK TestCode: EPA Method 8260: Volatiles Short List									
Client ID: PBW	Batch	1D: R2	1080	R	tunNo: 2	1080					
Prep Date:	Analysis D	ate: 9/	8/2014	S	eqNo: 6	13381	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	ND	1.0									
Toluene	ND	1.0									
Ethylbenzene	ND	1.0									
Methyl tert-butyl ether (MTBE)	ND	1.0									
Xylenes, Total	ND	1.5									
mp-Xylenes	ND	1.0									
o-Xylene	ND	1.0									
Surr: 1,2-Dichloroethane-d4	8.8		10.00		87.5	70	130				
Surr: 4-Bromofluorobenzene	9.7		10.00		97.0	70	130				
Surr: Dibromofluoromethane	8.5		10.00		84.6	70	130				
Surr: Toluene-d8	10		10.00		100	70	130				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2. RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408E60**

10-Sep-14

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-27-14

Sample ID 100ng lcs2 Client ID: LCSW	•	SampType: LCS TestCode: EPA Method 8260: Volatile Batch ID: R21080 RunNo: 21080							ist	
Prep Date:	Analysis D	ate: 9/	8/2014	8	SeqNo: 6	13382	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.9	70	130			
Toluene	20	1.0	20.00	0	99.1	80	120			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.6	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client	t Name:	Western Refi	ning Southw	Work Order Nun	nber: 1408l	E60			RcptN	lo: 1	1
Recei	ved by/dat	e: <i>[</i>]/	16-08/	28/14					~		
Logge	d By:	Anne Thorn	e	8/28/2014 8:15:00	AM		ane,	Sham	_		
Comp	leted By:	Anne Thorn	e	8/28/2014			Anne ,	Am			
Revie	wed By:	A.A.		02/25/14			ر ۱۳۰۵ ر				
Chair	of Cus	tody		Contract !							
1. C	ustody sea	uls intact on san	nple bottles?		Yes		No		Not Present	/	
2. Is	Chain of 0	Custody comple	te?		Yes	V	No		Not Present		
3. H	ow was the	e sample delive	red?		<u>Cou</u>	<u>rier</u>					
Log	<u>In</u>										
4. w	Vas an atte	empt made to co	ool the sample	es?	Yes	V	No		NA [
5. W	lere all sai	mples received	at a temperat	ure of >0° C to 6.0°C	Yes	✓	No		NA 🗆]	
6. s	ample(s) i	n proper contai	ner(s)?		Yes	V	No				
7. S	ufficient sa	ample volume fo	or indicated te	st(s)?	Yes	~	No				
8. A	re sample:	s (except VOA a	and ONG) pro	perly preserved?	Yes	. 🗸	No				
9. W	/as preser	vative added to	bottles?		Yes		No	V	NA [
10.V	OA vials h	ave zero heads	pace?		Yes		No		No VOA Vials	/	
11. V	Vere any s	ample containe	rs received br	oken?	Yes		No	V	# of preserved		
									bottles checked		
		work match bot pancies on cha			Yes	V	No	Ш	for pH:(<	<2 or	>12 unless noted)
		s correctly ident			Yes	V	No		Adjusted?	_	
14. ls	it clear w	hat analyses we	ere requested	>	Yes	V	No				
		lding times able			Yes	V	No		Checked b	y:	
(1:	r no, notiry	customer for a	utnorization.)								
Spec	ial Hand	dling (if app	licable)								
		notified of all dis		ith this order?	Yes		No		NA 5	/	
	Perso	n Notified:		Da	nte						
	By W	hom:		Via	a: 🔲 eM	ail [Phone _	Fax	☐ In Person		
	Rega	rding:	Water States	000 0000 - 0000		Salah a Salah adal a	e considerative and the expelliption	- 4.7 - 65-6 /	• Table • 1 - 2 1	T	
	Client	Instructions:									
17.	Additional	remarks:									
18. <u>c</u>	Cooler Inf	ormation							÷		
-	Cooler	No Temp °C	Condition	Seal Intact Seal No	Seal D	ate	Signed	Ву			
	1	3.4	Good	Yes			<u> </u>		I		

n-Around Time:	□ Rush		bservation wells 8-37-14 4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax	Analysis Request	(***) (***) (***) (**)	(S	(G\$9) MIS	MAT THAT THE TOTAL OF THE TOTAL	10 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	MTB MTB MTB 15B (ontainer Preservative HEAL No + + + SON (SON POPE and # Type TYPE HEAL NO + + + + + + + + + + + + + + + + + +	-VOA #C/ -CC/ X X X	-500 auber 20(X	=104 HC1 -222 X X	-500 auber -202 X	HCI	-500 amber -203 X X	x 404 Hc/ X 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Tho. + 1 Late Time Remarks: Rip SANK - COS	Date Time	
Turn-Around Time:	X Standard □ Rush	Project Name:	Vation Wells	Project #:		Project Manager:			イナン				5-VOA HC/	1-500 auber	5-VOA HCI	1-500 amber	5-VOA HCI	1-500 amber	3-WA HC/			+ 1 , 1 , 1	ULLANDE.	M. 100 1 20 1.
Chain-of-Custody Record Tul	lient: Western Refining		alling Address: # 50 CR 4990	2//3	14-6		A/QC Package:	Standard Level 4 (Full Validation)	ccreditation Sa	(60)		Date Time Matrix Sample Request ID T	17-14 9:00 Has ow-ottoo 5	<i></i>	19:40 000-11+15 5	/	10:50 0W-1/6 +60 5	ر	2740 1:00 1 Zivette			Relinquished by:	Time: Relinquished by:	

TABLE 2 Analytical Methods and Target Analytes

TYPE (TRANS)	1 00 com (I)
VOCs (EPA Method	18260B) **
Benzene	•
Toluene	
Ethylbenzene	
Xylenes	I - I (2 (Time)
Methyl tert buty	
SVOCs - (EPA Meth	(00 82/U)
- Method List	Alle Hook en
TPH-GRO (EPA Me	
- Gasoline Rang TPH-DRO (EPA Me	
- Diesel Range (
- Motor Oil Ran	-
- Dissolved CO2	e (Laboratory Calculated)
	(EPA Method 120.1 or field measurement)
- Specific conduc	
	60.1 or field measurement)
- Total dissolved	
	Anions (EPA Method 300.0)
Fluoride	
Chloride	
Bromide	
Nitrogen, Nitrite	. ,
Nitrogen, Nitrate	
	thophosphate (As P)
Sulfate	
	Alkalinity (EPA Method 310.1)
Alkalinity, Total	
Carbonate	
Bicarbonate	

Total Recoverable Metals (EPA Method 6010B/7470)

- Target List (not applicable to River Terrace Sampling Events)

Arsenic Lead Barium Mercury

Cadmium Selenium Chromium Silver

Target List (for River Terrace Sampling Events Only)

Lead

Mercury (DW-1 ONLY)

Dissolved Metals (EPA Method 6010B / 7470)

- Target List (for Refinery Complex, Outfalls, and River)

Arsenic Manganese
Barium Mercury
Cadmium Potassium
Calcium Selenium
Chromium Silver
Copper Sodium
Iron Uranium

Zinc

Lead

Magnesium

TPH = total petroleum hydrocarbons

GRO = gasoline range organics

VOCs = volatile organic compounds

DRO = diesel range organics

TDS = total dissolved solids

NOTES:

- 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 Piezomenter 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 09, 2014

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

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

RE: San Juan River 8-28-14 OrderNo.: 1408F37

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/29/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Only

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc.

1408F37-001A

Client Sample ID: Upstream

Project: San Juan River 8-28-14

Lab ID:

Collection Date: 8/28/2014 8:00:00 AM

Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analy	st: KJH
Benzene	ND	1.0	μg/L	1	9/6/2014 8:07:16 AM	R21044
Toluene	ND	1.0	μg/L	1	9/6/2014 8:07:16 AM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/6/2014 8:07:16 AM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/6/2014 8:07:16 AM	R21044
Xylenes, Total	ND	2.0	μg/L	1	9/6/2014 8:07:16 AM	R21044
Surr: 1,2-Dichloroethane-d4	105	70-130	%REC	1	9/6/2014 8:07:16 AM	R21044
Surr: 4-Bromofluorobenzene	99.5	70-130	%REC	1	9/6/2014 8:07:16 AM	R21044
Surr: Dibromofluoromethane	98.0	70-130	%REC	1	9/6/2014 8:07:16 AM	R21044
Surr: Toluene-d8	85.8	70-130	%REC	1	9/6/2014 8:07:16 AM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

Page 1 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Upstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 8:00:00 AM

Lab ID: 1408F37-001B Matrix: Aqueous

Analyses	Result	RL	Qual U	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RAM	NGE					Anal	yst: NSB
Gasoline Range Organics (GRO)	ND	0.050	n	ng/L	1	9/2/2014 1:27:49 PM	1 R20946
Surr: BFB	103	70.9-130	9/	%REC	1	9/2/2014 1:27:49 PM	1 R20946

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

Page 2 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Upstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 8:00:00 AM

Lab ID: 1408F37-001C Matrix: Aqueous

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE					Analy	/st: JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/30/2014 3:10:03 AM	M 15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 3:10:03 AM	M 15015
Surr: DNOP	121	75.2-161	%REC	1	8/30/2014 3:10:03 AM	M 15015

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

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Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Upstream

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 8:00:00 AM

Lab ID: 1408F37-001D Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analy	st: LGP
Fluoride	0.18	0.10		mg/L	1	9/2/2014 12:23:53 PM	R20961
Chloride	3.3	0.50		mg/L	1	9/2/2014 12:23:53 PM	R20961
Bromide	ND	0.10		mg/L	1	9/2/2014 12:23:53 PM	R20961
Phosphorus, Orthophosphate (As P)	ND	0.50	Н	mg/L	1	9/2/2014 12:23:53 PM	R20961
Sulfate	66	10		mg/L	20	9/2/2014 1:01:07 PM	R20961
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/3/2014 4:50:43 AM	R20957
SM2510B: SPECIFIC CONDUCTANCE	<u>!</u>					Analys	st: JRR
Conductivity	350	0.010		µmhos/cm	1	9/2/2014 3:26:45 PM	R20962
SM2320B: ALKALINITY						Analys	st: JRR
Bicarbonate (As CaCO3)	96	20		mg/L CaCO3	1	9/2/2014 3:26:45 PM	R20962
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	9/2/2014 3:26:45 PM	R20962
Total Alkalinity (as CaCO3)	96	20		mg/L CaCO3	1	9/2/2014 3:26:45 PM	R20962
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analys	st: KS
Total Dissolved Solids	225	100		mg/L	1	9/5/2014 10:21:00 AM	1 15087

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 4 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Upstream

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 8:00:00 AM

Lab ID: 1408F37-001E Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: METALS					Anal	yst: JLF
Arsenic	ND	0.020	mg/L	1	9/10/2014 1:49:40 P	M 15178
Barium	0.18	0.0020	mg/L	1	9/10/2014 1:49:40 P	M 15178
Cadmium	ND	0.0020	mg/L	1	9/10/2014 1:49:40 P	M 15178
Chromium	0.0074	0.0060	mg/L	1	9/10/2014 1:49:40 P	M 15178
Lead	ND	0.0050	mg/L	1	9/10/2014 1:49:40 P	M 15178
Selenium	ND	0.050	mg/L	1	9/10/2014 1:49:40 P	M 15178
Silver	ND	0.0050	mg/L	1	9/10/2014 1:49:40 P	M 15178
EPA METHOD 245.1: MERCURY					Anal	yst: MMD
Mercury	ND	0.00020	mg/L	1	9/9/2014 10:52:10 A	M 15169

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 5 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Upstream

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 8:00:00 AM

Lab ID: 1408F37-001F Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED ME	ETALS					Analy	/st: JLF
Barium	0.079	0.0020		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Cadmium	ND	0.0020		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Calcium	39	1.0		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Chromium	ND	0.0060		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Copper	ND	0.0060		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Iron	0.34	0.020	*	mg/L	1	8/29/2014 4:45:08 PM	M R20915
Magnesium	6.3	1.0		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Manganese	0.028	0.0020		mg/L	1	9/2/2014 4:57:45 PM	R20947
Potassium	2.0	1.0		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Silver	ND	0.0050		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Sodium	22	1.0		mg/L	1	8/29/2014 4:45:08 PM	M R20915
Zinc	ND	0.010		mg/L	1	8/29/2014 4:45:08 PM	M R20915
EPA 200.8: DISSOLVED METALS						Analy	st: DBD
Arsenic	0.0011	0.0010		mg/L	1	9/8/2014 6:25:05 PM	R21084
Lead	ND	0.0010		mg/L	1	9/8/2014 6:25:05 PM	R21084
Selenium	ND	0.0010		mg/L	1	9/8/2014 6:25:05 PM	R21084
Uranium	ND	0.0010		mg/L	1	9/8/2014 6:25:05 PM	R21084
EPA METHOD 245.1: MERCURY						Analy	st: MMD
Mercury	ND	0.00020		mg/L	1	9/10/2014 9:59:41 Al	M 15200

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Downstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002A Matrix: Aqueous

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH		Analy	st: KJH			
Benzene	ND	1.0	μg/L	1	9/6/2014 8:36:53 AM	R21044
Toluene	ND	1.0	μg/L	1	9/6/2014 8:36:53 AM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/6/2014 8:36:53 AM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/6/2014 8:36:53 AM	R21044
Xylenes, Total	ND	2.0	μg/L	1	9/6/2014 8:36:53 AM	R21044
Surr: 1,2-Dichloroethane-d4	97.4	70-130	%REC	1	9/6/2014 8:36:53 AM	R21044
Surr: 4-Bromofluorobenzene	96.8	70-130	%REC	1	9/6/2014 8:36:53 AM	R21044
Surr: Dibromofluoromethane	94.0	70-130	%REC	1	9/6/2014 8:36:53 AM	R21044
Surr: Toluene-d8	89.7	70-130	%REC	1	9/6/2014 8:36:53 AM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

Page 7 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Downstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002B Matrix: Aqueous

Analyses	Result	RL	Qual Uni	its <u>D</u> F	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANG	GE				Anal	yst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/	L 1	9/2/2014 1:58:02 PM	1 R20946
Surr: BFB	105	70.9-130	%R	EC 1	9/2/2014 1:58:02 PM	1 R20946

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

Page 8 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Downstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002C Matrix: Aqueous

Analyses	Result	RL Qual	Units	DF Date Analyzed Ba	tch ID
EPA METHOD 8015D: DIESEL RANGE				Analyst:	JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1 8/30/2014 3:31:27 AM	15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1 8/30/2014 3:31:27 AM	15015
Surr: DNOP	119	75.2-161	%REC	1 8/30/2014 3:31:27 AM	15015

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2. RL Reporting Detection Limit

Page 9 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Downstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002D Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS					Analy	st: LGP
Fluoride	0.18	0.10	mg/L	1	9/2/2014 1:13:32 PM	R20961
Chloride	3.3	0.50	mg/L	1	9/2/2014 1:13:32 PM	R20961
Bromide	ND	0.10	mg/L	1	9/2/2014 1:13:32 PM	R20961
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	9/2/2014 1:13:32 PM	R20961
Sulfate	60	10	mg/L	20	9/2/2014 1:25:57 PM	R20961
Nitrate+Nitrite as N	ND	1.0	mg/L	5	9/3/2014 5:03:07 AM	R20957
SM2510B: SPECIFIC CONDUCTANCE	<u> </u>				Analy	st: JRR
Conductivity	340	0.010	µmhos/cm	1	9/2/2014 3:34:50 PM	R20962
SM2320B: ALKALINITY					Analy	st: JRR
Bicarbonate (As CaCO3)	96	20	mg/L CaCO3	1	9/2/2014 3:34:50 PM	R20962
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	9/2/2014 3:34:50 PM	R20962
Total Alkalinity (as CaCO3)	96	20	mg/L CaCO3	1	9/2/2014 3:34:50 PM	R20962
SM2540C MOD: TOTAL DISSOLVED	SOLIDS				Analy	st: KS
Total Dissolved Solids	220	100	mg/L	1	9/5/2014 10:21:00 AM	Л 15087

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 10 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Downstream

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002E Matrix: Aqueous

Analyses	Result	RL Q	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: METALS					Analyst: JLF	
Arsenic	ND	0.020	mg/L	1	9/10/2014 1:51:24 P	M 15178
Barium	0.17	0.0020	mg/L	1	9/10/2014 1:51:24 P	M 15178
Cadmium	ND	0.0020	mg/L	1	9/10/2014 1:51:24 P	M 15178
Chromium	0.0060	0.0060	mg/L	1	9/10/2014 1:51:24 P	M 15178
Lead	ND	0.0050	mg/L	1	9/10/2014 1:51:24 P	M 15178
Selenium	ND	0.050	mg/L	1	9/10/2014 1:51:24 P	M 15178
Silver	ND	0.0050	mg/L	1	9/10/2014 1:51:24 P	M 15178
EPA METHOD 245.1: MERCURY	Analys				yst: MMD	
Mercury	ND	0.00020	mg/L	1	9/9/2014 10:54:00 A	M 15169

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 11 of 40

Lab Order: 1408F37

Date Reported: 10/9/2014

Client Sample ID: Downstream

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:00:00 AM

Lab ID: 1408F37-002F Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED M	ETALS				Analys	t: JLF
Barium	0.081	0.0020	mg/L	1	8/29/2014 4:46:59 PM	R20915
Cadmium	ND	0.0020	mg/L	1	8/29/2014 4:46:59 PM	R20915
Calcium	38	1.0	mg/L	1	8/29/2014 4:46:59 PM	R20915
Chromium	ND	0.0060	mg/L	1	8/29/2014 4:46:59 PM	R20915
Copper	ND	0.0060	mg/L	1	8/29/2014 4:46:59 PM	R20915
Iron	0.44	0.020	* mg/L	1	8/29/2014 4:46:59 PM	R20915
Magnesium	6.0	1.0	mg/L	1	8/29/2014 4:46:59 PM	R20915
Manganese	0.022	0.0020	mg/L	1	9/2/2014 4:59:40 PM	R20947
Potassium	2.0	1.0	mg/L	1	8/29/2014 4:46:59 PM	R20915
Silver	ND	0.0050	mg/L	1	8/29/2014 4:46:59 PM	R20915
Sodium	21	1.0	mg/L	1	8/29/2014 4:46:59 PM	R20915
Zinc	ND	0.010	mg/L	1	8/29/2014 4:46:59 PM	R20915
EPA 200.8: DISSOLVED METALS					Analys	t: DBD
Arsenic	0.0010	0.0010	mg/L	1	9/8/2014 6:28:10 PM	R21084
Lead	ND	0.0010	mg/L	1	9/8/2014 6:28:10 PM	R21084
Selenium	ND	0.0010	mg/L	1	9/8/2014 6:28:10 PM	R21084
Uranium	ND	0.0010	mg/L	1	9/8/2014 6:28:10 PM	R21084
EPA METHOD 245.1: MERCURY					Analys	t: MMD
Mercury	ND	0.00020	mg/L	1	9/10/2014 10:01:29 AM	И 15200

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

Page 12 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003A Matrix: Aqueous

Analyses	Result	RL	Qual Units	S DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH		Analy	yst: KJH			
Benzene	ND	1.0	μg/L	1	9/6/2014 9:06:32 AM	R21044
Toluene	ND	1.0	μg/L	1	9/6/2014 9:06:32 AM	R21044
Ethylbenzene	ND	1.0	μg/L	1	9/6/2014 9:06:32 AM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/6/2014 9:06:32 AM	R21044
Xylenes, Total	ND	2.0	μg/L	1	9/6/2014 9:06:32 AM	R21044
Surr: 1,2-Dichloroethane-d4	105	70-130	%RE	2 1	9/6/2014 9:06:32 AM	R21044
Surr: 4-Bromofluorobenzene	100	70-130	%RE	0 1	9/6/2014 9:06:32 AM	R21044
Surr: Dibromofluoromethane	101	70-130	%RE	0 1	9/6/2014 9:06:32 AM	R21044
Surr: Toluene-d8	79.1	70-130	%RE0	2 1	9/6/2014 9:06:32 AM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 13 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003B Matrix: Aqueous

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE					Anal	yst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/2/2014 2:28:28 PM	1 R20946
Surr: BFB	103	70.9-130	%REC	1	9/2/2014 2:28:28 PM	1 R20946

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

Page 14 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003C Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE					Anal	yst: JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/30/2014 3:52:51 A	M 15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 3:52:51 A	M 15015
Surr: DNOP	119	75.2-161	%REC	1	8/30/2014 3:52:51 A	M 15015

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

Page 15 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003D Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS					Analy	st: LGP
Fluoride	0.18	0.10	mg/L	1	9/2/2014 1:38:21 PM	R20961
Chloride	3.2	0.50	mg/L	1	9/2/2014 1:38:21 PM	R20961
Bromide	ND	0.10	mg/L	1	9/2/2014 1:38:21 PM	R20961
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	9/2/2014 1:38:21 PM	R20961
Sulfate	59	10	mg/L	20	9/2/2014 1:50:46 PM	R20961
Nitrate+Nitrite as N	ND	1.0	mg/L	5	9/3/2014 5:15:32 AM	R20957
SM2510B: SPECIFIC CONDUCTANCE	<u> </u>				Analy	st: JRR
Conductivity	340	0.010	µmhos/cm	1	9/2/2014 3:42:44 PM	R20962
SM2320B: ALKALINITY					Analy	st: JRR
Bicarbonate (As CaCO3)	95	20	mg/L CaCO3	1	9/2/2014 3:42:44 PM	R20962
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	9/2/2014 3:42:44 PM	R20962
Total Alkalinity (as CaCO3)	95	20	mg/L CaCO3	1	9/2/2014 3:42:44 PM	R20962
SM2540C MOD: TOTAL DISSOLVED	SOLIDS				Analy	st: KS
Total Dissolved Solids	345	100	mg/L	1	9/5/2014 10:21:00 AM	Л 15087

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- Page 16 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003E Matrix: Aqueous

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: METALS					Anal	yst: JLF
Arsenic	ND	0.020	mg/L	1	9/10/2014 1:53:03 P	M 15178
Barium	0.18	0.0020	mg/L	1	9/10/2014 1:53:03 P	M 15178
Cadmium	ND	0.0020	mg/L	1	9/10/2014 1:53:03 P	M 15178
Chromium	ND	0.0060	mg/L	1	9/10/2014 1:53:03 P	M 15178
Lead	ND	0.0050	mg/L	1	9/10/2014 1:53:03 P	M 15178
Selenium	ND	0.050	mg/L	1	9/10/2014 1:53:03 P	M 15178
Silver	ND	0.0050	mg/L	1	9/10/2014 1:53:03 P	M 15178
EPA METHOD 245.1: MERCURY	OD 245.1: MERCURY				Anal	yst: MMD
Mercury	ND	0.00020	mg/L	1	9/9/2014 10:55:50 A	M 15169

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 17 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 45

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:00:00 AM

Lab ID: 1408F37-003F Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED ME	TALS				Analys	st: JLF
Barium	0.076	0.0020	mg/L	1	8/29/2014 4:48:50 PM	R20915
Cadmium	ND	0.0020	mg/L	1	8/29/2014 4:48:50 PM	R20915
Calcium	37	1.0	mg/L	1	8/29/2014 4:48:50 PM	R20915
Chromium	ND	0.0060	mg/L	1	8/29/2014 4:48:50 PM	R20915
Copper	ND	0.0060	mg/L	1	8/29/2014 4:48:50 PM	R20915
Iron	0.27	0.020	mg/L	1	8/29/2014 4:48:50 PM	R20915
Magnesium	6.0	1.0	mg/L	1	8/29/2014 4:48:50 PM	R20915
Manganese	0.014	0.0020	mg/L	1	9/2/2014 5:01:38 PM	R20947
Potassium	2.0	1.0	mg/L	1	8/29/2014 4:48:50 PM	R20915
Silver	ND	0.0050	mg/L	1	8/29/2014 4:48:50 PM	R20915
Sodium	21	1.0	mg/L	1	8/29/2014 4:48:50 PM	R20915
Zinc	ND	0.010	mg/L	1	8/29/2014 4:48:50 PM	R20915
EPA 200.8: DISSOLVED METALS					Analys	st: DBD
Arsenic	ND	0.0010	mg/L	1	9/8/2014 6:31:16 PM	R21084
Lead	ND	0.0010	mg/L	1	9/8/2014 6:31:16 PM	R21084
Selenium	ND	0.0010	mg/L	1	9/8/2014 6:31:16 PM	R21084
Uranium	ND	0.0010	mg/L	1	9/8/2014 6:31:16 PM	R21084
EPA METHOD 245.1: MERCURY					Analys	st: MMD
Mercury	ND	0.00020	mg/L	1	9/10/2014 10:03:17 A	M 15200

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Reporting Detection Limit Page 18 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004A Matrix: Aqueous

Analyses	Result	RL	Qual U	nits	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	ORT LIST					Analy	/st: KJH
Benzene	ND	1.0	μg	J/L	1	9/6/2014 9:36:07 AM	R21044
Toluene	ND	1.0	μg	J/L	1	9/6/2014 9:36:07 AM	R21044
Ethylbenzene	ND	1.0	μg	J/L	1	9/6/2014 9:36:07 AM	R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg	J/L	1	9/6/2014 9:36:07 AM	R21044
Xylenes, Total	ND	2.0	μg	J/L	1	9/6/2014 9:36:07 AM	R21044
Surr: 1,2-Dichloroethane-d4	104	70-130	%I	REC	1	9/6/2014 9:36:07 AM	R21044
Surr: 4-Bromofluorobenzene	95.7	70-130	%I	REC	1	9/6/2014 9:36:07 AM	R21044
Surr: Dibromofluoromethane	105	70-130	%I	REC	1	9/6/2014 9:36:07 AM	R21044
Surr: Toluene-d8	85.7	70-130	%I	REC	1	9/6/2014 9:36:07 AM	R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 19 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004B Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RA	ANGE				Analy	yst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/2/2014 2:58:41 PM	R20946
Surr: BFB	104	70.9-130	%REC	1	9/2/2014 2:58:41 PM	1 R20946

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

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Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004C Matrix: Aqueous

Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE					Anal	yst: JME
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	8/30/2014 4:14:08 A	M 15015
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	8/30/2014 4:14:08 A	M 15015
Surr: DNOP	119	75.2-161	%REC	1	8/30/2014 4:14:08 A	M 15015

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

 $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$

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Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004D Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS					Analy	st: LGP
Fluoride	0.18	0.10	mg/L	1	9/2/2014 2:28:01 PM	R20961
Chloride	3.2	0.50	mg/L	1	9/2/2014 2:28:01 PM	R20961
Bromide	ND	0.10	mg/L	1	9/2/2014 2:28:01 PM	R20961
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	9/2/2014 2:28:01 PM	R20961
Sulfate	58	10	mg/L	20	9/2/2014 2:40:26 PM	R20961
Nitrate+Nitrite as N	ND	1.0	mg/L	5	9/3/2014 5:27:56 AM	R20957
SM2510B: SPECIFIC CONDUCTANCE	<u> </u>				Analy	st: JRR
Conductivity	330	0.010	µmhos/cm	1	9/2/2014 3:51:07 PM	R20962
SM2320B: ALKALINITY					Analy	st: JRR
Bicarbonate (As CaCO3)	95	20	mg/L CaCO3	1	9/2/2014 3:51:07 PM	R20962
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	9/2/2014 3:51:07 PM	R20962
Total Alkalinity (as CaCO3)	95	20	mg/L CaCO3	1	9/2/2014 3:51:07 PM	R20962
SM2540C MOD: TOTAL DISSOLVED	SOLIDS				Analy	st: KS
Total Dissolved Solids	260	100	mg/L	1	9/5/2014 10:21:00 AM	/I 15087

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004E Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: METALS					Anal	yst: JLF
Arsenic	ND	0.020	mg/L	1	9/10/2014 1:54:49 P	M 15178
Barium	0.17	0.0020	mg/L	1	9/10/2014 1:54:49 P	M 15178
Cadmium	ND	0.0020	mg/L	1	9/10/2014 1:54:49 P	M 15178
Chromium	0.0060	0.0060	mg/L	1	9/10/2014 1:54:49 P	M 15178
Lead	ND	0.0050	mg/L	1	9/10/2014 1:54:49 P	M 15178
Selenium	ND	0.050	mg/L	1	9/10/2014 1:54:49 P	M 15178
Silver	ND	0.0050	mg/L	1	9/10/2014 1:54:49 P	M 15178
EPA METHOD 245.1: MERCURY					Anal	yst: MMD
Mercury	ND	0.00020	mg/L	1	9/9/2014 10:57:42 A	.M 15169

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- Page 23 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North of 46

Project: San Juan River 8-28-14 **Collection Date:** 8/28/2014 9:30:00 AM

Lab ID: 1408F37-004F Matrix: Aqueous

Analyses	Result	RL	Qual Un	its <u>DF</u>	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED ME	TALS				Analys	st: JLF
Barium	0.078	0.0020	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Cadmium	ND	0.0020	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Calcium	37	1.0	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Chromium	ND	0.0060	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Copper	ND	0.0060	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Iron	0.35	0.020	* mg	/L 1	8/29/2014 4:50:40 PM	R20915
Magnesium	6.1	1.0	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Manganese	0.020	0.0020	mg	/L 1	9/2/2014 5:03:32 PM	R20947
Potassium	2.0	1.0	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Silver	ND	0.0050	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Sodium	21	1.0	mg	/L 1	8/29/2014 4:50:40 PM	R20915
Zinc	ND	0.010	mg	/L 1	8/29/2014 4:50:40 PM	R20915
EPA 200.8: DISSOLVED METALS					Analys	st: DBD
Arsenic	0.0011	0.0010	mg	/L 1	9/8/2014 6:34:21 PM	R21084
Lead	ND	0.0010	mg	/L 1	9/8/2014 6:34:21 PM	R21084
Selenium	ND	0.0010	mg	/L 1	9/8/2014 6:34:21 PM	R21084
Uranium	ND	0.0010	mg	/L 1	9/8/2014 6:34:21 PM	R21084
EPA METHOD 245.1: MERCURY					Analys	st: MMD
Mercury	ND	0.00020	mg	/L 1	9/10/2014 10:05:05 A	M 15200

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order: 1408F37

Date Reported: 10/9/2014

Client Sample ID: Rinsate

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14 Collection Date: 8/28/2014 10:30:00 AM

Lab ID: 1408F37-005A Matrix: Aqueous

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analy	/st: KJH
Benzene	ND	1.0	μg/L	1	9/6/2014 10:05:43 Al	M R21044
Toluene	ND	1.0	μg/L	1	9/6/2014 10:05:43 Al	M R21044
Ethylbenzene	ND	1.0	μg/L	1	9/6/2014 10:05:43 Al	M R21044
Xylenes, Total	ND	2.0	μg/L	1	9/6/2014 10:05:43 Al	M R21044
Surr: 1,2-Dichloroethane-d4	100	70-130	%REC	1	9/6/2014 10:05:43 Al	M R21044
Surr: 4-Bromofluorobenzene	90.5	70-130	%REC	1	9/6/2014 10:05:43 Al	M R21044
Surr: Dibromofluoromethane	96.1	70-130	%REC	1	9/6/2014 10:05:43 Al	M R21044
Surr: Toluene-d8	86.9	70-130	%REC	1	9/6/2014 10:05:43 Al	M R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- Page 25 of 40

Lab Order: 1408F37

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/9/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Trip Blank

Project: San Juan River 8-28-14 **Collection Date:**

Lab ID: 1408F37-006A Matrix: Trip Blank

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analy	st: KJH
Benzene	ND	1.0	μg/L	1	9/6/2014 10:35:18 Al	M R21044
Toluene	ND	1.0	μg/L	1	9/6/2014 10:35:18 Al	M R21044
Ethylbenzene	ND	1.0	μg/L	1	9/6/2014 10:35:18 Al	M R21044
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/6/2014 10:35:18 Al	M R21044
Xylenes, Total	ND	2.0	μg/L	1	9/6/2014 10:35:18 Al	M R21044
Surr: 1,2-Dichloroethane-d4	99.8	70-130	%REC	1	9/6/2014 10:35:18 Al	M R21044
Surr: 4-Bromofluorobenzene	101	70-130	%REC	1	9/6/2014 10:35:18 Al	M R21044
Surr: Dibromofluoromethane	96.5	70-130	%REC	1	9/6/2014 10:35:18 Al	M R21044
Surr: Toluene-d8	85.0	70-130	%REC	1	9/6/2014 10:35:18 Al	M R21044

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 26 of 40

Hall Environmental Analysis Laboratory, Inc.

