

AP-111

**SWMU No. 10
Sludge Pits**

**Investigation
Report (3)**

March 2016



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

November 04, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505700

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 25, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 1505700
Date: 11/4/2015

CLIENT: Western Refining Company
Project: SWMU 10

Analytical Notes Regarding hexavalent Chromium:

The Cr6 sample was received at a pH of 7.5. The sample pH should be in the range of 8 - 10.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.91	1.0		mg/L	1	5/15/2015 7:44:34 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 7:44:34 PM	19246
Surr: DNOP	123	0	76.5-150		%REC	1	5/15/2015 7:44:34 PM	19246
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	1.2	0.15	0.50		mg/L	5	5/15/2015 7:28:18 PM	R26247
Chloride	330	2.7	10		mg/L	20	5/15/2015 7:40:43 PM	R26247
Sulfate	370	2.3	10		mg/L	20	5/15/2015 7:40:43 PM	R26247
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF	
Barium	0.085	0.00095	0.0020		mg/L	1	5/15/2015 5:30:13 PM	R26242
Beryllium	ND	0.00031	0.0020		mg/L	1	5/15/2015 5:30:13 PM	R26242
Cadmium	ND	0.00097	0.0020		mg/L	1	5/18/2015 7:11:48 PM	R26265
Chromium	0.0080	0.0018	0.0060		mg/L	1	5/15/2015 5:30:13 PM	R26242
Cobalt	0.0044	0.0013	0.0060	J	mg/L	1	5/15/2015 5:30:13 PM	R26242
Iron	2.6	0.036	0.10	*	mg/L	5	5/18/2015 7:14:00 PM	R26265
Manganese	0.91	0.00027	0.0020	*	mg/L	1	5/15/2015 5:30:13 PM	R26242
Nickel	0.012	0.0021	0.010		mg/L	1	5/15/2015 5:30:13 PM	R26242
Silver	ND	0.0012	0.0050		mg/L	1	5/18/2015 7:11:48 PM	R26265
Vanadium	0.011	0.0015	0.050	J	mg/L	1	5/15/2015 5:30:13 PM	R26242
Zinc	0.062	0.0028	0.010		mg/L	1	5/15/2015 5:30:13 PM	R26242
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	7.3	0.048	0.10	*	mg/L	50	5/21/2015 3:41:30 PM	19333
Beryllium	0.037	0.0016	0.010	*	mg/L	5	5/21/2015 3:18:50 PM	19333
Cadmium	ND	0.0048	0.010		mg/L	5	5/21/2015 3:18:50 PM	19333
Chromium	0.17	0.011	0.030	*	mg/L	5	5/21/2015 3:18:50 PM	19333
Cobalt	0.14	0.0063	0.030		mg/L	5	5/21/2015 3:18:50 PM	19333
Iron	140	3.6	10	*	mg/L	500	5/21/2015 3:43:19 PM	19333
Manganese	18	0.076	0.10	*	mg/L	50	5/21/2015 3:41:30 PM	19333
Nickel	0.26	0.011	0.050	*	mg/L	5	5/21/2015 3:18:50 PM	19333
Silver	ND	0.011	0.025		mg/L	5	5/21/2015 3:18:50 PM	19333
Vanadium	0.17	0.0075	0.25	J	mg/L	5	5/21/2015 3:18:50 PM	19333
Zinc	0.45	0.018	0.050		mg/L	5	5/21/2015 3:18:50 PM	19333
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Antimony	0.00023	0.00014	0.0010	J	mg/L	1	5/19/2015 2:56:36 PM	R26294
Arsenic	0.0025	0.000065	0.0010		mg/L	1	5/19/2015 2:56:36 PM	R26294
Lead	0.0014	0.000026	0.0010		mg/L	1	5/19/2015 2:56:36 PM	R26294
Selenium	0.0030	0.00019	0.0010		mg/L	1	5/19/2015 2:56:36 PM	R26294
EPA 200.8: METALS							Analyst: TES	

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: TES	
Antimony	ND	0.0022	0.0050		mg/L	5	5/26/2015 2:15:48 PM	19333
Arsenic	0.023	0.0029	0.010	*	mg/L	10	5/21/2015 2:53:44 PM	19333
Lead	0.28	0.0024	0.025	*	mg/L	50	5/21/2015 2:56:47 PM	19333
Selenium	0.0080	0.0019	0.010	J	mg/L	10	5/21/2015 2:53:44 PM	19333
EPA METHOD 245.1: MERCURY							Analyst: MED	
Mercury	0.00039	0.000059	0.00020		mg/L	1	5/29/2015 2:57:39 PM	19430
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	3.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Acenaphthylene	ND	3.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Aniline	ND	3.1	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Anthracene	ND	3.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Azobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benz(a)anthracene	ND	5.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzo(a)pyrene	ND	5.4	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzo(b)fluoranthene	ND	4.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzo(g,h,i)perylene	ND	6.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzo(k)fluoranthene	ND	5.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzoic acid	ND	2.1	40		µg/L	1	5/26/2015 3:06:29 PM	19344
Benzyl alcohol	ND	2.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Bis(2-chloroethoxy)methane	ND	3.6	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Bis(2-chloroethyl)ether	ND	3.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Bis(2-chloroisopropyl)ether	ND	4.1	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Bis(2-ethylhexyl)phthalate	ND	6.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Bromophenyl phenyl ether	ND	2.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Butyl benzyl phthalate	ND	4.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Carbazole	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Chloro-3-methylphenol	ND	2.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Chloroaniline	ND	3.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Chloronaphthalene	ND	3.4	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Chlorophenol	ND	2.4	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Chlorophenyl phenyl ether	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Chrysene	ND	4.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Di-n-butyl phthalate	ND	4.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Di-n-octyl phthalate	ND	3.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Dibenz(a,h)anthracene	ND	6.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Dibenzofuran	ND	3.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
1,2-Dichlorobenzene	ND	3.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
1,3-Dichlorobenzene	ND	3.4	20		µg/L	1	5/26/2015 3:06:29 PM	19344

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,4-Dichlorobenzene	ND	2.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
3,3'-Dichlorobenzidine	ND	5.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Diethyl phthalate	ND	3.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Dimethyl phthalate	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2,4-Dichlorophenol	ND	2.8	40		µg/L	1	5/26/2015 3:06:29 PM	19344
2,4-Dimethylphenol	ND	3.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4,6-Dinitro-2-methylphenol	ND	2.7	40		µg/L	1	5/26/2015 3:06:29 PM	19344
2,4-Dinitrophenol	ND	2.1	40		µg/L	1	5/26/2015 3:06:29 PM	19344
2,4-Dinitrotoluene	ND	2.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2,6-Dinitrotoluene	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Fluoranthene	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Fluorene	ND	3.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Hexachlorobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Hexachlorobutadiene	ND	3.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Hexachlorocyclopentadiene	ND	2.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Hexachloroethane	ND	3.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Indeno(1,2,3-cd)pyrene	ND	4.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Isophorone	ND	3.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
1-Methylnaphthalene	ND	3.6	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Methylnaphthalene	ND	4.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Methylphenol	ND	2.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
3+4-Methylphenol	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
N-Nitrosodi-n-propylamine	ND	4.1	20		µg/L	1	5/26/2015 3:06:29 PM	19344
N-Nitrosodimethylamine	ND	2.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
N-Nitrosodiphenylamine	ND	4.9	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Naphthalene	ND	3.7	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Nitroaniline	ND	3.6	20		µg/L	1	5/26/2015 3:06:29 PM	19344
3-Nitroaniline	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Nitroaniline	ND	2.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Nitrobenzene	ND	3.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2-Nitrophenol	ND	2.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
4-Nitrophenol	ND	2.8	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Pentachlorophenol	ND	2.3	40		µg/L	1	5/26/2015 3:06:29 PM	19344
Phenanthrene	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Phenol	ND	2.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Pyrene	ND	4.6	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Pyridine	ND	3.3	20		µg/L	1	5/26/2015 3:06:29 PM	19344
1,2,4-Trichlorobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:06:29 PM	19344
2,4,5-Trichlorophenol	ND	3.2	20		µg/L	1	5/26/2015 3:06:29 PM	19344

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	2.5	20		µg/L	1	5/26/2015 3:06:29 PM	19344
Surr: 2-Fluorophenol	40.3	0	14.9-111		%REC	1	5/26/2015 3:06:29 PM	19344
Surr: Phenol-d5	30.2	0	11.3-108		%REC	1	5/26/2015 3:06:29 PM	19344
Surr: 2,4,6-Tribromophenol	62.2	0	15.7-154		%REC	1	5/26/2015 3:06:29 PM	19344
Surr: Nitrobenzene-d5	65.4	0	47.8-106		%REC	1	5/26/2015 3:06:29 PM	19344
Surr: 2-Fluorobiphenyl	63.2	0	21.3-123		%REC	1	5/26/2015 3:06:29 PM	19344
Surr: 4-Terphenyl-d14	45.3	0	14.3-135		%REC	1	5/26/2015 3:06:29 PM	19344
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.47	0.13	2.0	J	µg/L	2	5/20/2015 3:49:54 PM	R26322
Toluene	ND	0.22	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Ethylbenzene	ND	0.20	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Methyl tert-butyl ether (MTBE)	13	0.35	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2,4-Trimethylbenzene	0.66	0.32	2.0	J	µg/L	2	5/20/2015 3:49:54 PM	R26322
1,3,5-Trimethylbenzene	ND	0.25	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.35	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.27	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Naphthalene	0.52	0.44	4.0	J	µg/L	2	5/20/2015 3:49:54 PM	R26322
1-Methylnaphthalene	ND	1.1	8.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
2-Methylnaphthalene	1.5	1.2	8.0	J	µg/L	2	5/20/2015 3:49:54 PM	R26322
Acetone	3.4	1.9	20	J	µg/L	2	5/20/2015 3:49:54 PM	R26322
Bromobenzene	ND	0.22	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Bromodichloromethane	ND	0.18	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Bromoform	ND	0.32	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Bromomethane	ND	2.3	6.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
2-Butanone	ND	0.73	20		µg/L	2	5/20/2015 3:49:54 PM	R26322
Carbon disulfide	ND	1.3	20		µg/L	2	5/20/2015 3:49:54 PM	R26322
Carbon Tetrachloride	ND	0.16	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Chlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Chloroethane	ND	0.21	4.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Chloroform	ND	0.43	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Chloromethane	ND	0.35	6.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
2-Chlorotoluene	ND	0.16	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
4-Chlorotoluene	ND	0.30	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
cis-1,2-DCE	ND	0.16	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
cis-1,3-Dichloropropene	ND	0.27	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.27	4.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Dibromochloromethane	ND	0.19	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Dibromomethane	ND	0.47	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2-Dichlorobenzene	ND	0.24	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322

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

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

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,3-Dichlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,4-Dichlorobenzene	ND	0.33	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Dichlorodifluoromethane	ND	1.4	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1-Dichloroethane	ND	0.80	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1-Dichloroethene	ND	0.20	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2-Dichloropropane	ND	0.30	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,3-Dichloropropane	ND	0.34	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
2,2-Dichloropropane	ND	0.30	4.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Hexachlorobutadiene	ND	0.50	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
2-Hexanone	ND	0.95	20		µg/L	2	5/20/2015 3:49:54 PM	R26322
Isopropylbenzene	ND	0.30	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
4-Isopropyltoluene	ND	0.38	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
4-Methyl-2-pentanone	ND	0.51	20		µg/L	2	5/20/2015 3:49:54 PM	R26322
Methylene Chloride	ND	0.72	6.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
n-Butylbenzene	ND	0.49	6.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
n-Propylbenzene	ND	0.33	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
sec-Butylbenzene	ND	0.46	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Styrene	ND	0.21	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
tert-Butylbenzene	ND	0.26	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.22	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.36	4.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Tetrachloroethene (PCE)	ND	0.32	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
trans-1,2-DCE	ND	0.19	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
trans-1,3-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2,3-Trichlorobenzene	ND	0.53	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2,4-Trichlorobenzene	ND	0.57	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1,1-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,1,2-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Trichloroethene (TCE)	ND	0.33	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Trichlorofluoromethane	ND	0.25	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
1,2,3-Trichloropropane	ND	0.32	4.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Vinyl chloride	ND	0.25	2.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Xylenes, Total	ND	0.56	3.0		µg/L	2	5/20/2015 3:49:54 PM	R26322
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%REC	2	5/20/2015 3:49:54 PM	R26322
Surr: 4-Bromofluorobenzene	105	0	70-130		%REC	2	5/20/2015 3:49:54 PM	R26322
Surr: Dibromofluoromethane	97.5	0	70-130		%REC	2	5/20/2015 3:49:54 PM	R26322
Surr: Toluene-d8	99.1	0	70-130		%REC	2	5/20/2015 3:49:54 PM	R26322