WO#: 1408F37

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB	SampType: MBLK TestCode: EPA Method 2						200.7: Metals	i		
Client ID: PBW	Bato	h ID: R2	0915	F	RunNo: 2	0915				
Prep Date:	Analysis I	Date: 8 /	29/2014	S	SeqNo: 6	08597	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Silver	ND	0.0050								
Zinc	ND	0.010								
Sample ID LCS	Samp	Type: LC	s	Tes	tCode: E	PA Method	200.7: Metals			
Sample ID LCS Client ID: LCSW	·	Type: LC			tCode: E		200.7: Metals	i		
	·	th ID: R2	0915	F		0915	200.7: Metals Units: mg/L	i		
Client ID: LCSW	Bato	th ID: R2	0915 29/2014	F	RunNo: 2	0915		%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date:	Bato Analysis I	ch ID: R2 Date: 8/	0915 29/2014	F	RunNo: 2 SeqNo: 6	0915 08598	Units: mg/L		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte	Bato Analysis I Result	ch ID: R2 Date: 8 /	0915 29/2014 SPK value	F S SPK Ref Val	RunNo: 2 SeqNo: 6 %REC	0915 08598 LowLimit	Units: mg/L HighLimit		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium	Analysis I Result	ch ID: R2 Date: 8 / PQL 0.0020	0915 29/2014 SPK value 0.5000	SPK Ref Val	RunNo: 2 SeqNo: 6 %REC 94.3	0915 08598 LowLimit 85	Units: mg/L HighLimit		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium	Analysis I Result 0.47 0.48	PQL 0.0020 0.0020	0915 29/2014 SPK value 0.5000 0.5000	SPK Ref Val 0 0	RunNo: 2 SeqNo: 6 %REC 94.3 95.3	0915 08598 LowLimit 85 85	Units: mg/L HighLimit 115 115		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium	Analysis I Result 0.47 0.48 49	PQL 0.0020 0.0020 1.0	0915 29/2014 SPK value 0.5000 0.5000 50.00	SPK Ref Val 0 0 0	RunNo: 2 SeqNo: 6 **REC 94.3 95.3 99.0	0915 08598 LowLimit 85 85 85	Units: mg/L HighLimit 115 115		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium Chromium	Analysis I Result 0.47 0.48 49 0.47	PQL 0.0020 0.0020 1.0 0.0060	0915 29/2014 SPK value 0.5000 0.5000 50.00 0.5000	SPK Ref Val 0 0 0 0	RunNo: 2 SeqNo: 6 **REC 94.3 95.3 99.0 93.5	0915 08598 LowLimit 85 85 85 85	Units: mg/L HighLimit 115 115 115 115		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium Chromium Copper	Result 0.47 0.48 49 0.47 0.47	PQL 0.0020 0.0020 1.0 0.0060 0.0060	0915 29/2014 SPK value 0.5000 0.5000 50.00 0.5000 0.5000	SPK Ref Val 0 0 0 0 0	RunNo: 2 SeqNo: 6 **REC 94.3 95.3 99.0 93.5 93.9	0915 08598 LowLimit 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium Chromium Copper Iron	Batc Analysis I Result 0.47 0.48 49 0.47 0.47 0.47	PQL 0.0020 0.0020 1.0 0.0060 0.0060 0.0020	0915 29/2014 SPK value 0.5000 0.5000 50.00 0.5000 0.5000	SPK Ref Val 0 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 94.3 95.3 99.0 93.5 93.9 94.1	0915 08598 LowLimit 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115		RPDLimit	Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium Chromium Copper Iron Magnesium	Batc Analysis I Result 0.47 0.48 49 0.47 0.47 0.47 50	PQL 0.0020 0.0020 1.0 0.0060 0.0060 0.020 1.0	0915 29/2014 SPK value 0.5000 0.5000 50.00 0.5000 0.5000 0.5000 50.00	SPK Ref Val 0 0 0 0 0 0 0	RunNo: 2 SeqNo: 6 %REC 94.3 95.3 99.0 93.5 93.9 94.1 100	0915 08598 LowLimit 85 85 85 85 85 85 85	Units: mg/L HighLimit 115 115 115 115 115 115 115		RPDLimit	Qual

Sample ID MB	Samp	Туре: МЕ	BLK	Tes	Code: El	PA Method	200.7: Metals	i		
Client ID: PBW	Bato	h ID: R2	0947	F	tunNo: 2	0947				
Prep Date:	Analysis I	Date: 9 /	2/2014	S	eqNo: 6	09524	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	110	0 0000	•		<u> </u>	•	•	•	•	•

Manganese ND 0.0020

Sample ID LCS	SampType: LCS		TestCo	de: EPA Method	EPA Method 200.7: Metals					
Client ID: LCSW	Batch ID: R209	47	Runi	No: 20947						
Prep Date:	Analysis Date: 9/2/2	2014	Seql	No: 609525	Units: mg/L					
Analyte	Result PQL S	PK value SP	K Ref Val %	REC LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Manganese	0.46 0.0020	0.5000	0	92.9 85	115					

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB-15178	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	200.7: Metals	1		
Client ID: PBW	Bato	h ID: 15	178	F	RunNo: 2	1110				
Prep Date: 9/8/2014	Analysis I	Date: 9/	9/2014	S	SeqNo: 6	14436	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								
Sample ID I CS 45479	Camp	Type: 10		Tos	Codo: E	DA Mathad	200 7: Motolo			

Sample ID LCS-15178	Samp rype. LCS	200.7: Wetais					
Client ID: LCSW	Batch ID: 15178						
Prep Date: 9/8/2014	Analysis Date: 9/9/2014 SeqNo: 614437 U			Units: mg/L			
Analyte	Result PQL SP	K value SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49 0.0020	0.5000 0	97.5 85	115			
Cadmium	0.49 0.0020	0.5000 0	97.1 85	115			
Chromium	0.48 0.0060	0.5000 0	96.2 85	115			
Silver	0.48 0.0050	0.5000 0	95.8 85	115			

Sample ID MB-15178	SampType	: MBLK	Tes	tCode: EPA Metho	od 200.7: Metals	i		
Client ID: PBW	Batch ID	: 15178	F	RunNo: 21132				
Prep Date: 9/8/2014	Analysis Date	9/10/2014	5	SeqNo: 614927	Units: mg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLim	nit HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND 0.	.020						
Lead	ND 0.0	050						
Colonium	ND 0	050						

Sample ID LCS-15178	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Metals	;		
Client ID: LCSW	Bato	ch ID: 15	178	F	RunNo: 2	1132				
Prep Date: 9/8/2014	Analysis	Date: 9 /	10/2014	S	SeqNo: 6	14928	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	Λ	97.6	85	115			-
	0.43	0.020	0.5000	U	91.0	00	110			
Lead	0.49	0.0050	0.5000	0	98.0	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB	Sampl	SampType: MBLK TestCode: EPA Method			200.7: Dissol	ved Meta	s			
Client ID: PBW	Batcl	h ID: R2	ID: R20915 RunNo: 20915							
Prep Date:	Analysis D	Date: 8/	29/2014	5	SeqNo: 6	08593	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								
Sample ID I CC	Cama	Dyna: I C		Too	tCodo: F I	DA Mathad	200 7: Dissel	usal Matal	_	

Sample ID LCS	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Bato	Batch ID: R20915			RunNo: 20915					
Prep Date:	Analysis	Date: 8/	29/2014	S	SeqNo: 6	08594	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.0020	0.5000	0	94.0	85	115			
Cadmium	0.48	0.0020	0.5000	0	95.7	85	115			
Calcium	49	1.0	50.00	0	98.9	85	115			
Chromium	0.47	0.0060	0.5000	0	94.2	85	115			
Copper	0.47	0.0060	0.5000	0	94.4	85	115			
Iron	0.47	0.020	0.5000	0	94.9	85	115			
Magnesium	50	1.0	50.00	0	99.3	85	115			
Potassium	48	1.0	50.00	0	96.9	85	115			
Silver	0.49	0.0050	0.5000	0	97.3	85	115			
Sodium	49	1.0	50.00	0	98.0	85	115			
Zinc	0.47	0.010	0.5000	0	94.0	85	115			

Sample ID MB	SampType: I	MBLK TestCode: EPA Method 200.7: Disse				ved Metal	s	
Client ID: PBW	Batch ID: I	tch ID: R20915 RunNo: 20915						
Prep Date:	Analysis Date:	8/29/2014	SeqN	c: 608595	Units: mg/L			
Analyte	Result PQL	L SPK value	SPK Ref Val %R	EC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND 0.002	20						
Cadmium	ND 0.002	20						
Calcium	ND 1.	.0						
Chromium	ND 0.006	80						
Copper	ND 0.006	60						
Iron	ND 0.02	20						

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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49

48

48

0.48

0.45

1.0

1.0

1.0

0.010

0.0050

50.00

50.00

0.5000

50.00

0.5000

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB	Samp	SampType: MBLK TestCode: EPA Method 2			200.7: Dissol	ved Metal	s			
Client ID: PBW	Bato	h ID: R2	0915	F	RunNo: 2	0915				
Prep Date:	Analysis	Date: 8/	29/2014	S	SeqNo: 6	08595	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	ND	1.0								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								
Sample ID LCS	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Sample ID LCS Client ID: LCSW	·	Type: LC			tCode: El		200.7: Dissol	ved Metal	s	
•	·	th ID: R2	0915	F		0915	200.7: Dissol Units: mg/L	ved Metal	s	
Client ID: LCSW	Bato	th ID: R2	0915 29/2014	F	RunNo: 2	0915		wed Metal	s RPDLimit	Qual
Client ID: LCSW Prep Date:	Bato Analysis	ch ID: R2 Date: 8 /	0915 29/2014	F	RunNo: 2 SeqNo: 6	0915 08596	Units: mg/L			Qual
Client ID: LCSW Prep Date: Analyte	Bato Analysis Result	ch ID: R2 Date: 8 /	29/2014 SPK value	SPK Ref Val	RunNo: 2 SeqNo: 6 %REC	0915 08596 LowLimit	Units: mg/L HighLimit			Qual
Client ID: LCSW Prep Date: Analyte Barium	Bato Analysis Result 0.46	ch ID: R2 Date: 8 / PQL 0.0020	0915 29/2014 SPK value 0.5000	SPK Ref Val	RunNo: 2 SeqNo: 6 %REC 91.8	0915 08596 LowLimit 85	Units: mg/L HighLimit			Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium	Bato Analysis Result 0.46 0.47	PQL 0.0020 0.0020	29/2014 SPK value 0.5000 0.5000	SPK Ref Val 0 0	RunNo: 2 SeqNo: 6 %REC 91.8 93.2	0915 08596 LowLimit 85 85	Units: mg/L HighLimit 115 115			Qual
Client ID: LCSW Prep Date: Analyte Barium Cadmium Calcium	Analysis Result 0.46 0.47 49	PQL 0.0020 0.0020 1.0	29/2014 SPK value 0.5000 0.5000 50.00	SPK Ref Val 0 0 0	RunNo: 2 SeqNo: 6 **REC 91.8 93.2 98.3	0915 08596 LowLimit 85 85 85	Units: mg/L HighLimit 115 115 115			Qual

Sample ID MB	SampType: MBLK	TestCode: EPA Method	200.7: Dissolved Metals
Client ID: PBW	Batch ID: R20947	RunNo: 20947	
Prep Date:	Analysis Date: 9/2/2014	SeqNo: 609620	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Manganese	ND 0.0020		

0

0

0

0

0

98.4

95.6

95.8

96.9

90.9

85

85

85

85

85

115

115

115

115

115

Sample ID LCS	SampType: L	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: F	R20947	F	RunNo: 2	0947				
Prep Date:	Analysis Date:	9/2/2014	8	SeqNo: 6	09621	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.46 0.002	0.5000	0	92.9	85	115			

Qualifiers:

Magnesium

Potassium

Silver

Zinc

Sodium

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Troject.		San Juan River 6-2	.0 14								
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: R2	1084	F	RunNo: 2	1084				
Prep Date:		Analysis I	Date: 9/	8/2014	5	SeqNo: 6	13680	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.025	0.0010	0.02500	0	99.2	85	115			
Lead		0.025	0.0010	0.02500	0	101	85	115			
Selenium		0.024	0.0010	0.02500	0	95.1	85	115			
Uranium		0.025	0.0010	0.02500	0	101	85	115			
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: E	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: R2	1084	F	RunNo: 2	1084				
Prep Date:		Analysis I	Date: 9/	8/2014	9	SeqNo: 6	13681	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	95.7	85	115			
Lead		0.025	0.0010	0.02500	0	99.8	85	115			
Selenium		0.024	0.0010	0.02500	0	95.2	85	115			
Uranium		0.024	0.0010	0.02500	0	96.7	85	115			
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: E	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: R2	1084	F	RunNo: 2	1084				
Prep Date:		Analysis I	Date: 9/	8/2014	5	SeqNo: 6	13682	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	97.4	85	115			
Lead		0.025	0.0010	0.02500	0	102	85	115			
Selenium		0.024	0.0010	0.02500	0	96.4	85	115			
Uranium		0.025	0.0010	0.02500	0	98.0	85	115			
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: E	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: R2	1084	F	RunNo: 2	1084				
Prep Date:		Analysis I	Date: 9/	8/2014	9	SeqNo: 6	13683	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.025	0.0010	0.02500	0	100	85	115			
Lead		0.024	0.0010	0.02500	0	95.5	85	115			
Selenium		0.024	0.0010	0.02500	0	97.1	85	115			
Uranium		0.024	0.0010	0.02500	0	95.5	85	115			
Sample ID	МВ	Samp	Туре: МЕ	BLK	Tes	tCode: E	PA 200.8: [Dissolved Me	tals		
Client ID:	PBW	Bato	h ID: R2	1084	F	RunNo: 2	1084				
Prep Date:		Analysis I	Date: 9/	8/2014	S	SeqNo: 6	13684	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

0.0010

0.0010

0.0010

ND

ND

ND

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID	MB	SampT	Гуре: МЕ	BLK	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	PBW	Batch	h ID: R2	1084	F	RunNo: 2	21084				
Prep Date:		Analysis D	Date: 9/	8/2014	9	SeqNo: (613684	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic Lead Selenium Uranium		ND ND ND ND	0.0010 0.0010 0.0010 0.0010								
Sample ID	MB	SampT	Гуре: МЕ	BLK	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	PBW	Batch	h ID: R2	1084	F	RunNo: 2	21084				
Prep Date:		Analysis D	Date: 9/	8/2014	5	SeqNo: (613685	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.0010								
Lead		ND	0.0010								
Selenium		ND	0.0010								
Uranium		ND	0.0010								
Sample ID	МВ	SampT	Гуре: МЕ	BLK	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	PBW	Batch	h ID: R2	1084	F	RunNo: 2	21084				
Prep Date:		Analysis D	Date: 9/	8/2014	8	SeqNo: (613686	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Uranium	ND 0.0010	
Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals
Client ID: PBW	Batch ID: R21084	RunNo: 21084
Prep Date:	Analysis Date: 9/8/2014	SeqNo: 613687 Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic	ND 0.0010	
Lead	ND 0.0010	
Selenium	ND 0.0010	
Uranium	ND 0.0010	

Qualifiers:

Arsenic

Selenium

Lead

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB-15169 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 15169 RunNo: 21090

Prep Date: 9/8/2014 Analysis Date: 9/9/2014 SeqNo: 613856 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

Sample ID LCS-15169 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 15169 RunNo: 21090

Prep Date: 9/8/2014 Analysis Date: 9/9/2014 SeqNo: 613857 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 99.2 80 120

Sample ID MB-15200 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 15200 RunNo: 21121

Prep Date: 9/9/2014 Analysis Date: 9/10/2014 SeqNo: 614619 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

Sample ID LCS-15200 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 15200 RunNo: 21121

Prep Date: 9/9/2014 Analysis Date: 9/10/2014 SeqNo: 614620 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0052 0.00020 0.005000 0 104 80 120

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1408F37

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: **PBW** Batch ID: R20957 RunNo: 20957

Prep Date: Analysis Date: 9/2/2014 SegNo: 609966 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: R20957 RunNo: 20957 Prep Date: Analysis Date: 9/2/2014 SeqNo: 609967 Units: mg/L SPK value SPK Ref Val %RPD **RPDLimit** Analyte Result PQL %REC LowLimit HighLimit Qual

Nitrate+Nitrite as N 3.4 0.20 3.500 0 98.1 110

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: Batch ID: R20957 RunNo: 20957 Prep Date: Analysis Date: 9/2/2014 Units: mg/L SeqNo: 610018 SPK value SPK Ref Val %REC LowLimit HighLimit Qual Result **PQL** %RPD **RPDLimit** Analyte

Nitrate+Nitrite as N ND 0.20

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: Batch ID: R20957 RunNo: 20957 LCSW

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610019 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Nitrate+Nitrite as N 0.20 3.500 95.6 3.3 90 110

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions

PBW RunNo: 20961 Client ID: Batch ID: R20961

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610078 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 ND Bromide 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: R20961 RunNo: 20961 Prep Date: Analysis Date: 9/2/2014 SeqNo: 610079 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.53 0.10 0.5000 0 106 90 110 Fluoride

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND
- Not Detected at the Reporting Limit
- P Sample pH greater than 2. Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID LCS	SampT	ype: LC	S	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	n ID: R2	0961	F	RunNo: 2	0961				
Prep Date:	Analysis D	ate: 9/	2/2014	9	SeqNo: 6	10079	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	95.4	90	110			
Bromide	2.5	0.10	2.500	0	99.1	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.5	90	110			
Sulfate	9.8	0.50	10.00	0	97.8	90	110			

Sample ID	1408F37-001DMS	SampT	уре: МS	3	Tes	tCode: El	PA Method	300.0: Anions	;		
Client ID:	Upstream	Batcl	n ID: R2	0961	F	RunNo: 2	0961				
Prep Date:		Analysis D	ate: 9/	2/2014	S	SeqNo: 6	10081	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		0.76	0.10	0.5000	0	152	72.7	110			S
Chloride		8.3	0.50	5.000	3.412	96.9	92.6	107			
Bromide		2.5	0.10	2.500	0	99.5	85.1	108			

Sample ID	1408F37-001DMSD	SampT	уре: М S	SD D	Tes	tCode: EI	PA Method	300.0: Anion	S		
Client ID:	Upstream	Batch	ID: R2	0961	F	RunNo: 2	0961				
Prep Date:	A	Analysis D	ate: 9/	2/2014	S	SeqNo: 6	10082	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		0.68	0.10	0.5000	0	135	72.7	110	11.7	20	S
Chloride		8.2	0.50	5.000	3.412	96.6	92.6	107	0.150	20	
Bromide		2.5	0.10	2.500	0	99.5	85.1	108	0.0161	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB-15015 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: **PBW** Batch ID: 15015 RunNo: 20880 Prep Date: 8/28/2014 Analysis Date: 8/29/2014 SeqNo: 608537 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 75.2 161

Sample ID LCS-15015 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 15015 RunNo: 20880 Analysis Date: 8/29/2014 Prep Date: 8/28/2014 SeqNo: 608538 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 2.7 0.20 0 107 65.8 2.500 162 Surr: DNOP 0.27 0.2500 107 75.2 161

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R20946 RunNo: 20946

Prep Date: Analysis Date: 9/2/2014 SeqNo: 609479 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 19 20.00 93.1 70.9 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R20946 RunNo: 20946

Prep Date: Analysis Date: 9/2/2014 SeqNo: 609480 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

 Gasoline Range Organics (GRO)
 0.54
 0.050
 0.5000
 0
 108
 80
 120

 Surr: BFB
 22
 20.00
 110
 70.9
 130

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Reporting Detection Limit

P Sample pH greater than 2.

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID b3	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260: Volatile	es Short I	_ist	
Client ID: PBW	Batch	1D: R2	1044	F	tunNo: 2	1044				
Prep Date:	Analysis D	ate: 9/	5/2014	S	eqNo: 6	12441	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
mp-Xylenes	ND	1.0								
o-Xylene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.3	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.4	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.5	70	130			
Surr: Toluene-d8	9.2		10.00		91.8	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260: Volatile	es Short L	.ist	
Client ID: LCSW	Batch	ID: R2	1044	F	RunNo: 2	1044				
Prep Date:	Analysis D	ate: 9/	5/2014	8	SeqNo: 6	12445	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			<u> </u>
Toluene	20	1.0	20.00	0	101	80	120			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.8	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.8	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID mb-1 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20962 RunNo: 20962

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610172 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID Ics-1 SampType: LCS TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R20962 RunNo: 20962

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610173 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 80 20 80.00 0 100 90 110

Sample ID mb-2 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20962 RunNo: 20962

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610188 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID Ics-2 SampType: LCS TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R20962 RunNo: 20962

Prep Date: Analysis Date: 9/2/2014 SeqNo: 610189 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 81 20 80.00 0 101 90 110

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408F37**

09-Oct-14

Client: Western Refining Southwest, Inc.

Project: San Juan River 8-28-14

Sample ID MB-15087 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 15087 RunNo: 21012

Prep Date: 9/3/2014 Analysis Date: 9/5/2014 SeqNo: 611700 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-15087 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 15087 RunNo: 21012

Prep Date: 9/3/2014 Analysis Date: 9/5/2014 SeqNo: 611701 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1020 20.0 1000 0 102 80 120

Sample ID 1408F37-002DMS SampType: MS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: Downstream Batch ID: 15087 RunNo: 21012

Prep Date: 9/3/2014 Analysis Date: 9/5/2014 SeqNo: 611711 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 5370 100 5000 220.0 103 80 120

Sample ID 1408F37-002DMSD SampType: MSD TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: Downstream Batch ID: 15087 RunNo: 21012

Prep Date: 9/3/2014 Analysis Date: 9/5/2014 SeqNo: 611712 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 5290 100 5000 220.0 101 80 120 1.50 5

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com RcptNo: 1 Work Order Number: 1408F37 Western Refining Southw Client Name: Received by/date: Celin Som 8/29/2014 8:25:00 AM Logged By: Celina Sessa Celin Som 8/29/2014 10/23:29 AM Completed By: Celma Sessa Reviewed By: Chain of Custody No 🗌 Not Present Yes 1. Custody seals intact on sample bottles? No 🗌 Not Present Yes 🗸 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In No 🗆 NA 🗌 Yes 🗸 4. Was an attempt made to cool the samples? NA 🗍 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No 🗔 No 🗀 Yes 🗸 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? NA 🗔 Yes 🗌 No 🗹 9. Was preservative added to bottles? No VOA Vials No 🗌 Yes 🗹 10.VOA vials have zero headspace? Yes No 🗹 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: Yes 🗸 12. Does paperwork match bottle labels? >12 unless noted) (Note discrepancies on chain of custody) Adjusted No 🗌 Yes 🗹 13. Are matrices correctly identified on Chain of Custody? No 🗌 **V** 14. Is it clear what analyses were requested? Yes Checked by: Yes 🗹 No 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA 🔽 Yes 🗌 No 🗌 16. Was client notified of all discrepancies with this order? Date: Person Notified: ☐ In Person Phone Fax Via: ☐ eMail By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition | Seal Intact | Seal No Seal Date Yes

1.0

Good

ustody Record	Tum-Around Time:			HALL ENVIRONMENTAL	IRONA	JENTA	_
Client: Western Refining	X Standard □	Rush		ANALYSIS LABORATORY	LABO	RATOR	≿
	Project Name:			www.hallenvironmental.com	nental.com		
Mailing Address: #50 CR 4990	SAN JUAN RIVER	F-28-14	4901 Hawkins NE		Albuquerque, NM 87109	109	
NN 874(7	Project #:		Tel. 505-345-3975		Fax 505-345-4107		
Phone #: 165-632-4/35				Analysis Request	Request		
ax#:	Project Manager:			(†O:			
QA/QC Package:						٤	
☐ Standard X Level 4 (Full Validation)				/A		s já	
Accreditation	Sampler: Rack + Matt	mett	∄ / 0	07S8	EX	<u>ISM</u>	
NELAP Utilel	On ice:		+ 3 3E	or §	8	P	
□ EDD (Type)	Sample lemperature:		18T 5) E	01 ets	(AC	2 /\	
Date Time Matrix Sample Request ID	Container Preservative Type and # Type	rative HEAL No.	BTEX + M BTEX + M TPH 8015E	EDB (Meth PAH's (83° RCRA 8 M Anions (F,	ite99 1808 S260B (VC	TRO-Est Dissal	• Air Bubble
-28-4 B. co Hao UPSTream	5-VOA #61		*		×		
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238-14 10:00 Dawn Stream	5-VOA HC	700-	×		X		
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000 11-	I other wa	<u>,</u>					
Date: Time: Relinquished by: Latter	Received by:	Milia BAIHORS	Rinsate	. \$	BIEX only	-005	
If necessary sample	ontracted to other accredited la	boratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.	possibility. Any sub-con	tracted data will be clear	ly notated on the a	nalyticál report.	

TABLE 2 Analytical Methods and Target Analytes

VOCs (EPA Method 8260B) (1)
- Target	List
Be	nzene
To	luene
Et	hylbenzene
Xy	lenes
Me	ethyl tert butyl ether (MTBE)
SVOCs	- (EPA Method 8270)
- N	fethod List
	RO (EPA Method 8015B)
	asoline Range Organics
	RO (EPA Method 8015B)
	iesel Range Organics
	lotor Oil Range Organics
	rbon Dioxide (Laboratory Calculated)
	issolved CO2
	Conductivity (EPA Method 120.1 or field measurement)
	pecific conductance
	A Method 160.1 or field measurement)
	otal dissolved solids
General	Chemistry - Anions (EPA Method 300.0)
	oride
Chl	oride
	mide
Nitr	ogen, Nitrite (as N)
Nitr	ogen, Nitrate (as N)
Pho	sphorous, Orthophosphate (As P)
Sulf	
eneral (Chemistry - Alkalinity (EPA Method 310.1)
Alka	linity, Total
Cari	bonate
Bica	rbonate

Toront List (material: 11	PA Method 6010B/7470)
- ranger thist (not applicable to	River Terrace Sampling Events)
Arsenic	Lead
Barium	Mercury
Cadmium	Selenium
Chromium	Silver
Target List (for River Terrace	Sampling Events Only)
Lead	1 3 = 1 + 111 +
Mercury (DW-1 ON	7.Y)
	/
Dissolved Metals (EPA Metho	d 6010B / 7470)
Torget Lint (for D.C. C	
ranger List (101 Kelinery Com	plex, Outfalls, and River)
Target List (for Refinery Com Arsenic	
Arsenic Barium	Manganese
Arsenic	Manganese Mercury
Arsenic Barium	Manganese Mercury Potassium
Arsenic Barium Cadmium Calcium	Manganese Mercury Potassium Selenium
Arsenic Barium Cadmium Calcium Chromium	Manganese Mercury Potassium Selenium Silver
Arsenic Barium Cadmium Calcium Chromium Copper	Manganese Mercury Potassium Selenium Silver Sodium
Arsenic Barium Cadmium Calcium Chromium	Manganese Mercury Potassium Selenium Silver

TPH = total petroleum hydrocarbons GRO = gasoline range organics VOCs = volatile organic compounds DRO = diesel range organics TDS = total dissolved solids

NOTES:

- 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 Piezomenter Wells only, per the River Terrace Bioventing System Monitoring Plan.



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

September 16, 2014

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

Bloomfield, NM 87413 TEL: (505) 632-4166 FAX (505) 632-3911

RE: San Juan River Bluff 8-26-14 OrderNo.: 1408D76

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/27/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/16/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #2

Project: San Juan River Bluff 8-26-14 **Collection Date:** 8/26/2014 8:10:00 AM 1408D76-001 Lab ID: Matrix: AQUEOUS **Received Date:** 8/27/2014 4:55:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS					Analyst	:: LGP
Fluoride	0.50	0.10	mg/L	1	8/27/2014 12:13:57 PM	R20852
Chloride	9.2	0.50	mg/L	1	8/27/2014 12:13:57 PM	R20852
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/27/2014 12:13:57 PM	R20852
Bromide	0.11	0.10	mg/L	1	8/27/2014 12:13:57 PM	R20852
Nitrogen, Nitrate (As N)	0.37	0.10	mg/L	1	8/27/2014 12:13:57 PM	R20852
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/27/2014 12:13:57 PM	R20852
Sulfate	98	10	mg/L	20	8/27/2014 12:51:10 PM	R20852
EPA METHOD 7470: MERCURY					Analyst	:: MMD
Mercury	ND	0.00020	mg/L	1	8/30/2014 1:41:17 PM	15037
EPA METHOD 6010B: DISSOLVED M	IETALS				Analyst	:: ELS
Arsenic	ND	0.020	mg/L	1	9/4/2014 12:12:46 PM	R21000
Barium	0.089	0.020	mg/L	1	9/4/2014 12:12:46 PM	R21000
Cadmium	ND	0.0020	mg/L	1	9/4/2014 12:12:46 PM	R21000
Calcium	100	5.0	mg/L	5	9/4/2014 12:14:30 PM	R21000
Chromium	ND	0.0060	mg/L	1	9/4/2014 12:12:46 PM	R21000
Copper	ND	0.0060	mg/L	1	9/4/2014 12:12:46 PM	R21000
Iron	ND	0.020	mg/L	1	9/4/2014 12:12:46 PM	R21000
Lead	ND	0.0050	mg/L	1	9/4/2014 12:12:46 PM	R21000
Magnesium	22	1.0	mg/L	1	9/4/2014 12:12:46 PM	R21000
Manganese	ND	0.0020	mg/L	1	9/4/2014 12:12:46 PM	R21000
Potassium	1.7	1.0	mg/L	1	9/4/2014 12:12:46 PM	R21000
Selenium	ND	0.050	mg/L	1	9/4/2014 12:12:46 PM	R21000
Silver	ND	0.0050	mg/L	1	9/4/2014 12:12:46 PM	R21000
Sodium	60	1.0	mg/L	1	9/4/2014 12:12:46 PM	R21000
Uranium	ND	0.10	mg/L	1	9/4/2014 12:12:46 PM	R21000
Zinc	ND	0.020	mg/L	1	9/4/2014 12:12:46 PM	R21000
EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	: ELS
Arsenic	ND	0.020	mg/L	1	8/30/2014 8:10:35 AM	15047
Barium	0.19	0.020	mg/L	1	8/30/2014 8:10:35 AM	15047
Cadmium	ND	0.0020	mg/L	1	8/30/2014 8:10:35 AM	15047
Chromium	0.0072	0.0060	mg/L	1	8/30/2014 8:10:35 AM	15047
Lead	ND	0.0050	mg/L	1	8/30/2014 8:10:35 AM	15047
Selenium	ND	0.050	mg/L	1	8/30/2014 8:10:35 AM	15047
Silver	ND	0.0050	mg/L	1	8/30/2014 8:10:35 AM	15047
EPA METHOD 8260: VOLATILES SHO	ORT LIST				Analyst	:: KJH
Benzene	ND	1.0	μg/L	1	9/4/2014 6:30:05 PM	R20995
Toluene	ND	1.0	μg/L	1	9/4/2014 6:30:05 PM	R20995

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 1 of 17
- P Sample pH greater than 2.
- Reporting Detection Limit

Date Reported: 9/16/2014

Hall Environmental Analysis Laboratory, Inc.

Client Sample ID: Outfall #2

Project: San Juan River Bluff 8-26-14

CLIENT: Western Refining Southwest, Inc.

Collection Date: 8/26/2014 8:10:00 AM

Lab ID: 1408D76-001 **Matrix:** AQUEOUS **Received Date:** 8/27/2014 4:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SH	ORT LIST				Analysi	: KJH
Ethylbenzene	ND	1.0	μg/L	1	9/4/2014 6:30:05 PM	R20995
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 6:30:05 PM	R20995
Xylenes, Total	ND	2.0	μg/L	1	9/4/2014 6:30:05 PM	R20995
Surr: 1,2-Dichloroethane-d4	98.5	70-130	%REC	1	9/4/2014 6:30:05 PM	R20995
Surr: 4-Bromofluorobenzene	95.1	70-130	%REC	1	9/4/2014 6:30:05 PM	R20995
Surr: Dibromofluoromethane	102	70-130	%REC	1	9/4/2014 6:30:05 PM	R20995
Surr: Toluene-d8	85.8	70-130	%REC	1	9/4/2014 6:30:05 PM	R20995
CARBON DIOXIDE					Analyst	: JRR
Total Carbon Dioxide	320	1.0	H mg CO2/L	1	8/28/2014 11:35:14 AM	R20890
SM2320B: ALKALINITY					Analyst	: JRR
Bicarbonate (As CaCO3)	350	20	mg/L CaCO3	1	8/28/2014 11:35:14 AM	R20890
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/28/2014 11:35:14 AM	R20890
Total Alkalinity (as CaCO3)	350	20	mg/L CaCO3	1	8/28/2014 11:35:14 AM	1 R20890

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 2 of 17

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/16/2014

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

 Project:
 San Juan River Bluff 8-26-14
 Collection Date: 8/26/2014 8:00:00 AM

 Lab ID:
 1408D76-002
 Matrix: AQUEOUS
 Received Date: 8/27/2014 4:55:00 AM

Chloride	Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch	
Chloride	EPA METHOD 300.0: ANIONS					Analyst	: LGP	
Nitrogen, Nitrite (As N)	Fluoride	0.19	0.10	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Bromide ND 0.10 mg/L 1 8/27/2014 1:03:35 PM R2085 Nitrogen, Nitrate (As N) 0.12 0.10 mg/L 1 8/27/2014 1:03:35 PM R2085 Nitrate (As N) 0.12 0.10 mg/L 1 8/27/2014 1:03:35 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:03:35 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:15:59 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:15:59 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:15:59 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:15:59 PM R2085 Sulfate 43 MMD MM	Chloride	3.3	0.50	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Nitrogen, Nitrate (As N)	Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Phosphorus, Orthophosphate (As P.) ND 0.50 mg/L 20 8/27/2014 1:03:35 PM R2085 Sulfate 43 10 mg/L 20 8/27/2014 1:15:59 PM R2085 R208	Bromide	ND	0.10	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Sulfate	Nitrogen, Nitrate (As N)	0.12	0.10	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Part	Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	8/27/2014 1:03:35 PM	R20852	
Mercury ND 0.00020 mg/L 1 8/30/2014 1:46:48 PM 15037 EPA METHOD 6010B: DISSOLVED METALS Arsenic ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 Barium 0.071 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 Cadmium ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R2100 Cadmium ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R2100 Cadmium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R2100 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Malessium 1.9	Sulfate	43	10	mg/L	20	8/27/2014 1:15:59 PM	R20852	
Arsenic	EPA METHOD 7470: MERCURY					Analyst	: MMD	
Arsenic ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 Barium 0.071 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 Cadmium ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R2100 Calcium 35 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Iron ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R2100 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R2100 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM<	Mercury	ND	0.00020	mg/L	1	8/30/2014 1:46:48 PM	15037	
Barium 0.071 0.020 mg/L 1 9/4/2014 12:16:22 PM R21000 Cadmium ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Calcium 35 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Iron ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Manganesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/	EPA METHOD 6010B: DISSOLVED N	IETALS				Analyst	: ELS	
Cadmium ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Calcium 35 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Iron ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Selenium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/2014	Arsenic	ND	0.020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Calcium 35 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Iron ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Lead ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Uranium ND 0.050 mg/L 1 9/4/2014	Barium	0.071	0.020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Chromium ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R21000 Iron ND 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Variet ND 0.0050 mg/L 1 9/4/2014	Cadmium	ND	0.0020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Copper ND 0.0060 mg/L 1 9/4/2014 12:16:22 PM R2100 Iron ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R2100 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R2100 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R2100 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R2100 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R2100 Uranium ND 0.010 mg/L 1 9/4/2014 12:16:22 PM R2100 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM	Calcium	35	1.0	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Iron	Chromium	ND	0.0060	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Lead ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21001 Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21001 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21001 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21001 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Godium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21001 EPA 6010B: TOTAL RECOVERABLE METALS ***********************************	Copper	ND	0.0060	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Magnesium 6.1 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21001 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21001 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21001 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21001 Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21001 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21001 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020	Iron	ND	0.020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Manganese 0.0022 0.0020 mg/L 1 9/4/2014 12:16:22 PM R21000 Potassium 1.9 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21000 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21000 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND <t< td=""><td>Lead</td><td>ND</td><td>0.0050</td><td>mg/L</td><td>1</td><td>9/4/2014 12:16:22 PM</td><td>R21000</td></t<>	Lead	ND	0.0050	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Potassium	Magnesium	6.1	1.0	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Selenium ND 0.050 mg/L 1 9/4/2014 12:16:22 PM R21000 Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21000 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21000 EPA 6010B: TOTAL RECOVERABLE METALS EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00	Manganese	0.0022	0.0020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Silver ND 0.0050 mg/L 1 9/4/2014 12:16:22 PM R21000 Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21000 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21000 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silve	Potassium	1.9	1.0	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Sodium 17 1.0 mg/L 1 9/4/2014 12:16:22 PM R21000 Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21000 Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R21000 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 <td rowspa<="" td=""><td>Selenium</td><td>ND</td><td>0.050</td><td>mg/L</td><td>1</td><td>9/4/2014 12:16:22 PM</td><td>R21000</td></td>	<td>Selenium</td> <td>ND</td> <td>0.050</td> <td>mg/L</td> <td>1</td> <td>9/4/2014 12:16:22 PM</td> <td>R21000</td>	Selenium	ND	0.050	mg/L	1	9/4/2014 12:16:22 PM	R21000
Uranium ND 0.10 mg/L 1 9/4/2014 12:16:22 PM R21000 R2100 R21000 R2100 R2	Silver	ND	0.0050	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Zinc ND 0.020 mg/L 1 9/4/2014 12:16:22 PM R2100 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 µg/L 1 9/4/2014 7:59:24 PM R2099	Sodium	17	1.0	mg/L	1	9/4/2014 12:16:22 PM	R21000	
EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R2099	Uranium	ND	0.10	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Arsenic ND 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R2099	Zinc	ND	0.020	mg/L	1	9/4/2014 12:16:22 PM	R21000	
Barium 0.073 0.020 mg/L 1 8/30/2014 8:12:00 AM 15047 Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R20998	EPA 6010B: TOTAL RECOVERABLE	METALS				Analyst	ELS	
Cadmium ND 0.0020 mg/L 1 8/30/2014 8:12:00 AM 15047 Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R20998	Arsenic	ND	0.020	mg/L	1	8/30/2014 8:12:00 AM	15047	
Chromium ND 0.0060 mg/L 1 8/30/2014 8:12:00 AM 15047 Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R2099	Barium	0.073	0.020	mg/L	1	8/30/2014 8:12:00 AM	15047	
Lead ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 Selenium ND 0.050 mg/L 1 8/30/2014 8:12:00 AM 15047 Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST FANalyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R20998	Cadmium	ND	0.0020	mg/L	1	8/30/2014 8:12:00 AM	15047	
Selenium ND Silver 0.050 mg/L ng/L ng/L ng/L ng/L ng/L ng/L ng/L n	Chromium	ND	0.0060	mg/L	1	8/30/2014 8:12:00 AM	15047	
Silver ND 0.0050 mg/L 1 8/30/2014 8:12:00 AM 15047 EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R20998	Lead	ND	0.0050	mg/L	1	8/30/2014 8:12:00 AM	15047	
EPA METHOD 8260: VOLATILES SHORT LIST Analyst: KJH Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R2099	Selenium	ND	0.050	mg/L	1	8/30/2014 8:12:00 AM	15047	
Benzene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R20999	Silver	ND	0.0050	mg/L	1	8/30/2014 8:12:00 AM	15047	
7.0	EPA METHOD 8260: VOLATILES SH	ORT LIST				Analyst	: KJH	
Toluene ND 1.0 μg/L 1 9/4/2014 7:59:24 PM R2099:	Benzene	ND	1.0	μg/L	1	9/4/2014 7:59:24 PM	R20995	
	Toluene	ND	1.0	μg/L	1	9/4/2014 7:59:24 PM	R20995	

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 3 of 17
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/16/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

 Project:
 San Juan River Bluff 8-26-14
 Collection Date: 8/26/2014 8:00:00 AM

 Lab ID:
 1408D76-002
 Matrix: AQUEOUS
 Received Date: 8/27/2014 4:55:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SI	HORT LIST				Analys	t: KJH
Ethylbenzene	ND	1.0	μg/L	1	9/4/2014 7:59:24 PM	R20995
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 7:59:24 PM	R20995
Xylenes, Total	ND	2.0	μg/L	1	9/4/2014 7:59:24 PM	R20995
Surr: 1,2-Dichloroethane-d4	106	70-130	%REC	1	9/4/2014 7:59:24 PM	R20995
Surr: 4-Bromofluorobenzene	94.5	70-130	%REC	1	9/4/2014 7:59:24 PM	R20995
Surr: Dibromofluoromethane	102	70-130	%REC	1	9/4/2014 7:59:24 PM	R20995
Surr: Toluene-d8	87.0	70-130	%REC	1	9/4/2014 7:59:24 PM	R20995
CARBON DIOXIDE					Analys	t: JRR
Total Carbon Dioxide	86	1.0	H mg CO2/L	1	8/28/2014 12:27:14 PM	1 R20890
SM2320B: ALKALINITY					Analys	t: JRR
Bicarbonate (As CaCO3)	95	20	mg/L CaCO3	1	8/28/2014 12:27:14 PM	1 R20890
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	8/28/2014 12:27:14 PM	1 R20890
Total Alkalinity (as CaCO3)	95	20	mg/L CaCO3	1	8/28/2014 12:27:14 PN	1 R20890

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 9/16/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Seep #1

Project: San Juan River Bluff 8-26-14 **Collection Date:** 8/26/2014 7:30:00 AM 1408D76-003 Lab ID: Matrix: AQUEOUS **Received Date:** 8/27/2014 4:55:00 AM