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **cadg**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-12-GW

Project: SWMU 10

Collection Date: 5/14/2015 12:55:00 PM

Lab ID: 1505700-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.080	0.10		mg/L	2	5/20/2015 3:49:54 PM	R26322
Surr: BFB	103	0	70-130		%REC	2	5/20/2015 3:49:54 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: Trip Blank

Project: SWMU 10

Collection Date:

Lab ID: 1505700-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	ND	0.065	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Toluene	0.14	0.11	1.0	J	µg/L	1	5/20/2015 5:16:05 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Methyl tert-butyl ether (MTBE)	ND	0.17	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2,4-Trimethylbenzene	0.18	0.16	1.0	J	µg/L	1	5/20/2015 5:16:05 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.18	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Acetone	ND	0.94	10		µg/L	1	5/20/2015 5:16:05 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 5:16:05 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 5:16:05 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
cis-1,2-DCE	ND	0.081	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1-Dichloroethene	ND	0.099	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505700

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: Trip Blank

Project: SWMU 10

Collection Date:

Lab ID: 1505700-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 5:16:05 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 5:16:05 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Trichloroethene (TCE)	ND	0.16	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Vinyl chloride	ND	0.13	1.0		µg/L	1	5/20/2015 5:16:05 PM	R26322
Xylenes, Total	ND	0.28	1.5		µg/L	1	5/20/2015 5:16:05 PM	R26322
Surr: 1,2-Dichloroethane-d4	98.4	0	70-130		%REC	1	5/20/2015 5:16:05 PM	R26322
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/20/2015 5:16:05 PM	R26322
Surr: Dibromofluoromethane	97.5	0	70-130		%REC	1	5/20/2015 5:16:05 PM	R26322
Surr: Toluene-d8	101	0	70-130		%REC	1	5/20/2015 5:16:05 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 5:16:05 PM	R26322
Surr: BFB	98.1	0	70-130		%REC	1	5/20/2015 5:16:05 PM	R26322

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

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



12065 Lebaron Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505700-001G SWMU 10-12-GW
Collected By :
Collection Date : 05/14/15 12:55

ESC Sample # : L765935-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Cyanide	BDL	0.0050	mg/l	9012B	05/28/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: Printed: 06/02/15 11:33



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505700-001H SWMU 10-12-GW
Collected By :
Collection Date : 05/14/15 12:55

ESC Sample # : L765935-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Hexavalent Chromium	BDL	0.00050	mg/l	7199	05/26/15	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
Reported: Printed: 06/02/15 11:33
L765935-02 (CR6ICFFP) - pH=7.50



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765935

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Result	Laboratory Blank Units % Rec	Limit	Batch	Date Analyzed
Hexavalent Chromium	< .0005	mg/l		WG791515	05/26/15 20:02
Cyanide	< .005	mg/l		WG791484	05/28/15 00:29

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766104-01	WG791515
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766399-01	WG791515
Cyanide	mg/l	0.0	0.0	0.0	20	L766164-02	WG791484
Cyanide	mg/l	0.0	0.0	0.0	20	L766258-01	WG791484

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Hexavalent Chromium	mg/l	.002	0.00218	109.	90-110	WG791515
Cyanide	mg/l	.1	0.105	105.	90-110	WG791484

Analyte	Units	Result	Laboratory Control Sample Duplicate Ref %Rec	Limit	RPD	Limit	Batch
Hexavalent Chromium	mg/l	0.00216	0.00218 108.	90-110	0.922	20	WG791515
Cyanide	mg/l	0.103	0.105 103.	90-110	1.92	20	WG791484

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0528	0.0	.05	100.	90-110	L766097-01	WG791515
Cyanide	mg/l	0.199	0.0	.2	100.	90-110	L766168-02	WG791484

Analyte	Units	MSD	Matrix Spike Duplicate Ref %Rec	Limit	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0524	0.0528 105.	90-110	0.760	20	L766097-01	WG791515
Cyanide	mg/l	0.172	0.199 86.0*	90-110	14.6	20	L766168-02	WG791484

Batch number /Run number / Sample number cross reference

WG791515: R3039614: L765935-02
WG791484: R3039673: L765935-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Metals			
Client ID:	PBW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780003	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								
Silver	ND	0.0050								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Metals			
Client ID:	LCSW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780004	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	97.4	85	115			
Iron	0.46	0.020	0.5000	0	92.3	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA Method 200.7: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26358			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015	SeqNo:	783226	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.0078	0.020								J
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS-19333		SampType:	LCS		TestCode:	EPA Method 200.7: Metals			
Client ID:	LCSW		Batch ID:	19333		RunNo:	26358			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015	SeqNo:	783227	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.5	85	115			
Beryllium	0.52	0.0020	0.5000	0	104	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.1	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS-19333		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: 19333		RunNo: 26358					
Prep Date:	5/20/2015		Analysis Date: 5/21/2015		SeqNo: 783227		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	96.5	85	115			
Manganese	0.48	0.0020	0.5000	0	95.3	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	104	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.2	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R26242			RunNo: 26242					
Prep Date:		Analysis Date: 5/15/2015			SeqNo: 779016		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0011	0.0020								J
Beryllium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26242		RunNo: 26242					
Prep Date:			Analysis Date: 5/15/2015		SeqNo: 779017		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.6	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.3	85	115			
Chromium	0.48	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.50	0.0060	0.5000	0	99.5	85	115			
Manganese	0.48	0.0020	0.5000	0	95.2	85	115			
Nickel	0.48	0.010	0.5000	0	95.9	85	115			
Vanadium	0.49	0.050	0.5000	0	97.4	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R26265			RunNo: 26265					
Prep Date:		Analysis Date: 5/18/2015			SeqNo: 780132		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								
Silver	ND	0.0050								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26265		RunNo: 26265					
Prep Date:			Analysis Date: 5/18/2015		SeqNo: 780133		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115			
Iron	0.45	0.020	0.5000	0	90.7	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781112		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Arsenic	0.024	0.0010	0.02500	0	94.9	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781113		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Arsenic	0.023	0.0010	0.02500	0	93.9	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781115		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781116		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB-19333	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: 19333				RunNo: 26348					
Prep Date: 5/20/2015	Analysis Date: 5/21/2015				SeqNo: 782930		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA 200.8: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26348			
Prep Date:	5/20/2015		Analysis Date:	5/21/2015		SeqNo:	782930		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA 200.8: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26606			
Prep Date:	5/20/2015		Analysis Date:	6/3/2015		SeqNo:	792073		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Dissolved Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781144		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Arsenic	0.024	0.0010	0.02500	0	94.9	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Dissolved Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781145		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Arsenic	0.023	0.0010	0.02500	0	93.9	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Dissolved Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781146		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Dissolved Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781147		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19430		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 19430		RunNo: 26501					
Prep Date:	5/28/2015		Analysis Date: 5/29/2015		SeqNo: 787526		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-19430		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 19430		RunNo: 26501					
Prep Date:	5/28/2015		Analysis Date: 5/29/2015		SeqNo: 787527		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	98.8	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779359	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.100								
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779360	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.508	0.100	0.5000	0	102	90	110			
Chloride	4.98	0.500	5.000	0	99.7	90	110			
Sulfate	10.2	0.500	10.00	0	102	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 19246			RunNo: 26216					
Prep Date:	5/15/2015	Analysis Date: 5/15/2015			SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101	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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19344		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785101		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10.0								
Acenaphthylene	ND	10.0								
Aniline	ND	10.0								
Anthracene	ND	10.0								
Azobenzene	ND	10.0								
Benz(a)anthracene	ND	10.0								
Benzo(a)pyrene	ND	10.0								
Benzo(b)fluoranthene	ND	10.0								
Benzo(g,h,i)perylene	ND	10.0								
Benzo(k)fluoranthene	ND	10.0								
Benzoic acid	ND	20.0								
Benzyl alcohol	ND	10.0								
Bis(2-chloroethoxy)methane	ND	10.0								
Bis(2-chloroethyl)ether	ND	10.0								
Bis(2-chloroisopropyl)ether	ND	10.0								
Bis(2-ethylhexyl)phthalate	ND	10.0								
4-Bromophenyl phenyl ether	ND	10.0								
Butyl benzyl phthalate	ND	10.0								
Carbazole	ND	10.0								
4-Chloro-3-methylphenol	ND	10.0								
4-Chloroaniline	ND	10.0								
2-Chloronaphthalene	ND	10.0								
2-Chlorophenol	ND	10.0								
4-Chlorophenyl phenyl ether	ND	10.0								
Chrysene	ND	10.0								
Di-n-butyl phthalate	ND	10.0								
Di-n-octyl phthalate	ND	10.0								
Dibenz(a,h)anthracene	ND	10.0								
Dibenzofuran	ND	10.0								
1,2-Dichlorobenzene	ND	10.0								
1,3-Dichlorobenzene	ND	10.0								
1,4-Dichlorobenzene	ND	10.0								
3,3'-Dichlorobenzidine	ND	10.0								
Diethyl phthalate	ND	10.0								
Dimethyl phthalate	ND	10.0								
2,4-Dichlorophenol	ND	20.0								
2,4-Dimethylphenol	ND	10.0								
4,6-Dinitro-2-methylphenol	ND	20.0								
2,4-Dinitrophenol	ND	20.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19344	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19344	RunNo:	26418					
Prep Date:	5/21/2015	Analysis Date:	5/26/2015	SeqNo:	785101	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10.0								
2,6-Dinitrotoluene	ND	10.0								
Fluoranthene	ND	10.0								
Fluorene	ND	10.0								
Hexachlorobenzene	ND	10.0								
Hexachlorobutadiene	ND	10.0								
Hexachlorocyclopentadiene	ND	10.0								
Hexachloroethane	ND	10.0								
Indeno(1,2,3-cd)pyrene	ND	10.0								
Isophorone	ND	10.0								
1-Methylnaphthalene	ND	10.0								
2-Methylnaphthalene	ND	10.0								
2-Methylphenol	ND	10.0								
3+4-Methylphenol	ND	10.0								
N-Nitrosodi-n-propylamine	ND	10.0								
N-Nitrosodimethylamine	ND	10.0								
N-Nitrosodiphenylamine	ND	10.0								
Naphthalene	ND	10.0								
2-Nitroaniline	ND	10.0								
3-Nitroaniline	ND	10.0								
4-Nitroaniline	ND	10.0								
Nitrobenzene	ND	10.0								
2-Nitrophenol	ND	10.0								
4-Nitrophenol	ND	10.0								
Pentachlorophenol	ND	20.0								
Phenanthrene	ND	10.0								
Phenol	ND	10.0								
Pyrene	ND	10.0								
Pyridine	ND	10.0								
1,2,4-Trichlorobenzene	ND	10.0								
2,4,5-Trichlorophenol	ND	10.0								
2,4,6-Trichlorophenol	ND	10.0								
Surr: 2-Fluorophenol	112		200.0		56.1	14.9	111			
Surr: Phenol-d5	86.3		200.0		43.2	11.3	108			
Surr: 2,4,6-Tribromophenol	146		200.0		72.8	15.7	154			
Surr: Nitrobenzene-d5	77.2		100.0		77.2	47.8	106			
Surr: 2-Fluorobiphenyl	78.8		100.0		78.8	21.3	123			
Surr: 4-Terphenyl-d14	70.9		100.0		70.9	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19344		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	68.5	10.0	100.0	0	68.5	47.8	99.7			
4-Chloro-3-methylphenol	152	10.0	200.0	0	76.0	58.1	103			
2-Chlorophenol	157	10.0	200.0	0	78.5	49.5	96.8			
1,4-Dichlorobenzene	64.5	10.0	100.0	0	64.5	40.4	89.4			
2,4-Dinitrotoluene	62.9	10.0	100.0	0	62.9	38.6	91.3			
N-Nitrosodi-n-propylamine	85.7	10.0	100.0	0	85.7	53.9	95.6			
4-Nitrophenol	85.5	10.0	200.0	0	42.8	26.4	108			
Pentachlorophenol	116	20.0	200.0	0	58.1	36.5	86.6			
Phenol	99.9	10.0	200.0	0	50.0	29.3	108			
Pyrene	76.7	10.0	100.0	0	76.7	45.7	100			
1,2,4-Trichlorobenzene	67.7	10.0	100.0	0	67.7	39.3	94.5			
Surr: 2-Fluorophenol	127		200.0		63.6	14.9	111			
Surr: Phenol-d5	104		200.0		52.0	11.3	108			
Surr: 2,4,6-Tribromophenol	146		200.0		73.1	15.7	154			
Surr: Nitrobenzene-d5	83.7		100.0		83.7	47.8	106			
Surr: 2-Fluorobiphenyl	74.9		100.0		74.9	21.3	123			
Surr: 4-Terphenyl-d14	57.8		100.0		57.8	14.3	135			