Analyses	Result	RL (Qual 1	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst	LGP
Fluoride	0.23	0.10		mg/L	1	8/27/2014 1:28:23 PM	R20852
Chloride	230	10		mg/L	20	8/27/2014 1:40:48 PM	R20852
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/27/2014 1:28:23 PM	R20852
Bromide	2.7	0.10		mg/L	1	8/27/2014 1:28:23 PM	R20852
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/27/2014 1:28:23 PM	R20852
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/27/2014 1:40:48 PM	R20852
Sulfate	1600	25		mg/L	50	8/28/2014 11:13:41 PM	R20888
EPA METHOD 8260: VOLATILES SHO	ORT LIST					Analyst	KJH
Benzene	ND	1.0		μg/L	1	9/4/2014 8:29:06 PM	R20995
Toluene	ND	1.0		μg/L	1	9/4/2014 8:29:06 PM	R20995
Ethylbenzene	ND	1.0		μg/L	1	9/4/2014 8:29:06 PM	R20995
Methyl tert-butyl ether (MTBE)	ND	1.0		μg/L	1	9/4/2014 8:29:06 PM	R20995
Xylenes, Total	ND	2.0		μg/L	1	9/4/2014 8:29:06 PM	R20995
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	9/4/2014 8:29:06 PM	R20995
Surr: 4-Bromofluorobenzene	92.7	70-130		%REC	1	9/4/2014 8:29:06 PM	R20995
Surr: Dibromofluoromethane	94.4	70-130		%REC	1	9/4/2014 8:29:06 PM	R20995
Surr: Toluene-d8	85.5	70-130		%REC	1	9/4/2014 8:29:06 PM	R20995
CARBON DIOXIDE						Analyst	JRR
Total Carbon Dioxide	350	1.0	Н	mg CO2/L	1	8/28/2014 12:35:23 PM	R20890
SM2320B: ALKALINITY						Analyst	JRR
Bicarbonate (As CaCO3)	380	20		mg/L CaCO3	1	8/28/2014 12:35:23 PM	R20890
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/28/2014 12:35:23 PM	R20890
Total Alkalinity (as CaCO3)	380	20		mg/L CaCO3	1	8/28/2014 12:35:23 PM	R20890

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- Reporting Detection Limit

Date Reported: 9/16/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: San Juan River Bluff 8-26-14 **Collection Date:**

Lab ID: 1408D76-004 **Matrix:** TRIP BLANK **Received Date:** 8/27/2014 4:55:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SH	HORT LIST				Analys	t: KJH
Benzene	ND	1.0	μg/L	1	9/4/2014 8:58:47 PM	R20995
Toluene	ND	1.0	μg/L	1	9/4/2014 8:58:47 PM	R20995
Ethylbenzene	ND	1.0	μg/L	1	9/4/2014 8:58:47 PM	R20995
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	9/4/2014 8:58:47 PM	R20995
Xylenes, Total	ND	2.0	μg/L	1	9/4/2014 8:58:47 PM	R20995
Surr: 1,2-Dichloroethane-d4	102	70-130	%REC	1	9/4/2014 8:58:47 PM	R20995
Surr: 4-Bromofluorobenzene	100	70-130	%REC	1	9/4/2014 8:58:47 PM	R20995
Surr: Dibromofluoromethane	98.7	70-130	%REC	1	9/4/2014 8:58:47 PM	R20995
Surr: Toluene-d8	85.3	70-130	%REC	1	9/4/2014 8:58:47 PM	R20995

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1408D76

16-Sep-14

Client: Western Refining Southwest, Inc. **Project:** San Juan River Bluff 8-26-14

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: **PBW** Batch ID: **R20852** RunNo: 20852 Analysis Date: 8/27/2014 Prep Date: SeqNo: 607023 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: R20852 RunNo: 20852 Prep Date: Analysis Date: 8/27/2014 SeqNo: 607024 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride 0.47 0.10 0.5000 93.9 90 110 0 0.50 5.000 0 93.5 90 110 Chloride 4.7 95.4 0.95 0.10 1.000 0 90 110 Nitrogen, Nitrite (As N) Bromide 2.4 0.10 2.500 0 95.4 90 110 Nitrogen, Nitrate (As N) 2.4 0.10 2.500 0 97.7 90 110 Phosphorus, Orthophosphate (As P 5.000 0 93.3 4.7 0.50 90 110 Sulfate 0.50 10.00 0 95.2 90 110

Sample ID 1408D76-001BMS	Samp1	SampType: MS TestCode: EPA Method 300.0: Anions								
Client ID: Outfall #2	Batch	n ID: R2	0852	F	RunNo: 2	0852				
Prep Date:	Analysis D	oate: 8/	27/2014	9	SeqNo: 6	07026	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.92	0.10	0.5000	0.4994	84.3	72.7	110			
Chloride	14	0.50	5.000	9.218	96.0	92.6	107			
Nitrogen, Nitrite (As N)	0.89	0.10	1.000	0	88.5	75.5	104			
Bromide	2.3	0.10	2.500	0.1078	86.6	85.1	108			
Nitrogen, Nitrate (As N)	2.7	0.10	2.500	0.3701	91.9	87.8	111			
Phosphorus, Orthophosphate (As P	4.2	0.50	5.000	0	85.0	81.3	101			

Sample ID	1408D76-001BMSD	08D76-001BMSD SampType: MSD TestCode: EPA Method 300.0: Anions									
Client ID:	Outfall #2	Batch ID	: R2	0852	R	RunNo: 2	0852				
Prep Date:	А	nalysis Date	: 8/	27/2014	S	SeqNo: 6	07027	Units: mg/L			
Analyte		Result F	QL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		0.92	0.10	0.5000	0.4994	84.4	72.7	110	0.0760	20	
Chloride		14	0.50	5.000	9.218	96.5	92.6	107	0.175	20	

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID 1408D76-001BMS	D SampT	ype: MS	SD .	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: Outfall #2	Batch	n ID: R2	0852	F	RunNo: 2	0852				
Prep Date:	Analysis D	oate: 8/	27/2014	9	SeqNo: 6	07027	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.89	0.10	1.000	0	88.8	75.5	104	0.259	20	
Bromide	2.3	0.10	2.500	0.1078	86.5	85.1	108	0.0572	20	
Nitrogen, Nitrate (As N)	2.7	0.10	2.500	0.3701	91.8	87.8	111	0.109	20	
Phosphorus, Orthophosphate (As P	4.3	0.50	5.000	0	86.2	81.3	101	1.40	20	

Sample ID MB	SampT	SampType: MBLK TestCode: EPA Method			300.0: Anions	3				
Client ID: PBW	Batch	h ID: R2	0852	F	RunNo: 2	0852				
Prep Date:	Analysis D	Date: 8/	27/2014	5	SeqNo: 6	07088	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	SampT	SampType: LCS TestCode: EPA Method 3						s		
Client ID: LCSW	Batch	Batch ID: R20852 RunNo: 20852								
Prep Date:	Analysis D	ate: 8/	27/2014	S	SeqNo: 6	07089	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.7	90	110			
Chloride	4.7	0.50	5.000	0	93.3	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.8	90	110			
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Sample ID MB	SampType: ME	BLK	Test	Code: El	EPA Method 300.0: Anions					
Client ID: PBW	Batch ID: R2	0888	R	unNo: 2	0888					
Prep Date:	Analysis Date: 8/2	28/2014	S	eqNo: 6	07812	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfato	ND 0.50		· ·	•		· ·		·		

Sulfate ND 0.50

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSW Batch ID: R20888 RunNo: 20888

Prep Date: Analysis Date: 8/28/2014 SeqNo: 607813 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Sulfate 9.5 0.50 10.00 0 95.1 90 110

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID 5mL-rb	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260: Volatile	es Short L	ist	
Client ID: PBW	Batch	n ID: R2	0995	F	RunNo: 2	0995				
Prep Date:	Analysis D	Date: 9/	4/2014	S	SeqNo: 6	11315	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
mp-Xylenes	ND	1.0								
o-Xylene	ND	1.0								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.7	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130			
Surr: Toluene-d8	8.9		10.00		89.3	70	130			
Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260: Volatil	es Short L	_ist	
Client ID: I CSW	Ratel	h ID: D 2	0005	-	PunNo: 2	0005				

Sample ID Toolig ICS2	Janipi	уре. с	,3	163	icode. Ei	A Welliou	0200. Volatile	35 SHOIL L	.131	
Client ID: LCSW	Batch	n ID: R2	20995	F	RunNo: 2	0995				
Prep Date:	Analysis D	oate: 9/	/4/2014	S	SeqNo: 6	11316	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	20	1.0	20.00	0	100	80	120			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	8.9		10.00		89.1	70	130			

Sample ID 1408D76-001a ms	SampTy	/pe: MS	3	Tes	tCode: El	PA Method	8260: Volatile	s Short L	.ist	
Client ID: Outfall #2	Batch	ID: R2	0995	F	RunNo: 2	0995				
Prep Date:	Analysis Da	ate: 9/	4/2014	8	SeqNo: 6	11318	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	25	1.0	20.00	0	127	70	130			
Toluene	19	1.0	20.00	0	95.9	67.5	123			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.2	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	8.6		10.00		86.0	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID 1408D76-001a m	nsd SampT	ype: MS	SD	Tes	tCode: El	PA Method	8260: Volatile	es Short L	_ist	
Client ID: Outfall #2	Batch	ID: R2	0995	F	RunNo: 2	0995				
Prep Date:	Analysis Da	ate: 9/	4/2014	S	SeqNo: 6	11319	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130	11.1	20	
Toluene	19	1.0	20.00	0	96.8	67.5	123	0.955	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.2		10.00		92.0	70	130	0	0	
Surr: Dibromofluoromethane	9.5		10.00		95.4	70	130	0	0	
Surr: Toluene-d8	8.8		10.00		87.8	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID MB-15037 SampType: MBLK TestCode: EPA Method 7470: Mercury

Client ID: PBW Batch ID: 15037 RunNo: 20907

Prep Date: 8/29/2014 Analysis Date: 8/30/2014 SeqNo: 608339 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

Sample ID LCS-15037 SampType: LCS TestCode: EPA Method 7470: Mercury

Client ID: LCSW Batch ID: 15037 RunNo: 20907

Prep Date: 8/29/2014 Analysis Date: 8/30/2014 SeqNo: 608340 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0054 0.00020 0.005000 0 107 80 120

Sample ID 1408D76-002CMS SampType: MS TestCode: EPA Method 7470: Mercury

Client ID: Outfall #3 Batch ID: 15037 RunNo: 20907

Prep Date: 8/29/2014 Analysis Date: 8/30/2014 SeqNo: 608352 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0048 0.00020 0.005000 0 96.7 75 129

Sample ID 1408D76-002CMSD SampType: MSD TestCode: EPA Method 7470: Mercury

Client ID: Outfall #3 Batch ID: 15037 RunNo: 20907

Prep Date: 8/29/2014 Analysis Date: 8/30/2014 SeqNo: 608353 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury 0.0053 0.00020 0.005000 0 107 75 125 9.88 20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

SampType: LCS

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID MB SampType: MBLK TestCode: EPA Method 6010B: Dissolved Metals Client ID: **PBW** Batch ID: R21000 RunNo: 21000 Prep Date: Analysis Date: 9/4/2014 SeqNo: 611209 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.020 Arsenic ND 0.020 Barium 0.0020 Cadmium ND Calcium ND 1.0 Chromium ND 0.0060 ND 0.0060 Copper Iron ND 0.020 ND 0.0050 Lead Magnesium ND 1.0 0.0020 ND Manganese Potassium ND 1.0 ND 0.050 Selenium 0.0050 Silver ND Sodium ND 1.0 Uranium ND 0.10 Zinc ND 0.020

	ошр	. , , ,									
Client ID: LCSW	Bato	ch ID: R2	1000	F	RunNo: 2	1000					
Prep Date:	Analysis	Date: 9/	4/2014	5	SeqNo: 6	11210	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.49	0.020	0.5000	0	97.6	80	120				
Barium	0.47	0.020	0.5000	0	94.4	80	120				
Cadmium	0.47	0.0020	0.5000	0	94.8	80	120				
Calcium	49	1.0	50.00	0	98.0	80	120				
Chromium	0.47	0.0060	0.5000	0	94.2	80	120				
Copper	0.48	0.0060	0.5000	0	95.6	80	120				
Iron	0.47	0.020	0.5000	0	94.4	80	120				
Lead	0.47	0.0050	0.5000	0	93.9	80	120				
Magnesium	50	1.0	50.00	0	101	80	120				
Manganese	0.46	0.0020	0.5000	0	92.7	80	120				
Potassium	49	1.0	50.00	0	98.8	80	120				
Selenium	0.47	0.050	0.5000	0	94.6	80	120				
Silver	0.49	0.0050	0.5000	0	97.6	80	120				
Sodium	50	1.0	50.00	0	100	80	120				
Uranium	0.44	0.10	0.5000	0	88.3	80	120				
Zinc	0.47	0.020	0.5000	0	94.0	80	120				

Qualifiers:

Sample ID LCS

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

TestCode: EPA Method 6010B: Dissolved Metals

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID 14	408D76-002DMS	Samp ⁻	Туре: М	3	Tes	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID: O	Outfall #3	Bato	h ID: R2	1000	F	RunNo: 2	1000				
Prep Date:		Analysis [Date: 9 /	4/2014	S	SeqNo: 6	11229	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	75	125			
Barium		0.56	0.020	0.5000	0.07088	96.9	75	125			
Cadmium		0.50	0.0020	0.5000	0	101	75	125			
Calcium		84	1.0	50.00	34.56	98.1	75	125			
Chromium		0.49	0.0060	0.5000	0	98.4	75	125			
Copper		0.50	0.0060	0.5000	0	99.7	75	125			
Iron		0.49	0.020	0.5000	0	98.6	75	125			
Lead		0.49	0.0050	0.5000	0	97.3	75	125			
Magnesium		57	1.0	50.00	6.149	102	75	125			
Manganese		0.48	0.0020	0.5000	0.002200	96.4	75	125			
Potassium		52	1.0	50.00	1.883	100	75	125			
Selenium		0.51	0.050	0.5000	0	102	75	125			
Silver		0.47	0.0050	0.5000	0	94.6	75	125			
Sodium		68	1.0	50.00	17.23	101	75	125			
Uranium		0.46	0.10	0.5000	0	92.2	75	125			
Zinc		0.50	0.020	0.5000	0	99.0	75	125			

Sample ID 1408D	76-002DMSD Samp	Type: MS	SD	Tes	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID: Outfall	I#3 Bate	ch ID: R2	1000	F	RunNo: 2	1000				
Prep Date:	Analysis	Date: 9/	4/2014	8	SeqNo: 6	11230	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	104	75	125	2.15	20	
Barium	0.55	0.020	0.5000	0.07088	94.9	75	125	1.78	20	
Cadmium	0.49	0.0020	0.5000	0	98.4	75	125	2.38	20	
Calcium	83	1.0	50.00	34.56	97.8	75	125	0.135	20	
Chromium	0.48	0.0060	0.5000	0	95.9	75	125	2.65	20	
Copper	0.49	0.0060	0.5000	0	97.8	75	125	1.94	20	
Iron	0.49	0.020	0.5000	0	98.0	75	125	0.606	20	
Lead	0.48	0.0050	0.5000	0	95.3	75	125	2.10	20	
Magnesium	56	1.0	50.00	6.149	99.1	75	125	2.46	20	
Manganese	0.47	0.0020	0.5000	0.002200	94.4	75	125	2.15	20	
Potassium	50	1.0	50.00	1.883	97.2	75	125	2.86	20	
Selenium	0.51	0.050	0.5000	0	102	75	125	0.558	20	
Silver	0.47	0.0050	0.5000	0	93.8	75	125	0.809	20	
Sodium	66	1.0	50.00	17.23	96.8	75	125	2.83	20	
Uranium	0.45	0.10	0.5000	0	90.1	75	125	2.38	20	
Zinc	0.48	0.020	0.5000	0	96.6	75	125	2.50	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID MB-15047 SampType: MBLK TestCode: EPA 6010B: Total Recoverable Metals Client ID: **PBW** Batch ID: 15047 RunNo: 20905 Analysis Date: 8/30/2014 Prep Date: 8/29/2014 SeqNo: 608262 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.020 Arsenic ND Barium ND 0.020 Cadmium ND 0.0020 Chromium ND 0.0060 Lead ND 0.0050 Selenium ND 0.050 Silver ND0.0050

Sample ID LCS-15047 SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals Batch ID: 15047 Client ID: LCSW RunNo: 20905 Prep Date: 8/29/2014 Analysis Date: 8/30/2014 SeqNo: 608263 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.49 0.020 0.5000 98.3 80 120 Arsenic 0 0.020 0.5000 0 98.0 80 120 Barium 0.49 96.7 0.0020 0.5000 0 80 120 Cadmium 0.48 Chromium 0.49 0.0060 0.5000 0 97.4 80 120 Lead 0.48 0.0050 0.5000 0 97.0 80 120 97.5 Selenium 0.49 0.050 0.5000 0 80 120 Silver 0.48 0.0050 0.5000 0 97.0 80 120

Sample ID 1408D76-002CMS	Samp	Туре: М	3	Tes	tCode: El	PA 6010B:	Total Recover	able Meta	als	
Client ID: Outfall #3	Bato	h ID: 15	047	F	RunNo: 2	0905				
Prep Date: 8/29/2014	Analysis	Date: 8 /	30/2014	8	SeqNo: 6	08278	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	75	125			
Barium	0.55	0.020	0.5000	0.07284	95.0	75	125			
Cadmium	0.48	0.0020	0.5000	0	96.1	75	125			
Chromium	0.48	0.0060	0.5000	0	96.3	75	125			
Lead	0.47	0.0050	0.5000	0	94.4	75	125			
Selenium	0.47	0.050	0.5000	0	93.8	75	125			
Silver	0.49	0.0050	0.5000	0	98.6	75	125			

Sample ID	1408D76-002CMSE	SampType	: MSD	Tes	tCode: E	PA 6010B:	Total Recover	rable Meta	als	
Client ID:	Outfall #3	Batch ID	15047	F	RunNo: 2	0905				
Prep Date:	8/29/2014	Analysis Date	8/30/2014	5	SeqNo: 6	08279	Units: mg/L			
Analyte		Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.52 0.	020 0.5000	0	104	75	125	1.53	20	

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID 1408	D76-002CMSD	SampT	уре: МS	SD	Tes	tCode: El	PA 6010B:	Total Recover	able Meta	als	
Client ID: Outfa	all #3	Batch	ID: 15	047	F	RunNo: 2	0905				
Prep Date: 8/29	9/2014 A	nalysis D	ate: 8/	30/2014	S	SeqNo: 6	08279	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		0.55	0.020	0.5000	0.07284	95.9	75	125	0.783	20	
Cadmium		0.49	0.0020	0.5000	0	97.4	75	125	1.30	20	
Chromium		0.49	0.0060	0.5000	0	97.7	75	125	1.35	20	
Lead		0.48	0.0050	0.5000	0	96.5	75	125	2.16	20	
Selenium		0.47	0.050	0.5000	0	94.7	75	125	1.02	20	
Silver		0.50	0.0050	0.5000	0	99.7	75	125	1.11	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1408D76**

16-Sep-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 8-26-14

Sample ID mb-1 SampType: MBLK TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R20890 RunNo: 20890

Prep Date: Analysis Date: 8/28/2014 SeqNo: 607928 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID Ics-1 SampType: LCS TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R20890 RunNo: 20890

Prep Date: Analysis Date: 8/28/2014 SeqNo: 607929 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 80 20 80.00 0 99.7 90 110

Sample ID 1408d76-001b ms SampType: MS TestCode: SM2320B: Alkalinity

Client ID: Outfall #2 Batch ID: R20890 RunNo: 20890

Prep Date: Analysis Date: 8/28/2014 SeqNo: 607932 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 410 20 80.00 347.6 76.5 34.9 123

Sample ID 1408d76-001b msd SampType: MSD TestCode: SM2320B: Alkalinity

Client ID: Outfall #2 Batch ID: R20890 RunNo: 20890

Prep Date: Analysis Date: 8/28/2014 SeqNo: 607933 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 410 20 80.00 347.6 78.9 34.9 123 0.488 20

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

RcptNo: 1 Work Order Number: 1408D76 Western Refining Southw Client Name: Received by/date: 8/27/2014 4:55:00 AM Logged By: Lindsay Mangin 8/27/2014 6:43:53 AM Lindsay Mangin Completed By: 08/27/2014 Reviewed By: Chain of Custody Not Present 🗸 Νo 1. Custody seals intact on sample bottles? Yes Not Present No 2. Is Chain of Custody complete? Yes 🗸 3. How was the sample delivered? Courier <u>Log In</u> NΑ Nο 4. Was an attempt made to cool the samples? 5. Were all samples received at a temperature of >0° C to 6.0°C No NA No Sample(s) in proper container(s)? No 7. Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? No NA 9. Was preservative added to bottles? Yes No No VOA Vials 10.VOA vials have zero headspace? Yes 11 Were any sample containers received broken? Yes # of preserved bottles checked for pH: Nο 12. Does paperwork match bottle labels? 2 unless noted) (Note discrepancies on chain of custody) No 13 Are matrices correctly identified on Chain of Custody? Nο 14. Is it clear what analyses were requested? Checked by: No 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V 16. Was client notified of all discrepancies with this order? Yes Nο Date: Person Notified: Phone Fax In Person Via: eMail By Whom: Regarding: Client Instructions: • 17. Additional remarks: 18 Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By 3.3 Good Yes

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TABLE 2 Analytical Methods and Target Analytes

VOCs (EPA Me	thod 8260B) ⁽¹⁾	
- Target List		
Benzene		
Toluene		
Ethylbenze	1e	
Xylenes		
Methyl tert	butyl ether (MTBE)	•
SVOCs - (EPA I		
- Method L	st	
TPH-GRO (EPA	Method 8015B)	
- Gasoline I	lange Organics	
TPH-DRO (EPA	Method 8015B)	
	ge Organics	
	Range Organics	
Total Carbon Di	oxide (Laboratory Cal	culated)
- Dissolved		
Specific Conduct	ivity (EPA Method 120	0.1 or field measurement)
- Specific co		
TDS (EPA Metho	d 160.1 or field measu	rement)
- Total disso		
General Chemist	ry - Anions (EPA Metl	nod 300.0)
Fluoride		
Chloride		
Bromide		
Nitrogen, Ni	rite (as N)	
Nitrogen, Nii	rate (as N)	
Phosphorous	, Orthophosphate (As P)
Sulfate		
	y - Alkalinity (EPA M	ethod 310.1)
Alkalinity, To	tal	
Carbonate		
Bicarbonate		

Total Recoverable Metals (EPA Method 6010B/7470)

- Target List (not applicable to River Terrace Sampling Events)

Arsenic Lead

Barium Mercury

Cadmium Selenium

Chromium Silver

- Target List (for River Terrace Sampling Events Only)

Lead

Mercury (DW-1 ONLY)

Dissolved Metals (EPA Method 6010B / 7470)

- Target List (for Refinery Complex, Outfalls, and River)

Arsenic Manganese
Barium Mercury
Cadmium Potassium
Calcium Selenium
Chromium Silver
Copper Sodium

Uranium

Zinc

Lead Magnesium

TPH = total petroleum hydrocarbons GRO = gasoline range organics VOCs = volatile organic compounds DRO = diesel range organics TDS = total dissolved solids

Iron

NOTES:

- 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 Piezomenter Wells only, per the River Terrace Bioventing System Monitoring Plan.

Inna 201 4



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

April 14, 2014

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

TEL: (505) 632-4135 FAX (505) 632-3911

RE: Seeps 4-1-14 OrderNo.: 1404092

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/2/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: #1

 Project:
 Seeps 4-1-14
 Collection Date: 4/1/2014 10:30:00 AM

 Lab ID:
 1404092-001
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analys	t: JRR
Fluoride	0.30	0.10		mg/L	1	4/2/2014 4:25:19 PM	R17774
Chloride	150	10		mg/L	20	4/2/2014 4:37:43 PM	R17774
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/2/2014 4:25:19 PM	R17774
Bromide	1.9	0.10		mg/L	1	4/2/2014 4:25:19 PM	R17774
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/2/2014 4:25:19 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/2/2014 4:25:19 PM	R17774
Sulfate	1200	25	*	mg/L	50	4/5/2014 5:32:20 AM	R17830
EPA METHOD 8260: VOLATILES SHO	ORT LIST					Analys	t: cadg
Benzene	ND	1.0		μg/L	1	4/3/2014 2:23:42 PM	R17772
Toluene	ND	1.0		μg/L	1	4/3/2014 2:23:42 PM	R17772
Ethylbenzene	ND	1.0		μg/L	1	4/3/2014 2:23:42 PM	R17772
Methyl tert-butyl ether (MTBE)	66	1.0		μg/L	1	4/3/2014 2:23:42 PM	R17772
Xylenes, Total	ND	1.5		μg/L	1	4/3/2014 2:23:42 PM	R17772
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	4/3/2014 2:23:42 PM	R17772
Surr: 4-Bromofluorobenzene	102	70-130		%REC	1	4/3/2014 2:23:42 PM	R17772
Surr: Dibromofluoromethane	105	70-130		%REC	1	4/3/2014 2:23:42 PM	R17772
Surr: Toluene-d8	91.4	70-130		%REC	1	4/3/2014 2:23:42 PM	R17772
CARBON DIOXIDE						Analys	t: JML
Total Carbon Dioxide	390	1.0	Н	mg CO2/L	1	4/2/2014 5:55:54 PM	R17767
SM2320B: ALKALINITY						Analys	t: JML
Bicarbonate (As CaCO3)	430	20		mg/L CaCO3	1	4/2/2014 5:55:54 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 5:55:54 PM	R17767
Total Alkalinity (as CaCO3)	430	20		mg/L CaCO3	1	4/2/2014 5:55:54 PM	R17767

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: #6

 Project:
 Seeps 4-1-14
 Collection Date: 4/1/2014 10:45:00 AM

 Lab ID:
 1404092-002
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analys	t: JRR
Fluoride	ND	0.10		mg/L	1	4/2/2014 4:50:07 PM	R17774
Chloride	1600	100	*	mg/L	200	4/5/2014 5:57:10 AM	R17830
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/2/2014 5:02:32 PM	R17774
Bromide	ND	2.0		mg/L	20	4/2/2014 5:02:32 PM	R17774
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/2/2014 4:50:07 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/2/2014 4:50:07 PM	R17774
Sulfate	1500	25	*	mg/L	50	4/5/2014 5:44:45 AM	R17830
EPA METHOD 8260: VOLATILES SHO	ORT LIST					Analys	t: cadg
Benzene	ND	1.0		μg/L	1	4/3/2014 3:50:05 PM	R17772
Toluene	ND	1.0		μg/L	1	4/3/2014 3:50:05 PM	R17772
Ethylbenzene	ND	1.0		μg/L	1	4/3/2014 3:50:05 PM	R17772
Methyl tert-butyl ether (MTBE)	5.8	1.0		μg/L	1	4/3/2014 3:50:05 PM	R17772
Xylenes, Total	ND	1.5		μg/L	1	4/3/2014 3:50:05 PM	R17772
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	4/3/2014 3:50:05 PM	R17772
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	4/3/2014 3:50:05 PM	R17772
Surr: Dibromofluoromethane	105	70-130		%REC	1	4/3/2014 3:50:05 PM	R17772
Surr: Toluene-d8	98.4	70-130		%REC	1	4/3/2014 3:50:05 PM	R17772
CARBON DIOXIDE						Analys	t: JML
Total Carbon Dioxide	390	1.0	Н	mg CO2/L	1	4/2/2014 6:13:51 PM	R17767
SM2320B: ALKALINITY						Analys	t: JML
Bicarbonate (As CaCO3)	420	20		mg/L CaCO3	1	4/2/2014 6:13:51 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 6:13:51 PM	R17767
Total Alkalinity (as CaCO3)	420	20		mg/L CaCO3	1	4/2/2014 6:13:51 PM	R17767

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: #9

 Project:
 Seeps 4-1-14
 Collection Date: 4/1/2014 11:00:00 AM

 Lab ID:
 1404092-003
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analys	t: JRR
Fluoride	0.50	0.10		mg/L	1	4/2/2014 5:14:56 PM	R17774
Chloride	550	25	*	mg/L	50	4/5/2014 6:09:34 AM	R17830
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/2/2014 5:27:21 PM	R17774
Bromide	2.0	0.10		mg/L	1	4/2/2014 5:14:56 PM	R17774
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/2/2014 5:14:56 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	4/2/2014 5:27:21 PM	R17774
Sulfate	2000	25	*	mg/L	50	4/5/2014 6:09:34 AM	R17830
EPA METHOD 8260: VOLATILES SHORT	LIST					Analys	t: cadg
Benzene	ND	1.0		μg/L	1	4/3/2014 4:18:43 PM	R17772
Toluene	ND	1.0		μg/L	1	4/3/2014 4:18:43 PM	R17772
Ethylbenzene	ND	1.0		μg/L	1	4/3/2014 4:18:43 PM	R17772
Methyl tert-butyl ether (MTBE)	24	1.0		μg/L	1	4/3/2014 4:18:43 PM	R17772
Xylenes, Total	ND	1.5		μg/L	1	4/3/2014 4:18:43 PM	R17772
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	4/3/2014 4:18:43 PM	R17772
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	4/3/2014 4:18:43 PM	R17772
Surr: Dibromofluoromethane	109	70-130		%REC	1	4/3/2014 4:18:43 PM	R17772
Surr: Toluene-d8	97.0	70-130		%REC	1	4/3/2014 4:18:43 PM	R17772
CARBON DIOXIDE						Analys	t: JML
Total Carbon Dioxide	290	1.0	Н	mg CO2/L	1	4/2/2014 6:32:19 PM	R17767
SM2320B: ALKALINITY						Analys	t: JML
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	4/2/2014 6:32:19 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 6:32:19 PM	R17767
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	4/2/2014 6:32:19 PM	R17767

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404092**

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Seeps 4-1-14 **Collection Date:**

Lab ID: 1404092-004 **Matrix:** TRIP BLANK **Received Date:** 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SH	HORT LIST				Analys	t: cadg
Benzene	ND	1.0	μg/L	1	4/3/2014 4:47:34 PM	R17772
Toluene	ND	1.0	μg/L	1	4/3/2014 4:47:34 PM	R17772
Ethylbenzene	ND	1.0	μg/L	1	4/3/2014 4:47:34 PM	R17772
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/3/2014 4:47:34 PM	R17772
Xylenes, Total	ND	1.5	μg/L	1	4/3/2014 4:47:34 PM	R17772
Surr: 1,2-Dichloroethane-d4	101	70-130	%REC	1	4/3/2014 4:47:34 PM	R17772
Surr: 4-Bromofluorobenzene	98.0	70-130	%REC	1	4/3/2014 4:47:34 PM	R17772
Surr: Dibromofluoromethane	103	70-130	%REC	1	4/3/2014 4:47:34 PM	R17772
Surr: Toluene-d8	91.7	70-130	%REC	1	4/3/2014 4:47:34 PM	R17772

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 9

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404092**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: Seeps 4-1-14

Sample ID MB	SampType: MBLK			Tes	TestCode: EPA Method 300.0: Anions					
Client ID: PBW	Batch ID: R17774			F	7774					
Prep Date:	Analysis Date: 4/2/2014			SeqNo: 512157			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								

Sample ID LCS	SampType: LCS TestCode: EPA Method 300.0: Anions									
Client ID: LCSW	Batch ID: R17774 RunNo: 17774									
Prep Date:	Analysis D	oate: 4/	2/2014	S	12158	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.5	0.10	2.500	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.2	90	110			

Sample ID M	IB	SampTy	pe: ME	BLK	Tes	tCode: E	PA Method	300.0: Anions			
Client ID: PI	BW	Batch I	D: R1	7774	F	RunNo: 1	7774				
Prep Date:		Analysis Da	te: 4 /	2/2014	14 SeqNo: 512214 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								

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

Sample ID LCS	SampT	s	Tes	tCode: El						
Client ID: LCSW	Batch	n ID: R1	7774	F	RunNo: 17774					
Prep Date:	Analysis D	ate: 4/	2/2014	8	SeqNo: 5	12215	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	97.8	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404092**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: Seeps 4-1-14

Project: Seeps 4	-1-14								
Sample ID LCS	SampType	e: LCS	Tes	tCode: EPA	Method	300.0: Anions	3		
Client ID: LCSW	Batch ID): R17774	F	RunNo: 17774					
Prep Date:	Analysis Date	e: 4/2/2014	S	SeqNo: 5122	215	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC L	.owLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.4	0.10 2.500	0	97.6	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50 5.000	0	95.8	90	110			
Sample ID MB	SampType	e: MBLK	Tes	tCode: EPA	Method	300.0: Anions	3		
Client ID: PBW	Batch ID	: R17830	F	RunNo: 178 3	30				
Prep Date:	Analysis Date	e: 4/4/2014	S	SeqNo: 5139	962	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC L	.owLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50							
Sulfate	ND	0.50							
Sample ID LCS	SampType	e: LCS	Tes	tCode: EPA	Method	300.0: Anions	;		
Client ID: LCSW	Batch ID	: R17830	F	RunNo: 1783	30				
Prep Date:	Analysis Date	e: 4/4/2014	SeqNo: 513963			Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC L	.owLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50 5.000	0	93.1	90	110			
Sulfate	9.5	0.50 10.00	0	94.7	90	110			
Sample ID MB	SampType	e: MBLK	Tes	tCode: EPA	Method	300.0: Anions	;		
Client ID: PBW	Batch ID): R17830	F	RunNo: 1783	30				
Prep Date:	Analysis Date	e: 4/4/2014	8	SeqNo: 5140	005	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC L	.owLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50							
Sulfate	ND	0.50							
Sample ID LCS	SampType	e: LCS	Tes	tCode: EPA	Method	300.0: Anions	<u> </u>		
Client ID: LCSW	Batch ID): R17830	F	RunNo: 1783	30				
Prep Date:	Analysis Date	e: 4/4/2014	8	SeqNo: 5140	006	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC L	.owLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50 5.000	0	93.2	90	110			
Sulfate	9.5	0.50 10.00	0	95.1	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404092**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: Seeps 4-1-14

Sample ID 5mL rb	SampT	ype: ME	BLK	Tes	Code: El	PA Method	8260: Volatile	s Short L	.ist	
Client ID: PBW	Batch	n ID: R1	7772	F	lunNo: 1	7772				
Prep Date:	Analysis D	ate: 4/	3/2014	S	eqNo: 5	12644	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.5		10.00		94.6	70	130			
Sample ID 1404092-001a ms	SampT	ype: MS	6	Tes	Code: El	PA Method	8260: Volatile	es Short L	.ist	
Client ID: #1	Batch	n ID: R1	7772	F	tunNo: 1	7772				
Prep Date:	Analysis D	ate: 4/	3/2014	S	eqNo: 5	12647	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	20	1.0	20.00	0	99.1	67.5	123			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.5	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.5	70	130			
Sun. Dibromondorometrane	0.1		10.00		30.5	70	100			

Sample ID 1404092-001a ms	d SampT	ype: MS	SD	Tes	tCode: El	PA Method	8260: Volatile	s Short L	.ist	
Client ID: #1	Batch	ID: R1	7772	F	RunNo: 1	7772				
Prep Date:	Analysis D	ate: 4/	3/2014	8	SeqNo: 5	12648	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	0.926	20	
Toluene	19	1.0	20.00	0	94.7	67.5	123	4.49	20	
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.7		10.00		97.4	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		103	70	130	0	0	
Surr: Toluene-d8	10		10.00		101	70	130	0	0	

Sample ID 100ng lcs1	SampType: LCS	npType: LCS TestCode: EPA Method 8260: Volatiles Short List								
Client ID: LCSW	Batch ID: R1777	72	RunNo: 17772	2						
Prep Date:	Analysis Date: 4/3/2	014	SeqNo: 51277	77 Units: μg/L						
Analyte	Result PQL SI	PK value SPK Ref \	/al %REC Lov	wLimit HighLimit	%RPD	RPDLimit	Qual			
Benzene	21 1.0	20.00 0	103	70 130						

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404092**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: Seeps 4-1-14

Sample ID 100ng lcs1	SampT	SampType: LCS TestCode: EPA Method 8260: Volatiles Short Li								
Client ID: LCSW	Batch	Batch ID: R17772 RunNo: 17772								
Prep Date:	Analysis D	oate: 4/	3/2014	SeqNo: 512777						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	19	1.0	20.00	0	96.5	80	120			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.7	70	130			
Surr: Toluene-d8	9.7		10.00		97.0	70	130			

Sample ID b3	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260: Volatile	es Short L	_ist	
Client ID: PBW	Batch	n ID: R1	7772	F	RunNo: 1	7772				
Prep Date:	Analysis D	ate: 4/	3/2014	SeqNo: 512791 Ur			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0	•						•	•
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.4		10.00		94.1	70	130			

Sample ID 100ng lcs2	SampT	SampType: LCS TestCode: EPA Method 8260: Volatiles Short List								
Client ID: LCSW	Batch	n ID: R1	7772	F	RunNo: 1	7772				
Prep Date:	Analysis D	ate: 4/	3/2014	014 SeqNo: 512792 Units: μg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	19	1.0	20.00	0	93.8	80	120			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.5	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.8		10.00		97.8	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
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- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404092**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: Seeps 4-1-14

Sample ID mb-1 SampType: mblk TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R17767 RunNo: 17767

Prep Date: Analysis Date: 4/2/2014 SeqNo: 511976 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID Ics-1 SampType: Ics TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R17767 RunNo: 17767