Sample ID	lcsd-19344		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785105		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	69.6	10.0	100.0	0	69.6	47.8	99.7	1.65	28.2	
4-Chloro-3-methylphenol	152	10.0	200.0	0	76.0	58.1	103	0	24.4	
2-Chlorophenol	138	10.0	200.0	0	69.0	49.5	96.8	12.8	28.1	
1,4-Dichlorobenzene	56.8	10.0	100.0	0	56.8	40.4	89.4	12.8	31.2	
2,4-Dinitrotoluene	53.4	10.0	100.0	0	53.4	38.6	91.3	16.4	44.4	
N-Nitrosodi-n-propylamine	79.3	10.0	100.0	0	79.3	53.9	95.6	7.73	24.2	
4-Nitrophenol	74.3	10.0	200.0	0	37.2	26.4	108	14.0	36.6	
Pentachlorophenol	110	20.0	200.0	0	55.2	36.5	86.6	5.05	29.5	
Phenol	89.2	10.0	200.0	0	44.6	29.3	108	11.3	30	
Pyrene	73.4	10.0	100.0	0	73.4	45.7	100	4.45	31	
1,2,4-Trichlorobenzene	63.0	10.0	100.0	0	63.0	39.3	94.5	7.23	24	
Surr: 2-Fluorophenol	118		200.0		59.1	14.9	111	0	0	
Surr: Phenol-d5	97.2		200.0		48.6	11.3	108	0	0	
Surr: 2,4,6-Tribromophenol	149		200.0		74.4	15.7	154	0	0	
Surr: Nitrobenzene-d5	77.1		100.0		77.1	47.8	106	0	0	
Surr: 2-Fluorobiphenyl	76.7		100.0		76.7	21.3	123	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcsd-19344		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785105		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	57.3		100.0		57.3	14.3	135	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505700

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Sample ID	1505700-001B MS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SWMU 10-12-GW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782185	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.93	0.10	1.000	0	93.0	56.9	133			
Surr: BFB	19		20.00		94.5	70	130			

Sample ID	1505700-001B MSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	SWMU 10-12-GW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782186	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.95	0.10	1.000	0	95.5	56.9	133	2.63	20	
Surr: BFB	21		20.00		103	70	130	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1505700**

RcptNo: **1**

Received by/date:

[Signature]

05/15/15

Logged By: **Lindsay Mangin**

5/15/2015 8:55:00 AM

[Signature]

Completed By: **Lindsay Mangin**

5/15/2015 9:39:26 AM

[Signature]

Reviewed By:

[Signature]

05/19/15

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?

Client

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☒

9. Was preservative added to bottles?

Yes ☒

No ☒

10. VOA vials have zero headspace?

Yes ☒

No ☒

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

of preserved bottles checked for pH: **2, 1**
(<2 or >12 unless noted)
Adjusted? **YES**
Checked by: **CS**

CS 05/15/15
Samples - 001A (3 of 3)
002A - 001B (all have bubbles)

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

For metals analysis, added 2ml HNO₃ for acceptable pH. Held in Logix for 24 hours. For 300 analysis, poured off from a 1L Amber in a 500ml plastic. CS 05/15/15

18. Cooler Information

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

Approximately 250 ml from plastic bottle used for 8270 Analysis due to low sample volume. kmj 5/21/15

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

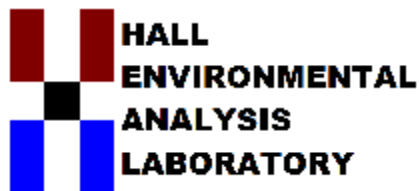
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

June 25, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505701

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 25, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.91	1.0		mg/L	1	5/15/2015 8:11:26 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 8:11:26 PM	19246
Surr: DNOP	127	0	76.5-150		%REC	1	5/15/2015 8:11:26 PM	19246
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	1.3	0.15	0.50		mg/L	5	5/15/2015 7:03:29 PM	R26247
Chloride	370	2.7	10		mg/L	20	5/15/2015 7:15:53 PM	R26247
Sulfate	370	2.3	10		mg/L	20	5/15/2015 7:15:53 PM	R26247
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF	
Barium	0.18	0.00095	0.0020		mg/L	1	5/15/2015 5:31:58 PM	R26242
Beryllium	0.00090	0.00031	0.0020	J	mg/L	1	5/15/2015 5:31:58 PM	R26242
Cadmium	ND	0.00097	0.0020		mg/L	1	5/18/2015 7:23:18 PM	R26265
Chromium	0.0075	0.0018	0.0060		mg/L	1	5/15/2015 5:31:58 PM	R26242
Cobalt	0.0051	0.0013	0.0060	J	mg/L	1	5/15/2015 5:31:58 PM	R26242
Iron	3.9	0.036	0.10	*	mg/L	5	5/18/2015 7:25:35 PM	R26265
Manganese	1.1	0.0013	0.010	*	mg/L	5	5/18/2015 7:25:35 PM	R26265
Nickel	0.011	0.0021	0.010		mg/L	1	5/15/2015 5:31:58 PM	R26242
Silver	ND	0.0012	0.0050		mg/L	1	5/18/2015 7:23:18 PM	R26265
Vanadium	0.016	0.0015	0.050	J	mg/L	1	5/15/2015 5:31:58 PM	R26242
Zinc	0.014	0.0028	0.010		mg/L	1	5/15/2015 5:31:58 PM	R26242
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	7.0	0.048	0.10	*	mg/L	50	5/21/2015 3:45:07 PM	19333
Beryllium	0.035	0.0016	0.010	*	mg/L	5	5/21/2015 3:22:30 PM	19333
Cadmium	ND	0.0048	0.010		mg/L	5	5/21/2015 3:22:30 PM	19333
Chromium	0.15	0.011	0.030	*	mg/L	5	5/21/2015 3:22:30 PM	19333
Cobalt	0.13	0.0063	0.030		mg/L	5	5/21/2015 3:22:30 PM	19333
Iron	130	3.6	10	*	mg/L	500	5/21/2015 3:46:56 PM	19333
Manganese	22	0.076	0.10	*	mg/L	50	5/21/2015 3:45:07 PM	19333
Nickel	0.25	0.011	0.050	*	mg/L	5	5/21/2015 3:22:30 PM	19333
Silver	ND	0.011	0.025		mg/L	5	5/21/2015 3:22:30 PM	19333
Vanadium	0.16	0.0075	0.25	J	mg/L	5	5/21/2015 3:22:30 PM	19333
Zinc	0.36	0.018	0.050		mg/L	5	5/21/2015 3:22:30 PM	19333
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Antimony	ND	0.00014	0.0010		mg/L	1	5/19/2015 3:01:32 PM	R26294
Arsenic	0.0030	0.000065	0.0010		mg/L	1	5/19/2015 3:01:32 PM	R26294
Lead	0.0068	0.000026	0.0010		mg/L	1	5/19/2015 3:01:32 PM	R26294
Selenium	0.0031	0.00019	0.0010		mg/L	1	5/19/2015 3:01:32 PM	R26294
EPA 200.8: METALS							Analyst: TES	

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: TES	
Antimony	ND	0.0022	0.0050		mg/L	5	5/26/2015 2:24:54 PM	19333
Arsenic	0.029	0.0029	0.010	*	mg/L	10	5/21/2015 2:59:50 PM	19333
Lead	0.24	0.00047	0.0050	*	mg/L	10	5/21/2015 2:59:50 PM	19333
Selenium	0.010	0.0039	0.020	J	mg/L	20	5/21/2015 3:02:54 PM	19333
EPA METHOD 245.1: MERCURY							Analyst: MED	
Mercury	0.00021	0.000059	0.00020		mg/L	1	5/29/2015 2:59:44 PM	19430
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	3.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Acenaphthylene	ND	3.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Aniline	ND	3.1	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Anthracene	ND	3.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Azobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benz(a)anthracene	ND	5.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzo(a)pyrene	ND	5.4	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzo(b)fluoranthene	ND	4.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzo(g,h,i)perylene	ND	6.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzo(k)fluoranthene	ND	5.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzoic acid	ND	2.1	40		µg/L	1	5/26/2015 3:34:14 PM	19344
Benzyl alcohol	ND	2.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Bis(2-chloroethoxy)methane	ND	3.6	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Bis(2-chloroethyl)ether	ND	3.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Bis(2-chloroisopropyl)ether	ND	4.1	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Bis(2-ethylhexyl)phthalate	ND	6.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Bromophenyl phenyl ether	ND	2.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Butyl benzyl phthalate	ND	4.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Carbazole	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Chloro-3-methylphenol	ND	2.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Chloroaniline	ND	3.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Chloronaphthalene	ND	3.4	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Chlorophenol	ND	2.4	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Chlorophenyl phenyl ether	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Chrysene	ND	4.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Di-n-butyl phthalate	ND	4.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Di-n-octyl phthalate	ND	3.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Dibenz(a,h)anthracene	ND	6.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Dibenzofuran	ND	3.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
1,2-Dichlorobenzene	ND	3.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
1,3-Dichlorobenzene	ND	3.4	20		µg/L	1	5/26/2015 3:34:14 PM	19344

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,4-Dichlorobenzene	ND	2.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
3,3'-Dichlorobenzidine	ND	5.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Diethyl phthalate	ND	3.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Dimethyl phthalate	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2,4-Dichlorophenol	ND	2.8	40		µg/L	1	5/26/2015 3:34:14 PM	19344
2,4-Dimethylphenol	ND	3.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4,6-Dinitro-2-methylphenol	ND	2.7	40		µg/L	1	5/26/2015 3:34:14 PM	19344
2,4-Dinitrophenol	ND	2.1	40		µg/L	1	5/26/2015 3:34:14 PM	19344
2,4-Dinitrotoluene	ND	2.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2,6-Dinitrotoluene	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Fluoranthene	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Fluorene	ND	3.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Hexachlorobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Hexachlorobutadiene	ND	3.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Hexachlorocyclopentadiene	ND	2.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Hexachloroethane	ND	3.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Indeno(1,2,3-cd)pyrene	ND	4.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Isophorone	ND	3.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
1-Methylnaphthalene	ND	3.6	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Methylnaphthalene	ND	4.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Methylphenol	ND	2.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
3+4-Methylphenol	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
N-Nitrosodi-n-propylamine	ND	4.1	20		µg/L	1	5/26/2015 3:34:14 PM	19344
N-Nitrosodimethylamine	ND	2.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
N-Nitrosodiphenylamine	ND	4.9	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Naphthalene	ND	3.7	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Nitroaniline	ND	3.6	20		µg/L	1	5/26/2015 3:34:14 PM	19344
3-Nitroaniline	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Nitroaniline	ND	2.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Nitrobenzene	ND	3.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2-Nitrophenol	ND	2.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
4-Nitrophenol	ND	2.8	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Pentachlorophenol	ND	2.3	40		µg/L	1	5/26/2015 3:34:14 PM	19344
Phenanthrene	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Phenol	ND	2.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Pyrene	ND	4.6	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Pyridine	ND	3.3	20		µg/L	1	5/26/2015 3:34:14 PM	19344
1,2,4-Trichlorobenzene	ND	4.0	20		µg/L	1	5/26/2015 3:34:14 PM	19344
2,4,5-Trichlorophenol	ND	3.2	20		µg/L	1	5/26/2015 3:34:14 PM	19344

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	2.5	20		µg/L	1	5/26/2015 3:34:14 PM	19344
Surr: 2-Fluorophenol	63.6	0	14.9-111		%REC	1	5/26/2015 3:34:14 PM	19344
Surr: Phenol-d5	46.6	0	11.3-108		%REC	1	5/26/2015 3:34:14 PM	19344
Surr: 2,4,6-Tribromophenol	87.7	0	15.7-154		%REC	1	5/26/2015 3:34:14 PM	19344
Surr: Nitrobenzene-d5	88.7	0	47.8-106		%REC	1	5/26/2015 3:34:14 PM	19344
Surr: 2-Fluorobiphenyl	86.8	0	21.3-123		%REC	1	5/26/2015 3:34:14 PM	19344
Surr: 4-Terphenyl-d14	59.6	0	14.3-135		%REC	1	5/26/2015 3:34:14 PM	19344
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.47	0.13	2.0	J	µg/L	2	5/20/2015 5:44:48 PM	R26322
Toluene	0.30	0.22	2.0	J	µg/L	2	5/20/2015 5:44:48 PM	R26322
Ethylbenzene	ND	0.20	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Methyl tert-butyl ether (MTBE)	16	0.35	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2,4-Trimethylbenzene	0.44	0.32	2.0	J	µg/L	2	5/20/2015 5:44:48 PM	R26322
1,3,5-Trimethylbenzene	ND	0.25	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.35	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.27	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Naphthalene	ND	0.44	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1-Methylnaphthalene	ND	1.1	8.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
2-Methylnaphthalene	ND	1.2	8.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Acetone	2.7	1.9	20	J	µg/L	2	5/20/2015 5:44:48 PM	R26322
Bromobenzene	ND	0.22	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Bromodichloromethane	ND	0.18	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Bromoform	ND	0.32	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Bromomethane	ND	2.3	6.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
2-Butanone	ND	0.73	20		µg/L	2	5/20/2015 5:44:48 PM	R26322
Carbon disulfide	ND	1.3	20		µg/L	2	5/20/2015 5:44:48 PM	R26322
Carbon Tetrachloride	ND	0.16	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Chlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Chloroethane	ND	0.21	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Chloroform	ND	0.43	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Chloromethane	ND	0.35	6.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
2-Chlorotoluene	ND	0.16	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
4-Chlorotoluene	ND	0.30	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
cis-1,2-DCE	ND	0.16	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
cis-1,3-Dichloropropene	ND	0.27	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.27	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Dibromochloromethane	ND	0.19	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Dibromomethane	ND	0.47	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2-Dichlorobenzene	ND	0.24	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,3-Dichlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,4-Dichlorobenzene	ND	0.33	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Dichlorodifluoromethane	ND	1.4	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1-Dichloroethane	ND	0.80	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1-Dichloroethene	ND	0.20	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2-Dichloropropane	ND	0.30	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,3-Dichloropropane	ND	0.34	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
2,2-Dichloropropane	ND	0.30	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Hexachlorobutadiene	ND	0.50	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
2-Hexanone	ND	0.95	20		µg/L	2	5/20/2015 5:44:48 PM	R26322
Isopropylbenzene	ND	0.30	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
4-Isopropyltoluene	ND	0.38	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
4-Methyl-2-pentanone	ND	0.51	20		µg/L	2	5/20/2015 5:44:48 PM	R26322
Methylene Chloride	ND	0.72	6.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
n-Butylbenzene	ND	0.49	6.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
n-Propylbenzene	ND	0.33	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
sec-Butylbenzene	ND	0.46	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Styrene	ND	0.21	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
tert-Butylbenzene	ND	0.26	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.22	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.36	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Tetrachloroethene (PCE)	ND	0.32	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
trans-1,2-DCE	ND	0.19	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
trans-1,3-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2,3-Trichlorobenzene	ND	0.53	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2,4-Trichlorobenzene	ND	0.57	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1,1-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,1,2-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Trichloroethene (TCE)	ND	0.33	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Trichlorofluoromethane	ND	0.25	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
1,2,3-Trichloropropane	ND	0.32	4.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Vinyl chloride	ND	0.25	2.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Xylenes, Total	ND	0.56	3.0		µg/L	2	5/20/2015 5:44:48 PM	R26322
Surr: 1,2-Dichloroethane-d4	105	0	70-130		%REC	2	5/20/2015 5:44:48 PM	R26322
Surr: 4-Bromofluorobenzene	104	0	70-130		%REC	2	5/20/2015 5:44:48 PM	R26322
Surr: Dibromofluoromethane	96.1	0	70-130		%REC	2	5/20/2015 5:44:48 PM	R26322
Surr: Toluene-d8	96.7	0	70-130		%REC	2	5/20/2015 5:44:48 PM	R26322

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **cadg**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-14-GW

Project: SWMU 10

Collection Date: 5/14/2015 10:00:00 AM

Lab ID: 1505701-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.080	0.10		mg/L	2	5/20/2015 5:44:48 PM	R26322
Surr: BFB	96.9	0	70-130		%REC	2	5/20/2015 5:44:48 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: Trip Blank

Project: SWMU 10

Collection Date:

Lab ID: 1505701-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	ND	0.065	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Methyl tert-butyl ether (MTBE)	ND	0.17	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2,4-Trimethylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.18	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Acetone	ND	0.94	10		µg/L	1	5/20/2015 6:13:33 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 6:13:33 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 6:13:33 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
cis-1,2-DCE	ND	0.081	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1-Dichloroethene	ND	0.099	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505701

Date Reported: 6/25/2015

CLIENT: Western Refining Company

Client Sample ID: Trip Blank

Project: SWMU 10

Collection Date:

Lab ID: 1505701-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 6:13:33 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 6:13:33 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Trichloroethene (TCE)	ND	0.16	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Vinyl chloride	ND	0.13	1.0		µg/L	1	5/20/2015 6:13:33 PM	R26322
Xylenes, Total	ND	0.28	1.5		µg/L	1	5/20/2015 6:13:33 PM	R26322
Surr: 1,2-Dichloroethane-d4	105	0	70-130		%REC	1	5/20/2015 6:13:33 PM	R26322
Surr: 4-Bromofluorobenzene	103	0	70-130		%REC	1	5/20/2015 6:13:33 PM	R26322
Surr: Dibromofluoromethane	107	0	70-130		%REC	1	5/20/2015 6:13:33 PM	R26322
Surr: Toluene-d8	92.7	0	70-130		%REC	1	5/20/2015 6:13:33 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 6:13:33 PM	R26322
Surr: BFB	97.1	0	70-130		%REC	1	5/20/2015 6:13:33 PM	R26322

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

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



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505701-001G SWMU 10-14-GW
Collected By :
Collection Date : 05/14/15 10:00

ESC Sample # : L765939-01
Site ID :
Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Cyanide	BDL	0.0050	mg/l	9012B	05/28/15	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit (PQL)
Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.
Reported: 06/02/15 11:32 Printed: 06/02/15 11:35



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505701-001H SWMU 10-14-GW
Collected By :
Collection Date : 05/14/15 10:00

ESC Sample # : L765939-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Hexavalent Chromium	BDL	0.00050	mg/l	7199	05/26/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:32 Printed: 06/02/15 11:35



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765939

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Result	Laboratory Blank Units % Rec	Limit	Batch	Date Analyzed
Hexavalent Chromium	< .0005	mg/l		WG791515	05/26/15 20:02
Cyanide	< .005	mg/l		WG791484	05/28/15 00:29

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766104-01	WG791515
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766399-01	WG791515
Cyanide	mg/l	0.0	0.0	0.0	20	L766164-02	WG791484
Cyanide	mg/l	0.0	0.0	0.0	20	L766258-01	WG791484

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
Hexavalent Chromium	mg/l	.002	0.00218	109.	90-110	WG791515
Cyanide	mg/l	.1	0.105	105.	90-110	WG791484

Analyte	Units	Result	Laboratory Control Ref	Sample Duplicate %Rec	Limit	RPD	Limit	Batch
Hexavalent Chromium	mg/l	0.00216	0.00218	108.	90-110	0.922	20	WG791515
Cyanide	mg/l	0.103	0.105	103.	90-110	1.92	20	WG791484

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0528	0.0	.05	100.	90-110	L766097-01	WG791515
Cyanide	mg/l	0.199	0.0	.2	100.	90-110	L766168-02	WG791484

Analyte	Units	MSD	Matrix Spike Ref	Duplicate %Rec	Limit	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0524	0.0528	105.	90-110	0.760	20	L766097-01	WG791515
Cyanide	mg/l	0.172	0.199	86.0*	90-110	14.6	20	L766168-02	WG791484

Batch number /Run number / Sample number cross reference

WG791515: R3039614: L765939-02
WG791484: R3039673: L765939-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Metals			
Client ID:	PBW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780003	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Metals			
Client ID:	LCSW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780004	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	97.4	85	115			
Iron	0.46	0.020	0.5000	0	92.3	85	115			
Manganese	0.47	0.0020	0.5000	0	93.2	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA Method 200.7: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26358			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015	SeqNo:	783226	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.0078	0.020								J
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS-19333		SampType:	LCS		TestCode:	EPA Method 200.7: Metals			
Client ID:	LCSW		Batch ID:	19333		RunNo:	26358			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015	SeqNo:	783227	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.5	85	115			
Beryllium	0.52	0.0020	0.5000	0	104	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS-19333			SampType:	LCS			TestCode:	EPA Method 200.7: Metals		
Client ID:	LCSW			Batch ID:	19333			RunNo:	26358		
Prep Date:	5/20/2015			Analysis Date:	5/21/2015			SeqNo:	783227		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chromium	0.49	0.0060	0.5000	0	97.0	85	115				
Cobalt	0.48	0.0060	0.5000	0	95.1	85	115				
Iron	0.48	0.020	0.5000	0	96.5	85	115				
Manganese	0.48	0.0020	0.5000	0	95.3	85	115				
Nickel	0.47	0.010	0.5000	0	94.3	85	115				
Silver	0.10	0.0050	0.1000	0	104	85	115				
Vanadium	0.51	0.050	0.5000	0	101	85	115				
Zinc	0.48	0.010	0.5000	0	96.2	85	115				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	R26242		RunNo:	26242			
Prep Date:			Analysis Date:	5/15/2015		SeqNo:	779016		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0011	0.0020								J
Beryllium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Nickel	ND	0.010								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R26242		RunNo:	26242			
Prep Date:			Analysis Date:	5/15/2015		SeqNo:	779017		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.6	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.3	85	115			
Chromium	0.48	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.50	0.0060	0.5000	0	99.5	85	115			
Nickel	0.48	0.010	0.5000	0	95.9	85	115			
Vanadium	0.49	0.050	0.5000	0	97.4	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780132		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R26265		RunNo:	26265			
Prep Date:			Analysis Date:	5/18/2015		SeqNo:	780133		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115			
Iron	0.45	0.020	0.5000	0	90.7	85	115			
Manganese	0.46	0.0020	0.5000	0	91.7	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781112		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Arsenic	0.024	0.0010	0.02500	0	94.9	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781113		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Arsenic	0.023	0.0010	0.02500	0	93.9	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781115		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781116		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB-19333	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: 19333				RunNo: 26348					
Prep Date: 5/20/2015	Analysis Date: 5/21/2015				SeqNo: 782930		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA 200.8: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26348			
Prep Date:	5/20/2015		Analysis Date:	5/21/2015		SeqNo:	782930		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB-19333		SampType:	MBLK		TestCode:	EPA 200.8: Metals			
Client ID:	PBW		Batch ID:	19333		RunNo:	26606			
Prep Date:	5/20/2015		Analysis Date:	6/3/2015		SeqNo:	792073		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Dissolved Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781144		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Arsenic	0.024	0.0010	0.02500	0	94.9	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID LCS	SampType: LCS				TestCode: EPA 200.8: Dissolved Metals					
Client ID: LCSW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781145		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Arsenic	0.023	0.0010	0.02500	0	93.9	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Dissolved Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781146		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB	SampType: MBLK				TestCode: EPA 200.8: Dissolved Metals					
Client ID: PBW	Batch ID: R26294				RunNo: 26294					
Prep Date:	Analysis Date: 5/19/2015				SeqNo: 781147		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19430	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	19430	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787526	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-19430	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	19430	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787527	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	98.8	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779359	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.100								
Chloride	ND	0.500								
Sulfate	ND	0.500								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779360	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.508	0.100	0.5000	0	102	90	110			
Chloride	4.98	0.500	5.000	0	99.7	90	110			
Sulfate	10.2	0.500	10.00	0	102	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 19246			RunNo: 26216					
Prep Date:	5/15/2015	Analysis Date: 5/15/2015			SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101	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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19344		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785101		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10.0								
Acenaphthylene	ND	10.0								
Aniline	ND	10.0								
Anthracene	ND	10.0								
Azobenzene	ND	10.0								
Benz(a)anthracene	ND	10.0								
Benzo(a)pyrene	ND	10.0								
Benzo(b)fluoranthene	ND	10.0								
Benzo(g,h,i)perylene	ND	10.0								
Benzo(k)fluoranthene	ND	10.0								
Benzoic acid	ND	20.0								
Benzyl alcohol	ND	10.0								
Bis(2-chloroethoxy)methane	ND	10.0								
Bis(2-chloroethyl)ether	ND	10.0								
Bis(2-chloroisopropyl)ether	ND	10.0								
Bis(2-ethylhexyl)phthalate	ND	10.0								
4-Bromophenyl phenyl ether	ND	10.0								
Butyl benzyl phthalate	ND	10.0								
Carbazole	ND	10.0								
4-Chloro-3-methylphenol	ND	10.0								
4-Chloroaniline	ND	10.0								
2-Chloronaphthalene	ND	10.0								
2-Chlorophenol	ND	10.0								
4-Chlorophenyl phenyl ether	ND	10.0								
Chrysene	ND	10.0								
Di-n-butyl phthalate	ND	10.0								
Di-n-octyl phthalate	ND	10.0								
Dibenz(a,h)anthracene	ND	10.0								
Dibenzofuran	ND	10.0								
1,2-Dichlorobenzene	ND	10.0								
1,3-Dichlorobenzene	ND	10.0								
1,4-Dichlorobenzene	ND	10.0								
3,3'-Dichlorobenzidine	ND	10.0								
Diethyl phthalate	ND	10.0								
Dimethyl phthalate	ND	10.0								
2,4-Dichlorophenol	ND	20.0								
2,4-Dimethylphenol	ND	10.0								
4,6-Dinitro-2-methylphenol	ND	20.0								
2,4-Dinitrophenol	ND	20.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19344	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19344	RunNo:	26418					
Prep Date:	5/21/2015	Analysis Date:	5/26/2015	SeqNo:	785101	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10.0								
2,6-Dinitrotoluene	ND	10.0								
Fluoranthene	ND	10.0								
Fluorene	ND	10.0								
Hexachlorobenzene	ND	10.0								
Hexachlorobutadiene	ND	10.0								
Hexachlorocyclopentadiene	ND	10.0								
Hexachloroethane	ND	10.0								
Indeno(1,2,3-cd)pyrene	ND	10.0								
Isophorone	ND	10.0								
1-Methylnaphthalene	ND	10.0								
2-Methylnaphthalene	ND	10.0								
2-Methylphenol	ND	10.0								
3+4-Methylphenol	ND	10.0								
N-Nitrosodi-n-propylamine	ND	10.0								
N-Nitrosodimethylamine	ND	10.0								
N-Nitrosodiphenylamine	ND	10.0								
Naphthalene	ND	10.0								
2-Nitroaniline	ND	10.0								
3-Nitroaniline	ND	10.0								
4-Nitroaniline	ND	10.0								
Nitrobenzene	ND	10.0								
2-Nitrophenol	ND	10.0								
4-Nitrophenol	ND	10.0								
Pentachlorophenol	ND	20.0								
Phenanthrene	ND	10.0								
Phenol	ND	10.0								
Pyrene	ND	10.0								
Pyridine	ND	10.0								
1,2,4-Trichlorobenzene	ND	10.0								
2,4,5-Trichlorophenol	ND	10.0								
2,4,6-Trichlorophenol	ND	10.0								
Surr: 2-Fluorophenol	112		200.0		56.1	14.9	111			
Surr: Phenol-d5	86.3		200.0		43.2	11.3	108			
Surr: 2,4,6-Tribromophenol	146		200.0		72.8	15.7	154			
Surr: Nitrobenzene-d5	77.2		100.0		77.2	47.8	106			
Surr: 2-Fluorobiphenyl	78.8		100.0		78.8	21.3	123			
Surr: 4-Terphenyl-d14	70.9		100.0		70.9	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19344		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	68.5	10.0	100.0	0	68.5	47.8	99.7			
4-Chloro-3-methylphenol	152	10.0	200.0	0	76.0	58.1	103			
2-Chlorophenol	157	10.0	200.0	0	78.5	49.5	96.8			
1,4-Dichlorobenzene	64.5	10.0	100.0	0	64.5	40.4	89.4			
2,4-Dinitrotoluene	62.9	10.0	100.0	0	62.9	38.6	91.3			
N-Nitrosodi-n-propylamine	85.7	10.0	100.0	0	85.7	53.9	95.6			
4-Nitrophenol	85.5	10.0	200.0	0	42.8	26.4	108			
Pentachlorophenol	116	20.0	200.0	0	58.1	36.5	86.6			
Phenol	99.9	10.0	200.0	0	50.0	29.3	108			
Pyrene	76.7	10.0	100.0	0	76.7	45.7	100			
1,2,4-Trichlorobenzene	67.7	10.0	100.0	0	67.7	39.3	94.5			
Surr: 2-Fluorophenol	127		200.0		63.6	14.9	111			
Surr: Phenol-d5	104		200.0		52.0	11.3	108			
Surr: 2,4,6-Tribromophenol	146		200.0		73.1	15.7	154			
Surr: Nitrobenzene-d5	83.7		100.0		83.7	47.8	106			
Surr: 2-Fluorobiphenyl	74.9		100.0		74.9	21.3	123			
Surr: 4-Terphenyl-d14	57.8		100.0		57.8	14.3	135			