Prep Date: Analysis Date: 4/2/2014 SeqNo: 511977 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 78 20 80.00 0 97.0 90 110

Sample ID mb-2 SampType: mblk TestCode: SM2320B: Alkalinity

Client ID: PBW Batch ID: R17767 RunNo: 17767

Prep Date: Analysis Date: 4/2/2014 SeqNo: 511991 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) ND 20

Sample ID Ics-2 SampType: Ics TestCode: SM2320B: Alkalinity

Client ID: LCSW Batch ID: R17767 RunNo: 17767

Prep Date: Analysis Date: 4/2/2014 SeqNo: 511992 Units: mg/L CaCO3

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Alkalinity (as CaCO3) 82 20 80.00 0 102 90 110

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
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- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87105

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Work Order Number: 1404092 RcptNo: 1 Western Refining Southw Client Name: Received by/date: Logged By: Lindsay Mangin 4/2/2014 9:45:00 AM 4/2/2014\10:33:15 AM Completed By: Lindsay Mangin Reviewed By: Chain of Custody Not Present 🗹 1. Custody seals intact on sample bottles? Yes No 🗌 Yes 🗹 Not Present 2. Is Chain of Custody complete? 3 How was the sample delivered? Courier Log In NA 🗌 Yes 🔽 No 4. Was an attempt made to cool the samples? NA 🗔 5. Were all samples received at a temperature of >0° C to 6.0°C No Yes 🗸 No Sample(s) in proper container(s)? V Νo 7. Sufficient sample volume for indicated test(s)? Yes ~ Nο Yes 8. Are samples (except VOA and ONG) properly preserved? **V** NA 🗔 No 9. Was preservative added to bottles? Yes No VOA Vials Yes 🗸 Nο 10.VOA vials have zero headspace? No 🗸 Yes 11. Were any sample containers received broken? # of preserved bottles checked No 🗆 for pH: 12. Does paperwork match bottle labels? Yes or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? no No 🗀 13. Are matrices correctly identified on Chain of Custody? V No 🗌 14. Is it clear what analyses were requested? CS Checked by: **V** No 🗀 15. Were all holding times able to be met? Yes (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🗹 No 🗌 16. Was client notified of all discrepancies with this order? 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 Good Yes

	⁷ X								(N)	o Y)) SE	Air Bubble				:					·		\dashv			
ENVIDONMENTAL	ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Ana	(SO)	(S)	oa Mis	(1.8 (1.4) (1.4) (1.4) (1.4)	H 38 + 38 + 38 + 38 + 38 + 38 + 38 + 38	TTF hood: hood: JOh AO	BTEX + N BTEX + N TPH 8015 TPH (Met PAH's (83 RCRA 8 N Anions (F 8081 Pes 8081 Pes 8081 Pes 8081 Pes	×	×	×	×	×	X	× ×	×	<i>x</i>			Remarks:		possibility. Any sub-contracted data will be clearly notated on the analytical report.
Turn-Around Time:	X Standard	Project Name:	Seeps 4-1-14	<u> 12</u>		Project Manager:			Sampler: MATT + BA	Temberature: 1. 4		Container Preservative Type Type	3-404 Hel -001	1-500 12	1-250 H2504	3-10A #C(-002	1-500	1-250 H2504	4.0	1-500	1-250 HaSO4			Date Time U//4 /leg/	Received by: Date Time CLE CLE	retired laboratories. This serves as notice of this
Chain-of-Custody Record	Client: Western Refining		Mailing Address: #50 CR 4990	160m (1, 18/4/3	-632-4/3	email or Fax#:	QA/QC Package:	☐ Standard ★ Level 4 (Full Validation)	Accreditation	voe)		Date Time Matrix Sample Request ID	1-1-14 10:30 Hao #1			10:45 #6			6#			TRID BLANK		Date: Time: Relinquished by: -(-14 Len Content Haben		necessary samples



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

April 14, 2014

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

TEL: (505) 632-4135 FAX (505) 632-3911

RE: San Juan River Bluff 4/1/14 OrderNo.: 1404091

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/2/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1404091**

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North Of 45

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:45:00 AM

 Lab ID:
 1404091-001
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	iΕ				Analys	t: BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/2/2014 10:35:48 PM	12504
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/2/2014 10:35:48 PM	12504
Surr: DNOP	96.8	76-161	%REC	1	4/2/2014 10:35:48 PM	12504
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/4/2014 2:31:53 PM	R17799
Surr: BFB	95.7	80.4-118	%REC	1	4/4/2014 2:31:53 PM	R17799
EPA METHOD 300.0: ANIONS					Analys	t: JRR
Fluoride	0.20	0.10	mg/L	1	4/2/2014 1:56:25 PM	R17774
Chloride	3.8	0.50	mg/L	1	4/2/2014 1:56:25 PM	R17774
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	4/2/2014 1:56:25 PM	R17774
Bromide	ND	0.10	mg/L	1	4/2/2014 1:56:25 PM	R17774
Nitrogen, Nitrate (As N)	ND	0.10	mg/L	1	4/2/2014 1:56:25 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	4/2/2014 1:56:25 PM	R17774
Sulfate	92	10	mg/L	20	4/2/2014 2:33:39 PM	R17774
EPA METHOD 7470: MERCURY					Analys	t: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:29:27 PM	12508
EPA METHOD 6010B: DISSOLVED N	IETALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:42:37 PM	R17809
Barium	0.071	0.020	mg/L	1	4/3/2014 12:58:12 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 12:58:12 PM	R17788
Calcium	42	1.0	mg/L	1	4/3/2014 12:58:12 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 12:58:12 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 12:58:12 PM	R17788
Iron	0.033	0.020	mg/L	1	4/3/2014 12:58:12 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 12:58:12 PM	R17788
Magnesium	6.9	1.0	mg/L	1	4/3/2014 12:58:12 PM	R17788
Manganese	0.022	0.0020	mg/L	1	4/3/2014 12:58:12 PM	R17788
Potassium	2.0	1.0	mg/L	1	4/3/2014 12:58:12 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 12:58:12 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 12:58:12 PM	R17788
Sodium	32	1.0	mg/L	1	4/3/2014 12:58:12 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 12:58:12 PM	R17788
Zinc	ND	0.020	mg/L	1	4/3/2014 12:58:12 PM	R17788
EPA 6010B: TOTAL RECOVERABLE	METALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:01:16 PM	12551
Barium	0.086	0.020	mg/L	1	4/5/2014 1:01:16 PM	12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:01:16 PM	12551
7 1 000						

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 30

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North Of 45

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:45:00 AM

 Lab ID:
 1404091-001
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABLE	METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:01:16 PM	12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:01:16 PM	12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:01:16 PM	12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:01:16 PM	12551
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Toluene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Ethylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Naphthalene	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
2-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Acetone	ND	10	μg/L	1	4/3/2014 2:29:45 PM	R17789
Bromobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Bromodichloromethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Bromoform	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Bromomethane	ND	3.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
2-Butanone	ND	10	μg/L	1	4/3/2014 2:29:45 PM	R17789
Carbon disulfide	ND	10	μg/L	1	4/3/2014 2:29:45 PM	R17789
Carbon Tetrachloride	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Chlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Chloroethane	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Chloroform	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Chloromethane	ND	3.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
2-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
4-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
cis-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Dibromochloromethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Dibromomethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,3-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,4-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Dichlorodifluoromethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North Of 45

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:45:00 AM

 Lab ID:
 1404091-001
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1-Dichloroethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1-Dichloroethene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,3-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
2,2-Dichloropropane	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Hexachlorobutadiene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
2-Hexanone	ND	10	μg/L	1	4/3/2014 2:29:45 PM	R17789
Isopropylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
4-Isopropyltoluene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
4-Methyl-2-pentanone	ND	10	μg/L	1	4/3/2014 2:29:45 PM	R17789
Methylene Chloride	ND	3.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
n-Butylbenzene	ND	3.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
n-Propylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
sec-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Styrene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
tert-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
trans-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Trichlorofluoromethane	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
1,2,3-Trichloropropane	ND	2.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Vinyl chloride	ND	1.0	μg/L	1	4/3/2014 2:29:45 PM	R17789
Xylenes, Total	ND	1.5	μg/L	1	4/3/2014 2:29:45 PM	R17789
Surr: 1,2-Dichloroethane-d4	105	70-130	%REC	1	4/3/2014 2:29:45 PM	R17789
Surr: 4-Bromofluorobenzene	92.4	70-130	%REC	1	4/3/2014 2:29:45 PM	R17789
Surr: Dibromofluoromethane	96.4	70-130	%REC	1	4/3/2014 2:29:45 PM	R17789
Surr: Toluene-d8	101	70-130	%REC	1	4/3/2014 2:29:45 PM	R17789
SM 2540 C: TOTAL DISSOLVED SOLIDS	;				Analys	t: KS
Total Dissolved Solids	259	20.0	mg/L	1	4/7/2014 12:12:00 PM	12549
CARBON DIOXIDE					Analys	t: JML

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Page 3 of 30
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North Of 45

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:45:00 AM

 Lab ID:
 1404091-001
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Batch
CARBON DIOXIDE					Analys	t: JML
Total Carbon Dioxide	89	1.0 H	mg CO2/L	1	4/2/2014 4:04:22 PM	R17767
SM2510B: SPECIFIC CONDUCTANCE					Analys	t: JML
Conductivity	380	0.010	μmhos/cm	1	4/2/2014 4:04:22 PM	R17767
SM2320B: ALKALINITY					Analys	t: JML
Bicarbonate (As CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:04:22 PM	R17767
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	4/2/2014 4:04:22 PM	R17767
Total Alkalinity (as CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:04:22 PM	R17767

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 30

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404091**

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North Of 46

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:30:00 AM

 Lab ID:
 1404091-002
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56	Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
Motor Oil Range Organics (MRO)	EPA METHOD 8015D: DIESEL RANG	BE .				Analys	t: BCN
Surr: DNOP	Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/3/2014 9:50:46 AM	12504
Capa Method 8015D: GASOLINE RANGE	Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/3/2014 9:50:46 AM	12504
Casoline Range Organics (GRO) ND 0.050 mg/L 1 4/4/2014 3:01:59 PM R17799 Surr: BFB 99.5 80.4-118 %REC 1 4/4/2014 3:01:59 PM R17799 R17799 R17799 R17799 R17799 R17799 R17799 R17799 R17701 R10010 R10010 R10010 R10010 R10010 R10010 R10010 R17714 R17714 R177010 R17774 R17702 R17774 R17702 R17774 R17702 R177010 R17774 R17774 R17774 R17774 R17774 R17774 R17702 R17774 R1	Surr: DNOP	95.8	76-161	%REC	1	4/3/2014 9:50:46 AM	12504
Surr: BFB 99.5 80.4-118 %REC 1 4/4/2014 3:01-59 PM R17799	EPA METHOD 8015D: GASOLINE RA	ANGE				Analys	t: NSB
Fluoride	Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/4/2014 3:01:59 PM	R17799
Fluoride	Surr: BFB	99.5	80.4-118	%REC	1	4/4/2014 3:01:59 PM	R17799
Chloride	EPA METHOD 300.0: ANIONS					Analys	t: JRR
Nitrogen, Nitrite (As N)	Fluoride	0.20	0.10	mg/L	1	4/2/2014 2:46:03 PM	R17774
Bromide ND 0.10 mg/L 1 4/2/2014 2:46:03 PM R17774 Nitrogen, Nitrate (As N) ND 0.10 mg/L 1 4/2/2014 2:46:03 PM R17774 Phosphorus, Orthophosphate (As P) ND 0.50 mg/L 1 4/2/2014 2:46:03 PM R17774 Sulfate 87 10 mg/L 1 4/2/2014 2:46:03 PM R17774 EPA METHOD 7470: MERCURY Analyst: JML Mercury ND 0.00020 mg/L 1 4/2/2014 5:34:51 PM 12508 EPA METHOD 6010B: DISSOLVED METALS Analyst: ELS Arsenic ND 0.0020 mg/L 1 4/5/2014 1:24:25 PM R17609 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND </td <td>Chloride</td> <td>3.8</td> <td>0.50</td> <td>mg/L</td> <td>1</td> <td>4/2/2014 2:46:03 PM</td> <td>R17774</td>	Chloride	3.8	0.50	mg/L	1	4/2/2014 2:46:03 PM	R17774
Nitrogen, Nitrate (As N)	Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	4/2/2014 2:46:03 PM	R17774
Phosphorus, Orthophosphate (As P) ND 0.50 mg/L 1 4/2/2014 2:46:03 PM R17774 R17778 Sulfate 87 10 mg/L 20 4/2/2014 2:58:27 PM R17774 R177777 EPA METHOD 7470: MERCURY ND 0.00020 mg/L 1 4/2/2014 5:34:51 PM 12508 EPA METHOD 6010B: DISSOLVED METALS Family ND 0.0020 mg/L 1 4/2/2014 5:34:51 PM 12508 Arsenic ND 0.020 mg/L 1 4/5/2014 1:01:56 PM R17809 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadinium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM <td>Bromide</td> <td>ND</td> <td>0.10</td> <td>mg/L</td> <td>1</td> <td>4/2/2014 2:46:03 PM</td> <td>R17774</td>	Bromide	ND	0.10	mg/L	1	4/2/2014 2:46:03 PM	R17774
Sulfate 87 10 mg/L 20 4/2/2014 2:58:27 PM R17774 EPA METHOD 7470: MERCURY Mercury ND 0.00020 mg/L 1 4/2/2014 5:34:51 PM 12508 EPA METHOD 6010B: DISSOLVED METALS Fanalyst: ELS Arsenic ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17809 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0220 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1	Nitrogen, Nitrate (As N)	ND	0.10	mg/L	1	4/2/2014 2:46:03 PM	R17774
Mercury ND 0.00020 mg/L 1 4/2/2014 5:34:51 PM 12508 EPA METHOD 6010B: DISSOLVED METALS ND 0.0020 mg/L 1 4/5/2014 12:44:25 PM R17809 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 R1788 Potassium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 R1788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 R1890 R19788 R1978	Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	4/2/2014 2:46:03 PM	R17774
Mercury ND 0.00020 mg/L 1 4/2/2014 5:34:51 PM 12508 PM EPA METHOD 6010B: DISSOLVED METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 12:44:25 PM R17809 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 M	Sulfate	87	10	mg/L	20	4/2/2014 2:58:27 PM	R17774
EPA METHOD 6010B: DISSOLVED METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 12:44:25 PM R17809 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Magne	EPA METHOD 7470: MERCURY					Analys	t: JML
Arsenic ND 0.020 mg/L 1 4/5/2014 12:44:25 PM R17800 Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:	Mercury	ND	0.00020	mg/L	1	4/2/2014 5:34:51 PM	12508
Barium 0.071 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:	EPA METHOD 6010B: DISSOLVED N	METALS				Analys	t: ELS
Cadmium ND 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM	Arsenic	ND	0.020	mg/L	1	4/5/2014 12:44:25 PM	R17809
Calcium 41 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM<	Barium	0.071	0.020	mg/L	1	4/3/2014 1:01:56 PM	R17788
Chromium ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Iranium ND 0.010 mg/L 1 4/3/2014 1:01:56 P	Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:01:56 PM	R17788
Copper ND 0.0060 mg/L 1 4/3/2014 1:01:56 PM R17788 Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM	Calcium	41	1.0	mg/L	1	4/3/2014 1:01:56 PM	R17788
Iron 0.030 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Barium 0.090 </td <td>Chromium</td> <td>ND</td> <td>0.0060</td> <td>mg/L</td> <td>1</td> <td>4/3/2014 1:01:56 PM</td> <td>R17788</td>	Chromium	ND	0.0060	mg/L	1	4/3/2014 1:01:56 PM	R17788
Lead ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium	Copper	ND	0.0060	mg/L	1	4/3/2014 1:01:56 PM	R17788
Magnesium 6.8 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Iron	0.030	0.020	mg/L	1	4/3/2014 1:01:56 PM	R17788
Manganese 0.015 0.0020 mg/L 1 4/3/2014 1:01:56 PM R17788 Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Lead	ND	0.0050	mg/L	1	4/3/2014 1:01:56 PM	R17788
Potassium 1.9 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Magnesium	6.8	1.0	mg/L	1	4/3/2014 1:01:56 PM	R17788
Selenium ND 0.050 mg/L 1 4/3/2014 1:01:56 PM R17788 Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Manganese	0.015	0.0020	mg/L	1	4/3/2014 1:01:56 PM	R17788
Silver ND 0.0050 mg/L 1 4/3/2014 1:01:56 PM R17788 Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Potassium	1.9	1.0	mg/L	1	4/3/2014 1:01:56 PM	R17788
Sodium 31 1.0 mg/L 1 4/3/2014 1:01:56 PM R17788 Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Selenium	ND	0.050	mg/L	1	4/3/2014 1:01:56 PM	R17788
Uranium ND 0.10 mg/L 1 4/3/2014 1:01:56 PM R17788 Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Silver	ND	0.0050	mg/L	1	4/3/2014 1:01:56 PM	R17788
Zinc ND 0.020 mg/L 1 4/3/2014 1:01:56 PM R17788 EPA 6010B: TOTAL RECOVERABLE METALS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Sodium	31	1.0	mg/L	1	4/3/2014 1:01:56 PM	R17788
EPA 6010B: TOTAL RECOVERABLE METALS Analyst: ELS Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Uranium	ND	0.10	mg/L	1	4/3/2014 1:01:56 PM	R17788
Arsenic ND 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551 Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	Zinc	ND	0.020	mg/L	1	4/3/2014 1:01:56 PM	R17788
Barium 0.090 0.020 mg/L 1 4/5/2014 1:02:36 PM 12551	EPA 6010B: TOTAL RECOVERABLE	METALS				Analys	t: ELS
	Arsenic	ND	0.020	mg/L	1	4/5/2014 1:02:36 PM	12551
Cadmium ND 0.0020 mg/L 1 4/5/2014 1:02:36 PM 12551	Barium	0.090	0.020	mg/L	1	4/5/2014 1:02:36 PM	12551
	Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:02:36 PM	12551

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 5 of 30
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Lab Order **1404091**Date Reported: **4/14/2014**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** North Of 46

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:30:00 AM

 Lab ID:
 1404091-002
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABLE	METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:02:36 PM	12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:02:36 PM	12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:02:36 PM	12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:02:36 PM	12551
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Toluene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Ethylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Naphthalene	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
2-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Acetone	ND	10	μg/L	1	4/3/2014 4:32:58 PM	R17789
Bromobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Bromodichloromethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Bromoform	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Bromomethane	ND	3.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
2-Butanone	ND	10	μg/L	1	4/3/2014 4:32:58 PM	R17789
Carbon disulfide	ND	10	μg/L	1	4/3/2014 4:32:58 PM	R17789
Carbon Tetrachloride	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Chlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Chloroethane	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Chloroform	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Chloromethane	ND	3.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
2-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
4-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
cis-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Dibromochloromethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Dibromomethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,3-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,4-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Dichlorodifluoromethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789

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

Qualifiers:

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- ND Not Detected at the Reporting Limit

Page 6 of 30

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** North Of 46

Project: San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:30:00 AM

 Lab ID: 1404091-002
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1-Dichloroethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1-Dichloroethene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,3-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
2,2-Dichloropropane	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Hexachlorobutadiene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
2-Hexanone	ND	10	μg/L	1	4/3/2014 4:32:58 PM	R17789
Isopropylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
4-Isopropyltoluene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
4-Methyl-2-pentanone	ND	10	μg/L	1	4/3/2014 4:32:58 PM	R17789
Methylene Chloride	ND	3.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
n-Butylbenzene	ND	3.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
n-Propylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
sec-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Styrene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
tert-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
trans-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Trichlorofluoromethane	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
1,2,3-Trichloropropane	ND	2.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Vinyl chloride	ND	1.0	μg/L	1	4/3/2014 4:32:58 PM	R17789
Xylenes, Total	ND	1.5	μg/L	1	4/3/2014 4:32:58 PM	R17789
Surr: 1,2-Dichloroethane-d4	108	70-130	%REC	1	4/3/2014 4:32:58 PM	R17789
Surr: 4-Bromofluorobenzene	87.3	70-130	%REC	1	4/3/2014 4:32:58 PM	R17789
Surr: Dibromofluoromethane	103	70-130	%REC	1	4/3/2014 4:32:58 PM	R17789
Surr: Toluene-d8	100	70-130	%REC	1	4/3/2014 4:32:58 PM	R17789
SM 2540 C: TOTAL DISSOLVED SOLIDS	3				Analys	t: KS
Total Dissolved Solids	262	20.0	mg/L	1	4/7/2014 12:12:00 PM	12549
CARBON DIOXIDE					Analys	t: JML

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Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 7 of 30

- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: North Of 46

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:30:00 AM

 Lab ID:
 1404091-002
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	Result RL Qual Units			Date Analyzed	Batch
CARBON DIOXIDE					Analys	t: JML
Total Carbon Dioxide	89	1.0 H	mg CO2/L	1	4/2/2014 4:17:37 PM	R17767
SM2510B: SPECIFIC CONDUCTANCE					Analys	t: JML
Conductivity	390	0.010	µmhos/cm	1	4/2/2014 4:17:37 PM	R17767
SM2320B: ALKALINITY					Analys	t: JML
Bicarbonate (As CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:17:37 PM	R17767
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	4/2/2014 4:17:37 PM	R17767
Total Alkalinity (as CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:17:37 PM	R17767

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

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 8 of 30

Lab Order 1404091

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

Project: San Juan River Bluff 4/1/14 **Collection Date:** 4/1/2014 10:15:00 AM 1404091-003 Lab ID: Matrix: AQUEOUS Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANG	βE				Analys	t: BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/3/2014 12:37:18 AM	12504
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/3/2014 12:37:18 AM	12504
Surr: DNOP	91.6	76-161	%REC	1	4/3/2014 12:37:18 AM	12504
EPA METHOD 8015D: GASOLINE RA	ANGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/4/2014 3:32:09 PM	R17799
Surr: BFB	105	80.4-118	%REC	1	4/4/2014 3:32:09 PM	R17799
EPA METHOD 300.0: ANIONS					Analys	t: JRR
Fluoride	0.20	0.10	mg/L	1	4/2/2014 3:10:52 PM	R17774
Chloride	3.9	0.50	mg/L	1	4/2/2014 3:10:52 PM	R17774
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	4/2/2014 3:10:52 PM	R17774
Bromide	ND	0.10	mg/L	1	4/2/2014 3:10:52 PM	R17774
Nitrogen, Nitrate (As N)	0.12	0.10	mg/L	1	4/2/2014 3:10:52 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	4/2/2014 3:10:52 PM	R17774
Sulfate	96	10	mg/L	20	4/2/2014 3:23:16 PM	R17774
EPA METHOD 7470: MERCURY					Analys	t: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:36:36 PM	12508
EPA METHOD 6010B: DISSOLVED N	IETALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:46:11 PM	R17809
Barium	0.072	0.020	mg/L	1	4/3/2014 1:05:29 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:05:29 PM	R17788
Calcium	41	1.0	mg/L	1	4/3/2014 1:05:29 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 1:05:29 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 1:05:29 PM	R17788
Iron	0.024	0.020	mg/L	1	4/3/2014 1:05:29 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 1:05:29 PM	R17788
Magnesium	7.1	1.0	mg/L	1	4/3/2014 1:05:29 PM	R17788
Manganese	0.028	0.0020	mg/L	1	4/3/2014 1:05:29 PM	R17788
Potassium	2.0	1.0	mg/L	1	4/3/2014 1:05:29 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 1:05:29 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 1:05:29 PM	R17788
Sodium	36	1.0	mg/L	1	4/3/2014 1:05:29 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 1:05:29 PM	R17788
Zinc	0.023	0.020	mg/L	1	4/3/2014 1:05:29 PM	R17788
EPA 6010B: TOTAL RECOVERABLE	METALS				Analys	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:03:54 PM	12551
Barium	0.086	0.020	mg/L	1	4/5/2014 1:03:54 PM	12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:03:54 PM	12551
D 6 . 1 000						

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 9 of 30

- P Sample pH greater than 2.
- Reporting Detection Limit

Lab Order **1404091**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 10:15:00 AM

 Lab ID:
 1404091-003
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result RL Qual Units		ıal Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABLE I	METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:03:54 PM	12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:03:54 PM	12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:03:54 PM	12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:03:54 PM	12551
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Toluene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Ethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Naphthalene	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
2-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Acetone	ND	10	μg/L	1	4/3/2014 5:03:49 PM	R17789
Bromobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Bromodichloromethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Bromoform	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Bromomethane	ND	3.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
2-Butanone	ND	10	μg/L	1	4/3/2014 5:03:49 PM	R17789
Carbon disulfide	ND	10	μg/L	1	4/3/2014 5:03:49 PM	R17789
Carbon Tetrachloride	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Chlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Chloroethane	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Chloroform	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Chloromethane	ND	3.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
2-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
4-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
cis-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Dibromochloromethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Dibromomethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,3-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,4-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Dichlorodifluoromethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - ne Reporting Limit Page 10 of 30
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 10:15:00 AM

 Lab ID:
 1404091-003
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1-Dichloroethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1-Dichloroethene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,3-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
2,2-Dichloropropane	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Hexachlorobutadiene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
2-Hexanone	ND	10	μg/L	1	4/3/2014 5:03:49 PM	R17789
Isopropylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
4-Isopropyltoluene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
4-Methyl-2-pentanone	ND	10	μg/L	1	4/3/2014 5:03:49 PM	R17789
Methylene Chloride	ND	3.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
n-Butylbenzene	ND	3.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
n-Propylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
sec-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Styrene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
tert-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
trans-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Trichlorofluoromethane	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
1,2,3-Trichloropropane	ND	2.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Vinyl chloride	ND	1.0	μg/L	1	4/3/2014 5:03:49 PM	R17789
Xylenes, Total	ND	1.5	μg/L	1	4/3/2014 5:03:49 PM	R17789
Surr: 1,2-Dichloroethane-d4	105	70-130	%REC	1	4/3/2014 5:03:49 PM	R17789
Surr: 4-Bromofluorobenzene	94.0	70-130	%REC	1	4/3/2014 5:03:49 PM	R17789
Surr: Dibromofluoromethane	105	70-130	%REC	1	4/3/2014 5:03:49 PM	R17789
Surr: Toluene-d8	96.5	70-130	%REC	1	4/3/2014 5:03:49 PM	R17789
SM 2540 C: TOTAL DISSOLVED SOLIDS	3				Analys	t: KS
Total Dissolved Solids	269	20.0	mg/L	1	4/7/2014 12:12:00 PM	12549
CARBON DIOXIDE					Analys	t: JML

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 10:15:00 AM

 Lab ID:
 1404091-003
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Batch
CARBON DIOXIDE					Analys	t: JML
Total Carbon Dioxide	89	1.0 H	mg CO2/L	1	4/2/2014 4:26:19 PM	R17767
SM2510B: SPECIFIC CONDUCTANCE					Analys	t: JML
Conductivity	400	0.010	µmhos/cm	1	4/2/2014 4:26:19 PM	R17767
SM2320B: ALKALINITY					Analys	t: JML
Bicarbonate (As CaCO3)	99	20	mg/L CaCO3	1	4/2/2014 4:26:19 PM	R17767
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	4/2/2014 4:26:19 PM	R17767
Total Alkalinity (as CaCO3)	99	20	mg/L CaCO3	1	4/2/2014 4:26:19 PM	R17767

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 12 of 30
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Down Stream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:00:00 AM

 Lab ID:
 1404091-004
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE					Analysi	: BCN
Diesel Range Organics (DRO)	ND	0.20	mg/L	1	4/3/2014 1:07:35 AM	12504
Motor Oil Range Organics (MRO)	ND	2.5	mg/L	1	4/3/2014 1:07:35 AM	12504
Surr: DNOP	111	76-161	%REC	1	4/3/2014 1:07:35 AM	12504
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/4/2014 4:02:20 PM	R17799
Surr: BFB	86.3	80.4-118	%REC	1	4/4/2014 4:02:20 PM	R17799
EPA METHOD 300.0: ANIONS					Analyst	t: JRR
Fluoride	0.20	0.10	mg/L	1	4/2/2014 3:35:41 PM	R17774
Chloride	4.2	0.50	mg/L	1	4/2/2014 3:35:41 PM	R17774
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	4/2/2014 3:35:41 PM	R17774
Bromide	ND	0.10	mg/L	1	4/2/2014 3:35:41 PM	R17774
Nitrogen, Nitrate (As N)	ND	0.10	mg/L	1	4/2/2014 3:35:41 PM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50	mg/L	1	4/2/2014 3:35:41 PM	R17774
Sulfate	91	10	mg/L	20	4/2/2014 3:48:05 PM	R17774
EPA METHOD 7470: MERCURY					Analyst	t: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:38:21 PM	12508
EPA METHOD 6010B: DISSOLVED META	ALS				Analyst	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:48:00 PM	R17809
Barium	0.071	0.020	mg/L	1	4/3/2014 1:09:05 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:09:05 PM	R17788
Calcium	45	1.0	mg/L	1	4/3/2014 1:09:05 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 1:09:05 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 1:09:05 PM	R17788
Iron	0.023	0.020	mg/L	1	4/3/2014 1:09:05 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 1:09:05 PM	R17788
Magnesium	7.1	1.0	mg/L	1	4/3/2014 1:09:05 PM	R17788
Manganese	0.060	0.0020	mg/L	1	4/3/2014 1:09:05 PM	R17788
Potassium	1.9	1.0	mg/L	1	4/3/2014 1:09:05 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 1:09:05 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 1:09:05 PM	R17788
Sodium	34	1.0	mg/L	1	4/3/2014 1:09:05 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 1:09:05 PM	R17788
Zinc	0.021	0.020	mg/L	1	4/3/2014 1:09:05 PM	R17788
EPA 6010B: TOTAL RECOVERABLE ME	TALS				Analysi	t: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:05:16 PM	12551
Barium	0.089	0.020	mg/L	1	4/5/2014 1:05:16 PM	12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:05:16 PM	12551

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Lab Order **1404091**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:00:00 AM

 Lab ID:
 1404091-004
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL RECOVERABLE I	METALS				Analys	t: ELS
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:05:16 PM	12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:05:16 PM	12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:05:16 PM	12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:05:16 PM	12551
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Toluene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Ethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Naphthalene	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
2-Methylnaphthalene	ND	4.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Acetone	ND	10	μg/L	1	4/3/2014 5:34:39 PM	R17789
Bromobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Bromodichloromethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Bromoform	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Bromomethane	ND	3.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
2-Butanone	ND	10	μg/L	1	4/3/2014 5:34:39 PM	R17789
Carbon disulfide	ND	10	μg/L	1	4/3/2014 5:34:39 PM	R17789
Carbon Tetrachloride	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Chlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Chloroethane	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Chloroform	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Chloromethane	ND	3.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
2-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
4-Chlorotoluene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
cis-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Dibromochloromethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Dibromomethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,3-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,4-Dichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Dichlorodifluoromethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Down Stream

 Project:
 San Juan River Bluff 4/1/14
 Collection Date: 4/1/2014 9:00:00 AM

 Lab ID:
 1404091-004
 Matrix: AQUEOUS
 Received Date: 4/2/2014 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1-Dichloroethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1-Dichloroethene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,3-Dichloropropane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
2,2-Dichloropropane	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Hexachlorobutadiene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
2-Hexanone	ND	10	μg/L	1	4/3/2014 5:34:39 PM	R17789
Isopropylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
4-Isopropyltoluene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
4-Methyl-2-pentanone	ND	10	μg/L	1	4/3/2014 5:34:39 PM	R17789
Methylene Chloride	ND	3.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
n-Butylbenzene	ND	3.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
n-Propylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
sec-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Styrene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
tert-Butylbenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
trans-1,2-DCE	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Trichlorofluoromethane	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
1,2,3-Trichloropropane	ND	2.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Vinyl chloride	ND	1.0	μg/L	1	4/3/2014 5:34:39 PM	R17789
Xylenes, Total	ND	1.5	μg/L	1	4/3/2014 5:34:39 PM	R17789
Surr: 1,2-Dichloroethane-d4	103	70-130	%REC	1	4/3/2014 5:34:39 PM	R17789
Surr: 4-Bromofluorobenzene	90.5	70-130	%REC	1	4/3/2014 5:34:39 PM	R17789
Surr: Dibromofluoromethane	94.7	70-130	%REC	1	4/3/2014 5:34:39 PM	R17789
Surr: Toluene-d8	97.1	70-130	%REC	1	4/3/2014 5:34:39 PM	R17789
SM 2540 C: TOTAL DISSOLVED SOLIDS					Analys	t: KS
Total Dissolved Solids	272	20.0	mg/L	1	4/7/2014 12:12:00 PM	12549
CARBON DIOXIDE					Analys	t: JML

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH greater than 2.
- RL Reporting Detection Limit

Date Reported: 4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

Project: San Juan River Bluff 4/1/14 **Collection Date:** 4/1/2014 9:00:00 AM

Lab ID: 1404091-004 **Matrix:** AQUEOUS **Received Date:** 4/2/2014 9:45:00 AM

Analyses	Result RL Qual Units		DF	Date Analyzed	Batch	
CARBON DIOXIDE					Analys	t: JML
Total Carbon Dioxide	91	1.0 H	mg CO2/L	1	4/2/2014 4:35:02 PM	R17767
SM2510B: SPECIFIC CONDUCTANCE					Analys	t: JML
Conductivity	400	0.010	µmhos/cm	1	4/2/2014 4:35:02 PM	R17767
SM2320B: ALKALINITY					Analys	t: JML
Bicarbonate (As CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:35:02 PM	R17767
Carbonate (As CaCO3)	ND	2.0	mg/L CaCO3	1	4/2/2014 4:35:02 PM	R17767
Total Alkalinity (as CaCO3)	100	20	mg/L CaCO3	1	4/2/2014 4:35:02 PM	R17767

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit Page 16 of 30
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB-12549 SampType: MBLK TestCode: SM 2540 C: Total Dissolved Solids

Client ID: PBW Batch ID: 12549 RunNo: 17841

Prep Date: 4/4/2014 Analysis Date: 4/7/2014 SeqNo: 514543 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-12549 SampType: LCS TestCode: SM 2540 C: Total Dissolved Solids

Client ID: LCSW Batch ID: 12549 RunNo: 17841

Prep Date: 4/4/2014 Analysis Date: 4/7/2014 SeqNo: 514544 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1020 20.0 1000 0 102 80 120

Sample ID 1404091-002DMS SampType: MS TestCode: SM 2540 C: Total Dissolved Solids

Client ID: North Of 46 Batch ID: 12549 RunNo: 17841

Prep Date: 4/4/2014 Analysis Date: 4/7/2014 SeqNo: 514547 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1290 20.0 1000 262.0 103 80 120

Sample ID 1404091-002DMSD SampType: MSD TestCode: SM 2540 C: Total Dissolved Solids

Client ID: North Of 46 Batch ID: 12549 RunNo: 17841

Prep Date: 4/4/2014 Analysis Date: 4/7/2014 SeqNo: 514548 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Total Dissolved Solids 1290 20.0 1000 262.0 103 80 120 0 5

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

ND

0.50

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: **PBW** Batch ID: R17774 RunNo: 17774 Prep Date: Analysis Date: 4/2/2014 SegNo: 512157 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride 0.10 ND 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

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: LCSW Batch ID: R17774 RunNo: 17774 Prep Date: Analysis Date: 4/2/2014 SeqNo: 512158 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride 0.49 0.10 0.5000 97.8 90 110 0 5.000 94.0 90 Chloride 4.7 0.50 0 110 96.0 0.96 0.10 1.000 0 90 110 Nitrogen, Nitrite (As N) Bromide 2.5 0.10 2.500 0 98.1 90 110 Nitrogen, Nitrate (As N) 2.5 0.10 2.500 0 98.2 90 110 0 95.2 Phosphorus, Orthophosphate (As P 4.8 0.50 5.000 90 110 Sulfate 0.50 10.00 0 94.4 90 110

Sample ID 1404091-001DMS SampType: MS TestCode: EPA Method 300.0: Anions Client ID: North Of 45 Batch ID: R17774 RunNo: 17774 Prep Date: Analysis Date: 4/2/2014 SeqNo: 512171 Units: mg/L SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte Result **PQL** LowLimit Qual Fluoride 0.10 0.5000 0.2001 97.1 76.4 109 0.69 Chloride 8.8 0.50 5.000 3.799 100 90.1 116 85.2 Nitrogen, Nitrite (As N) 0.98 1.000 97.9 0.10 0 109 Bromide 2.5 0.10 2.500 0 101 85.9 111 Nitrogen, Nitrate (As N) 2.6 0.10 2.500 0 102 93.8 111 Phosphorus, Orthophosphate (As P 49 0.50 5.000 0 98.3 81.1 108

TestCode: EPA Method 300.0: Anions Sample ID 1404091-001DMSD SampType: MSD Client ID: North Of 45 Batch ID: R17774 RunNo: 17774 Prep Date: Analysis Date: 4/2/2014 SeqNo: 512172 Units: mg/L **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Analyte Result LowLimit 0.69 0.10 0.5000 0.2001 97.0 76.4 109 0.0729 20 Fluoride 0.50 3.799 100 90.1 20 Chloride 8.8 5.000 116 0.0432

Qualifiers:

Sulfate

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID 1404091-001DMS	D SampType: MSD TestCode: EPA Method 300.0: Anions									
Client ID: North Of 45	Batch	Batch ID: R17774 RunNo: 17774								
Prep Date:	Analysis D	Date: 4/	2/2014	8	SeqNo: 5	12172	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.9	85.2	109	0.0204	20	
Bromide	2.5	0.10	2.500	0	100	85.9	111	0.191	20	
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	93.8	111	0.125	20	
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	98.8	81.1	108	0.491	20	

Sample ID MB	SampT	уре: МЕ	BLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch	Batch ID: R17774 RunNo:					17774					
Prep Date:	Analysis D	oate: 4/	2/2014	8	SeqNo: 5	12214	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	SampT	ype: LC	s	Tes	tCode: El	300.0: Anion	s			
Client ID: LCSW	Batch	n ID: R1	7774	F	RunNo: 1	7774				
Prep Date:	Analysis D	ate: 4/	2/2014	SeqNo: 512215			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	97.8	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.6	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Client:

Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

WO#: 1404091

14-Apr-14

Project:		River Bluf										
Sample ID	MB-12504	SampT	BLK	TestCode: EPA Method 8015D: Diesel Range								
Client ID:	PBW	Batch ID: 12504			R	RunNo: 17730						
Prep Date:	4/2/2014	Analysis Date: 4/2/2014			SeqNo: 511654			Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range C	organics (DRO)	ND	0.20									
_	e Organics (MRO)	ND	2.5									
Surr: DNOP		0.39		0.5000		77.7	76	161				
Sample ID	LCS-12504	SampT	ype: LC	s	TestCode: EPA Method 8015D: Diesel Range							
Client ID:	LCSW	Batch ID: 12504			R	7730						
Prep Date:	4/2/2014	Analysis Date: 4/2/2014			SeqNo: 511665			Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range C	rganics (DRO)	2.9	0.20	2.500	0	116	79.2	165				
Surr: DNOP		0.24		0.2500		95.4	76	161				
Sample ID	Sample ID 1404091-001CMS SampType: MS					TestCode: EPA Method 8015D: Diesel Range						
Client ID:	North Of 45	Batch ID: 12504			RunNo: 17730							
Prep Date:	4/2/2014	Analysis Date: 4/2/2014			SeqNo: 511684			Units: mg/L				
Analyte		Result	DO!	0.017	00140 6144							
Discol Description		Nesuit	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesei Range C	Organics (DRO)	3.1	0.20	2.500	SPK Ref Val	%REC 123	LowLimit 72.1	HighLimit 156	%RPD	RPDLimit	Qual	
Surr: DNOP	Organics (DRO)								%RPD	RPDLimit	Qual	
Surr: DNOP	Organics (DRO) 1404091-001CMSI	3.1 0.25		2.500 0.2500	0	123 101	72.1 76	156		RPDLimit	Qual	
Surr: DNOP Sample ID		3.1 0.25 SampT	0.20	2.500 0.2500	0 Test	123 101	72.1 76 PA Method	156 161		RPDLimit	Qual	
Surr: DNOP Sample ID	1404091-001CMSI North Of 45	3.1 0.25 SampT	0.20 ype: M\$	2.500 0.2500 6D	0 Test	123 101 Code: EF	72.1 76 PA Method	156 161		RPDLimit	Qual	
Surr: DNOP Sample ID Client ID:	1404091-001CMSI North Of 45	3.1 0.25 SampT Batch	0.20 ype: M\$	2.500 0.2500 SD 504 2/2014	0 Test	123 101 tCode: EF tunNo: 1 7 seqNo: 5 7	72.1 76 PA Method	156 161 8015D: Diese		RPDLimit	Qual	
Surr: DNOP Sample ID Client ID: Prep Date:	1404091-001CMSI North Of 45 4/2/2014	3.1 0.25 SampT Batch Analysis D	0.20 ype: MS n ID: 12	2.500 0.2500 SD 504 2/2014	0 Test R S	123 101 tCode: EF tunNo: 1 7 seqNo: 5 7	72.1 76 PA Method 7730 11685	156 161 8015D: Diese Units: mg/L	I Range			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R17799 RunNo: 17799

Prep Date: Analysis Date: 4/4/2014 SeqNo: 513545 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 20 20.00 99.2 80.4 118

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R17799 RunNo: 17799

Prep Date: Analysis Date: 4/4/2014 SeqNo: 513546 Units: mg/L

LowLimit Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.52 0.050 0.5000 103 80 120 22 20.00 109 80.4 Surr: BFB 118

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID 5mL rb SampType: MBLK TestCode: EPA Method 8260B: VOLATILES **PBW** Client ID: Batch ID: **R17789** RunNo: 17789 Prep Date: Analysis Date: 4/3/2014 SeqNo: 512719 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 4.0 1-Methylnaphthalene ND 2-Methylnaphthalene ND 4.0 ND 10 Acetone 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 ND Chloromethane 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 ND Dibromomethane 10 ND 1.0 1.2-Dichlorobenzene 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 ND 1,2-Dichloropropane 10 1,3-Dichloropropane ND 1.0 2,2-Dichloropropane ND 2.0

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1404091

14-Apr-14

Client: Western Refining Southwest, Inc. **Project:** San Juan River Bluff 4/1/14

Sample ID 5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW Batch ID:			7789	789 RunNo: 17789						
Prep Date:	Analysis Date		3/2014	SeqNo: 512719			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	70	130			

Sample ID 100ng Ics	SampT	ype: LC	s	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R17789			F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	S	SeqNo: 512721					
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	18	1.0	20.00	0	90.4	80	120			
Chlorobenzene	19	1.0	20.00	0	95.1	70	130			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Ο RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: R1	7789	F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	9	SeqNo: 5	12721	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	117	90	143			
Trichloroethene (TCE)	20	1.0	20.00	0	97.6	70	130			
Surr: 1,2-Dichloroethane-d4	7.3		10.00		73.3	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.6	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.8	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID 1404091-001ams	SampT	уре: м	3	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: North Of 45	Batch	n ID: R1	7789	F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	S	SeqNo: 5	12725	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	17	1.0	20.00	0.2660	85.6	67.5	123			
Chlorobenzene	19	1.0	20.00	0	92.9	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	81.9	134			
Trichloroethene (TCE)	18	1.0	20.00	0	89.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.8	70	130			
Surr: Dibromofluoromethane	8.9		10.00		88.9	70	130			
Surr: Toluene-d8	9.6		10.00		96.2	70	130			

Sample ID 1404091-001ams	I SampT	ype: MS	SD	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: North Of 45	Batch	n ID: R1	7789	F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	8	SeqNo: 5	12726	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.6	70	130	3.67	20	
Toluene	18	1.0	20.00	0.2660	86.2	67.5	123	0.711	20	
Chlorobenzene	18	1.0	20.00	0	90.2	70	130	2.97	20	
1,1-Dichloroethene	21	1.0	20.00	0	105	81.9	134	7.97	20	
Trichloroethene (TCE)	16	1.0	20.00	0	79.6	70	130	11.2	20	
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130	0	0	
Surr: 4-Bromofluorobenzene	8.8		10.00		87.8	70	130	0	0	
Surr: Dibromofluoromethane	9.7		10.00		96.5	70	130	0	0	
Surr: Toluene-d8	10		10.00		101	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

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WO#: **1404091**

1.85

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14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID 1404091-001d dup SampType: dup TestCode: SM2510B: Specific Conductance

Client ID: North Of 45 Batch ID: R17767 RunNo: 17767

0.010

Prep Date: Analysis Date: 4/2/2014 SeqNo: 512022 Units: µmhos/cm

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Qualifiers:

Conductivity

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

O RSD is greater than RSDlimit

R RPD outside accepted recovery limits

S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH greater than 2.

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB-12508 SampType: MBLK TestCode: EPA Method 7470: Mercury

Client ID: PBW Batch ID: 12508 RunNo: 17752

Prep Date: 4/2/2014 Analysis Date: 4/2/2014 SeqNo: 511357 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Mercury ND 0.00020

Sample ID LCS-12508 SampType: LCS TestCode: EPA Method 7470: Mercury

Client ID: LCSW Batch ID: 12508 RunNo: 17752

Prep Date: 4/2/2014 Analysis Date: 4/2/2014 SeqNo: 511358 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 99.4 80 120

Sample ID 1404091-001FMS SampType: MS TestCode: EPA Method 7470: Mercury

Client ID: North Of 45 Batch ID: 12508 RunNo: 17752

Prep Date: 4/2/2014 Analysis Date: 4/2/2014 SeqNo: 511360 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 98.6 75 129

Sample ID 1404091-001FMSD SampType: MSD TestCode: EPA Method 7470: Mercury

Client ID: North Of 45 Batch ID: 12508 RunNo: 17752

Prep Date: 4/2/2014 Analysis Date: 4/2/2014 SeqNo: 511361 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 97.6 75 125 0.924 20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

SampType: LCS

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB SampType: MBLK TestCode: EPA Method 6010B: Dissolved Metals Client ID: **PBW** Batch ID: R17788 RunNo: 17788 Analysis Date: 4/3/2014 Prep Date: SeqNo: 512533 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.020 Barium ND 0.0020 Cadmium Calcium ND 1.0 Chromium ND 0.0060 Copper ND 0.0060 Iron ND 0.020 Lead ND 0.0050 ND Magnesium 1.0 Manganese ND 0.0020 Potassium ND 1.0 Selenium ND 0.050 ND 0.0050 Silver Sodium ND 1.0 Uranium ND 0.10 Zinc ND 0.020

Client ID: LCSW	Bato	7788	F	RunNo: 1	7788					
Prep Date:	Analysis	Date: 4 /	3/2014	5	SeqNo: 5	12534	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	97.4	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.8	80	120			
Calcium	49	1.0	50.00	0	97.5	80	120			
Chromium	0.48	0.0060	0.5000	0	96.8	80	120			
Copper	0.49	0.0060	0.5000	0	97.5	80	120			
Iron	0.48	0.020	0.5000	0	96.2	80	120			
Lead	0.49	0.0050	0.5000	0	97.1	80	120			
Magnesium	49	1.0	50.00	0	98.0	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Potassium	47	1.0	50.00	0	94.2	80	120			
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			
Sodium	48	1.0	50.00	0	96.5	80	120			
Uranium	0.50	0.10	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	96.6	80	120			

Qualifiers:

Sample ID LCS

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

TestCode: EPA Method 6010B: Dissolved Metals

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 27 of 30

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB SampType: MBLK TestCode: EPA Method 6010B: Dissolved Metals

Client ID: PBW Batch ID: R17809 RunNo: 17809

Prep Date: Analysis Date: 4/5/2014 SeqNo: 513373 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Arsenic ND 0.020

Sample ID LCS SampType: LCS TestCode: EPA Method 6010B: Dissolved Metals

Client ID: LCSW Batch ID: R17809 RunNo: 17809

Prep Date: Analysis Date: 4/5/2014 SeqNo: 513374 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 99.5 80 120

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 28 of 30

Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4/1/14

Sample ID MB-12551	1 71					PA 6010B:	Total Recover	able Meta	als	
Client ID: PBW	Bato	h ID: 12	551	F	RunNo: 1	7809				
Prep Date: 4/4/2014	,				SeqNo: 5	13371	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-12551	SampType: LCS TestCode: EPA 6010B: Total Recoverable Metals										
Client ID: LCSW	Bato	h ID: 12	551	F	RunNo: 1	7809					
Prep Date: 4/4/2014	Analysis I	Date: 4 /	5/2014	S							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.50	0.020	0.5000	0	99.7	80	120				
Barium	0.48	0.020	0.5000	0	95.0	80	120				
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120				
Chromium	0.48	0.0060	0.5000	0	95.1	80	120				
Lead	0.47	0.0050	0.5000	0	94.5	80	120				
Selenium	0.50	0.050	0.5000	0	100	80	120				
Silver	0.098	0.0050	0.1000	0	98.2	80	120				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404091**

14-Apr-14

Client: Project:		Refining So River Bluf									
Sample ID m	nb-1	SampT	ype: m k	olk	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: P	BW	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11976	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	ND	20								
Sample ID Ic	:s-1	SampT	ype: Ics	;	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: Lo	CSW	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11977	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	78	20	80.00	0	97.0	90	110			•
Sample ID m	nb-2	SampT	ype: m k	olk	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: P	BW	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11991	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	ND	20								
Sample ID Ic	:s-2	SampTy	ype: Ics	;	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: Lo	csw	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11992	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	82	20	80.00	0	102	90	110			
Sample ID 14	404091-004d ms	SampT	ype: ms	3	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: D	own Stream	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11997	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	140	20	80.00	101.4	49.9	65.2	112			S
Sample ID 14	404091-004d msc	S ampT	ype: ms	sd	Tes	tCode: SI	M2320B: AI	kalinity			
Client ID: D	own Stream	Batch	ID: R1	7767	F	RunNo: 1	7767				
Prep Date:		Analysis Da	ate: 4/	2/2014	S	SeqNo: 5	11998	Units: mg/L	CaCO3		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as	s CaCO3)	140	20	80.00	101.4	42.1	65.2	112	4.52	20	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Page 30 of 30

Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Work Order Number: 1404091 RcptNo: 1 Client Name: Western Refining Southw Received by/date: 4/2/2014 9:45:00 AM Logged By: Lindsay Mangin 4/2/2014 10:39:58 AM Completed By: Ashley Gailegos 04/02/14 Reviewed By: Chain of Custody 1 Custody seals intact on sample bottles? Yes No Not Present M No Not Present 2. Is Chain of Custody complete? Yes 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? NA Yes NA 5. Were all samples received at a temperature of >0° C to 6.0°C Νo No L 6. Sample(s) in proper container(s)? Νo 7. Sufficient sample volume for indicated test(s)? Yes 8. Are samples (except VOA and ONG) properly preserved? Yes NΑ Νo 9. Was preservative added to bottles? Yes 10.VOA vials have zero headspace? Yes No No VOA Vials 11. Were any sample containers received broken? Yes No # of preserved bottles checked for pH: 12. Does paperwork match bottle labels? No Yes 🗸 >12 unless noted) (Note discrepancies on chain of custody) Adjusted? 13 Are matrices correctly identified on Chain of Custody? No Yes No 14 is it clear what analyses were requested? Yes Checked by: C.S No 15. Were all holding times able to be met? Yes (If no, notify customer for authorization.) Special Handling (if applicable) Yes 16. Was client notified of all discrepancies with this order? Νo 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 Good

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	Client: Western		Mailing Address:#	Bloom Ciels	Phone #:	email or Fax#;	QA/QC Package: □ Standard	Accreditation □ NELAP	□ EDD (Type)	Date	4:01 /1-1-	}					4-1-1						Date: (-1-14	Date:	
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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

April 14, 2014

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

Bloomfield, NM 87413 TEL: (505) 632-4135 FAX (505) 632-3911

RE: San Juan River Bluff 4-1-14 OrderNo.: 1404099

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/2/2014 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order: 1404099

Hall Environmental Analysis Laboratory, Inc. Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #2

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:30:00 AM

Lab ID: 1404099-001A Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	ORT LIST					Analy	st: DJF
Benzene	ND	1.0		μg/L	1	4/3/2014 6:05:32 PM	R17789
Toluene	ND	1.0		μg/L	1	4/3/2014 6:05:32 PM	R17789
Ethylbenzene	ND	1.0		μg/L	1	4/3/2014 6:05:32 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0		μg/L	1	4/3/2014 6:05:32 PM	R17789
Xylenes, Total	ND	1.5		μg/L	1	4/3/2014 6:05:32 PM	R17789
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	1	4/3/2014 6:05:32 PM	R17789
Surr: 4-Bromofluorobenzene	89.7	70-130		%REC	1	4/3/2014 6:05:32 PM	R17789
Surr: Dibromofluoromethane	102	70-130		%REC	1	4/3/2014 6:05:32 PM	R17789
Surr: Toluene-d8	98.4	70-130		%REC	1	4/3/2014 6:05:32 PM	R17789

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Page 1 of 21 Reporting Detection Limit

Lab Order: 1404099

Hall Environmental Analysis Laboratory, Inc. Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #2

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:30:00 AM

Lab ID: 1404099-001B Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analy	st: JRR
Fluoride	0.56	0.10		mg/L	1	4/3/2014 7:06:26 AM	R17774
Chloride	7.6	0.50		mg/L	1	4/3/2014 7:06:26 AM	R17774
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/3/2014 7:06:26 AM	R17774
Bromide	0.10	0.10		mg/L	1	4/3/2014 7:06:26 AM	R17774
Nitrogen, Nitrate (As N)	3.7	0.10		mg/L	1	4/3/2014 7:06:26 AM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/3/2014 7:06:26 AM	R17774
Sulfate	77	10		mg/L	20	4/3/2014 7:18:50 AM	R17774
CARBON DIOXIDE						Analy	st: JML
Total Carbon Dioxide	320	1.0	Н	mg CO2/L	1	4/2/2014 5:09:07 PM	R17767
SM2320B: ALKALINITY						Analy	st: JML
Bicarbonate (As CaCO3)	340	20		mg/L CaCO3	1	4/2/2014 5:09:07 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 5:09:07 PM	R17767
Total Alkalinity (as CaCO3)	340	20		mg/L CaCO3	1	4/2/2014 5:09:07 PM	R17767

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits

- В Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Page 2 of 21 Reporting Detection Limit

Date Reported:

Lab Order: 1404099

4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #2

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:30:00 AM

Lab ID: 1404099-001C Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY					Analys	st: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:40:06 PM	12508
EPA METHOD 6010B: DISSOLVED M	METALS				Analys	st: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:49:46 PM	R17809
Barium	0.079	0.020	mg/L	1	4/3/2014 1:19:42 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:19:42 PM	R17788
Calcium	94	1.0	mg/L	1	4/3/2014 1:19:42 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 1:19:42 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 1:19:42 PM	R17788
Iron	ND	0.020	mg/L	1	4/3/2014 1:19:42 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 1:19:42 PM	R17788
Magnesium	20	1.0	mg/L	1	4/3/2014 1:19:42 PM	R17788
Manganese	0.0053	0.0020	mg/L	1	4/3/2014 1:19:42 PM	R17788
Potassium	1.3	1.0	mg/L	1	4/3/2014 1:19:42 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 1:19:42 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 1:19:42 PM	R17788
Sodium	54	1.0	mg/L	1	4/3/2014 1:19:42 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 1:19:42 PM	R17788
Zinc	ND	0.020	mg/L	1	4/3/2014 1:19:42 PM	R17788

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Page 3 of 21 Reporting Detection Limit

Date Reported:

Lab Order: **1404099**

4/14/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #2

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:30:00 AM

Lab ID: 1404099-001D **Matrix:** Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY			Anal	yst: JML		
Mercury	ND	0.00020	mg/L	1	4/3/2014 5:13:54 PM	A 12531
EPA 6010B: TOTAL RECOVERABLE		Anal	yst: ELS			
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Barium	0.080	0.020	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:06:36 PN	A 12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:06:36 PN	<i>l</i> 12551

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

Page 4 of 21

Lab Order: **1404099**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #3

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-002A **Matrix:** Aqueous

Analyses	Result	RL	Qual U	Jnits	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH			Analy	st: DJF			
Benzene	ND	1.0	μ	g/L	1	4/3/2014 6:36:25 PM	R17789
Toluene	ND	1.0	μ	g/L	1	4/3/2014 6:36:25 PM	R17789
Ethylbenzene	ND	1.0	μ	g/L	1	4/3/2014 6:36:25 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μ	g/L	1	4/3/2014 6:36:25 PM	R17789
Xylenes, Total	ND	1.5	μ	g/L	1	4/3/2014 6:36:25 PM	R17789
Surr: 1,2-Dichloroethane-d4	105	70-130	%	6REC	1	4/3/2014 6:36:25 PM	R17789
Surr: 4-Bromofluorobenzene	91.4	70-130	%	6REC	1	4/3/2014 6:36:25 PM	R17789
Surr: Dibromofluoromethane	101	70-130	%	6REC	1	4/3/2014 6:36:25 PM	R17789
Surr: Toluene-d8	98.7	70-130	%	6REC	1	4/3/2014 6:36:25 PM	R17789

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- Page 5 of 21

Lab Order: 1404099

Hall Environmental Analysis Laboratory, Inc. Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #3

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-002B Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS						Analy	st: JRR
Fluoride	0.39	0.10		mg/L	1	4/3/2014 7:31:14 AM	R17774
Chloride	13	0.50		mg/L	1	4/3/2014 7:31:14 AM	R17774
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/3/2014 7:31:14 AM	R17774
Bromide	0.11	0.10		mg/L	1	4/3/2014 7:31:14 AM	R17774
Nitrogen, Nitrate (As N)	3.3	0.10		mg/L	1	4/3/2014 7:31:14 AM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/3/2014 7:31:14 AM	R17774
Sulfate	120	10		mg/L	20	4/3/2014 7:43:39 AM	R17774
CARBON DIOXIDE						Analy	st: JML
Total Carbon Dioxide	330	1.0	Н	mg CO2/L	1	4/2/2014 5:24:27 PM	R17767
SM2320B: ALKALINITY						Analy	st: JML
Bicarbonate (As CaCO3)	350	20		mg/L CaCO3	1	4/2/2014 5:24:27 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 5:24:27 PM	R17767
Total Alkalinity (as CaCO3)	350	20		mg/L CaCO3	1	4/2/2014 5:24:27 PM	R17767

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

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- RPD outside accepted recovery limits

- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Page 6 of 21 Reporting Detection Limit

Lab Order: **1404099**

4/14/2014

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

CLIENT:

Client Sample ID: Outfall #3

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-002C Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY					Analys	st: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:45:34 PM	12508
EPA METHOD 6010B: DISSOLVED M	METALS				Analys	st: ELS
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:51:31 PM	1 R17809
Barium	0.060	0.020	mg/L	1	4/3/2014 1:23:18 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:23:18 PM	R17788
Calcium	110	5.0	mg/L	5	4/3/2014 1:25:02 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 1:23:18 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 1:23:18 PM	R17788
Iron	ND	0.020	mg/L	1	4/3/2014 1:23:18 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 1:23:18 PM	R17788
Magnesium	21	1.0	mg/L	1	4/3/2014 1:23:18 PM	R17788
Manganese	ND	0.0020	mg/L	1	4/3/2014 1:23:18 PM	R17788
Potassium	1.9	1.0	mg/L	1	4/3/2014 1:23:18 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 1:23:18 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 1:23:18 PM	R17788
Sodium	68	1.0	mg/L	1	4/3/2014 1:23:18 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 1:23:18 PM	R17788
Zinc	0.034	0.020	mg/L	1	4/3/2014 1:23:18 PM	R17788

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 7 of 21

Lab Order: **1404099**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #3

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-002D Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY			Anal	yst: JML		
Mercury	ND	0.00020	mg/L	1	4/3/2014 5:15:40 PM	A 12531
EPA 6010B: TOTAL RECOVERABLE		Anal	yst: ELS			
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Barium	0.060	0.020	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:08:23 PM	A 12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:08:23 PM	<i>l</i> 12551

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
- Page 8 of 21

Lab Order: **1404099**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #3D

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-003A Matrix: Aqueous

Analyses	Result	RL	Qual U	nits	DF	Date Analyzed	Batch ID
EPA METHOD 8260: VOLATILES SH	IORT LIST					Analy	st: DJF
Benzene	ND	1.0	μg	ı/L	1	4/3/2014 7:07:15 PM	R17789
Toluene	ND	1.0	μg	ı/L	1	4/3/2014 7:07:15 PM	R17789
Ethylbenzene	ND	1.0	μg	ı/L	1	4/3/2014 7:07:15 PM	R17789
Methyl tert-butyl ether (MTBE)	ND	1.0	μg	ı/L	1	4/3/2014 7:07:15 PM	R17789
Xylenes, Total	ND	1.5	μg	ı/L	1	4/3/2014 7:07:15 PM	R17789
Surr: 1,2-Dichloroethane-d4	110	70-130	%I	REC	1	4/3/2014 7:07:15 PM	R17789
Surr: 4-Bromofluorobenzene	88.8	70-130	%I	REC	1	4/3/2014 7:07:15 PM	R17789
Surr: Dibromofluoromethane	104	70-130	%I	REC	1	4/3/2014 7:07:15 PM	R17789
Surr: Toluene-d8	99.0	70-130	%I	REC	1	4/3/2014 7:07:15 PM	R17789

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

- P Sample pH greater than 2.
- Page 9 of 21

Lab Order: **1404099**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/14/2014

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Outfall #3D

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-003B Matrix: Aqueous

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS				Analyst: J			
Fluoride	0.39	0.10		mg/L	1	4/3/2014 8:20:53 AM	R17774
Chloride	13	0.50		mg/L	1	4/3/2014 8:20:53 AM	R17774
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/3/2014 8:20:53 AM	R17774
Bromide	0.11	0.10		mg/L	1	4/3/2014 8:20:53 AM	R17774
Nitrogen, Nitrate (As N)	3.3	0.10		mg/L	1	4/3/2014 8:20:53 AM	R17774
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/3/2014 8:20:53 AM	R17774
Sulfate	120	10		mg/L	20	4/3/2014 8:33:18 AM	R17774
CARBON DIOXIDE						Analy	st: JML
Total Carbon Dioxide	330	1.0	Н	mg CO2/L	1	4/2/2014 5:40:11 PM	R17767
SM2320B: ALKALINITY						Analy	st: JML
Bicarbonate (As CaCO3)	350	20		mg/L CaCO3	1	4/2/2014 5:40:11 PM	R17767
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/2/2014 5:40:11 PM	R17767
Total Alkalinity (as CaCO3)	350	20		mg/L CaCO3	1	4/2/2014 5:40:11 PM	R17767

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

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
 - Reporting Detection Limit

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Lab Order: **1404099**

4/14/2014

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

Client Sample ID: Outfall #3D

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-003C Matrix: Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY					Analys	st: JML
Mercury	ND	0.00020	mg/L	1	4/2/2014 5:47:19 PM	12508
EPA METHOD 6010B: DISSOLVED N				Analys	st: ELS	
Arsenic	ND	0.020	mg/L	1	4/5/2014 12:56:28 PM	1 R17809
Barium	0.061	0.020	mg/L	1	4/3/2014 1:26:55 PM	R17788
Cadmium	ND	0.0020	mg/L	1	4/3/2014 1:26:55 PM	R17788
Calcium	110	5.0	mg/L	5	4/3/2014 1:32:28 PM	R17788
Chromium	ND	0.0060	mg/L	1	4/3/2014 1:26:55 PM	R17788
Copper	ND	0.0060	mg/L	1	4/3/2014 1:26:55 PM	R17788
Iron	ND	0.020	mg/L	1	4/3/2014 1:26:55 PM	R17788
Lead	ND	0.0050	mg/L	1	4/3/2014 1:26:55 PM	R17788
Magnesium	21	1.0	mg/L	1	4/3/2014 1:26:55 PM	R17788
Manganese	ND	0.0020	mg/L	1	4/3/2014 1:26:55 PM	R17788
Potassium	1.8	1.0	mg/L	1	4/3/2014 1:26:55 PM	R17788
Selenium	ND	0.050	mg/L	1	4/3/2014 1:26:55 PM	R17788
Silver	ND	0.0050	mg/L	1	4/3/2014 1:26:55 PM	R17788
Sodium	69	5.0	mg/L	5	4/3/2014 1:32:28 PM	R17788
Uranium	ND	0.10	mg/L	1	4/3/2014 1:26:55 PM	R17788
Zinc	ND	0.020	mg/L	1	4/3/2014 1:26:55 PM	R17788

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

Qualifiers:

CLIENT:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- $P \hspace{0.5cm} \hbox{Sample pH greater than 2.} \\$
 - Reporting Detection Limit

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Date Reported:

Lab Order: **1404099**

4/14/2014

Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

Client Sample ID: Outfall #3D

Project: San Juan River Bluff 4-1-14 **Collection Date:** 4/1/2014 11:45:00 AM

Lab ID: 1404099-003D **Matrix:** Aqueous

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch ID
EPA METHOD 7470: MERCURY				Anal	yst: JML	
Mercury	ND	0.00020	mg/L	1	4/3/2014 5:17:25 PM	A 12531
EPA 6010B: TOTAL RECOVERABLE		Anal	yst: ELS			
Arsenic	ND	0.020	mg/L	1	4/5/2014 1:10:08 PN	A 12551
Barium	0.060	0.020	mg/L	1	4/5/2014 1:10:08 PM	A 12551
Cadmium	ND	0.0020	mg/L	1	4/5/2014 1:10:08 PN	A 12551
Chromium	ND	0.0060	mg/L	1	4/5/2014 1:10:08 PN	A 12551
Lead	ND	0.0050	mg/L	1	4/5/2014 1:10:08 PN	A 12551
Selenium	ND	0.050	mg/L	1	4/5/2014 1:10:08 PN	A 12551
Silver	ND	0.0050	mg/L	1	4/5/2014 1:10:08 PN	<i>l</i> 12551

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

Qualifiers:

CLIENT:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits

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

Reporting Detection Limit

P Sample pH greater than 2.

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client:	Western Refining Southwest, Inc.
Project:	San Juan River Bluff 4-1-14

Sample ID MB	SampT	уре: МЕ	BLK	Tes	tCode: El						
Client ID: PBW	Batch ID: R17774			F	RunNo: 17774						
Prep Date:	Analysis D	alysis Date: 4/2/2014			SeqNo: 512157			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	Samp1	ype: LC	S	TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batcl	h ID: R1	7774	F	RunNo: 1	7774				
Prep Date:	Analysis D	Date: 4/	2/2014	S	SeqNo: 5	12158	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.5	0.10	2.500	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.2	90	110			
Sulfate	9.4	0.50	10.00	0	94.4	90	110			

Sample ID MB	SampT	SampType: MBLK Batch ID: R17774		Tes	tCode: El	PA Method	300.0: Anions	•		
Client ID: PBW	Batch	า ID: R1	7774	F	RunNo: 1	7774				
Prep Date:	Analysis D	Analysis Date: 4/2/2014		8	SeqNo: 5	12214	Units: mg/L			
Analyte	Result			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: LC	S	Tes	tCode: E	PA Method	300.0: Anions	5		
Client ID: LCSW	Batch ID: R1	Batch ID: R17774			7774				
Prep Date: Analysis Date: 4/2/2014			S	SeqNo: 5	12215	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50 0.10	0.5000	0	101	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4-1-14

Sample ID LCS Client ID: LCSW Prep Date:	SampTy Batch Analysis Da	ID: R1		F	tCode: El RunNo: 1 SeqNo: 5	7774	300.0: Anions Units: mg/L	S		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	97.8	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.6	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4-1-14

Sample ID 5mL rb	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8260: Volatil	es Short I	ist	
Client ID: PBW	Batch	n ID: R1	7789	F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	8	SeqNo: 5	12735	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	70	130			

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260: Volatile	es Short L	ist	
Client ID: LCSW	Batch	1D: R1	7789	F	RunNo: 1	7789				
Prep Date:	Analysis D	ate: 4/	3/2014	8	SeqNo: 5	12736	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	18	1.0	20.00	0	90.4	80	120			
Surr: 1,2-Dichloroethane-d4	7.3		10.00		73.3	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		93.6	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.8	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Project:	Western I San Juan	_									
Sample ID	MB-12508	Samp	Туре: М	BLK	Tes	tCode: El	PA Method	7470: Mercur	у		
Client ID:	PBW	Bato	ch ID: 12	2508	F	RunNo: 1	7752				
Prep Date:	4/2/2014	Analysis	Date: 4	/2/2014	S	SeqNo: 5	11357	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		ND	0.00020								
Sample ID	LCS-12508	Samp	Туре: L (cs	Tes	tCode: EI	PA Method	7470: Mercur	у		
Client ID:	LCSW	Bato	ch ID: 12	2508	F	RunNo: 1	7752				
Prep Date:	4/2/2014	Analysis	Date: 4	/2/2014	S	SeqNo: 5	11358	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	99.4	80	120			
Sample ID	MB-12531	Samp	Туре: М	BLK	Tes	tCode: EI	PA Method	7470: Mercur	у		
Client ID:	PBW	Bato	ch ID: 12	2531	F	RunNo: 1	7786				
Prep Date:	4/3/2014	Analysis	Date: 4	/3/2014	S	SeqNo: 5	12451	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		ND	0.00020								
Sample ID	LCS-12531	Samp	Туре: L (cs	Tes	tCode: EI	PA Method	7470: Mercur	у		
Client ID:	LCSW	Bato	ch ID: 12	2531	F	RunNo: 1	7786				
Prep Date:	4/3/2014	Analysis	Date: 4	/3/2014	S	SeqNo: 5	12452	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.0050	0.00020	0.005000	0	101	80	120			
Sample ID	1404099-003DMS	Samp	Туре: М	s	Tes	tCode: El	PA Method	7470: Mercur	у		
Client ID:	Outfall #3D	Bate	ch ID: 12	2531	F	RunNo: 1	7786				
Prep Date:	4/3/2014	Analysis	Date: 4	/3/2014	S	SeqNo: 5	12456	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	99.0	75	125			
Sample ID	1404099-003DMS	S amp	Туре: М	SD	Tes	tCode: EI	PA Method	7470: Mercur	у		
Client ID:	Outfall #3D	Bato	ch ID: 12	2531	F	RunNo: 1	7786				
Prep Date:	4/3/2014	Analysis	Date: 4	/3/2014	S	SeqNo: 5	12457	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.0050	0.00020	0.005000	0	100	75	125	1.48	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

SampType: LCS

WO#: **1404099**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4-1-14

Sample ID MB SampType: MBLK TestCode: EPA Method 6010B: Dissolved Metals Client ID: **PBW** Batch ID: R17788 RunNo: 17788 Prep Date: Analysis Date: 4/3/2014 SeqNo: 512533 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.020 Barium ND 0.0020 Cadmium Calcium ND 1.0 Chromium ND 0.0060 Copper ND 0.0060 Iron ND 0.020 Lead ND 0.0050 ND Magnesium 1.0 Manganese ND 0.0020 Potassium ND 1.0 Selenium ND 0.050 ND 0.0050 Silver Sodium ND 1.0 Uranium ND 0.10 Zinc ND 0.020

Client ID: LCSW	Bato	7788	F	RunNo: 1	7788					
Prep Date:	Analysis	Date: 4 /	3/2014	5	SeqNo: 5	12534	Units: mg/L	ı		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.020	0.5000	0	97.4	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.8	80	120			
Calcium	49	1.0	50.00	0	97.5	80	120			
Chromium	0.48	0.0060	0.5000	0	96.8	80	120			
Copper	0.49	0.0060	0.5000	0	97.5	80	120			
Iron	0.48	0.020	0.5000	0	96.2	80	120			
Lead	0.49	0.0050	0.5000	0	97.1	80	120			
Magnesium	49	1.0	50.00	0	98.0	80	120			
Manganese	0.47	0.0020	0.5000	0	95.0	80	120			
Potassium	47	1.0	50.00	0	94.2	80	120			
Selenium	0.50	0.050	0.5000	0	99.2	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			
Sodium	48	1.0	50.00	0	96.5	80	120			
Uranium	0.50	0.10	0.5000	0	100	80	120			
Zinc	0.48	0.020	0.5000	0	96.6	80	120			

Qualifiers:

Sample ID LCS

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded

TestCode: EPA Method 6010B: Dissolved Metals

- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4-1-14

Sample ID 14040 9	9-003CMS	Samp	Туре: МЅ	3	Tes	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID: Outfall	#3D	Bato	h ID: R1	7788	F	RunNo: 1	7788				
Prep Date:		Analysis l	Date: 4 /	3/2014	5	SeqNo: 5	12551	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		0.56	0.020	0.5000	0.06130	99.4	75	125			
Cadmium		0.51	0.0020	0.5000	0	102	75	125			
Chromium		0.49	0.0060	0.5000	0	98.7	75	125			
Copper		0.51	0.0060	0.5000	0	102	75	125			
Iron		0.50	0.020	0.5000	0	99.9	75	125			
Lead		0.49	0.0050	0.5000	0	99.0	75	125			
Magnesium		71	1.0	50.00	21.11	99.9	75	125			
Manganese		0.49	0.0020	0.5000	0.001490	97.9	75	125			
Potassium		51	1.0	50.00	1.847	97.4	75	125			
Selenium		0.57	0.050	0.5000	0	114	75	125			
Silver		0.098	0.0050	0.1000	0	97.9	75	125			
Uranium		0.51	0.10	0.5000	0	101	75	125			
Zinc		0.51	0.020	0.5000	0.006620	99.7	75	125			

Sample ID 1404099-003CMSD	Samp	Type: MS	SD	TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: Outfall #3D	Bato	h ID: R1	7788	F	RunNo: 17	7788				
Prep Date:	Analysis	Date: 4/	3/2014	S	SeqNo: 5	12552	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.57	0.020	0.5000	0.06130	101	75	125	1.38	20	
Cadmium	0.52	0.0020	0.5000	0	103	75	125	1.12	20	
Chromium	0.50	0.0060	0.5000	0	100	75	125	1.32	20	
Copper	0.52	0.0060	0.5000	0	104	75	125	1.82	20	
Iron	0.49	0.020	0.5000	0	98.9	75	125	0.990	20	
Lead	0.50	0.0050	0.5000	0	99.5	75	125	0.578	20	
Magnesium	71	1.0	50.00	21.11	99.6	75	125	0.206	20	
Manganese	0.50	0.0020	0.5000	0.001490	99.5	75	125	1.54	20	
Potassium	51	1.0	50.00	1.847	97.4	75	125	0.0257	20	
Selenium	0.57	0.050	0.5000	0	114	75	125	0.261	20	
Silver	0.099	0.0050	0.1000	0	98.6	75	125	0.774	20	
Uranium	0.52	0.10	0.5000	0	104	75	125	3.09	20	
Zinc	0.51	0.020	0.5000	0.006620	101	75	125	1.11	20	