Sample ID	lcsd-19344		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785105		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	69.6	10.0	100.0	0	69.6	47.8	99.7	1.65	28.2	
4-Chloro-3-methylphenol	152	10.0	200.0	0	76.0	58.1	103	0	24.4	
2-Chlorophenol	138	10.0	200.0	0	69.0	49.5	96.8	12.8	28.1	
1,4-Dichlorobenzene	56.8	10.0	100.0	0	56.8	40.4	89.4	12.8	31.2	
2,4-Dinitrotoluene	53.4	10.0	100.0	0	53.4	38.6	91.3	16.4	44.4	
N-Nitrosodi-n-propylamine	79.3	10.0	100.0	0	79.3	53.9	95.6	7.73	24.2	
4-Nitrophenol	74.3	10.0	200.0	0	37.2	26.4	108	14.0	36.6	
Pentachlorophenol	110	20.0	200.0	0	55.2	36.5	86.6	5.05	29.5	
Phenol	89.2	10.0	200.0	0	44.6	29.3	108	11.3	30	
Pyrene	73.4	10.0	100.0	0	73.4	45.7	100	4.45	31	
1,2,4-Trichlorobenzene	63.0	10.0	100.0	0	63.0	39.3	94.5	7.23	24	
Surr: 2-Fluorophenol	118		200.0		59.1	14.9	111	0	0	
Surr: Phenol-d5	97.2		200.0		48.6	11.3	108	0	0	
Surr: 2,4,6-Tribromophenol	149		200.0		74.4	15.7	154	0	0	
Surr: Nitrobenzene-d5	77.1		100.0		77.1	47.8	106	0	0	
Surr: 2-Fluorobiphenyl	76.7		100.0		76.7	21.3	123	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcsd-19344		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 19344		RunNo: 26418					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 785105		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	57.3		100.0		57.3	14.3	135	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505701

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1505701**

RcptNo: 1

Received by/date:

[Signature]

05/15/15

Logged By: **Lindsay Mangin**

5/15/2015 8:55:00 AM

[Signature]

Completed By: **Lindsay Mangin**

5/15/2015 9:42:52 AM

[Signature]

Reviewed By:

[Signature]

05/19/15

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? Client

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☒ CS 05/15/15
9. Was preservative added to bottles? Yes ☒ No ☒ NA ☐ CS 05/15/15 Sample -001B (3 of 3) h
10. VOA vials have zero headspace? Yes ☒ No ☒ No VOA Vials ☐ a bubble.
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 2, 1
(≤ 2 or > 12 unless noted)
Adjusted? yes
Checked by: CS

Special Handling (if applicable)

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

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

17. Additional remarks: For metals analysis, added 2ml HNO₃ for acceptable pH. Held in Login for 24 hours. For 300 analysis, poured off from a 1L Amber into a 500.

18. Cooler Information

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

plastic. CS 05/15/15

Approximately 250mc from plastic bottle used for 8270 analysis due to low sample volume. KMS. 5/21/15

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.

GALLUP REFINERY

Shipping Address: 97 GIANT CROSSING RD

GALLUP, NM 87301

Phone #: 505-722-0231

Email or Fax#: CHERYL.L.JOHNSON@WNR.COM

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

EDD (Type) EXCEL

Date Time Matrix Sample Request ID

5/14/15 1000 WATER SWMU 10-14-GW
 1 L AMBER-2
 250 ML AMBER-1
 100 ML PLASTIC-1
 500 ML PLASTIC-1
 500 ML PLASTIC-1
 50 ML PLASTIC-1
 40 ML VOA-4
 5/14/15 - WATER TRIP BLANK

Date: 5/15/15 Time: 1315

Date: 5/15/15 Time: 855

Relinquished by:

Relinquished by:

Received by:

Received by:

Date

Time

Date

Time

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

SWMU 10

Project #:

Project Manager:

CHERYL JOHNSON

Sampler: TRACY PAYNE

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.1

Container Type and #

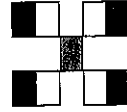
Preservative Type

HEAL No.

40 ML VOA-6 HCL -001
 1 L AMBER-2 -001
 250 ML AMBER-1 -001
 100 ML PLASTIC-1 HNO3 -001
 500 ML PLASTIC-1 HNO3 -001
 500 ML PLASTIC-1 NAOH -001
 50 ML PLASTIC-1 NH42004 -001
 40 ML VOA-4 HCL -002

Analysis Request

BTEX + MTBE + TMB's (8021)
 BTEX + MTBE + TPH (Gas only)
 TPH 8015B (GRO / DRO / MRO)
 TPH (Method 418.1) Diesel
 EDB (Method 504.1)
 PAH's (8310 or 8270 SIMS)
 PCRA Metals
 Cyanide
 Anions (F, Cl, NO3, NO2, PO4, SO4)
 8081 Pesticides / 8082 PCB's
 8260B (VOA)
 8270 (Semi-VOA)
 Metals (Total & Dissolved)
 GEN CHEM
 CR6
 Air Bubbles (Y or N)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

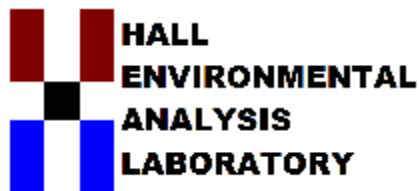
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

November 04, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505705

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 25, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (2-4')

Project: SWMU 10

Collection Date: 5/13/2015 3:55:00 PM

Lab ID: 1505705-001

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	5.5	10		mg/Kg-dr	1	5/20/2015 9:51:39 AM	19293
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg-dr	1	5/20/2015 9:51:39 AM	19293
Surr: DNOP	97.0	0	57.9-140		%REC	1	5/20/2015 9:51:39 AM	19293
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	11	1.0	1.0		wt%	1	5/15/2015 11:35:00 AM	R26235
EPA METHOD 7471: MERCURY							Analyst: MED	
Mercury	0.0048	0.0032	0.036	J	mg/Kg-dr	1	6/2/2015 10:06:43 AM	19476
EPA METHOD 6010B: SOIL METALS							Analyst: ELS	
Antimony	ND	1.5	2.8		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Arsenic	1.8	0.66	5.6	J	mg/Kg-dr	2	5/20/2015 12:09:32 PM	19279
Barium	500	0.067	0.22		mg/Kg-dr	2	5/20/2015 12:09:32 PM	19279
Beryllium	0.79	0.0083	0.17		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Cadmium	ND	0.031	0.11		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Chromium	9.3	0.068	0.34		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Cobalt	4.4	0.043	0.34		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Iron	15000	68	280		mg/Kg-dr	100	5/20/2015 10:32:29 AM	19279
Lead	2.9	0.12	0.28		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Manganese	460	0.13	0.22		mg/Kg-dr	2	5/20/2015 12:09:32 PM	19279
Nickel	7.7	0.14	0.56		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Selenium	ND	1.7	2.8		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Silver	ND	0.034	0.28		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Vanadium	21	0.038	2.8		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
Zinc	15	0.72	2.8		mg/Kg-dr	1	5/20/2015 12:08:11 PM	19279
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Acenaphthylene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Aniline	ND	0.097	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Anthracene	ND	0.095	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Azobenzene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benz(a)anthracene	ND	0.088	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzo(a)pyrene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzo(b)fluoranthene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzo(g,h,i)perylene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzo(k)fluoranthene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzoic acid	ND	0.064	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Benzyl alcohol	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Bis(2-chloroethoxy)methane	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (2-4')

Project: SWMU 10

Collection Date: 5/13/2015 3:55:00 PM

Lab ID: 1505705-001

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Bis(2-chloroethyl)ether	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Bis(2-chloroisopropyl)ether	ND	0.085	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Bis(2-ethylhexyl)phthalate	ND	0.13	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Bromophenyl phenyl ether	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Butyl benzyl phthalate	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Carbazole	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Chloro-3-methylphenol	ND	0.11	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Chloroaniline	ND	0.10	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Chloronaphthalene	ND	0.12	0.28		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Chlorophenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Chlorophenyl phenyl ether	ND	0.17	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Chrysene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Di-n-butyl phthalate	ND	0.13	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Di-n-octyl phthalate	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Dibenz(a,h)anthracene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Dibenzofuran	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
1,2-Dichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
1,3-Dichlorobenzene	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
1,4-Dichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
3,3'-Dichlorobenzidine	ND	0.086	0.28		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Diethyl phthalate	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Dimethyl phthalate	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4-Dichlorophenol	ND	0.11	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4-Dimethylphenol	ND	0.088	0.34		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4,6-Dinitro-2-methylphenol	ND	0.061	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4-Dinitrophenol	ND	0.046	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4-Dinitrotoluene	ND	0.10	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,6-Dinitrotoluene	ND	0.12	0.56		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Fluoranthene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Fluorene	ND	0.15	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Hexachlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Hexachlorobutadiene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Hexachlorocyclopentadiene	ND	0.078	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Hexachloroethane	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Indeno(1,2,3-cd)pyrene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Isophorone	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
1-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Methylphenol	ND	0.11	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (2-4')

Project: SWMU 10

Collection Date: 5/13/2015 3:55:00 PM

Lab ID: 1505705-001

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
3+4-Methylphenol	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
N-Nitrosodi-n-propylamine	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
N-Nitrosodiphenylamine	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Naphthalene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Nitroaniline	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
3-Nitroaniline	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Nitroaniline	ND	0.10	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Nitrobenzene	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2-Nitrophenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
4-Nitrophenol	ND	0.096	0.28		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Pentachlorophenol	ND	0.070	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Phenanthrene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Phenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Pyrene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Pyridine	ND	0.094	0.45		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
1,2,4-Trichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4,5-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
2,4,6-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 1:41:40 PM	19270
Surr: 2-Fluorophenol	49.8		26.4-129		%REC	1	5/21/2015 1:41:40 PM	19270
Surr: Phenol-d5	55.4		34.8-118		%REC	1	5/21/2015 1:41:40 PM	19270
Surr: 2,4,6-Tribromophenol	52.3		26.8-128		%REC	1	5/21/2015 1:41:40 PM	19270
Surr: Nitrobenzene-d5	55.7		35.8-124		%REC	1	5/21/2015 1:41:40 PM	19270
Surr: 2-Fluorobiphenyl	56.7		24.5-139		%REC	1	5/21/2015 1:41:40 PM	19270
Surr: 4-Terphenyl-d14	54.9		29.4-129		%REC	1	5/21/2015 1:41:40 PM	19270
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Benzene	0.00112	0.000466	0.00207	J	mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Toluene	0.00104	0.000215	0.00207	J	mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Ethylbenzene	ND	0.000348	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Xylenes, Total	ND	0.00123	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Methyl tert-butyl ether (MTBE)	ND	0.000868	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2,4-Trimethylbenzene	ND	0.000541	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,3,5-Trimethylbenzene	ND	0.000363	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2-Dichloroethane (EDC)	ND	0.000555	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2-Dibromoethane (EDB)	ND	0.000248	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Naphthalene	ND	0.000677	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1-Methylnaphthalene	ND	0.000813	0.00414		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
2-Methylnaphthalene	ND	0.000809	0.00414		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Acetone	0.0254	0.00129	0.0104		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Bromobenzene	ND	0.000576	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (2-4')

Project: SWMU 10

Collection Date: 5/13/2015 3:55:00 PM

Lab ID: 1505705-001

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Bromodichloromethane	ND	0.000280	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Bromoform	ND	0.000536	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Bromomethane	ND	0.00122	0.00311		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
2-Butanone	0.00304	0.000663	0.0104	J	mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Carbon tetrachloride	ND	0.000375	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Chlorobenzene	ND	0.000210	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Chloroethane	ND	0.00207	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Chloroform	ND	0.000426	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Chloromethane	ND	0.000244	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
2-Chlorotoluene	ND	0.000404	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Carbon disulfide	ND	0.000937	0.0104		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
4-Chlorotoluene	ND	0.000399	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
cis-1,2-DCE	ND	0.000548	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
cis-1,3-Dichloropropene	ND	0.00207	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2-Dibromo-3-chloropropane	ND	0.000608	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Dibromochloromethane	ND	0.000232	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Dibromomethane	ND	0.00118	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2-Dichlorobenzene	ND	0.000459	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,3-Dichlorobenzene	ND	0.000351	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,4-Dichlorobenzene	ND	0.000325	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Dichlorodifluoromethane	ND	0.000845	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1-Dichloroethane	ND	0.000484	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1-Dichloroethene	ND	0.000346	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2-Dichloropropane	ND	0.000442	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,3-Dichloropropane	ND	0.000322	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
2,2-Dichloropropane	ND	0.000360	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1-Dichloropropene	ND	0.000379	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Hexachlorobutadiene	ND	0.000418	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Isopropylbenzene	ND	0.000480	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
4-Isopropyltoluene	ND	0.000803	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Methylene chloride	ND	0.000512	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
n-Butylbenzene	ND	0.000850	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
2-Hexanone	0.000787	0.000431	0.0104	J	mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
n-Propylbenzene	ND	0.000388	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
sec-Butylbenzene	ND	0.000523	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Styrene	ND	0.000343	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
4-Methyl-2-pentanone	ND	0.000874	0.0104		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
tert-Butylbenzene	ND	0.000317	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1,1,2-Tetrachloroethane	ND	0.000337	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (2-4')

Project: SWMU 10

Collection Date: 5/13/2015 3:55:00 PM

Lab ID: 1505705-001

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
1,1,2,2-Tetrachloroethane	ND	0.000455	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Tetrachloroethene (PCE)	ND	0.000410	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
trans-1,2-DCE	ND	0.000335	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
trans-1,3-Dichloropropene	ND	0.000271	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2,3-Trichlorobenzene	ND	0.000757	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2,4-Trichlorobenzene	ND	0.000776	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1,1-Trichloroethane	ND	0.000295	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,1,2-Trichloroethane	ND	0.00207	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Trichloroethene (TCE)	ND	0.000411	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Trichlorofluoromethane	ND	0.000418	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
1,2,3-Trichloropropane	ND	0.000727	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Vinyl chloride	ND	0.000236	0.00207		mg/Kg-dr	1	5/15/2015 2:29:07 PM	19243
Surr: 1,2-Dichloroethane-d4	91.7	0	70-130		%REC	1	5/15/2015 2:29:07 PM	19243
Surr: 4-Bromofluorobenzene	104	0	70-130		%REC	1	5/15/2015 2:29:07 PM	19243
Surr: Dibromofluoromethane	90.0	0	70-130		%REC	1	5/15/2015 2:29:07 PM	19243
Surr: Toluene-d8	86.9	0	70-130		%REC	1	5/15/2015 2:29:07 PM	19243
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.75	3.0		mg/Kg-dr	1	5/15/2015 6:34:28 PM	R26221
Surr: BFB	107	0	67.4-150		%REC	1	5/15/2015 6:34:28 PM	R26221

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (4-5.5')

Project: SWMU 10

Collection Date: 5/13/2015 4:10:00 PM

Lab ID: 1505705-002

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	5.5	10		mg/Kg	1	5/20/2015 10:13:02 AM	19293
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	5/20/2015 10:13:02 AM	19293
Surr: DNOP	95.0	0	57.9-140		%REC	1	5/20/2015 10:13:02 AM	19293
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	9.9	1.0	1.0		wt%	1	5/15/2015 11:35:00 AM	R26235
EPA METHOD 7471: MERCURY							Analyst: MED	
Mercury	0.0037	0.0030	0.034	J	mg/Kg-dr	1	6/2/2015 10:08:29 AM	19476
EPA METHOD 6010B: SOIL METALS							Analyst: ELS	
Antimony	ND	1.4	2.7		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Arsenic	1.4	0.32	2.7	J	mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Barium	430	0.065	0.22		mg/Kg-dr	2	5/20/2015 12:16:52 PM	19279
Beryllium	0.73	0.0081	0.16		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Cadmium	ND	0.030	0.11		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Chromium	8.8	0.066	0.33		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Cobalt	4.2	0.041	0.33		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Iron	15000	66	270		mg/Kg-dr	100	5/20/2015 10:33:51 AM	19279
Lead	3.0	0.12	0.27		mg/Kg-dr	1	5/20/2015 1:25:39 PM	19279
Manganese	240	0.064	0.11		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Nickel	7.2	0.14	0.55		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Selenium	ND	1.7	2.7		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Silver	ND	0.033	0.27		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Vanadium	22	0.037	2.7		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
Zinc	14	0.70	2.7		mg/Kg-dr	1	5/20/2015 12:15:38 PM	19279
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Acenaphthylene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Aniline	ND	0.096	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Anthracene	ND	0.094	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Azobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benz(a)anthracene	ND	0.087	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzo(a)pyrene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzo(b)fluoranthene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzo(g,h,i)perylene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzo(k)fluoranthene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzoic acid	ND	0.063	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Benzyl alcohol	ND	0.098	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Bis(2-chloroethoxy)methane	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (4-5.5')

Project: SWMU 10

Collection Date: 5/13/2015 4:10:00 PM

Lab ID: 1505705-002

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Bis(2-chloroethyl)ether	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Bis(2-chloroisopropyl)ether	ND	0.084	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Bis(2-ethylhexyl)phthalate	ND	0.12	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Bromophenyl phenyl ether	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Butyl benzyl phthalate	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Carbazole	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Chloro-3-methylphenol	ND	0.11	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Chloroaniline	ND	0.10	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Chloronaphthalene	ND	0.12	0.28		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Chlorophenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Chlorophenyl phenyl ether	ND	0.16	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Chrysene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Di-n-butyl phthalate	ND	0.12	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Di-n-octyl phthalate	ND	0.12	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Dibenz(a,h)anthracene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Dibenzofuran	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
1,2-Dichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
1,3-Dichlorobenzene	ND	0.098	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
1,4-Dichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
3,3'-Dichlorobenzidine	ND	0.085	0.28		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Diethyl phthalate	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Dimethyl phthalate	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4-Dichlorophenol	ND	0.11	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4-Dimethylphenol	ND	0.087	0.33		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4,6-Dinitro-2-methylphenol	ND	0.060	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4-Dinitrophenol	ND	0.046	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4-Dinitrotoluene	ND	0.099	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,6-Dinitrotoluene	ND	0.12	0.55		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Fluoranthene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Fluorene	ND	0.15	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Hexachlorobenzene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Hexachlorobutadiene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Hexachlorocyclopentadiene	ND	0.077	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Hexachloroethane	ND	0.098	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Indeno(1,2,3-cd)pyrene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Isophorone	ND	0.12	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
1-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Methylphenol	ND	0.11	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (4-5.5')

Project: SWMU 10

Collection Date: 5/13/2015 4:10:00 PM

Lab ID: 1505705-002

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
3+4-Methylphenol	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
N-Nitrosodi-n-propylamine	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
N-Nitrosodiphenylamine	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Naphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Nitroaniline	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
3-Nitroaniline	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Nitroaniline	ND	0.099	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Nitrobenzene	ND	0.11	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2-Nitrophenol	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
4-Nitrophenol	ND	0.095	0.28		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Pentachlorophenol	ND	0.069	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Phenanthrene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Phenol	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Pyrene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Pyridine	ND	0.093	0.44		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
1,2,4-Trichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4,5-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
2,4,6-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:09:19 PM	19270
Surr: 2-Fluorophenol	57.0		26.4-129		%REC	1	5/21/2015 2:09:19 PM	19270
Surr: Phenol-d5	66.3		34.8-118		%REC	1	5/21/2015 2:09:19 PM	19270
Surr: 2,4,6-Tribromophenol	69.1		26.8-128		%REC	1	5/21/2015 2:09:19 PM	19270
Surr: Nitrobenzene-d5	61.2		35.8-124		%REC	1	5/21/2015 2:09:19 PM	19270
Surr: 2-Fluorobiphenyl	62.1		24.5-139		%REC	1	5/21/2015 2:09:19 PM	19270
Surr: 4-Terphenyl-d14	65.3		29.4-129		%REC	1	5/21/2015 2:09:19 PM	19270
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Benzene	0.00221	0.000430	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Toluene	0.00151	0.000199	0.00191	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Ethylbenzene	0.000401	0.000321	0.00191	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Xylenes, Total	ND	0.00114	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Methyl tert-butyl ether (MTBE)	ND	0.000801	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2,4-Trimethylbenzene	ND	0.000499	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,3,5-Trimethylbenzene	ND	0.000335	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2-Dichloroethane (EDC)	ND	0.000512	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2-Dibromoethane (EDB)	ND	0.000228	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Naphthalene	ND	0.000624	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1-Methylnaphthalene	ND	0.000750	0.00382		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
2-Methylnaphthalene	ND	0.000746	0.00382		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Acetone	0.00651	0.00119	0.00955	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Bromobenzene	ND	0.000531	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (4-5.5')