Sample ID	1404099-003CMS	SampT	уре: МS	3	Test	:Code: El	PA Method	6010B: Disso	olved Meta	als	
Client ID:	Outfall #3D	Batch	Batch ID: R17788 Analysis Date: 4/3/2014		R	unNo: 1	7788				
Prep Date:		Analysis Date: 4/3/2014			SeqNo: 512554			Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium		380	5.0	250.0	109.0	106	75	125			
Sodium		330	5.0	250.0	68.96	103	75	125			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

SampType: MS

Batch ID: R17809

PQL

0.020

Analysis Date: 4/5/2014

Result

0.47

San Juan River Bluff 4-1-14

WO#: **1404099**

14-Apr-14

Sample ID	1404099-003CMSE) SampT	ype: M \$	SD	Tes	tCode: El	PA Method	6010B: Disso	lved Meta	als	
Client ID:	Outfall #3D	Batch	ID: R1	7788	F	RunNo: 1	7788				
Prep Date:		Analysis D	ate: 4/	3/2014	S	SeqNo: 5	12555	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium		390	5.0	250.0	109.0	114	75	125	4.59	20	
Sodium		340	5.0	250.0	68.96	108	75	125	4.21	20	
Sample ID	MB	SampT	уре: МЕ	BLK	Tes	tCode: EI	PA Method	6010B: Disso	lved Meta	als	
Client ID:	PBW	Batch	ID: R1	7809	F	RunNo: 1	7809				
Prep Date:		Batch ID: R17809 Analysis Date: 4/5/2014			S	SeqNo: 5	13373	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.020								
Sample ID	LCS	SampT	ype: LC	s	Tes	tCode: EI	PA Method	6010B: Disso	lved Meta	als	
Client ID:	LCSW	Batch	ID: R1	7809	F	RunNo: 1	7809				
Prep Date:		Analysis Date: 4/5/2014			S	SeqNo: 5	13374	Units: mg/L			
Analyte		•			SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.50	0.020	0.5000	0	99.5	80	120			

Sample ID	1404099-003CMSD	SampTyp	e: MS	SD	Test	tCode: El	PA Method	6010B: Disso	lved Meta	als		
Client ID:	Outfall #3D	Batch ID: R17809 Analysis Date: 4/5/2014			R	tunNo: 1	7809					
Prep Date:	A	Analysis Date: 4/5/2014			S	SeqNo: 513385						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic		0.48 (0.020	0.5000	0	95.6	75	125	0.902	20	•	

0

SPK value SPK Ref Val

0.5000

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range

Sample ID 1404099-003CMS

Outfall #3D

Client ID:

Prep Date:

Analyte

Arsenic

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

TestCode: EPA Method 6010B: Dissolved Metals

Units: mg/L

HighLimit

125

%RPD

RPDLimit

Qual

RunNo: 17809

SeqNo: 513384

LowLimit

75

%REC

94.7

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff 4-1-14

Sample ID MB-12551 Client ID: PBW	SampType: MBLK Batch ID: 12551				TestCode: EPA 6010B: Total Recoverable Metals RunNo: 17809							
Prep Date: 4/4/2014	Analysis Date: 4/5/2014				SeaNo: 5		Units: mg/L					
1 1ep Date. 4/4/2014	Allalysis	Jaie. - 1	3/2014		beqivo. 3	1557 1	Office. Hig/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-12551	Samp	Type: LC	rable Meta	als								
Client ID: LCSW	Bato	h ID: 12	551	F	RunNo: 1	7809						
Prep Date: 4/4/2014	Analysis I	Date: 4 /	5/2014	S	SeqNo: 513372			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	99.7	80	120					
Barium	0.48	0.020	0.5000	0	95.0	80	120					
Cadmium	0.48	0.0020	0.5000	0	96.4	80	120					
Chromium	0.48	0.0060	0.5000	0	95.1	80	120					
Lead	0.47	0.0050	0.5000	0	94.5	80	120					
Selenium	0.50	0.050	0.5000	0	100	80	120					
Silver	0.098	0.0050	0.1000	0	98.2	80	120					

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1404099**

14-Apr-14

Client: Project:	Western Refining Southwest, Inc. San Juan River Bluff 4-1-14
Sample ID mb-1	SampType: mblk TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R17767 RunNo: 17767
Prep Date:	Analysis Date: 4/2/2014 SeqNo: 511976 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	O3) ND 20
Sample ID Ics-1	SampType: Ics TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R17767 RunNo: 17767
Prep Date:	Analysis Date: 4/2/2014 SeqNo: 511977 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) 78 20 80.00 0 97.0 90 110
Sample ID mb-2	SampType: mblk TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R17767 RunNo: 17767
Prep Date:	Analysis Date: 4/2/2014 SeqNo: 511991 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) ND 20
Sample ID Ics-2	SampType: Ics TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R17767 RunNo: 17767
Prep Date:	Analysis Date: 4/2/2014 SeqNo: 511992 Units: mg/L CaCO3
Analyte	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaC	03) 82 20 80.00 0 102 90 110

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

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TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

weome. www.nc	menvn onmemur.c	OIII		·
Client Name: Western Refining Southw Work Order Number	: 1404099		RcptNo: 1	
Received by/date:			· · · ·	
Logged By: Ashley Gallegos 4/2/2014 9:45:00 AM		A		
Completed By: Ashley Gallegos 4/2/2014 11:29:08 AM		AZ		
Reviewed By: 04102114	+	d		
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			
l on to				
<u>Log In</u>	* 4			
4. Was an attempt made to cool the samples?	Yes 🗸	No 😳	NA 1.	
5 Mare all complex required at a temperature of NO C to 6 O°C	V	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 V	No M		
9. Was preservative added to bottles?	, Yes V	No.V	NA 🗀	11 .1
FOR DISCUMED METALS ANALYSIS: ADDED 014	In LHNO3	TO -0030		EPH. HOLD, IN L
10.VOA vials have zero headspace?	Yes 🗸	No :		PRESERVATION
11. Were any sample containers received broken?	Yes	No ♥	# of preserved	4
12 Dags paparoad metal halfle labels?	Yes ✔	No .	bottles checked for pH:	\bigvee_{λ}
12.Does paperwork match bottle labels? (Note discrepancies on chain of custody)	res 🕶	INO .	11 ()	12 unless noted)
13 Are matrices correctly identified on Chain of Custody?	Yes 🗸	No :	Adjusted	At Tes
14. Is it clear what analyses were requested?	Yes 🗹	No 🛄		
15. Were all holding times able to be met?	Yes 🗸	No 🗔	Checked by:	(SO)
(If no, notify customer for authorization.)		L.		7
Special Handling (if applicable)				
16. Was client notified of all discrepancies with this order?	Yes	No :	NA : ✓	
	169	NO :	INA ·¥	
Person Notified: Date:	·		l- D-	
By Whom: Via:	eMail P	hone Fax	In Person	
Regarding:				
Client Instructions:				
17. Additional remarks:				
18. Cooler Information	2	1		
Cooler No Temp °C Condition Seal Intact Seal No	Seal Date	Signed By		

	HALL ENVIRONMENTAL	□ Rush		UAN RIVER BLAST, 4-1-14 4901 Hawki	Tel. 505-345-3975 Fax 505-345-4107	Analysis	() (OS () ()	OS ^{'†} Oo	NB's NB's NB's NB's NB's NB's NB's NB's	4 NO + + NO + + NO + NO + NO + NO + NO +	Selature (4)	The Servative HEAL No. Type Phir Bubbles 8270 (Semi-bold) (Semi-bo	HC1 -001 X	# NO3				4 HC(-002	J HANS]	 X	-	Date Time Remarks:	T. Olde
ation)	Around Time:		ot Name:	NJLAN RIVER BL	ot #;		Project Manager:			F. MAII 4536	Teml	Preservative Type				<u> </u>	Η,]			ed by:	ed by: Da
	5				87413	32-4/35		(1 / / . / / . / / . / / / / / / /		Sam	Sam		サス	= ···	1	1	7	M		~/			The less	7

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HALL ENVIRONMENTA	ANALYSIS LABORATORY	ıl.com	- Albuquerque, NM 8ू7109	505-345-4107	est	o-fre	MTBE'	,		0V) 80688, WC (Sem S20 (Sem S2	×		X		×										The state of the s	led on the analytical rep
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<u>2</u> Ш	ΥS	llenvir	- Albu	Fax	Analysis		<u> </u>	S	etal	M 8 ARDR		X					-								9	ta will be
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	Α.	Antimony	mg/L		0.022393	0	
V	Α	Arsenic	mg/L		0.018673	0	
V	Α	Barium	mg/L		0.000790	0	
	Α	Beryllium	mg/L		0.000113	0	
	Α	Boron	mg/L		0.012703	0	
V	Α	Cadmium	mg/L		0.000558	0	
Y	Α	Calcium	mg/L		0.055778	0	
V	Α	Chromium	mg/L		0.001537	0	
	Α	Cobalt	mg/L		0.001307	0	
V	Α	Copper	mg/L		0.002482	0	
V	Α	iron	mg/L		0.003231	0	
V	Α	Lead	mg/L		0.004822	0	
V	Α	Magnesium	mg/L		0.008294	0	
V	Α	Manganese	mg/L		0.000409	0	
	Α	Molybdenum	mg/L		0.003016	0	
	Α	Nickel	mg/L		0.001275	0	
V	Α	Potassium	mg/L		0.04975	0	
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	Α	Silicon	mg/L		0.008201	0	
V	Α	Silver	mg/L		0.000421	0	
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	Α	Strontium	mg/L		0.00015	0	
	Α	Thallium	mg/L		0.017170	0	
	Α	Tin	mg/L		0.005269	0	
	Α	Titanium	mg/L		0.000334	0	
V	Α	Uranium	mg/L		0.01086	0	
	Α	Vanadium	mg/L		0.001088	0	
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	_	Yttrium	%	,	0	0	
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+ 49

Dissolved Metals

Appendix C



Hall Environmental Analysis Laboratory

QUALITY ASSURANCE PLAN

Effective Date: August 13th, 2014

Revision 9.9

www.hallenvironmental.com

Control Number: 00000157

Approved By:

Andy Freeman

Laboratory Manager

Approved By:

Cárolyn Swanson

8/12/2014

Date

Quality Assurance/Quality Control Officer

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Tiffany Shaw Date Metals Technical Director
Stacey McCoy Date Wet Chemistry Technical Director

Stephanie Shaffers Date
Microbiology Technical Director

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3.0 Introduction

Purpose of Document

The purpose of this Quality Assurance Plan is to formally document the quality assurance policies and procedures of Hall Environmental Analysis Laboratory, Inc. (HEAL), for the benefit of its employees, clients, and accrediting organizations. HEAL continually implements all aspects of this plan as an essential and integral part of laboratory operations in order to ensure that high quality data is produced in an efficient and effective manner.

Objectives

The objective of HEAL is to achieve and maintain excellence in environmental testing. This is accomplished by developing, incorporating and documenting the procedures and policies specified by each of our accrediting authorities and outlined in this plan. These activities are carried out by a laboratory staff that is analytically competent, well-qualified, and highly trained. An experienced management team, knowledgeable in their area of expertise, monitors them. Finally, a comprehensive quality assurance program governs laboratory practices and ensures that the analytical results are valid, defensible, reproducible, reconstructable and of the highest quality.

HEAL establishes and thoroughly documents its activities to ensure that all data generated and processed will be scientifically valid and of known and documented quality. Routine laboratory activities are detailed in method specific standard operating procedures (SOP). All data reported meets the applicable requirements for the specific method or methods that are referenced, ORELAP, TCEQ, EPA, client specific requirements and/or State Bureaus. In the event that these requirements are ever in contention with each other, it is HEAL's policy to always follow the most prudent requirement available. For specific method requirements refer to HEAL's Standard Operating Procedures (SOP's), EPA methods, Standard Methods 20th edition, ASTM methods or state specific methods.

HEAL management ensures that this document is correct in terms of required accuracy and data reproducibility, and that the procedures contain proper quality control measures. HEAL management additionally ensures that all equipment is reliable, well-maintained and appropriately calibrated. The procedures and practices of the laboratory are geared towards not only strictly following our regulatory requirements but also allowing the flexibility to conform to client specific specifications. Meticulous records are maintained for all samples and their respective analyses so that results are well-documented and defensible in a court of law.

The HEAL Quality Assurance/Quality Control Officer (QA/QCO) and upper management are responsible for supervising and administering this quality assurance program, and

ensuring each individual is responsible for its proper implementation. All HEAL management remains committed to the encouragement of excellence in analytical testing and will continue to provide the necessary resources and environment conducive to its achievement.

Policies

Understanding that quality cannot be mandated, it is the policy of this laboratory to provide an environment that encourages all staff members to take pride in the quality of their work. In addition to furnishing proper equipment and supplies, HEAL stresses the importance of continued training and professional development. Further, HEAL recognizes the time required for data interpretation. Therefore, no analyst should feel pressure to sacrifice data quality for data quantity. Each staff member must perform with the highest level of integrity and professional competence, always being alert to problems that could compromise the quality of their technical work.

Management and senior personnel supervise analysts closely in all operations. Under no circumstance is the willful act or fraudulent manipulation of analytical data condoned. Such acts must be reported immediately to HEAL management. Reported acts will be assessed on an individual basis and resulting actions could result in dismissal. The laboratory staff is encouraged to speak with lab managers or senior management if they feel that there are any undo commercial, financial, or other pressures, which might adversely affect the quality of their work; or in the event that they suspect that data quality has been compromised in any way. HEAL's Quality Assurance/Quality Control Officer is available if any analyst and/or manager wishes to anonymously report any suspected or known breaches in data integrity.

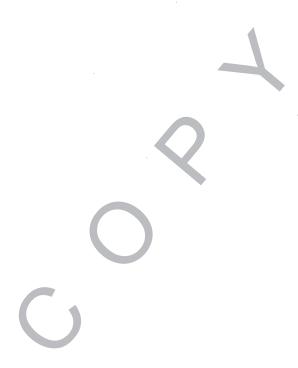
Understanding the importance of meeting customer requirements in addition to the requirements set forth in statutory and regulatory requirements, HEAL shall periodically seek feedback from customers and evaluate the feedback in order to initiate improvements.

All proprietary rights and client information at HEAL (including national security concerns) are considered confidential. No information will be given out without the express verbal or written permission of the client. All reports generated will be held in the strictest of confidence.

HEAL shall continually improve the effectiveness of its management system through the use of the policies and procedures outlined in this Quality Assurance Plan. Quality control results, internal and external audit findings, management reviews, new and continual training and corrective and preventive actions are continually evaluated to identify possible improvements and to ensure that appropriate communication processes are taking place regarding the effectiveness of the management system. HEAL shall ensure that the

integrity of the quality system is maintained when changes to the system are planned and implemented.

This is a controlled document. Each copy is assigned a unique tracking number and when released to a client or accrediting agency the QA/QCO keeps the tracking number on file. This document is reviewed on an annual basis to ensure that it is valid and representative of current practices at HEAL.



4.0 Organization and Responsibility

Company

HEAL is accredited in accordance with the 2009 TNI standard (see NELAC accredited analysis list in the QA Department or on the company website), through ORELAP and TCEQ and by the Arizona Department of Health Services. Additionally, HEAL is qualified as defined under the State of New Mexico Water Quality Control Commission regulations and the New Mexico State Drinking Water Bureau. HEAL is a locally owned small business that was established in 1991. HEAL is a full service environmental analysis laboratory with analytical capabilities that include both organic and inorganic methodologies and has performed analyses of soil, water, and air as well as various other matrices for many sites in the region. HEAL's client base includes local, state and federal agencies, private consultants, commercial industries as well as individual homeowners. HEAL has performed as a subcontractor to the state of New Mexico and to the New Mexico Department of Transportation. HEAL has been acclaimed by its customers as producing quality results and as being adaptive to client-specific needs.

The laboratory is divided into an organic section, an inorganic section and a microbiology section. Each section has a designated manager/technical director. The technical directors report directly to the laboratory manager, who oversees all operations.

Certifications

ORELAP - NELAC Oregon Primary accrediting authority.

TCEQ – NELAC Texas Secondary accrediting authority.

The Arizona Department of Health Services

The New Mexico Drinking Water Bureau

See our website at <u>www.hallenvironmental.com</u> or the QA Office for copies of current licenses and licensed parameters.

In the event of a certification being revoked or suspended, HEAL will notify, in writing, those clients that require the affected certification.

Personnel

HEAL management ensures the competence of all who operate equipment, perform environmental tests, evaluate results, and sign test reports. Personnel performing specific tasks shall be qualified on the basis of appropriate education, training, experience and /or demonstrated skills.

HEAL ensures that all personnel are aware of the relevance and importance of their activities and how each employee contributes to the achievement of the objectives defined throughout this document.

All personnel shall be responsible for complying with HEAL's quality assurance/quality control requirements that pertain to their technical function. Each technical staff member must have a combination of experience and education to adequately demonstrate specific knowledge of their particular function and a general knowledge of laboratory operations, test methods, quality assurance/quality control procedures, and records management.

All employees' training certificates and diplomas are kept on file with demonstrations of capability for each method they perform. An Organizational Chart can be found at the end of this section and a personnel list is available in the current Controlled Document Logbook.

Laboratory Director

The Laboratory Director is responsible for overall technical direction and business leadership of HEAL. The Laboratory Manager, the Project Manager and Quality Assurance/Quality Control Officer report directly to the Laboratory Director. Someone with a minimum of 7 years of directly related experience and a bachelor's degree in a scientific or engineering discipline should fill this position.

Laboratory Manager/Lead Technical Director

The Laboratory Manager shall exercise day—to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results. The Laboratory Manager shall be experienced in the fields of accreditation for which the laboratory is approved or seeking accreditation. The Laboratory Manager shall certify that personnel with appropriate educational and/or technical background perform all tests for which HEAL is accredited. Such certification shall be documented.

The Laboratory Manager shall monitor standards of performance in quality control and quality assurance and monitor the validity of the analyses performed and data generated at HEAL to assure reliable data.

The Laboratory Manager is responsible for the daily operations of the laboratory. The Laboratory Manager is the lead technical director of the laboratory and, in conjunction with the section technical directors, is responsible for coordinating activities within the laboratory with the overall goal of efficiently producing high quality data within a reasonable time frame.

In events where employee scheduling or current workload is such that new work cannot be incorporated, without missing hold times, the Laboratory Manager has authority to modify employee scheduling, re-schedule projects or, when appropriate, allocate the work to approved subcontracting laboratories.

Additionally, the laboratory manager reviews and approves new analytical procedures and methods, and performs a final review of most analytical results. The Laboratory Manager provides technical support to both customers and HEAL staff.

The Laboratory Manager also observes the performance of supervisors to ensure that good laboratory practices and proper techniques are being taught and utilized, and to assist in overall quality control implementation and strategic planning for the future of the company. Other duties include assisting in establishing laboratory policies that lead to the fulfillment of requirements for various certification programs, assuring that all Quality Assurance and Quality Control documents are reviewed and approved, and assisting in conducting Quality Assurance Audits.

The laboratory manager addresses questions or complaints that cannot be answered by the section managers.

The Laboratory Manager shall have a bachelor's degree in a chemical, environmental, biological sciences, physical sciences or engineering field, and at least five years of experience in the environmental analysis of representative inorganic and organic analytes for which the laboratory seeks or maintains accreditation.

Assistant Laboratory Manager

The Assistant Laboratory Manager shall aid the Laboratory Manager in exercising day—to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results. The Assistant Laboratory Manager shall be experienced in the fields of accreditation for which the laboratory is approved or seeking accreditation.

The Assistant Laboratory Manager is responsible for helping the Laboratory Manager in the daily operations of the laboratory. In conjunction with the section Technical Directors, the Assistant Laboratory Manager is responsible for coordinating activities within the laboratory with the overall goal of efficiently producing high quality data within a reasonable time frame.

The Assistant Laboratory Manager shall have at least ten years of experience in environmental analysis of representative inorganic and/or organic analytes for which the laboratory seeks or maintains accreditation.

Quality Assurance Quality Control Officer

The Quality Assurance/Quality Control Officer (QA/QCO) serves as the focal point for QA/QC and shall be responsible for the oversight and/or review of quality control data. The QA/QCO functions independently from laboratory operations and shall be empowered to halt unsatisfactory work and/or prevent the reporting of results generated from an out-of-control measurement system. The QA/QCO shall objectively evaluate data and perform assessments without any outside/managerial influence. The QA/QCO shall have direct access to the highest level of management at which decisions are made on laboratory policy and/or resources. The QA/QCO shall notify laboratory management of deficiencies in the quality system in periodic, independent reports.

The QA/QCO shall have general knowledge of the analytical test methods for which data review is performed and have documented training and/or experience in QA/QC procedures and in the laboratory's quality system. The QA/QCO will have a minimum of a BS in a scientific or related field and a minimum of three years of related experience.

The QA/QCO shall schedule and conduct internal audits as per the Internal Audit SOP at least annually, monitor and trend Corrective Action Reports as per the Data Validation SOP, periodically review control charts for out of control conditions, and initiate any appropriate corrective actions.

The QA/QCO shall oversee the analysis of proficiency testing in accordance with our standards and monitor any corrective actions issued as a result of this testing.

The QA/QCO reviews all standard operating procedures and statements of work in order to assure their accuracy and compliance to method and regulatory requirements.

The QA/QCO shall be responsible for maintaining and updating this quality manual.

Project Managers

The role of the project manager is to act as a liaison between HEAL and our clients. The Project Manager updates clients on the status of projects in-house, prepares quotations for new work, and is responsible for HEAL's marketing effort.

All new work is assessed by the Project Manager and reviewed with the other managers so as to not exceed the laboratory's capacity. In events where employee scheduling or current workload is such that new work cannot be incorporated without missing hold times, the Project Manager has authority to re-schedule projects.

It is also the duty of the project manager to work with the Laboratory Manager and QA/QCO to insure that before new work is undertaken, the resources required and accreditations requested are available to meet the client's specific needs.

Additionally, the Project Manager can initiate the review of the need for new analytical procedures and methods, and perform a final review of some analytical results. The Project Manager provides technical support to customers. Someone with a minimum of 2 years of directly related experience and a bachelor's degree in a scientific or engineering discipline should fill this position.

Technical Directors

Technical Directors are full-time members of the staff at HEAL who exercise day-to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results for their department within HEAL. A Technical Director's duties shall include, but not be limited to, monitoring standards of performance in quality control and quality assurance, monitoring the validity of the analyses performed and the data generated in their sections to ensure reliable data, overseeing training and supervising departmental staff, scheduling incoming work for their sections, and monitoring laboratory personnel to ensure that proper procedures and techniques are being utilized. They supervise and implement new Quality Control procedures as directed by the QA/QCO, update and maintain quality control records including, but not limited to, training forms, IDOCs, ADOCPs, and MDLs, and evaluate laboratory personnel in their Quality Control activities. In addition, technical directors are responsible for upholding the spirit and intent of HEAL's data integrity procedures.

As Technical Directors of their associated section, they review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 2 years of experience in the environmental analysis of representative analytes for which HEAL seeks or maintains accreditation and a bachelor's degree in a scientific or related discipline should fill this position.

The education requirements for a Technical Director may be waived at the discretion of HEAL's accrediting agencies.

Health and Safety / Chemical Hygiene Officer

Refer to the most recent version of the Health and Safety and Chemical Hygiene Plans for the roles, responsibilities, and basic requirements of the Health and Safety Officer (H&SO) and the Chemical Hygiene Officer (CHO). These jobs can be executed by the same employee.

Analyst I, II and III

Analysts are responsible for the analysis of various sample matrices including, but not limited to, solid, aqueous, and air, as well as the generation of high quality data in accordance with the HEAL SOPs and QA/QC guidelines in a reasonable time as prescribed by standard turnaround schedules or as directed by the Section Manager or Laboratory Manager.

Analysts are responsible for making sure all data generated is entered in the database in the correct manner and the raw data is reviewed, signed and delivered to the appropriate peer for review. An analyst reports daily to the section manager and will inform them as to material needs of the section specifically pertaining to the analyses performed by the analyst. Additional duties may include preparation of samples for analysis, maintenance of lab instruments or equipment, and cleaning and providing technical assistance to lower level laboratory staff.

The senior analyst in the section may be asked to perform supervisory duties as related to operational aspects of the section. The analyst may perform all duties of a lab technician.

The position of Analyst is a full or part time hourly position and is divided into three levels, Analyst I, II, and III. All employees hired into an Analyst position at HEAL must begin as an Analyst I and remain there at a minimum of three months regardless of their education and experience. Analyst I must have a minimum of an AA in a related field or equivalent experience (equivalent experience means years of related experience can be substituted for the education requirement). An Analyst I is responsible for analysis, instrument operation, including calibration and data reduction. Analyst II must have a minimum of an AA in a related field or equivalent experience and must have documented and demonstrated aptitude to perform all functions of an Analyst II. An Analyst II is responsible for the full analysis of their test methods, routine instrument maintenance, purchase of consumables as dictated by their Technical Director, advanced data reduction, and basic data review. Analyst II may also assist Analyst III in method development and, as dictated by their Technical Director, may be responsible for the review and/or revision of their method specific SOPs. Analyst III must have Bachelor's degree or equivalent experience and must have documented and demonstrated aptitude to perform all functions of an Analyst III. An Analyst III is responsible for all tasks completed by an Analyst I and II as well as advanced data review, non-routine instrument maintenance, assisting their technical director in basic supervisory duties and method development.

Laboratory Technician

A laboratory technician is responsible for providing support to analysts in the organics, inorganics and disposal departments. Laboratory Technicians can assist analysts in basic sample preparation, general laboratory maintenance, glassware washing, chemical inventories, sample disposal and sample kit preparation. This position can be filled by someone without the education and experience necessary to obtain a position as an analyst.

Sample Control Manager

The sample control manager is responsible for receiving samples and reviewing the sample login information after it has been entered into the computer. The sample control manager also checks the samples against the chain-of-custody for any sample and/or labeling discrepancies prior to distribution.

The sample control manager is responsible for sending out samples to the subcontractors along with the review and shipping of field sampling bottle kits. The sample control manager acts as a liaison between the laboratory and field sampling crew to ensure that the appropriate analytical test is assigned. If a discrepancy is noted, the sample control manager or sample custodian will contact the customer to resolve any questions or problems. The sample control manager is an integral part of the customer service team.

This position should be filled by someone with a high school diploma and a minimum of 2 years of related experience and can also be filled by a senior manager.

Sample Custodians

Sample Custodians work directly under the Sample Control Manager. They are responsible for sample intake into the laboratory and into the LIMS. Sample Custodians take orders from our clients and prepare appropriate bottle kits to meet the clients' needs. Sample Custodians work directly with the clients in properly labeling and identifying samples as well as properly filling out legal COCs. When necessary, Sample Custodians contact clients to resolve any questions or problems associated with their samples. Sample Custodians are responsible for distributing samples throughout the laboratory and are responsible for notifying analysts of special circumstances such as short holding times or improper sample preservation upon receipt.

Sample Disposal Custodian

The sample disposal custodian is responsible for characterizing and disposing of samples in accordance to the most recent version of the sample disposal SOP. The sample disposal custodian collects waste from the laboratory and transports it to the disposal warehouse for storage and eventual disposal. The sample disposal custodian is responsible for maintaining the disposal warehouse and following the requirements for documentation, integrity, chemical hygiene and health and safety as set forth in the various HEAL administrative SOPs. The sample disposal custodian is responsible for overseeing any laboratory technicians employed at the disposal warehouse.

This position should be filled by someone with a high school diploma and a minimum of 1 year of related experience.

Bookkeeper

The Bookkeeper is responsible for the preparation of quarterly financials and quarterly payroll reports. The bookkeeper monitors payables, receivables, deposits, pays all bills and maintains an inventory of administrative supplies. The Bookkeeper completes final data package assembly and oversees the consignment of final reports. The Bookkeeper assists in the project management of drinking water compliance samples for NMED and NMEFC and any other tasks as assigned by the Laboratory Manager. This position should be filled by someone with a degree in accounting or a minimum of a high school diploma and at least 4 years of directly related experience.

Administrative Assistant

The Administrative Assistant is responsible for aiding administrative staff in tasks that include but are not limited to: the processing and consignment of final reports, and the generation of client specific spreadsheets. This position should be filled by someone with a minimum of a high school diploma.

IT Specialist

The IT Specialist is responsible for the induction and maintenance of all hard and software technology not maintained through a service agreement. The IT Specialist follows the requirements of this document, all regulatory documents and the EPAs Good Automated Laboratory Practices. This position should be filled by someone with a degree in a computer related field, or at least two years of directly related experience.

Delegations in the Absence of Key Personnel

Planned absences shall be preceded by notification to the Laboratory Manager. The appropriate staff members shall be informed of the absence. In the case of unplanned absences, the superior shall either assume the responsibilities and duties or delegate the responsibilities and duties to another appropriately qualified employee.

In the event that the Laboratory Manager is absent for a period of time exceeding fifteen consecutive calendar days, another full-time staff member meeting the basic qualifications and competent to temporarily perform this function will be designated. If this absence exceeds thirty-five consecutive calendar days, HEAL will notify ORELAP in writing of the absence and the pertinent qualifications of the temporary laboratory manager.

Laboratory Personnel Qualification and Training

All personnel joining HEAL shall undergo orientation and training. During this period the new personnel shall be introduced to the organization and their responsibilities, as well as the policies and procedures of the company. They shall also undergo on-the-job training and shall work with trained staff. They will be shown required tasks and be observed while performing them.

When utilizing staff undergoing training, appropriate supervision shall be dictated and overseen by the appropriate section technical director. Prior to analyzing client samples, a new employee, or an employee new to a procedure, must meet the following basic requirements. The SOP and Method(s) for the analysis must be read and signed by the employee indicating that they read, understand, and intend to comply with the requirements of the documents. The employee must undergo documented training. Training is conducted by a senior analyst familiar with the procedure and overseen by the section Technical Director. This training is documented by any means deemed appropriate by the trainer and section Technical Director, and kept on file in the employees file located in the QA/QCO's office. The employee must perform a successful Initial Demonstration of Capability (IDOC). See the current Document Control Logbook for the training documents and checklists utilized at HEAL to ensure that all of these requirements are met. Once all of the above requirements are met it is incumbent upon the section Technical Director to determine at which point the employee can begin to perform the test unsupervised. Certification to Complete Work Unsupervised (see the current Document Control Logbook) is then filled out by the employee and technical director.

IDOCs are required for all new analysts and methods prior to sample analysis. IDOCs are also required any time there is a change in the instrument, analyte list or method. If more than twelve months have passed since an analyst performed an IDOC and they

have not performed the method and/or have not met the continuing DOC requirements, the analyst must perform an IDOC prior to resuming the test.

All IDOCs shall be documented through the use of the certification form which can be found in the current Document Control Logbook. IDOCs are performed by analyzing four Laboratory Control Spikes (LCSs). Using the results of the LCSs the mean recovery is calculated in the appropriate reporting units and the standard deviations of the population sample (n-1) (in the same units) as well as the relative percent difference for each parameter of interest. When it is not possible or pertinent to determine mean and standard deviations HEAL assesses performance against establish and documented criteria dictated in the method SOP. The mean and standard deviation are compared to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory-generated acceptance criteria. In the event that the HEAL SOP or test method(s) fail to establish the pass/fail criteria the default limits of +/- 20% for calculated recovery and <20% relative percent difference based on the standard deviation will be utilized. If all parameters meet the acceptance criteria, the IDOC is successfully completed. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter and the analyst must either locate and correct the source of the problem and repeat the test for all parameters of interest or repeat the test for all parameters that failed to meet criteria. Repeat failure, however, confirms a general problem with the measurement system. If this occurs the source of the problem must be identified and the test repeated for all parameters of interest.

New employees that do not have prior analysis experience will not be allowed to perform analysis until they have demonstrated attention to detail with minimal errors in the assigned tasks. To ensure a sustained level of quality performance among staff members, continuing demonstration of capability shall be performed at least once a year. These are as an Annual Documentation of Continued Proficiency (ADOCP).

At least once per year an ADOCP must be completed. This is achieved by the acceptable performance of a blind sample (typically by using a PT sample, but can be a single blind (to the analyst) sample), by performing another IDOC, or by summarizing the data of four consecutive laboratory control samples with acceptable levels of precision and accuracy (these limits are those currently listed in the LIMS for an LCS using the indicated test method(s).) ADOCPs are documented using a standard form and are kept on file in each analyst's employee folder. ADOCPs may be demonstrated as an analyst group utilizing LIMS control charting, so long as all listed analysts participated, the results are consecutive and pass the requirements for precision and accuracy.

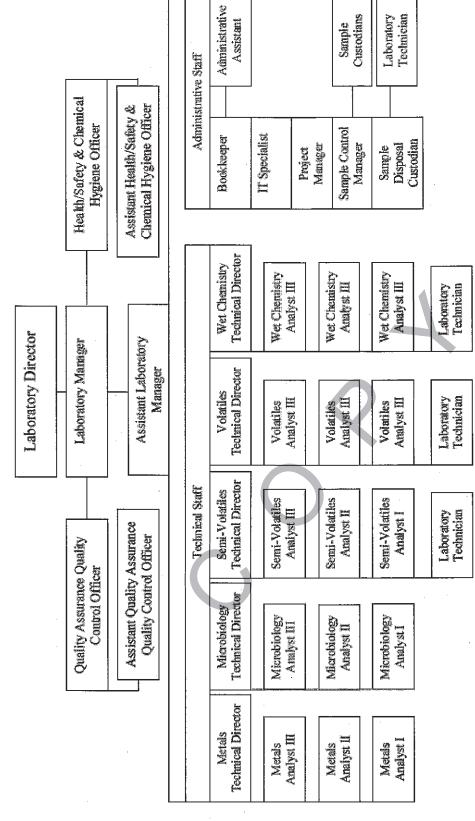
Each new employee shall be provided with data integrity training as a formal part of their new employee orientation. Each new employee will sign an ethics and data integrity agreement to ensure that they understand that data quality is our main objective. Every HEAL employee recognizes that although turnaround time is

important, quality is put above any pressure to complete the task expediently. Analysts are not compensated for passing QC parameters nor are incentives given for the quantity of work produced. Data Integrity and Ethics training are performed on an annual basis in order to remind all employees of HEAL's policy on data quality. Employees are required to understand that any infractions of the laboratory data integrity procedures will result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment, or civil/criminal prosecution.

Training for each member of HEAL's technical staff is further established and maintained through documentation that each employee has read, understood, and is using the latest version of this Quality Assurance Manual. Training courses or workshops on specific equipment, analytical techniques, or laboratory procedures are documented through attendance sheets, certificates of attendance, training forms, or quizzes. This training documentation is located in analyst specific employee folders in the QA/QCO Office. On the front of all methods, SOPs, and procedures for HEAL, there is a signoff sheet that is signed by all pertinent employees, indicating that they have read, understand, and agree to perform the most recent version of the document.

The effectiveness of training will be evaluated during routine data review, annual employee reviews, and internal and external audits. Repetitive errors, complaints and audit findings serve as indicators that training has been ineffective. When training is deemed to have been ineffective a brief review of the training process will be completed and a re-training conducted as soon as possible.

HEAL Personnel Chart



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5.0 Receipt and Handling of Samples

Reviewing Requests, Tenders and Contracts

All contracts and written requests by clients are closely reviewed to ensure that the client's data quality objectives can be met to their specifications. This review includes making sure that HEAL has the resources necessary to perform the tests to the clients specifications.

When HEAL is unable to meet the clients specifications their samples will be subcontracted to an approved laboratory capable of meeting the client's data quality objectives.

Sampling

Procedures

HEAL does not provide field sampling for any projects. Sample kits are prepared and provided for clients upon request. The sample kits contain the appropriate sampling containers (with a preservative when necessary), labels, blue ice (The use of "blue ice" by anyone except HEAL personnel is discouraged because it generally does not maintain the appropriate temperature of the sample. If blue ice is used, it should be completely frozen at the time of use, the sample should be chilled before packing, and special notice taken at sample receipt to be certain the required temperature has been maintained.), a cooler, chain-of-custody forms, plastic bags, bubble wrap, and any special sampling instructions. Sample kits are reviewed prior to shipment for accuracy and completeness.

Containers

Containers which are sent out for sampling are purchased by HEAL from a commercial source. Glass containers are certified "EPA Cleaned" QA level 1. Plastic containers are certified clean when required. These containers are received with a Certificate of Analysis verifying that the containers have been cleaned according to the EPA wash procedure. Containers are used once and discarded. If the samples are collected and stored in inappropriate containers the laboratory may not be able to accurately quantify the amount of the desired components. In this case, re-sampling may be required.