Project: SWMU 10

Collection Date: 5/13/2015 4:10:00 PM

Lab ID: 1505705-002

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Bromodichloromethane	ND	0.000258	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Bromoform	ND	0.000495	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Bromomethane	ND	0.00113	0.00287		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
2-Butanone	0.00146	0.000612	0.00955	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Carbon tetrachloride	ND	0.000346	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Chlorobenzene	ND	0.000194	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Chloroethane	ND	0.00191	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Chloroform	ND	0.000393	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Chloromethane	ND	0.000225	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
2-Chlorotoluene	ND	0.000373	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Carbon disulfide	ND	0.000864	0.00955		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
4-Chlorotoluene	ND	0.000368	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
cis-1,2-DCE	ND	0.000505	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
cis-1,3-Dichloropropene	ND	0.00191	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2-Dibromo-3-chloropropane	ND	0.000561	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Dibromochloromethane	ND	0.000214	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Dibromomethane	ND	0.00108	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2-Dichlorobenzene	ND	0.000424	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,3-Dichlorobenzene	ND	0.000324	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,4-Dichlorobenzene	ND	0.000300	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Dichlorodifluoromethane	ND	0.000780	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1-Dichloroethane	ND	0.000446	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1-Dichloroethene	ND	0.000319	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2-Dichloropropane	ND	0.000408	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,3-Dichloropropane	ND	0.000297	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
2,2-Dichloropropane	ND	0.000332	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1-Dichloropropene	ND	0.000350	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Hexachlorobutadiene	ND	0.000385	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Isopropylbenzene	ND	0.000443	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
4-Isopropyltoluene	ND	0.000741	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Methylene chloride	0.000506	0.000472	0.00191	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
n-Butylbenzene	ND	0.000784	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
2-Hexanone	0.000669	0.000397	0.00955	J	mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
n-Propylbenzene	ND	0.000358	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
sec-Butylbenzene	ND	0.000482	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Styrene	ND	0.000317	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
4-Methyl-2-pentanone	ND	0.000807	0.00955		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
tert-Butylbenzene	ND	0.000293	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1,1,2-Tetrachloroethane	ND	0.000311	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (4-5.5')

Project: SWMU 10

Collection Date: 5/13/2015 4:10:00 PM

Lab ID: 1505705-002

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
1,1,2,2-Tetrachloroethane	ND	0.000420	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Tetrachloroethene (PCE)	ND	0.000379	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
trans-1,2-DCE	ND	0.000309	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
trans-1,3-Dichloropropene	ND	0.000250	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2,3-Trichlorobenzene	ND	0.000699	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2,4-Trichlorobenzene	ND	0.000716	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1,1-Trichloroethane	ND	0.000272	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,1,2-Trichloroethane	ND	0.00191	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Trichloroethene (TCE)	ND	0.000380	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Trichlorofluoromethane	ND	0.000386	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
1,2,3-Trichloropropane	ND	0.000671	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Vinyl chloride	ND	0.000218	0.00191		mg/Kg-dr	1	5/15/2015 3:58:03 PM	19243
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%REC	1	5/15/2015 3:58:03 PM	19243
Surr: 4-Bromofluorobenzene	91.4	0	70-130		%REC	1	5/15/2015 3:58:03 PM	19243
Surr: Dibromofluoromethane	95.3	0	70-130		%REC	1	5/15/2015 3:58:03 PM	19243
Surr: Toluene-d8	84.1	0	70-130		%REC	1	5/15/2015 3:58:03 PM	19243
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.67	2.7		mg/Kg-dr	1	5/15/2015 8:01:09 PM	R26221
Surr: BFB	110	0	67.4-150		%REC	1	5/15/2015 8:01:09 PM	R26221

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (8-9')

Project: SWMU 10

Collection Date: 5/13/2015 4:20:00 PM

Lab ID: 1505705-003

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	5.6	10		mg/Kg	1	5/20/2015 10:34:15 AM	19293
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	5/20/2015 10:34:15 AM	19293
Surr: DNOP	101	0	57.9-140		%REC	1	5/20/2015 10:34:15 AM	19293
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	10	1.0	1.0		wt%	1	5/15/2015 11:35:00 AM	R26235
EPA METHOD 7471: MERCURY							Analyst: MED	
Mercury	0.0054	0.0032	0.037	J	mg/Kg-dr	1	6/2/2015 10:10:15 AM	19476
EPA METHOD 6010B: SOIL METALS							Analyst: ELS	
Antimony	ND	1.5	2.8		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Arsenic	1.3	0.33	2.8	J	mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Barium	55	0.034	0.11		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Beryllium	0.78	0.0084	0.17		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Cadmium	ND	0.031	0.11		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Chromium	10	0.068	0.34		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Cobalt	5.7	0.043	0.34		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Iron	17000	68	280		mg/Kg-dr	100	5/20/2015 10:35:13 AM	19279
Lead	3.3	0.12	0.28		mg/Kg-dr	1	5/20/2015 1:26:55 PM	19279
Manganese	810	0.33	0.56		mg/Kg-dr	5	5/20/2015 1:28:18 PM	19279
Nickel	10	0.15	0.56		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Selenium	ND	1.7	2.8		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Silver	ND	0.034	0.28		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Vanadium	20	0.038	2.8		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
Zinc	18	0.73	2.8		mg/Kg-dr	1	5/20/2015 12:18:07 PM	19279
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Acenaphthylene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Aniline	ND	0.097	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Anthracene	ND	0.095	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Azobenzene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benz(a)anthracene	ND	0.088	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzo(a)pyrene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzo(b)fluoranthene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzo(g,h,i)perylene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzo(k)fluoranthene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzoic acid	ND	0.064	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Benzyl alcohol	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Bis(2-chloroethoxy)methane	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (8-9')

Project: SWMU 10

Collection Date: 5/13/2015 4:20:00 PM

Lab ID: 1505705-003

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Bis(2-chloroethyl)ether	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Bis(2-chloroisopropyl)ether	ND	0.085	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Bis(2-ethylhexyl)phthalate	ND	0.13	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Bromophenyl phenyl ether	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Butyl benzyl phthalate	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Carbazole	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Chloro-3-methylphenol	ND	0.11	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Chloroaniline	ND	0.10	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Chloronaphthalene	ND	0.12	0.28		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Chlorophenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Chlorophenyl phenyl ether	ND	0.17	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Chrysene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Di-n-butyl phthalate	ND	0.13	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Di-n-octyl phthalate	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Dibenz(a,h)anthracene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Dibenzofuran	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
1,2-Dichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
1,3-Dichlorobenzene	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
1,4-Dichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
3,3'-Dichlorobenzidine	ND	0.086	0.28		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Diethyl phthalate	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Dimethyl phthalate	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4-Dichlorophenol	ND	0.11	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4-Dimethylphenol	ND	0.088	0.34		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4,6-Dinitro-2-methylphenol	ND	0.061	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4-Dinitrophenol	ND	0.046	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4-Dinitrotoluene	ND	0.10	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,6-Dinitrotoluene	ND	0.12	0.56		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Fluoranthene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Fluorene	ND	0.15	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Hexachlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Hexachlorobutadiene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Hexachlorocyclopentadiene	ND	0.077	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Hexachloroethane	ND	0.099	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Indeno(1,2,3-cd)pyrene	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Isophorone	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
1-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Methylnaphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Methylphenol	ND	0.11	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (8-9')

Project: SWMU 10

Collection Date: 5/13/2015 4:20:00 PM

Lab ID: 1505705-003

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
3+4-Methylphenol	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
N-Nitrosodi-n-propylamine	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
N-Nitrosodiphenylamine	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Naphthalene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Nitroaniline	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
3-Nitroaniline	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Nitroaniline	ND	0.10	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Nitrobenzene	ND	0.12	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2-Nitrophenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
4-Nitrophenol	ND	0.096	0.28		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Pentachlorophenol	ND	0.070	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Phenanthrene	ND	0.12	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Phenol	ND	0.10	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Pyrene	ND	0.14	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Pyridine	ND	0.094	0.45		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
1,2,4-Trichlorobenzene	ND	0.11	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4,5-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
2,4,6-Trichlorophenol	ND	0.13	0.22		mg/Kg-dr	1	5/21/2015 2:37:02 PM	19270
Surr: 2-Fluorophenol	66.3		26.4-129		%REC	1	5/21/2015 2:37:02 PM	19270
Surr: Phenol-d5	69.0		34.8-118		%REC	1	5/21/2015 2:37:02 PM	19270
Surr: 2,4,6-Tribromophenol	61.5		26.8-128		%REC	1	5/21/2015 2:37:02 PM	19270
Surr: Nitrobenzene-d5	67.9		35.8-124		%REC	1	5/21/2015 2:37:02 PM	19270
Surr: 2-Fluorobiphenyl	65.8		24.5-139		%REC	1	5/21/2015 2:37:02 PM	19270
Surr: 4-Terphenyl-d14	57.8		29.4-129		%REC	1	5/21/2015 2:37:02 PM	19270
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Benzene	0.0176	0.000405	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Toluene	0.0135	0.000187	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Ethylbenzene	0.00347	0.000302	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Xylenes, Total	0.00946	0.00107	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Methyl tert-butyl ether (MTBE)	ND	0.000754	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2,4-Trimethylbenzene	0.00269	0.000470	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,3,5-Trimethylbenzene	0.00170	0.000315	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2-Dichloroethane (EDC)	ND	0.000482	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2-Dibromoethane (EDB)	ND	0.000215	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Naphthalene	0.000845	0.000587	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1-Methylnaphthalene	ND	0.000706	0.00360		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
2-Methylnaphthalene	ND	0.000702	0.00360		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Acetone	0.00313	0.00112	0.00899	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Bromobenzene	ND	0.000500	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (8-9')

Project: SWMU 10

Collection Date: 5/13/2015 4:20:00 PM

Lab ID: 1505705-003

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
Bromodichloromethane	ND	0.000243	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Bromoform	ND	0.000466	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Bromomethane	ND	0.00106	0.00270		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
2-Butanone	0.00173	0.000576	0.00899	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Carbon tetrachloride	ND	0.000325	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Chlorobenzene	ND	0.000182	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Chloroethane	ND	0.00180	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Chloroform	ND	0.000370	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Chloromethane	ND	0.000212	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
2-Chlorotoluene	ND	0.000351	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Carbon disulfide	ND	0.000814	0.00899		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
4-Chlorotoluene	ND	0.000346	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
cis-1,2-DCE	ND	0.000475	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
cis-1,3-Dichloropropene	ND	0.00180	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2-Dibromo-3-chloropropane	ND	0.000528	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Dibromochloromethane	ND	0.000202	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Dibromomethane	ND	0.00102	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2-Dichlorobenzene	ND	0.000399	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,3-Dichlorobenzene	ND	0.000305	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,4-Dichlorobenzene	ND	0.000282	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Dichlorodifluoromethane	ND	0.000734	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1-Dichloroethane	ND	0.000420	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1-Dichloroethene	ND	0.000300	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2-Dichloropropane	ND	0.000384	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,3-Dichloropropane	ND	0.000280	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
2,2-Dichloropropane	ND	0.000312	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1-Dichloropropene	ND	0.000329	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Hexachlorobutadiene	ND	0.000363	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Isopropylbenzene	0.000539	0.000417	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
4-Isopropyltoluene	ND	0.000698	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Methylene chloride	0.000611	0.000444	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
n-Butylbenzene	ND	0.000738	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
2-Hexanone	ND	0.000374	0.00899		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
n-Propylbenzene	0.000494	0.000337	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
sec-Butylbenzene	0.000683	0.000454	0.00180	J	mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Styrene	ND	0.000298	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
4-Methyl-2-pentanone	ND	0.000759	0.00899		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
tert-Butylbenzene	ND	0.000276	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1,1,2-Tetrachloroethane	ND	0.000293	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505705

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16 (8-9')