Preservation

If sampling for analyte(s) requires preservation, the sample custodians fortify the containers prior to shipment to the field, or provide the preservative for the sampler to add in the field. The required preservative is introduced into the vials in uniform amounts

and done so rapidly to minimize the risk of contamination. Vials that contain a preservative are labeled appropriately. If the samples are stored with inappropriate preservatives, the laboratory may not be able to accurately quantify the amount of the desired components. In this case re-sampling may be required.

Refer to the current Login SOP and/or the current price book for detailed sample receipt and handling procedures, appropriate preservation and holding time requirements.

Sample Custody

Chain-of-Custody Form

A Chain-of-Custody (COC) form is used to provide a record of sample chronology from the field to receipt at the laboratory. HEAL's COC contains the client's name, address, phone and fax numbers, the project name and number, the project manager's name, and the field sampler's name. It also identifies the date and time of sample collection, sample matrix, field sample ID number, number/volume of sample containers, sample temperature upon receipt, and any sample preservative information.

There is also a space to record the HEAL ID number assigned to samples after they are received. Next to the sample information is a space for the client to indicate the desired analyses to be performed. There is a section for the client to indicate the data package level as well as any accreditation requirements. Finally, there is a section to track the actual custody of the samples. The custody section contains lines for signatures, dates and times when samples are relinquished and received. The COC form also includes a space to record special sample related instructions, sampling anomalies, time constraints, and any sample disposal considerations.

It is paramount that all COCs arrive at HEAL complete and accurate so that the samples can be processed and allocated for testing in a timely and efficient manner. A sample chain-of-custody form can be found in the current Document Control Logbook or on line at www.hallenvironmental.com.

Should a specific project or client require the use of an internal COC, advanced notification and approval must be obtained. The use of internal COCs are not part of our standard operating procedure.

Receiving Samples

Samples are received by authorized HEAL personnel. Upon arrival, the COC is compared to the respective samples. After the samples and COC have been determined to be complete and accurate, the sampler signs over the COC. The HEAL staff member in turn signs the chain-of-custody, also noting the current date, time, and sample temperature. This relinquishes custody of the samples from the sampler and

delegates sample custody to HEAL. The first (white) copy of the COC form is filed in the appropriate sample folder. The second (yellow) copy of the COC form is filed in the COC file in the sample control manager's office. The third (pink) copy of the COC form is given to the person who has relinquished custody of the samples.

Logging in Samples and Storage

Standard Operating Procedures have been established for the receiving and tracking of all samples (refer to the current HEAL Login SOP). These procedures ensure that samples are received and properly logged into the laboratory and that all associated documentation, including chain of custody forms, is complete and consistent with the samples received. Each sample set is given a unique HEAL tracking ID number. Individual sample locations within a defined sample set are given a unique sample ID suffix-number. Labels with the HEAL numbers, and tests requested, are generated and placed on their respective containers. The pH of preserved, non-volatile samples is checked and noted if out of compliance. Due to the nature of the samples, the pHs of volatiles samples are checked after analysis. Samples are reviewed prior to being distributed for analysis.

All samples received that are requested for compliance, whether on the COC or by contract, will be identified as compliance samples in the LIMS so as to properly notify the analytical staff that they are to be analyzed in accordance with the test method(s) as well as the compliance requirements.

Samples are distributed for analysis based upon the requested tests. In the event that sample volume is limited and different departments at HEAL are required to share the sample, volatile work takes precedence and will always be analyzed first before the sample is sent to any other department for analysis.

Care will be taken to store samples isolated from laboratory contaminants, standards and highly contaminated samples.

All samples that require thermal preservation shall be acceptably stored at a temperature range just above freezing to 6 °C unless specified at another range by the SOP and Method.

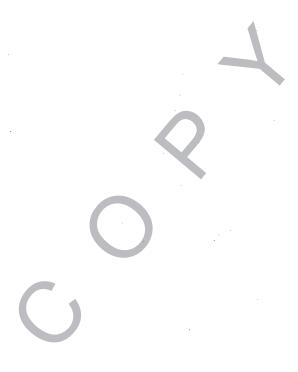
Each project (sample set) is entered into the Laboratory Information Management System (LIMS) with a unique ID that will be identified on every container. The ID tag includes the Lab ID, Client ID, date and time of collection, and the analysis/analyses to be performed. The LIMS continually updates throughout the lab. Therefore, at any time, an analyst or manager may inquire about a project and/or samples status. For more information about the login procedures, refer to the Sample Login SOP.

Disposal of Samples

Samples are held at HEAL for a minimum of thirty days and then transferred to the HEAL warehouse for disposal. Analytical results are used to characterize their respective sample contamination level(s) so that the proper disposal can be performed. These wastes will be disposed of according to their hazard as well as their type and level of contamination. Refer to the Hall Environmental Analysis Laboratory Chemical Hygiene Plan and current Sample Disposal SOP for details regarding waste disposal.

Waste drums are provided by an outside agency. These drums are removed by the outside agency and disposed of in a proper manner.

The wastes that are determined to be non-hazardous are disposed of as non-hazardous waste in accordance with the Chemical Hygiene Plan and Sample Disposal SOP.



6.0 Analytical Procedures

All analytical methods used at HEAL incorporate necessary and sufficient Quality Assurance and Quality Control practices. A Standard Operating Procedure (SOP) is used to provide the necessary criteria to yield acceptable results. These procedures are reviewed at least annually and revised as necessary and are attached as a pdf file in the Laboratory Information Management System (LIMS) for easy access by each analyst. The sample is often consumed or altered during the analytical process. Therefore, it is important that each step in the analytical process be correctly followed in order to yield valid data.

When unforeseen problems arise, the analyst, technical director, and, when necessary, laboratory manager meet to discuss the factors involved. The analytical requirements are evaluated and a suitable corrective action or resolution is established. The client is notified in the case narrative with the final report or before, if the validity of their result is in question.

List of Procedures Used

Typically, the procedures used by HEAL are EPA approved methodologies or 20th edition Standard Methods. However, proprietary methods for client specific samples are sometimes used. On occasion, multiple methods or multiple method revisions are used, in this event the SOP is written to include the requirements of all referenced methods. The following tables list EPA and Standard Methods Method numbers with their corresponding analytes and/or instrument classification.

Methods Utilized at HEAL

Drinking Water(DW) Non-Potable Water (NPW) Solids (S)

Methodology	Matrix	Title of Method .
180.1.	DW	"Turbidity (Nonhalametria)"
	NPW	"Turbidity (Nephelometric)"
200.2	DW	"Sample Preparation Procedure For Spectrochemical
200.2	NPW NPW	Determination of Total Recoverable Elements"
200.7	DW	"Determination of Metals and Trace Elements in Water and
	NPW	Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry"
200.8	DW	"Determination of Trace Elements in Waters and Wastes by
	NPW	Inductively Coupled Plasma-Mass Spectrometry."
245.1	DW	"Mercury (Manual Cold Vapor Technique)"
	NPW	

300.0	DW NPW S	"Determination of Inorganic Anions by Ion Chromatography"
413.2	NPW S	"Oil and Grease"
418.1	NPW S	"Petroleum Hydrocarbons (Spectrophotometric, Infrared)"
504.1	DW	"EDB, DBCP and 123TCP in Water by Microextraction and Gas Chromatography"
524.2	DW	"Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry"
552.3	DW .	"Determination of Haloacetic Acids and Dalapon in Drinking Water by Ion-Exchange Liquid-Solid Extraction and Gas Chromatography with an Electron Capture Detector"
624	NPW	Appendix A to Part 136 Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater Method 624-Purgeables"
1311	S	"Toxicity Characteristic Leaching Procedure"
1311ZHE	S	"Toxicity Characteristic Leaching Procedure"
166 4 A	NPW	"N-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated N-Hexane Extractable Material) by Extraction and Gravimetry"
3005A	NPW	"Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA or ICP Spectroscopy"
3010A	NPW	"Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy"
3050B	S	"Acid Digestion of Sediment, Sludge, and Soils"
3510C	DW NPW	"Separatory Funnel Liquid-Liquid Extraction"
3540	S	"Soxhlet Extraction"
3545	S	"Pressurized Fluid Extraction(PFE)"
3665	NPW S	"Sulfuric Acid/Permanganate Cleanup"
5030B	NPW	"Purge-and-Trap for Aqueous Samples"
5035	s	"Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples"
6010B	NPW S	"Inductively Coupled Plasma-Atomic Emission Spectrometry"

7470A	NPW	"Mercury in Liquid Waste (Manual Cold-Vapor Technique)"	
7471A	s	"Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)"	
	NPW	"Aromatic and Halogenated Volatiles By Gas	
8021B s		Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors"	
8015D	NPW	"Nonhalogenated Volatile Organics by Gas Chromatography"	
	S	(Gasoline Range and Diesel Range Organics)	
8081A	NPW S	"Organochlorine Pesticides by Gas Chromatography"	
8082	NPW S	"Polychlorinated Biphenyls (PCBs) by Gas Chromatography"	
8260B	NPW S	"Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS)"	
8270C	NPW S	"Semivolatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS)"	
8310	NPW S	"Polynuclear Aromatic Hydrocarbons"	
9060	NPW	"Total Organic Carbon"	
9067	NPW S	"Phenolics (Spectrophotometric, MBTH With Distillation)"	
9095A	S	"Paint Filter Liquids Test"	
H-8167	DW NPW	"Method 8167 Chlorine, Total"	
Walkley/Black	S	FOC/TOC WB	
SM2320 B	DW NPW	"Alkalinity"	
SM2340B	NPW	"2340 Hardness"	
SM2510B	DW NPW	"2510 Conductivity"	
SM2540 B	NPW	"Total Solids Dried at 103-105° C"	
SM2540 C	DW NPW	"Total Dissolved Solids Dried at 180° C"	
SM2540 D	NPW	"Total Suspended Solids Dried at 103-105° C"	
SM4500-H+B	DW NPW	"pH Value"	
SM4500-NH3 C	NPW S	"4500-NH3" Ammonia	
SM4500-Norg	NPW	"4500-Norg" Total Kjeldahl Nitrogen (TKN)	
	_		

С	s	
SM5210 B	NPW	"5210 B. 5-day BOD Test"
SM5310 B	DW	"5310" Total Organic Carbon (TOC)
SM9223B	NPW	"0222 Enzyma Substrata Caliform Tost"
SIVIBZZSB	DW	"9223 Enzyme Substrate Coliform Test"
8000B	NPW	"Determinative Chromatographic Separations"
80008	s	
8000C	NPW	"Determinative Chromatographic Congrations"
	s	"Determinative Chromatographic Separations"

Criteria for Standard Operating Procedures

HEAL has Standard Operating Procedures (SOPs) for each of the test methods listed above. These SOPs are based upon the listed methods and detail the specific procedure and equipment utilized as well as the quality requirements necessary to prove the integrity of the data. SOPs are reviewed or revised every twelve months or sooner if necessary. The review/revision is documented in the Master SOP Logbook filed in the QA/QC Office. All SOPs are available in the LIMS under the Documents and SOPs menu.

Hand written corrections or alterations to SOPs are not permitted. In the event that a correction is needed and a revision is not immediately possible, a corrective action report will be generated documenting the correction or alteration, signed by the section Technical Director and the QA/QC Officer and will be scanned into the current SOP and will document the change until a new revision is possible.

Controlled documents such as calibration summary forms, analysis bench sheets, etc. are tracked as appendices in SOPs, through the Controlled Document Logbook with copies available through the LIMS or through the MOAL as bound logbooks.

Each HEAL test method SOP shall include or reference the following topics where applicable:

Identification of the test method; Applicable matrix or matrices;

Limits of detection and quantitation;

Scope and application, including parameters to be analyzed;

Summary of the test method;

Definitions;

Interferences:

Safety;

Equipment and supplies;

Reagents and standards;

Page 28 of 59 Quality Assurance Plan 9.9 Effective August 13th, 2014 Sample collection, preservation, shipment and storage;

Quality control parameters;

Calibration and standardization;

Procedure;

Data analysis and calculations;

Method performance;

Pollution prevention:

Data assessment and acceptance criteria for quality control measures;

Corrective actions for out-of-control data;

Contingencies for handling out-of-control or unacceptable data;

Waste management;

References; and

Any tables, diagrams, flowcharts and validation data.



7.0 Calibration

All equipment and instrumentation used at HEAL are operated, maintained and calibrated according to manufacturers' guidelines, as well as criteria set forth in applicable analytical methodology. Personnel who have been properly trained in their procedures perform the operation and calibration. Brief descriptions of the calibration processes for our major laboratory equipment and instruments are found below.

Thermometers

The thermometers in the laboratory are used to measure the temperatures of the refrigerators, freezers, ovens, water baths, incubators, hot blocks, ambient laboratory conditions, TCLP Extractions, digestion blocks, and samples at the time of log-in. All NIST traceable thermometers are either removed from use upon their documented expiration date or they are checked annually with a NIST-certified thermometer and a correction factor is noted on each thermometer log. See the most current Login SOP for detailed procedures on this calibration procedure.

Data Loggers are used to record refrigerator temperatures. These data loggers are calibrated quarterly with NIST-certified thermometers.

The NIST thermometer should be recalibrated at least every five years or whenever the thermometer has been exposed to temperature extremes.

Refrigerators/Freezers

Each laboratory refrigerator or freezer contains a thermometer capable of measuring to a minimum precision of 0.1°C. The thermometers are kept with the bulb immersed in liquid. Each day of use, the temperatures of the refrigerators are recorded to insure that the refrigerators are within the required designated range. Samples are stored separately from the standards to reduce the risk of contamination.

See the current Catastrophic Failure SOP for the procedure regarding how to handle failed refrigerators or freezers.

Ovens

The ovens contain thermometers graduated by 1° C. The ovens are calibrated quarterly against NIST thermometers and checked each day of use as required and in whatever way is dictated by or appropriate for the method in use.

Analytical and Table Top Balances

The table top balances are capable of weighing to a minimum precision of 0.01 grams. The analytical balances are capable of weighing to a minimum precision of 0.0001 grams. Records are kept of daily calibration checks for the balances in use. Working weights are used in these checks. The balances are annually certified by an outside source and the certifications are on file with the QA/QCO.

Balances, unless otherwise indicated by method specific SOPs, will be checked each day of use with at least two weights that will bracket the working range of the balance for the day. Daily balance checks will be done using working weights that are calibrated annually against Class S weights. Class S weights are calibrated by an external provider as required. The Class S weights are used once a year, or more frequently if required, to assign values to the Working Weights. During the daily balance checks, the working weights are compared to their assigned values and must pass in order to validate the calibration of the balance. The assigned values, as well as the daily checks, for the working weights are recorded in the balance logbook for each balance.

Instrument Calibration

An instrument calibration is the relationship between the known concentrations of a set of calibration standards introduced into an analytical instrument and the measured response they produce. Calibration curve standards are a prepared series of aliquots at various known concentration levels from a primary source reference standard. Specific mathematical types of calibration techniques are outlined in SW-846 8000B and/or 8000C. The entire initial calibration must be performed prior to sample analyses.

The lowest standard in the calibration curve must be at or below the required reporting limit.

Refer to the current SOP to determine the minimum requirement for calibration points.

Most compounds tend to be linear and a linear approach should be favored when linearity is suggested by the calibration data. Non-linear calibration should be considered only when a linear approach cannot be applied. It is not acceptable to use an alternate calibration procedure when a compound fails to perform in the usual manner. When this occurs, it is indicative of instrument issues or operator error.

If a non-linear calibration curve fit is employed, a minimum of six calibration levels must be used for second-order (quadratic) curves.

When more than 5 levels of standards are analyzed in anticipation of using second-order calibration curves, all calibration points MUST be used regardless of the calibration option employed. The highest or lowest calibration point may be excluded for the purpose of narrowing the calibration range and meeting the requirements for a specific calibration option. Otherwise, unjustified exclusion of calibration data is expressly forbidden.

Analytical methods vary in QC acceptance criteria. HEAL follows the method specific guidelines for QC acceptance. The specific acceptance criteria are outlined in the analytical methods and their corresponding SOPs.

pH Meter

The pH meter measures to a precision of 0.01 pH units. The pH calibration logbook contains the calibration before each use, or each day of use, if used more than once per day. It is calibrated using a minimum of 3 certified buffers. Also available with the pH meter is a magnetic stirrer with a temperature sensor. See the current pH SOP (SM4500 H+ B) for specific details regarding calibration of the pH probe.

Other Analytical Instrumentation and Equipment

The conductivity probe is calibrated as needed and checked daily when in use.

Eppendorf (or equivalent brands) pipettes are checked gravimetrically prior to use.

Standards

All of the source reference standards used are ordered from a reliable commercial vendor. A Certificate of Analysis (CoA), which verifies the quality of the standard, accompanies the standards from the vendor. The Certificates of Analysis are dated and stored on file by the Technical Directors or their designee. These standards are traceable to the National Institute of Standards (NIST). When salts are purchased and used as standards the certificate of purity must be obtained from the vendor and filed with the CoAs.

All standard solutions, calibration curve preparations, and all other quality control solutions are labeled in a manner that can be traced back to the original source reference standard. All source reference standards are entered into the LIMS with an appropriate description of the standard. Dilutions of the source reference standard (or any mixes of the source standards) are fully tracked in the LIMS. Standards are labeled with the date opened for use and with an expiration date.

As part of the quality assurance procedures at HEAL, analysts strictly adhere to manufacturer recommendations for storage times/expiration dates and policies of analytical standards and quality control solutions.

Reagents

HEAL ensures that the reagents used are of acceptable quality for their intended purpose. This is accomplished by ordering high quality reagents and adhering to good laboratory practices so as to minimize contamination or chemical degradation. All reagents must meet any specifications noted in the analytical method. Refer to the current Purchase of Consumables SOP for details on how this is accomplished and documented.

Upon receipt, all reagents are assigned a separate ID number, and logged into the LIMS. All reagents shall be labeled with the date received into the laboratory and again with the date opened for use. Recommended shelf life, as defined by the manufacturer, shall be documented and controlled. Dilutions or solutions prepared shall be clearly labeled, dated, and initialed. These solutions are traceable back to their primary reagents and do not extend beyond the expiration date listed for the primary reagent.

All gases used with an instrument shall meet specifications of the manufacturer. All safety requirements that relate to maximum and/or minimum allowed pressure, fitting types, and leak test frequency, shall be followed. When a new tank of gas is placed in use, it shall be checked for leaks and the date put in use will be written in the instrument maintenance logbook.

HEAL continuously monitors the quality of the reagent water and provides the necessary indicators for maintenance of the purification systems in order to assure that the quality of laboratory reagent water meets established criteria for all analytical methods. The majority of HEAL methods utilize medium quality deionized reagent water maintained at a resistivity greater than $1M\Omega$ in accordance with SM1080.

Reagent blank samples are also analyzed to ensure that no contamination is present at detectable levels. The frequency of reagent blank analysis is typically the same as calibration verification samples. Refrigerator storage blanks are stored in the volatiles refrigerator for a period of one week and analyzed and replaced once a week.

8.0 Maintenance

Maintenance logbooks are kept for each major instrument and all support equipment in order to document all repair and maintenance. In the front of the logbook, the following information is included:

Unique Name of the Item or Equipment
Manufacturer
Type of Instrument
Model Number
Serial Number
Date Received and Date Placed into Service
Location of Instrument
Condition of Instrument Upon Receipt

For routine maintenance, the following information shall be included in the log:

Maintenance Date
Maintenance Description
Maintenance Performed by Initials

A manufacturer service agreement (or equivalent) covers most major instrumentation to assure prompt and reliable response to maintenance needs beyond HEAL instrument operator capabilities.

Refer to the current Maintenance and Troubleshooting SOP for each section in the laboratory for further information.

9.0 Data Integrity

For HEAL's policy on ethics and data integrity, see section 3.0 of this document. Upon being hired, and annually thereafter, all employees at HEAL undergo documented data integrity training. All new employees sign an Ethics and Data Integrity Agreement, documenting their understanding of the high standards of integrity required at HEAL and outlining their responsibilities in regards to ethics and data integrity. See the current Document Control Logbook for a copy of this agreement.

In instances of ethical concern, analysts are required to report the known or suspected concern to their Technical Director, the Laboratory Manager, or the QA/QCO. This will be done in a confidential and receptive environment, allowing all employees to privately discuss ethical issues or report items of ethical concern.

Once reported and documented, the ethical concern will be immediately elevated to the Laboratory Manager and the need for an investigation, analyst remediation, or termination will be determined on a case-by-case basis.

All reported instances of ethical concern will be thoroughly documented and handled in a manner sufficient to rectify any breaches in data integrity with an emphasis on preventing similar incidences from happening in the future.

10.0 Quality Control

Internal Quality Control Checks

HEAL utilizes various internal quality control checks, including duplicates, matrix spikes, matrix spike duplicates, method blanks, laboratory control spikes, laboratory control spike duplicates, surrogates, internal standards, calibration standards, quality control charts, proficiency tests and calculated measurement uncertainty.

Refer to the current method SOP to determine the frequency and requirements of all quality controls. In the event that the frequency of analysis is not indicated in the method specific SOP, duplicate samples, laboratory control spikes (LCS), Method Blanks (MB), and matrix spikes and matrix spike duplicates (MS/MSD) are analyzed for every batch of twenty samples.

When sample volume is limited on a test that requires an MS/MSD an LCSD shall be analyzed to demonstrate precision and accuracy and when possible a sample duplicate will be analyzed.

Duplicates are identical tests repeated for the same sample or matrix spike in order to determine the precision of the test method. A Relative Percent Difference (RPD) is calculated as a measure of this precision. Unless indicated in the SOP, the default acceptance limit is </= 20%.

Matrix Spikes and Matrix Spike Duplicates are spiked samples (MS/MSD) that are evaluated with a known added quantity of a target compound. This is to help determine the accuracy of the analyses and to determine the matrix effects on analyte recovery. A percent recovery is calculated to assess the quality of the accuracy. In the event that the acceptance criteria is not outlined in the SOP, a default limit of 70-130% will be utilized. When an MSD is employed an RPD is calculated and when not indicated in the SOP shall be acceptable at </= 20%.

In an effort to evaluate all received matricies, MS/MSD samples are chosen randomly. Notable exceptions to this policy are when a client requests the MS/MSD be analyzed utilizing their sample or in the event the matrix requires such a significant dilution that utilizing it as an MS/MSD is impractical.

When appropriate for the method, a Method Blank should be analyzed with each batch of samples processed to assess contamination levels in the laboratory. MBs consist of all the reagents measured and treated as they are with samples, except without the samples. This enables the laboratory to ensure clean reagents and procedures. Guidelines should be in place for accepting or rejecting data based on the level of contamination in the blank. In the event that these guidelines are not dictated by the SOP or in client specific work plans, the MB should be less than the MDL reported for the analyte being reported.

It is important to note that the LIMS qualifies samples for Method Blank failures when the amount in the blank is greater than the sample's listed PQL.

A Laboratory Control Spike and Laboratory Control Spike Duplicate (LCS/LCSD) are reagent blanks, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst-specific precision and bias or to assess the performance of all or a portion of the measurement system. Guidelines are outlined in each SOP for the frequency and pass fail requirements for LCS and LCSDs. These limits can be set utilizing control charts as discussed below.

Surrogates are utilized when dictated by method and are substances with properties that mimic the analytes of interest. The surrogate is an analyte that is unlikely to be found in environmental samples. Refer to the appropriate Method and SOP for guidelines on pass/fail requirements for surrogates.

Internal Standards are utilized when dictated by the method and are known amounts of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method. Refer to the appropriate Method and SOP for guidelines on pass/fail requirements for Internal Standards.

Proficiency Test (PT) Samples are samples provided by an unbiased third party. They are typically analyzed twice a year, between five and seven months apart, or at any other interval as defined in the method SOP. They contain a pre-determined concentration of the target compound, which is unknown to HEAL. HEAL's management and all analysts shall ensure that all PT samples are handled in the same manner as real environmental samples utilizing the same staff, methods, procedures, equipment, facilities and frequency of analysis as used for routine analysis of that analyte. When analyzing a PT, HEAL shall employ the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates and other procedures as used when analyzing routine samples. PT results are reported as normal samples, within the working range of the associated calibration curve. In the event an analyte concentration is less than the PQL, the result shall be reported as less than the PQL.

With regards to analyzing PT Samples HEAL shall not send any PT sample, or portion of a PT sample, to another laboratory for any analysis for which we seek accreditation, or are accredited. HEAL shall not knowingly receive any PT sample or portion of a PT sample from another laboratory for any analysis for which the sending laboratory seeks accreditation, or is accredited. Laboratory management or staff will not communicate with any individual at another laboratory concerning the PT sample. Laboratory management or staff shall not attempt to obtain the assigned value of any PT sample from the PT Provider.

Upon receiving a Not Acceptable PT result for any analyte, a root cause analysis is conducted and the cause of the failure determined and corrected. As defined by TNI, two

out of the past three PTs must be acceptable to maintain accreditation for any given analyte. If this requirement is not met, a successful history will be reestablished by the analysis of an additional PT sample. For accredited tests, the PT provider will be notified, when the PT is for corrective action purposes. The analysis dates of successive PT samples for the same TNI accredited analyte shall be at least fifteen days apart.

Calibration standards are standards run to calibrate. Once the calibration is established the same standards can be analyzed as Continuing Calibration Verifications (CCV), used to confirm the consistency of the instrumentation. Calibration standards can be utilized at the beginning and end of each batch, or more frequently as required. Typically Continuing Calibration Blanks (CCB) are run in conjunction with CCVs. Refer to the current method SOP for frequency and pass/fail requirements of CCVs and CCBs.

Control Limits are limits of acceptable ranges of the values of quality control checks. The control limits approximate a 99% confidence interval around the mean recovery. Any matrix spike, surrogate, or LCS results outside of the control limits require further evaluation and assessment. This should begin with the comparison of the results from the samples or matrix spike with the LCS results. If the recoveries of the analytes in the LCS are outside of the control limits, then the problem may lie with the application of the extraction, with cleanup procedures, or with the chromatographic procedure. Once the problem has been identified and addressed, corrective action may include reanalysis of samples or reextraction followed by reanalysis. When the LCS results are within the control limits, the issue may be related to the sample matrix or to the use of an inappropriate extraction. cleanup, and/or determinative method for the matrix. If the results are to be used for regulatory compliance monitoring, then steps must be taken to demonstrate that the analytes of concern can be determined in the sample matrix at the levels of interest. Data generated with laboratory control samples that fall outside of the established control limits are judged to be generated during an "out-of-control" situation. These data are considered suspect and shall be repeated or reported with qualifiers.

Control limits are to be updated only by Technical Directors, Section Supervisors or the Quality Assurance Officer. Control limits should be established and updated according to the requirements of the method being utilized. When the method does not specify, and control limits are to be generated or updated for a test, the following guidelines shall be utilized.

Limits should typically be generated utilizing the most recent 20-40 data values. In order to obtain an even distribution across multiple instruments and to include more than a single day's worth of data, surrogate limits should be generated using around 100 data values. The data values used shall not reuse values that were included in the previous Control Limit update. The data values shall also be reviewed by the LIMS for any Grubbs Outliers, and if identified, the outliers must be removed prior to generating new limits. The results used to update control limits should meet all other QC criteria associated with the determinative method. For example, MS/MSD recoveries from a GC/MS procedure should be generated from samples analyzed after a valid tune and a valid initial calibration that includes all

analytes of interest. Additionally, no analyte should be reported when it is beyond the working range of the calibration currently in use. MS/MSD and surrogate limits should be generated using the same set of extraction, cleanup, and analysis procedures.

All generated limits should be evaluated for appropriateness. Where limits have been established for MS/MSD samples, the LCS/LCSD limits should fall within those limits, as the LCS/LCSD are prepared in a clean matrix. Surrogate limits should be updated using all sample types and should be evaluated to ensure that all instruments as well as a reasonable dispersion across days are represented by the data. LCS/LCSD recovery limits should be evaluated to verify that they are neither inappropriately wide nor unreasonably tight. The default LCS/LCSD acceptance limits of 70-130% and RPD of 20% (or those limits specified by the method for LCS/LCSD and/or CCV acceptability), should be used to help make this evaluation. Technical directors may choose to use warning limits when they feel their generated limits are too wide, or default LCS limits when they feel their limits have become arbitrarily tight.

Once new Control Limits have been established and updated in the LIMS, the Control Charts shall be printed and reviewed by the appropriate section supervisor and primary analyst performing the analysis for possible trends and compared to the previous Control Charts. The technical director initials the control charts, indicating that they have been reviewed and that the updated Limits have been determined to be accurate and appropriate. Any manual alterations to the limits will be documented and justified on the printed control chart. These initialed charts are then filed in the QA/QCO office.

Once established, control limits should be reviewed after every 20-30 data values and updated at least every six months, provided that there are sufficient points to do so. The limits used to evaluate results shall be those in place at the time that the sample was analyzed. Once limits are updated, those limits apply to all subsequent analyses.

When updating surrogate control limits, all data, regardless of sample/QC type, shall be updated together and assigned one set of limits for the same method/matrix.

In the event that there are insufficient data points to update limits that are over a year old, the default limits, as established in the method or SOP, shall be re-instated. Refer to the requirements in SW-846 method 8000B and 8000C for further guidance on generating control limits.

Calculated Measurement Uncertainty is calculated annually using LCSs in order to determine the laboratory specific uncertainty associated with each test method. These uncertainty values are available to our clients upon request and are utilized as a trending tool internally to determine the effectiveness of new variables introduced into the procedure over time.

Client Requested QC

Occasionally certain clients will require QC that is not defined by or covered in the SOPs. These special requests will be issued to all analysts and data reviewers in writing and the analysts and data reviewers will be provided with guidance on how to properly document the client requested deviation/QC in their preparation and analytical batches.

Precision, Accuracy, Detection Levels

Precision

The laboratory uses sample duplicates, laboratory control spike duplicates, and matrix spike duplicates to assess precision in terms of relative percent difference (RPD). HEAL requires the RPD to fall within the 99% confidence interval of established control charts or an RPD of less than 20% if control charts are not available. RPD's greater than these limits are considered out-of-control and require an appropriate response.

RPD = 2 x (Sample Result – Duplicate Result) X 100 (Sample Result + Duplicate Result)

Accuracy

The accuracy of an analysis refers to the difference between the calculated value and the actual value of a measurement. The accuracy of a laboratory result is evaluated by comparing the measured amount of QC reference material recovered from a sample and the known amount added. Control limits can be established for each analytical method and sample matrix. Recoveries are assessed to determine the method efficiency and/or the matrix effect.

Analytical accuracy is expressed as the Percent Recovery (%R) of an analyte or parameter. A known amount of analyte is added to an environmental sample before the sample is prepared and subsequently analyzed. The equation used to calculate percent recovery is:

%Recovery = {(concentration* recovered)/(concentration* added)} X 100

HEAL requires that the Percent Recovery to fall within the 99 % confidence interval of established control limits. A value that falls outside of the confidence interval requires a warning and process evaluation. The confidence intervals are calculated by determining the mean and sample standard deviation. If control limits are not available, the range of 80 to 120% is used unless the specific method dictates

^{*}or amount

otherwise. Percent Recoveries outside of this range mandate additional action such as analyses by Method of Standard Additions, additional sample preparation(s) where applicable, method changes, and out-of-control action or data qualification.

Detection Limit

Current practices at HEAL define the Detection Limit (DL) as the smallest amount that can be detected above the baseline noise in a procedure within a stated confidence level.

HEAL presently utilizes an Instrument Detection Limit (IDL), a Method Detection Limit (MDL), and a Practical Quantitation Limit (PQL). The relationship between these levels is approximately

IDL: MDL: PQL = 1:5:5.

The IDL is a measure of the sensitivity of an analytical instrument. The IDL is the amount which, when injected, produces a detectable signal in 99% of the analyses at that concentration. An IDL can be considered the minimum level of analyte concentration that is detectable above random baseline noise.

The MDL is a measure of the sensitivity of an analytical method. MDL studies are required annually for each quality system matrix, technology and analyte, unless indicated otherwise in the referenced method. An MDL determination (as required in 40CFR part 136 Appendix B) consists of replicate spiked samples carried through all necessary preparation steps. The spike concentration is three times the standard deviation of three replicates of spikes. At least seven replicates are spiked and analyzed and their standard deviation(s) calculated. Routine variability is critical in passing the 10 times rule and is best achieved by running the MDLs over different days and when possible over several calibration events. Standard Methods and those methods used for drinking water analysis must have MDL studies that are performed over a period of at least three days in order to include day to day variations. The method detection limit (MDL) can be calculated using the standard deviation according to the formula:

$$MDL = s * t (99\%),$$

where t (99%) is the Student's t-value for the 99% confidence interval. The t-value depends on the number of trials used in calculating the sample standard deviation, so choose the appropriate value according to the number of trials.

Number of Trials	t(99%)
6	3.36
7	3.14
8	3.00
9	2.90

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The calculated MDL must not be less than 10 times the spiked amount or the study must be performed again with a lower concentration.

Where there are multiple MDL values for the same test method in the LIMS the highest MDL value is utilized.

The PQL is significant because different laboratories can produce different MDLs although they may employ the same analytical procedures, instruments and sample matrices. The PQL is about two to five times the MDL and represents a practical, and routinely achievable, reporting level with a good certainty that the reported value is reliable. It is often determined by regulatory limits. The reported PQL for a sample is dependent on the dilution factor utilized during sample analysis.

In the event that an analyte will not be reported less than the PQL, an MDL study is not required and a PQL check shall be done, at least annually, in place of the MDL study. The PQL check shall consist of a QC sample spiked at or below the PQL. All sample-processing and analysis steps of the analytical method shall be included in the PQL check and shall be done for each quality system matrix, technology, and analyte. A successful check is one where the recovery of each analyte is within the established method acceptance criteria. When this criterion is not defined by the method or SOP, a default limit of +/-50% shall be utilized.

Quality Control Parameter Calculations

Mean

The sample mean is also known as the arithmetic average. It can be calculated by adding all of the appropriate values together, and dividing this sum by the number of values.

Average =
$$(\Sigma x_i) / n$$

 x_l = the value x in the l^{th} trial n = the number of trials

Standard Deviation

The sample standard deviation, represented by s, is a measure of dispersion. The dispersion is considered to be the difference between the average and each of the

values x_i . The variance, s^2 , can be calculated by summing the squares of the differences and dividing by the number of differences. The sample standard deviation, s, can be found by taking the square root of the variance.

Standard deviation =
$$s = \left[\sum (x_1 - average)^2 / (n - 1)\right]^{\frac{1}{2}}$$

Percent Recovery (LCS and LCSD)

Percent Recovery (MS, MSD)

Control Limits

Control Limits are calculated by the LIMS using the average percent recovery (x), and the standard deviation (s).

Upper Control Limit =
$$x + 3s$$

Lower Control Limit = $x - 3s$

These control limits approximate a 99% confidence interval around the mean recovery.

Grubbs Outliers

Grubbs Outliers are calculated by the LIMS during the generation of control limits and uncertainties. An outlier is an observation that appears to deviate markedly from other observations in the sample set and are removed, unless documented otherwise.

Identify both the lowest and highest values in the sample set. Use the following equations to determine the T values.

$$T = \frac{x_{max} - x_{mean}}{sd}$$
 (for the largest value)

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$$T = \frac{x_{mean} - x_{min}}{sd}$$
 (for the smallest value)

Compare the T values to the Grubbs' critical value table. If either value of T is greater than the critical value (assuming a 5% risk) for the sample size, the point(s) must be dropped then the calculation repeated for both the lowest and highest value using the new mean and standard deviation.

The Grubbs test is repeated until there are no longer any outliers detected. Keep in mind you must have at least 20 data points available to generate your limits.

RPD (Relative Percent Difference)

Analytical precision is expressed as a percentage of the difference between the results of duplicate samples for a given analyst. Relative percent difference (RPD) is calculated as follows:

RPD = 2 x (Sample Result – Duplicate Result) X 100 (Sample Result + Duplicate Result)

Uncertainty Measurements

Uncertainty, as defined by ISO, is the parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measurement. Ultimately, uncertainty measurements are used to state how good a test result is and to allow the end user of the data to properly interpret their reported data. All procedures allow for some uncertainty. For most analyses, the components and estimates of uncertainty are reduced by following well-established test methods. To further reduce uncertainty, results generally are not reported below the lowest calibration point (PQL) or above the highest calibration point (UQL). Understanding that there are many influential quantities affecting a measurement result, so many in fact that it is impossible to identify all of them, HEAL calculates measurement uncertainty at least annually using LCSs. These estimations of measurement uncertainty are kept on file in the method folders in the QA/QC office.

Measurement Uncertainty contributors are those that may be determined statistically. These shall be generated by estimating the overall uncertainty in the entire analytical process by measuring the dispersion of values obtained from laboratory control samples over time. At least 20 of the most recent LCS data points are gathered. The standard deviation(s) is calculated using these LCS data points. Since it can be

assumed that the possible estimated values of the spikes are approximately normally distributed with approximate standard deviation(s), the unknown value of the spike is believed to lie in 95% confidence interval, corresponding to an uncertainty range of +/- 2(s).

Calculate standard deviation (s) and 95% confidence interval according to the following formulae:

$$s = \sqrt{\frac{\sum (x - \overline{x})^2}{(n-1)}}$$

Where: s = standard deviation

x = number in series

 \overline{x} = calculated mean of series

n = number of samples taken

95% $confidence = 2 \times s$

Example: Assuming that after gathering 20 of the most recent LCS results for Bromide, we have calculated the standard deviations of the values and achieved a result of 0.0326, our measurement of uncertainty for Bromide (at 95% confidence = $2 \times s$) is 0.0652.

Total Nitrogen

Total nitrogen is calculated as follows:

Langelier Saturation Index

The Langelier Saturation Index (LSI) is calculated as follows:

Solids Factor (SF) =(Log10[TDS] - 1) / 10 Ca Hardness Factor (HF) = Log10([Ca] x 2.497) - 0.4 Alkalinity Factor (AF) = Log10[Alkalinity] Temp. Factor (TF) = -13.12 x Log10($^{\circ}$ C + 273) + 34.55 pHs (pH @ saturation) =(9.3 + SF + TF) - (HF + AF) LSI = pH - pH_s

Calibration Calculations

1. Response Factor or Calibration Factor:

$$RF = ((A_x)(C_{is}))/((A_{is})(C_x))$$

$$CF=(A_x)/(C_x)$$

a. Average RF or CF

$$RF_{AVE} = \Sigma RF_i / n$$

b. Standard Deviation $s = SQRT \{ [\Sigma (RF_i - RF_{AVE})^2] / (n-1) \}$

c. Relative Standard Deviation

Where:

 A_x = Area of the compound

 C_x = Concentration of the compound

A_{is} = Area of the internal standard

C_{is} = Concentration of the internal standard

n = number of pairs of data

RF_i = Response Factor (or other determined value)

RF_{AVE} = Average of all the response factors

 Σ = the sum of all the individual values

2. Linear Regression

a. Slope (m)

$$m = (n\Sigma x_i y_i - (n\Sigma x_i)^*(n\Sigma y_i)) / (n\Sigma x_i^2 - (\Sigma x_i)^2)$$

b. Intercept (b)

$$b = y_{AVE} - m^*(x_{AVE})$$

c. Correlation Coefficient (cc)

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$$\begin{array}{l} \text{CC (r) = } \{ \ \Sigma((x_i - x_{ave})^*(y_i - y_{ave})) \ \} \ / \ \{ \ \text{SQRT}((\Sigma(x_i - x_{ave})^2)^*(\Sigma(y_i - y_{ave})^2)) \ \} \\ \text{Or} \\ \text{CC (r) = } [(\Sigma w \ ^* \Sigma wxy) - (\Sigma wx \ ^* \Sigma wy)] \ / \ (\text{sqrt}(\ (\ [(\Sigma w \ ^* \Sigma wx^2) - (\Sigma wx \ ^* \Sigma wx)] \ ^* \ [(\Sigma w \ ^* \Sigma wy^2) - (\Sigma wy \ ^* \Sigma wy)])))] \\ \end{array}$$

d. Coefficient of Determination

$$COD(r^2) = CC*CC$$

Where:

y = Response (Area) Ratio A_x/A_{is}

 $x = Concentration Ratio C_x/C_{is}$

m = slope

b = intercept

n = number of replicate x,y pairs

 x_i = individual values for independent variable

y_i = individual values for dependent variable

 Σ = the sum of all the individual values

 x_{ave} = average of the x values

y_{ave} = average of the y values

w = weighting factor, for equal weighting w=1

3. Quadratic Regression

$$y = ax^2 + bx + c$$

a. Coefficient of Determination

COD
$$(r^2) = (\Sigma(y_{i-}y_{ave})^2 - \{[(n-1)/(n-p)] * [\Sigma(y_{i-}Y_i)^2]\}) / \Sigma(y_{i-}y_{ave})^2$$

Where:

y = Response (Area) Ratio A_x/A_{is}

 $x = Concentration Ratio C_x/C_{is}$

 $a = x^2$ coefficient

b = x coefficient

c = intercept

y_i = individual values for each dependent variable

 x_i = individual values for each independent variable

 y_{ave} = average of the y values

n = number of pairs of data

p = number of parameters in the polynomial equation (I.e., 3 for third order, 2 for second order)

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$$Yi = ((2*a*(C_x/C_{is})^2)-b^2+b+(4*a*c))/(4a)$$

b. Coefficients (a,b,c) of a Quadratic Regression

$$a = S_{(x2y)}S_{(xx)} - S_{(xy)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$b = S_{(xy)}S_{(x2x2)} - S_{(x2y)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$c = [(\Sigma yw)/n] - b^*[(\Sigma xw)/n] - a^*[\Sigma(x^2w)/n]$$

Where:

n = number of replicate x,y pairs

x = x values

y = y values

 $w = S^{-2} / (\Sigma S^{-2}/n)$

 $S_{(xx)} = (\Sigma x^2 w) - [(\Sigma x w)^2 / n]$

 $S_{(xy)} = (\Sigma xyw) - [(\Sigma xw)^*(\Sigma yw) / n]$

 $S_{(xx2)} = (\Sigma x^3 w) - [(\Sigma x w)^* (\Sigma x^2 w) / n]$

 $S_{(x2y)} = (\Sigma x^2 yw) - [(\Sigma x^2 w)^* (\Sigma yw) / n]$

 $S_{(x2x2)} = (\Sigma x^4 w) - [(\Sigma x^2 w)^2 / n]$

Or If unweighted calibration, w=1

S(xx) = (Sx2) - [(Sx)2 / n]

S(xy) = (Sxy) - [(Sx)*(Sy) / n]

S(xx2) = (Sx3) - [(Sx)*(Sx2) / n]

S(x2y) = (Sx2y) - [(Sx2)*(Sy) / n]

S(x2x2) = (Sx4) - [(Sx2)2 / n]

Weighting

Weighting of 1/x or $1/x^2$ is permissible for linear calibrations. Weighting shall not be employed for quadratic calibrations. When weighting, use the above equations by substituting x for 1/x or $1/x^2$.

Concentration Calculations

On-Column Concentration for Average RRF Calibration using Internal Standard

On-Column Concentration $C_x = ((A_x)(C_{is}))/((A_{is})(RF_{AVE}))$

On-Column Concentration for Average CF Calibration using External Standard

On-Column Concentration $C_x = (A_x)/(CF_{AVE})$

On-Column Concentration for Linear Calibration

Page 48 of 59 Quality Assurance Plan 9.9 Effective August 13th, 2014 If determining an external standard, then exclude the A_{is} and C_{is} for internal standards On-Column Concentration $C_x = ((Absolute\{[(A_x)/(A_{is})] - b\})/m) * C_{is}$

Where: m = slope

b = intercept

 A_x = Area of the Sample

Cis = Concentration of the Internal Standard

A_{is} = Area of the Internal Standard

On-Column Concentration for Quadratic Calibration

If determining an external standard, then exclude the A_{is} and C_{is} for internal standards On-Column Concentration =[(+SQRT(b^2 -(4*a*(c-y)))-b)/(2*a)] * C_{is}

Where: $a = x^2$ coefficient

b = x coefficient

c = intercept

 $y = Area Ratio = A_x/A_{is}$

Cis = Concentration of the Internal Standard

Final Concentration (Wet Weight)

Concentration for Extracted Samples = (On-Column Conc)(Dilution)(Final Volume)

(Initial Amount)(Injection Volume)

Concentration for Purged Samples = (On-Column Conc)(Purged Amount)(Dilution)
(Purged Amount)

Dry Weight Concentration

Dry Weight Concentration = Final Concentration Wet Weight *100 % Solids

Percent Difference

% Difference= Absolute(Continuing Calibration RRF - Average RRF) * 100
Average RRF

Percent Drift

% Drift= Absolute(Calculated Concentration - Theoretical Concentration) * 100
Theoretical Concentration

Dilution Factor

Dilution Factor =(Volume of Solvent + Solute) / Volume of Solute

Relative Retention Time

RRT =RT of Compound / RT of ISTD

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Breakdown Percent

Breakdown = <u>Area of DDD + Area of DDE</u> Average (DDT, DDE and DDD)

-or-

<u>Area of Endrin Ketone + Area of Endrin Aldehyde</u> Average (Endrin, Endrin Ketone, Endrin Aldehyde)



11.0 Data Reduction, Validation, Reporting, and Record Keeping

All data reported must be of the highest possible accuracy and quality. During the processes of data reduction, validation, and report generation, all work is thoroughly checked to insure that error is minimized.

Data Reduction

The analyst who generated the data usually performs the data reduction. The calculations include evaluation of surrogate recoveries (where applicable), and other miscellaneous calculations related to the sample quantitation.

If the results are computer generated, then the formulas must be confirmed by hand calculations, at minimum, one per batch.

See the current Data Validation SOP for details regarding data reduction.

Validation

A senior analyst, most often the section supervisor, validates the data. All data undergoes peer review. If an error is detected, it is brought to the analyst's attention so that he or she can rectify the error, and perform further checks to ensure that all data for that batch is sound. Previous and/or common mistakes are stringently monitored throughout the validation process. Data is reported using appropriate significant figure criteria. In most cases, two significant digits are utilized, but three significant digits can be used in QC calculations. Significant digits are not rounded until after the last step of a sample calculation. All final reports undergo a review by the laboratory manager, the project manager, or their designee, to provide a logical review of all results before they are released to the client.

If data is to be manually transferred between media, the transcribed data is checked by a peer. This includes data typing, computer data entry, chromatographic data transfer, data table inclusion to a cover letter, or when data results are combined with other data fields.

All hand-written data from run logs, analytical standard logbooks, hand-entered data logbooks, or on instrument-generated chromatograms, are systematically archived should the need for future retrieval arise.

See the current Data Validation SOP for details regarding data validation.

Reports and Records

All records at HEAL are retained and maintained through the procedures outlined in the most recent version of the Records Control SOP.

Sample reports are compiled by the Laboratory Information Management System (LIMS). Most data is transferred directly from the instruments to the LIMS. After being processed by the analyst and reviewed by a data reviewer, final reports are approved and signed by the senior laboratory management. A comparative analysis of the data is performed at this point. For example, if TKN and NH3 are analyzed on the same sample, the NH3 result should never be greater than the TKN result. Lab results and reports are released only to appropriately designated individuals. Release of the data can be by fax, email, electronic deliverables, or mailed hard copy.

When a project is completed, the final report, chain of custody, any relevant supporting data, and the quality assurance/control worksheets are scanned as a .pdf file onto the main server. Original client folders are kept on file and are arranged by project number. Additionally, all electronic data is backed up routinely on the HEAL main server. The backup includes raw data, chromatograms, and report documents. Hard copies of chromatograms are stored separately according to the instrument and the analysis date. All records and analytical data reports are retained in a secure location as permanent records for a minimum period of five years (unless specified otherwise in a client contract). Access to archived information shall be documented with an access log. Access to archived electronic reports and data will be password protected. In the event that HEAL transfers ownership or terminates business practices, complete records will be maintained or transferred according to the client's instructions.

After issuance, the original report shall remain unchanged. If a correction to the report is necessary, then an additional document shall be issued. This document shall have a title of "Addendum to Test Report or Correction to Original Report", or equivalent. Demonstration of original report integrity comes in two forms. First, the report date is included on each page of the final report. Second, each page is numbered in sequential order, making the addition or omission of any data page(s) readily detectable.

12.0 Corrective Action

Refer to the most recent version of the Data Validation SOP for the procedure utilized in filling out a Corrective Action Report. A blank copy of the corrective action report is available in the current Document Control Logbook.

The limits that have been defined for data acceptability also form the basis for corrective action initiation. Initiation of corrective action occurs when the data generated from continuing calibration standard, sample surrogate recovery, laboratory control spike, matrix spike, or sample duplicates exceed acceptance criteria. If corrective action is necessary, the analyst or the section supervisor will coordinate to take the following guidelines into consideration in order to determine and correct the measurement system deficiency:

Check all calculations and data measurements systems (Calibrations, reagents, instrument performance checks, etc.).

Assure that proper procedures were followed.

Unforeseen problems that arise during sample preparation and/or sample analysis that lead to treating a sample differently from documented procedures shall be documented with a corrective action report. The section supervisor and laboratory manager shall be made aware of the problem at the time of the occurrence. See the appropriate SOP regarding departures from documented procedures.

Continuing calibration standards below acceptance criteria cannot be used for reporting analytical data unless method specific criteria states otherwise.

Continuing calibration standards above acceptance criteria can be used to report data as long as the failure is isolated to a single standard and the corresponding samples are non-detect for the failing analyte.

Samples with non-compliant surrogate recoveries should be reanalyzed, unless deemed unnecessary by the supervisor for matrix, historical data, or other analysis-related anomalies.

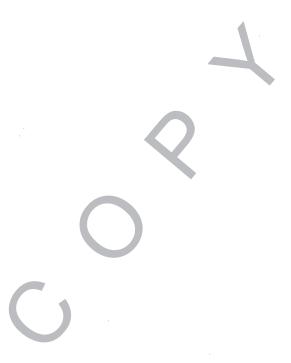
Laboratory and Matrix Spike acceptance criteria vary significantly depending on method and matrix. Analysts and supervisors meet and discuss appropriate corrective action measures as spike failures occur.

In the event that results must be reported with associated QC failures, the data must be qualified appropriately to notify the end user of the QC failure.

Sample duplicates with RPD values outside control limits require supervisor evaluation and possible reanalysis.

A second mechanism for initiation of corrective action is that resulting from Quality Assurance performance audits, system audits, inter- and intra-laboratory comparison studies. Corrective Actions initiated through this mechanism will be monitored and coordinated by the laboratory QA/QCO.

All corrective action forms are entered in the LIMS and included with the raw data for peer review, signed by the technical director of the section and included in the case narrative to the client whose samples were affected. All Corrective action forms in the LIMS are reviewed by the QA/QCO.



13.0 Quality Assurance Audits, Reports and Complaints

Internal/External Systems' Audits, Performance Evaluations, and Complaints

Several procedures are used to assess the effectiveness of the quality control system. One of these methods includes internal performance evaluations, which are conducted by the use of control samples, replicate measurements, and control charts. External performance audits, which are conducted by the use of inter-laboratory checks, such as participation in laboratory evaluation programs and performance evaluation samples available from a NELAC-accredited Proficiency Standard Vendor, are another method.

Proficiency samples will be obtained twice per year from an appropriate vendor for all tests and matrices for which we are accredited and for which PTs are available. HEAL participates in soil, waste water, drinking water, and underground storage tank PT studies. Copies of results are available upon request. HEAL's management and all analysts shall ensure that all PT samples are handled in the same manner as real environmental samples utilizing the same staff, methods, procedures, equipment, facilities, and frequency of analysis as used for routine analysis of that analyte. When analyzing a PT, HEAL shall employ the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates, and other procedures as used when analyzing routine samples.

With regards to analyzing PT Samples, HEAL shall not send any PT sample, or portion of a PT sample, to another laboratory for any analysis for which we seek accreditation, or are accredited. HEAL shall not knowingly receive any PT sample or portion of a PT sample from another laboratory for any analysis for which the sending laboratory seeks accreditation, or is accredited. Laboratory management or staff will not communicate with any individual at another laboratory concerning the PT sample. Laboratory management or staff shall not attempt to obtain the assigned value of any PT sample from the PT Provider.

Internal Audits are performed annually by the QA/QCO in accordance with the current Internal Audit SOP. The system audit consists of a qualitative inspection of the QA system in the laboratory and an assessment of the adequacy of the physical facilities for sampling, calibration, and measurement. This audit includes a careful evaluation and review of laboratory quality control procedures. Internal audits are performed using the guidelines outlined below, which include, but are not limited to:

- Review of staff qualifications, demonstration of capability, and personnel training programs
- 2. Storage and handling of reagents, standards, and samples
- 3. Standard preparation logbook and LIMS procedures
- 4. Extraction logbooks
- 5. Raw data logbooks
- 6. Analytical logbooks or batch printouts and instrument maintenance logbooks

- 7. Data review procedures
- 8. Corrective action procedures
- 9. Review of data packages, which is performed regularly by the lab manager/QA Officer.

The QA/QCO will conduct these audits on an annual basis.

Management Reviews

HEAL management shall periodically, and at least annually, conduct a review of the laboratory's quality system and environmental testing activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. The review shall take account of:

- 1. the suitability and implementation of policies and procedures
- 2. reports from managerial and supervisory personnel
- 3. the outcome of recent internal audits
- 4. corrective and preventive actions
- 5. assessments by external bodies
- 6. the results of inter-laboratory comparisons or proficiency tests
- 7. changes in volume and type of work
- 8. client feed back
- 9. complaints
- 10. other relevant factors, such as laboratory health and safety, QC activities, resources, and staff training.

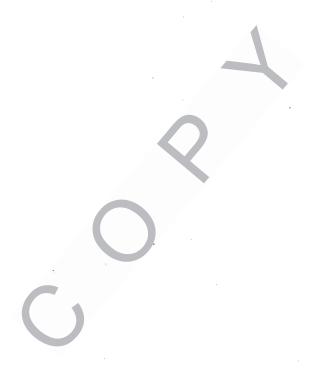
Findings from management reviews and the actions that arise from them shall be recorded and any corrective actions that arise shall be completed in an appropriate and agreed upon timescale.

Complaints

Complaints from clients are documented and given to the laboratory manager. The lab manager shall review the information and contact the client. If doubt is raised concerning the laboratory's policies or procedures, then an audit of the section or sections may be performed. All records of complaints and subsequent actions shall be maintained in the client compliant logbook for five years unless otherwise stated.

Internal and External Reports

The QA/QCO is responsible for preparation and submission of quality assurance reports to the appropriate management personnel as problems and issues arise. These reports include the assessment of measurement systems, data precision and accuracy, and the results of performance and system audits. Additionally, they include significant QA problems, corrective actions, and recommended resolution measures. Reports of these Quality Assurance Audits describe the particular activities audited, procedures utilized in the examination and evaluation of laboratory records, and data validation procedures. Finally, there are procedures for evaluating the performance of Quality Control and Quality Assurance activities, and laboratory deficiencies and the implementation of corrective actions with the review requirements.



14.0 References (Analytical Protocols Utilized at HEAL)

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- 8. <u>Langelier index calculation.</u> http://www.corrosion-doctors.org/NaturalWaters/Langelier.htm.
- 9. <u>Manual for the Certification of Laboratories Analyzing Drinking Water, Criteria and procedures Quality Assurance Fifth Edition, U.S. Environmental Protection Agency, January 2005.</u>
- 10. <u>Manual of Operating Procedures for the Analysis of Selected Soil, Water, Plant Tissue and Wastes Chemical and physical Parameter.</u> Soil, Water, and Plant Analysis Laboratory, Dept. of Soil and Water Science, The University of Arizona, August 1989
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- 14. <u>Methods of Soil Analysis</u>: Parts 1 & 2, 2nd Edition, Agronomy Society of America, Monograph 9
- 15. Polycyclic Aromatic Hydrocarbons in Water Systems, CRC Press, Inc.

- 16. <u>Procedures for Collecting Soil Samples and Methods of Analysis for Soil Survey.</u> USDA Soil Conservation Service, SSIR No. 1
- 17. Quality Systems for Analytical Services, Revision 2.2, U.S. Department of Energy, October 2006.
- 18. <u>Sampling Procedures and Chemical Methods in Use at the U.S. Salinity Laboratory for Characterizing Salt-Affected Soils and Water.</u> USDA Salinity Laboratory.
- 19. <u>Soil Survey Laboratory Methods Manual.</u> Soil Survey Laboratory Staff. Soil Survey Investigations Report No. 42, version 2.0, August 1992.
- 20. <u>Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity,</u> Technical Bulletin LT B88-2 January, 1988
- 21. <u>Standard Methods for the Examination of Water and Wastewater:</u> AOHA, AWWA, and WPCG; 20th Edition, 1999.
- 22. <u>Technical Notes on Drinking Water Methods</u>, U.S. Environmental Protection Agency, October 1994.
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<u>Appendix D</u>

N/A = Not Applicable O//S = Out of Service

A A A N/A A N N

Repairs/Maint

Sewer Box Number

Completion date Inspection results Repairs/Maint Needed SEWER BOXES - Inspection & Repair Schedule Pass/Fail Actual Inspection Date | N/A Not Tested Not Tested **Drawing Reference** D-500-500-124
D-500-500-124
D-500-500-124
D-500-500-124
D-500-500-124 D-500-500-124
D-500-500-134
D-500-500-134
D-500-500-134
D-500-500-134
D-500-500-134 D-500-500-134 D-500-500-134 D-500-500-134 D-500-500-124 **BLOOMFIELD TERMINAL** Type Material Concrete
Concrete
Concrete
Concrete
Concrete
Concrete Concrete Concrete Concrete Concrete Steel In Roadway Southwest of C-801's In Roadway Southeast of Wet Gas South of Treater Northwest of Main Pipe Bridge Southeast of Precipitator Southeast of Main Blower Southeast of Old Desalter Southeast of Control Room Southeast of Reformer Southwest of Mainblower South of P-113's South of P-105's West of New Desalter South of T-102 South of P-103;s In Roadway South of FCCU Location

SUMPS - Inspection & Repair Schedule **BLOOMFIELD TERMINAL**

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Renairs/Maint	Completion date	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Repairs/Maint	Needed	N/A	N/A	N/A	None	None	None	N/A	None	None	None	None	None	None	N/A	N/A	N/A	N/A	None	None	None	None	None	None	None	None	N/A	N/A
Inspection results	Pass/Fail	S/O	S/O	S/O	Pass	Pass	Pass	N/A	Pass	Pass	Pass	Pass	Pass	Pass	S/O	S/O	N/A	S/O	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	S/O	S/O
Inspection results Rep	Actual Inspection Date	S/O	S/O	S/O	7/23/2014	7/23/2014	7/22/2014	Removed	7/23/2014	7/23/2014	7/22/2014	7/21/2014	7/21/2014	7/21/2014	S/O	S/O	7/21/2014	S/O	7/22/2014	7/22/2014	7/22/2014	7/22/2014	7/23/2014	7/22/2014	7/23/2014	7/23/2014	S/O	S/O
	Drawing Reference	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023	D-000-900-023
	Type Material	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete	Sump Removed	Concrete	Concrete	DW Steel	Concrete	DW Steel	DW Steel	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete	DW Steel	DW Steel	Concrete	Concrete	Concrete	Concrete
	Location	Sump @ S.W. Side Of Tk. 3	Sump Between Tk. 3 & 4	Sump Between Tk. 4 & 5	Sump @ N.Side Of Tk. 5	Sump Between Tk. 11 & 12	Sump Between Tk. 13 & 14	Sump @ N. Side Of Tk. 17	Sump @ N.E. Side Of Tk. 18	Sump @ N.E. Side Of Tk. 19	Sump @ S.W. Side Of Tk. 20	Sump @ S. Side Of Tk. 23	Sump @ E. Side Of Tk. 24	Sump @ E. Side Of Tk. 25		Sump @ S.E. Side Of Tk. 27	Sump @ West Side Of Tk. 28	Sump @ N.E. Side Of Tk. 29	Sump @ S.W. Side Of Tk. 30	Sump @ N.W. Side Of Tk. 31	Sump @ S.E. Side Of Tk. 31	Sump @ East Side Of Tk. 32	Sump @ N.E. Side Of Tk. 35	Sump @ N.E. Side Of Tk. 36	Sump @ S. Side Of Tk. 18	Sump @ S. Side Of Tk. 19	Sump @ S. Side Of Flare	Sump @ N.W. Of Precipitator
Sumo	Number	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

DW = Double Wall O/S = Out of Service N/A = Not Applicable

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

			- dri					Noxt	136	Inspection	Test/		Repairs-Maint
Line Number	Description (Service)	Line Size	Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Inspection Scheduled	Inspection	Results Pass/Fail	Inspection	Repairs/Maint Needed	Completion
-	Effilent Wtr. Transfer Line	9	3250	Effilent Pond Outlet Pump P-616	Effluent Transfer P-671	D-500-800-031	PVC	2015	Jul-10	Pass	Hydrostatic	None	N/A
2	Effilent Wtr. Trans. Pump	9	806	North Evaporation Pond Outlet	Effilent Transfer Pump P-671	D-500-800-031	PVC	2014	Aug-14	Fail	Hydrostatic	Repairs/Maint Needed	N/A
3	Effilent Wtr. Pump Disch.	9	2797	Effluent Transfer P-671	Injection Well Building	D-500-800-031	PVC	2014	Aug-14	Pass	Hydrostatic	None	N/A
4	Injection Well Recir. Line	9	2512	Injection Well Building	North Evaporation Pond	D-500-800-031	PVC	2014	Aug-14	Pass	Hydrostatic	None	N/A
2	River Terrace Transfer Line	2	277	River Terrace Processing Skid	River Pump Building Water Basin	D-500-800-043	PVC	2016	Aug-11	Pass	Hydrostatic	None	NA
9	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	9	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
80	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	A/N
6	Premium Reciepts 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
17	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	2014					
13	Subgrade receipts to tanks 13, 14	4	218		Area Northeast of B-21	D-600-800-118 (G-17)	Carbon steel	2017	Apr-12	Pass	Hydrostatic	None	
41	VRU Effluent	3	275	Pipe Rack Southwest of Tk. #31	East of B-21	D-600-800-114 (D-1)	Carbon steel	2015	Aug-10	Pass	Hydrostatic	None	ΝΑ
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 (*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 (*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 (*Temporarily Out of Service		
18	C-4 To Storage	2			Area Northeast of B- 21	N/A	Carbon steel			*Temporarily (*Temporarily Out of Service		
19	C-3 To Storage	2			Area Northeast of B- 21	ΝΆ	Carbon steel			*Temporarily (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	9	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		Υ'N	Carbon steel	2018	Dec-13	Pass	Praxair	None	N/A
23	ULSD/Naptha receipts	9	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	NA
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 (*Temporarily Out of Service		
25	Premium Sales from Tk. 32	9	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	Naphta Feed To VRU Unit	4		Transfer Pump @ Tk. # 44	Manifold @ VRU Unit	NewTech 595-M- 601	Carbon steel			*Temporarily (*Temporarily Out of Service		
28	blinded	4		Manifold @ VRU Unit	Α.	NewTech 595-M- 601	Carbon steel			*Temporarily (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	9	150	From F-706 Filter Piping	To Meter Spools @ Bavs # 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
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*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free

BLOOMFIELDTERMINAL UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule 13.0

Line Number	Description (Service)	Line Size	Line Length L/F		End Location	Drawing Reference	Constructio n Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
31	Premiun 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		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	80	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 Nozzel	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	-	To Tk. # 45 Inlet Nozzel	D-700-800-007	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
36	Naphtha Unloading Line	9		Suction Manifold @ P- 607A	Unloading line @ Tk. #18 and 19	B-600-500-296	Carbon steel			*Temporarily	*Temporarily Out of Service		
37	Naptha Rundown To Tk.# 35	က		Line From North Pipe Rack Area	To Tk. # 35 Fill Nozzle	B-600-500-232	Carbon steel			*Temporarily	*Temporarily Out of Service		
38	Naptha Feed Line to Unit	4		From P-607A Pump Discharge	To North Pipe Rack Feed To Units	B-600-500-236	Carbon steel			*Temporarily	*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	*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	*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	*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	*Temporarily Out of Service		
43	Sewer Transfer Line	10	54	From Main Sewer Box # 12	To Main Sewer Box #	D-500-500-402	Carbon steel	2014					
44	Sewer Transfer Line	10	46	wer Box	To Observation Access Can #10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	NA
45	Sewer Transfer Line	12	33	vation n	To Observation Access Can # 6	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	NA
46	Sewer Transfer Line	12	23	_	To Main Sewer Box # 5	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	NA
47	Sewer Transfer Line	14	69	×	To Observation Access Can # 4	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
48	Sewer Transfer Line	14	98	rvation an #4	To Main Sewer Box #3	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	NA
49	Sewer Transfer Line	12	62	30X	To main Sewer Box # 8	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	NA
20	Sewer Transfer Line	12	99		To Main Sewer Box #7	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
51	Sewer Transfer Line	14	98		To Main Sewer Box #3	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
52	Sewer Transfer Line	14	145	×	To Observation Access Can #2	D-500-500-402	Carbon steel	2014					
53	Sewer Transfer Line	41	100	From Observation Access Can #2	To Main Sewer Box #1	D-500-500-402	Carbon steel	2014					
54	Sewer Transfer Line	12/10	99	wer Box	To Inlet @ API Seperator	D-500-500-106	Carbon steel	2014					
22	Sewer Collection Manifold	8>4	99	4	To North Side of Sewer Box # 12	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
99	Sewer Collection Manifold	10>4	164	Area @ & Around Crude Twr.	To North Side Of Sewer Box # 11	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	ΝΆ
25	Sewer Collection Manifold	8>4	100	ılı	To Northwest Of Sewer Box # 10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
28	Sewer Collection Manifold	9	10	Area @ V-101A Desalter	To East Side Of Sewer Box # 10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
	*All lines that are temporarily out of service due to suspension	o do the over	anyina dila		of refining operations were steamed out and are hydrocarbon free	d out and are hydrocarb	on frae						

*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free

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

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Constructio n Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
59	Sewer Collection Manifold	10>4	452	Area Thru Reformer Pump Row	To Observation Access Can # 6	D-500-500-098	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
09	Sewer Collection Manifold	10>4	316	ast Side of mer	To Observation Access Can # 6	D-500-500-098	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
61	Sewer Collection Manifold	8>4	09	_	To Observation Access Can #4	D-500-500-402	Carbon steel	2015	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	2015	Jul-10	Pass	Hydrostatic	None	ΑN
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	2015	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	2015	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	2015	Jul-10	Pass	Hydrostatic	None	N/A
99	Sewer Collection Manifold	8>4	41	Area @ & Around Main Air Blower	To Northwest Side Of Sewer Box # 3	D-500-500-134	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	Ϋ́
29	Sewer Collection Manifold	6>3	324	Area @ Burner Fuel Loading and Manifold	To Observation Access Can (Precipitator)	D-600-500-127	Carbon steel	2014					
89	Sewer Collection Manifold	4	141	Area Drains @ Air Building	To Sewer Transfer Line(Box # 1 to API)	D-500-500-160	Carbon steel	2014					
69	Sewer Collection Manifold	4	98	np & Cat Drain	To Sewer Transfer Line From FCC Process	D-201-500-001	Carbon steel	2014	90-InC	Pass	Hydrostatic	None	ΑN
20	Sewer Collect./Transfer Line	9	968	Gas Con Unit Collection M.H.	To FCC Sewer Box Manhole #13	D-201-500-001	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	Ϋ́
7.1	Sewer Transfer Line	10	35	From FCC Sewer Box M.H. # 13	To FCC Sewer Box # 14 (Roadway)	D-201-500-001	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	ΑN
72	Sewer Transfer Line	10	235	From FCC Sewer Box M.H. #14	To 20" Inlet @ API	D-500-500-106	Carbon steel	2014					
73	Sewer Collection Manifold	6/4	335	Area @ & Around Gas Con. Unit	To Gas Con. Unit Sewer Collection	D-200-200-233	Carbon steel	2016	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	2016	Aug-11	Pass	Hydrostatic	None	Α'N
75	Sewer Transfer Line	10	162	Sewer Box #15 - S.E. Of C-204	To 20" Inlet @ API	D-500-500-105	Carbon steel	2014					
92	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	2016	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	2016	Aug-11	Pass	Replaced with Stainless Steel Piping	None	NA
62	Sewer Transfer Line	12	35	From Sewer Box # 18	To Inlet Manifold @ API Basin Area		Carbon steel	2014					
80	Sewer Collection Manifold	10>4	635	Area In & Around DHT/Larox Unit	To Sewer Box # 18 @ S.E. Corner of DHT		Carbon steel	2016	Aug-11	Pass	Hydrotest	None	N/A
81	Crude Transfer Line	12	66	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	2015	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	Temporarily Out of Service	•	
85	Diesel Reciepts (truck)	9	25	Roadway SW of Tk #17	Piperack btwn Tk #34 and Tk #25	D-800-600-104(F-1)	Carbon Steel	2015	Jun-10	Pass	Hydrotest	None	N/A
98	Premium/Uneaded Reciepts	9	25	Roadway SW of Tk #17	Piperack btwn Tk #24 [1 and Tk #25	D-600-800-099 D-600- 800-113	Carbon Steel	2015	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	2015	Aug-10	Pass	Hydrotest	None	N/A
88	Injection Well Transfer	4	45	Injection Well Building	Downhole Injection	D-500-800-031	Carbon Steel	2015	Oct-10	Pass	Hydrotest	None	N/A
	*All lines that are temporari	ly out of s	service due	to suspension of refining	*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free	d out and are hydrocarby	on free						

*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free

Schedule	
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Line Number	Description (Service)	Line Size	Line Length L/F	Line Length Starting Location Size UF		End Location Drawing Reference n Material	Constructio n Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/Maint Needed	Repairs-Maint Completion date
88	VRU Retum to Tanks 13 and 14	е	32	Pipe Bridge South of Tanks 13 and 14	Pipe Bridge South of Exits inside South Wall Tanks 13 and 14 of Containtment Berm	B-600-500-532	Carbon Steel	2016	Jan-11	Pass	Hydrostatic	None	N/A
06	90 Tie-in Tank 11 Crude to LACT 6 116 Pipe Bridge North of LACT Unit	9	116	Pipe Bridge North of LACT Unit	10 ft East of Tie-in to LACT Unit	B-600-500-561	Carbon Steel	2016	Dec-11	Pass	Hydrostatic	None	N/A
91	Crude to Tank 11	9	34	Under Pipe Rack South of Tank 11	Exits Berm South of Tank 11	B-600-500-558 Carbon Steel	Carbon Steel	2016	11-Nov	Pass	Hydrostatic	None	N/A

Total Linear Feet of Lines 23509

Appendix E

			Was	Waste 2014	014			
l. Hazardo	Hazardous Waste							
Pick-up Date	Manifest#	Description –	Containers No. Type	iners Type	Quantity	Destination	Treatment	Cert. of Disposal/
1/16/2014	000083562 DAT	UN1993 Waste Flammable Liquids Vac Truck Sludge	4	DM	208 G	21st Centruy Envirn. Mgmt. of Nevada, LLC 2095 Newlands Dr. E Fernley, NV 89468	H141-Incineration	Yes
1/16/2014	000083563 DAT	NA3077 Hazardous Waste Solid Waste PPE	_	BX	CF	21st Centruy Envirn. Mgmt. of Nevada, LLC 2095 Newlands Dr. E Fernley, NV 89468	H040-Incineration	Yes
		NA3082 Hazardous Waste Liquids Main Column Bottoms	7	DM	364 G			
2/12/2017	TAG 507580000	NA3077 Hazardous Waste Solid Waste Main Column Bottoms	2	DM	880 P	Clean Harbors Aragonite LLC	doi-to-orion 1000	>
10 X X X X X X X X X X X X X X X X X X X		NA3077 Hazardous Waste Solid Waste Contaminated PPE	_	CF	1 Y	Aragonite, UT 84029	1040-11011011011011011011011011011011011011	ה ט
		UN1325 Flammable Solid Organic Benzene Terminal Filter Pads	-	DM	760 P			
4/8/2014	000083755 DAT	NA3682 Hazardous Waste Liquid (Benzene) Pipeline Sludge	2	DM	104 G	Clean Harbors Aragonite LLC 11600 N Aftus Road Aragonite, UT 84029	H040-Incineration	Yes
		NA3082 Hazardous Waste Liquid (Benzene) Pipeline Cleanout	_	DM	840 P			
4/8/2014	000083756 DAT	NA3077 Hazardous Waste Solid (Benzene, Lead) Tank 41 PPE and Debris	_	DM	140 P	Clean Harbors Aragonite LLC 11600 N Aftus Road Aragonite, UT 84029	H040-Incineration	Yes
		RQ NA3077 Hazardous Waste Solid (Benzene, Lead) Tank 41 PPE and Debris	7	DM	3500 P			

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I. Hazardous Waste	us Waste						
Pick-up Date	Manifest#	Description	Containers No. Type	S Quantity	Destination	Treatment	Cert. of Disposal/
100/0/2	ם ום ארמאסאלטס	RQ NA3077 Hazardous Waste Solid (K170) FCC Cleanup	1 DM	л 380 Р	Clean Harbors Aragonite LLC	acitorio al Obol	>
41000	00,000,00 TEE	NA3077, Hazardous Waste, Solid (Benzene) Starlake Rags	L DM	л 380 Р	Aragonite, UT 84029	1040-11101 et al. 0110	0 D -
9/19/2014	003901901 SKS	NA 3082, Hazardous Waste, Liquid (Benzene) VRU Glycol	5 DM	A 2280 P	Safety-Kleen Systems, Inc. 1722 Cooper Creek Road Denton, TX 76208	H061-Incineration	Yes
		NA3077 Hazardous Waste, Solid (Benzene) Lybrook Vac Truck Cleanout	19 CM	7600 P			
4 t CC CC CC A A A A A A A A A A A A A A	OOTEOEOEOEO EI EI	NA3077 Hazardous Waste, Solid (Benzene) Vac Truck Cleanout	4 CF	= 2800 P	Clean Harbors Aragonite LLC		>
† 100 100 100 100 100 100 100 100 100 100		RQ UN1993 Waste Flammable Liquids (Benzene) Contaminated DRA	1 DM	1 52 G	Aragonite, UT 84029	1040-11101 et al. 0110	0 D -
		RQ UN1993 Waste Flammable Liquids (Benzene) Tank 31 Sump Overflow	1 DM	1 52 G			

P = Pounds
CY = Cubic Yard Box
DF = Plastic drum
CF = Fiber board yard box
DM = Drum
G = Gallons