Project: SWMU 10

Collection Date: 5/13/2015 4:20:00 PM

Lab ID: 1505705-003

Matrix: SOIL

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: RAA	
1,1,2,2-Tetrachloroethane	ND	0.000395	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Tetrachloroethene (PCE)	ND	0.000356	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
trans-1,2-DCE	ND	0.000291	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
trans-1,3-Dichloropropene	ND	0.000235	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2,3-Trichlorobenzene	ND	0.000658	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2,4-Trichlorobenzene	ND	0.000674	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1,1-Trichloroethane	ND	0.000256	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,1,2-Trichloroethane	ND	0.00180	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Trichloroethene (TCE)	ND	0.000357	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Trichlorofluoromethane	ND	0.000363	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
1,2,3-Trichloropropane	ND	0.000631	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Vinyl chloride	ND	0.000205	0.00180		mg/Kg-dr	1	5/15/2015 4:27:26 PM	19243
Surr: 1,2-Dichloroethane-d4	87.5	0	70-130		%REC	1	5/15/2015 4:27:26 PM	19243
Surr: 4-Bromofluorobenzene	98.5	0	70-130		%REC	1	5/15/2015 4:27:26 PM	19243
Surr: Dibromofluoromethane	97.6	0	70-130		%REC	1	5/15/2015 4:27:26 PM	19243
Surr: Toluene-d8	89.7	0	70-130		%REC	1	5/15/2015 4:27:26 PM	19243
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.73	2.9		mg/Kg-dr	1	5/15/2015 8:30:07 PM	R26221
Surr: BFB	115	0	67.4-150		%REC	1	5/15/2015 8:30:07 PM	R26221

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

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



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505705-001C SWMU 10-16 2-4FT
Collected By :
Collection Date : 05/13/15 15:55

ESC Sample # : L765944-01

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	U	0.039	0.25	mg/kg		9012B	05/26/15	1
Chromium, Hexavalent	U	0.64	2.0	mg/kg		3060A/7	05/22/15	1
ORP	76.			mV		2580 B-	05/23/15	1
pH	7.9	0.010	0.10	su		9045D	05/21/15	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:33 Printed: 06/02/15 11:33
L765944-01 (PH) - 7.9 at 21.5c



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505705-002C SWMU 10-16 4-5.5FT
Collected By :
Collection Date : 05/13/15 16:10

ESC Sample # : L765944-02

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	U	0.039	0.25	mg/kg		9012B	05/26/15	1
Chromium, Hexavalent	U	0.64	2.0	mg/kg		3060A/7	05/22/15	1
ORP	38.			mV		2580 B-	05/23/15	1
pH	9.0	0.010	0.10	su		9045D	05/21/15	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:33 Printed: 06/02/15 11:33

L765944-02 (PH) - 9.0 at 21.0c



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505705-003C SWMU 10-16 8-9FT
Collected By :
Collection Date : 05/13/15 16:20

ESC Sample # : L765944-03

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	U	0.039	0.25	mg/kg		9012B	05/26/15	1
Chromium, Hexavalent	U	0.64	2.0	mg/kg		3060A/7	05/22/15	1
ORP	41.			mV		2580 B-	05/23/15	1
pH	8.8	0.010	0.10	su		9045D	05/21/15	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD = TRRP SDL

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:33 Printed: 06/02/15 11:33

L765944-03 (PH) - 8.8 at 20.9c



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765944

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Result	Laboratory Blank Units % Rec	Limit	Batch	Date Analyzed
Chromium, Hexavalent	< 2	mg/kg		WG790681	05/22/15 14:15
Cyanide	< .25	mg/kg		WG790306	05/26/15 09:43

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
pH	su	7.00	7.00	0.143	1	L765520-16	WG790425
pH	su	6.30	6.30	0.633	1	L766317-01	WG790425
Chromium, Hexavalent	mg/kg	0.0	0.0	0.0	20	L765944-01	WG790681
ORP	mV	54.0	56.0	3.64	20	L765419-02	WG790617
ORP	mV	46.0	45.0	2.20	20	L766227-03	WG790617
Cyanide	mg/kg	0.0	0.0	0.0	20	L765924-01	WG790306
Cyanide	mg/kg	0.0	0.0	0.0	20	L766617-01	WG790306

Analyte	Units	Laboratory Control Known Val	Sample Result	% Rec	Limit	Batch
pH	su	7.84	7.77	99.1	98.3-101.7	WG790425
Chromium, Hexavalent	mg/kg	59.8	59.8	100.	80-120	WG790681
ORP	mV	100	101.	101.	90-110	WG790617
Cyanide	mg/kg	101	124.	123.	50-150	WG790306

Analyte	Units	Result	Laboratory Control Ref	Sample Duplicate %Rec	Limit	RPD	Limit	Batch
pH	su	7.78	7.77	99.0	98.3-101.7	0.129	20	WG790425
Chromium, Hexavalent	mg/kg	60.2	59.8	101.	80-120	0.667	20	WG790681
ORP	mV	100.	101.	100.	90-110	0.995	20	WG790617
Cyanide	mg/kg	122.	124.	121.	50-150	1.63	20	WG790306

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Chromium, Hexavalent	mg/kg	19.8	0.0	20	99.0	75-125	L765944-01	WG790681
Cyanide	mg/kg	2.97	0.0	3.33	89.0	80-120	L765924-04	WG790306

* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765944

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Chromium, Hexavalent	mg/kg	19.9	19.8	99.5	75-125	0.504	20	L765944-01	WG790681
Cyanide	mg/kg	3.18	2.97	95.5	80-120	6.83	20	L765924-04	WG790306

Batch number / Run number / Sample number cross reference

WG790425: R3038502: L765944-01 02 03
WG790681: R3038806: L765944-01 02 03
WG790617: R3039123: L765944-01 02 03
WG790306: R3039168: L765944-01 02 03

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19293	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 19293			RunNo: 26304					
Prep Date:	5/19/2015	Analysis Date: 5/20/2015			SeqNo: 781491		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		104	57.9	140			

Sample ID	LCS-19293		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 19293		RunNo: 26304					
Prep Date:	5/19/2015		Analysis Date: 5/20/2015		SeqNo: 781492		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	67.8	130			
Surr: DNOP	5.1		5.000		101	57.9	140			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	1505705-001ams		SampType:	MS		TestCode:	Method 8260B/5035LOW: VOLATILES			
Client ID:	SWMU 10-16 (2-4')		Batch ID:	19243		RunNo:	26232			
Prep Date:	5/15/2015		Analysis Date:	5/15/2015		SeqNo:	778534		Units: mg/Kg-dry	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0132	0.00222	0.01112	0.001118	109	33.4	127			
Toluene	0.0123	0.00222	0.01112	0.001035	101	24.8	130			
Chlorobenzene	0.0105	0.00222	0.01112	0	94.0	25.8	132			
1,1-Dichloroethene	0.0139	0.00222	0.01112	0	125	70	130			
Trichloroethene (TCE)	0.0130	0.00222	0.01112	0	117	70	130			
Surr: 1,2-Dichloroethane-d4	0.0255		0.02781		91.7	70	130			
Surr: 4-Bromofluorobenzene	0.0253		0.02781		90.8	70	130			
Surr: Dibromofluoromethane	0.0276		0.02781		99.3	70	130			
Surr: Toluene-d8	0.0261		0.02781		93.7	70	130			

Sample ID	1505705-001amsd		SampType:	MSD		TestCode:	Method 8260B/5035LOW: VOLATILES			
Client ID:	SWMU 10-16 (2-4')		Batch ID:	19243		RunNo:	26232			
Prep Date:	5/15/2015		Analysis Date:	5/15/2015		SeqNo:	778535		Units: mg/Kg-dry	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0134	0.00224	0.01121	0.001118	110	33.4	127	1.55	20	
Toluene	0.0128	0.00224	0.01121	0.001035	105	24.8	130	4.27	20	
Chlorobenzene	0.0113	0.00224	0.01121	0	101	25.8	132	7.68	20	
1,1-Dichloroethene	0.0140	0.00224	0.01121	0	125	70	130	0.556	20	
Trichloroethene (TCE)	0.0127	0.00224	0.01121	0	113	70	130	2.50	20	
Surr: 1,2-Dichloroethane-d4	0.0243		0.02803		86.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.0271		0.02803		96.8	70	130	0	0	
Surr: Dibromofluoromethane	0.0259		0.02803		92.3	70	130	0	0	
Surr: Toluene-d8	0.0269		0.02803		96.0	70	130	0	0	

Sample ID	lcs-19243		SampType:	LCS		TestCode:	Method 8260B/5035LOW: VOLATILES			
Client ID:	LCSS		Batch ID:	19243		RunNo:	26232			
Prep Date:	5/15/2015		Analysis Date:	5/15/2015		SeqNo:	778538		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.00986	0.00200	0.01000	0	98.6	70	130			
Toluene	0.00912	0.00200	0.01000	0	91.2	70	130			
Chlorobenzene	0.00864	0.00200	0.01000	0	86.4	70	130			
1,1-Dichloroethene	0.0102	0.00200	0.01000	0	102	70	130			
Trichloroethene (TCE)	0.00966	0.00200	0.01000	0	96.6	61.6	131			
Surr: 1,2-Dichloroethane-d4	0.0235		0.02500		94.2	70	130			
Surr: 4-Bromofluorobenzene	0.0219		0.02500		87.6	70	130			
Surr: Dibromofluoromethane	0.0238		0.02500		95.4	70	130			
Surr: Toluene-d8	0.0218		0.02500		87.2	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19243		SampType: MBLK		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS		Batch ID: 19243		RunNo: 26232					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778539		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.00200								
Toluene	ND	0.00200								
Ethylbenzene	ND	0.00200								
Xylenes, Total	ND	0.00200								
Methyl tert-butyl ether (MTBE)	ND	0.00200								
1,2,4-Trimethylbenzene	ND	0.00200								
1,3,5-Trimethylbenzene	ND	0.00200								
1,2-Dichloroethane (EDC)	ND	0.00200								
1,2-Dibromoethane (EDB)	ND	0.00200								
Naphthalene	ND	0.00200								
1-Methylnaphthalene	ND	0.00400								
2-Methylnaphthalene	ND	0.00400								
Acetone	ND	0.0100								
Bromobenzene	ND	0.00200								
Bromodichloromethane	ND	0.00200								
Bromoform	ND	0.00200								
Bromomethane	ND	0.00300								
2-Butanone	0.000820	0.0100								J
Carbon tetrachloride	ND	0.00200								
Chlorobenzene	ND	0.00200								
Chloroethane	ND	0.00200								
Chloroform	ND	0.00200								
Chloromethane	ND	0.00200								
2-Chlorotoluene	ND	0.00200								
Carbon disulfide	ND	0.0100								
4-Chlorotoluene	ND	0.00200								
cis-1,2-DCE	ND	0.00200								
cis-1,3-Dichloropropene	ND	0.00200								
1,2-Dibromo-3-chloropropane	ND	0.00200								
Dibromochloromethane	ND	0.00200								
Dibromomethane	ND	0.00200								
1,2-Dichlorobenzene	ND	0.00200								
1,3-Dichlorobenzene	ND	0.00200								
1,4-Dichlorobenzene	ND	0.00200								
Dichlorodifluoromethane	ND	0.00200								
1,1-Dichloroethane	ND	0.00200								
1,1-Dichloroethene	ND	0.00200								
1,2-Dichloropropane	ND	0.00200								
1,3-Dichloropropane	ND	0.00200								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19243		SampType: MBLK		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS		Batch ID: 19243		RunNo: 26232					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778539		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,2-Dichloropropane	ND	0.00200								
1,1-Dichloropropene	ND	0.00200								
Hexachlorobutadiene	ND	0.00200								
Isopropylbenzene	ND	0.00200								
4-Isopropyltoluene	ND	0.00200								
Methylene chloride	ND	0.00200								
n-Butylbenzene	ND	0.00200								
2-Hexanone	ND	0.0100								
n-Propylbenzene	ND	0.00200								
sec-Butylbenzene	ND	0.00200								
Styrene	ND	0.00200								
4-Methyl-2-pentanone	ND	0.0100								
tert-Butylbenzene	ND	0.00200								
1,1,1,2-Tetrachloroethane	ND	0.00200								
1,1,2,2-Tetrachloroethane	ND	0.00200								
Tetrachloroethene (PCE)	ND	0.00200								
trans-1,2-DCE	ND	0.00200								
trans-1,3-Dichloropropene	ND	0.00200								
1,2,3-Trichlorobenzene	ND	0.00200								
1,2,4-Trichlorobenzene	ND	0.00200								
1,1,1-Trichloroethane	ND	0.00200								
1,1,2-Trichloroethane	ND	0.00200								
Trichloroethene (TCE)	ND	0.00200								
Trichlorofluoromethane	ND	0.00200								
1,2,3-Trichloropropane	ND	0.00200								
Vinyl chloride	ND	0.00200								
Surr: 1,2-Dichloroethane-d4	0.0229		0.02500		91.7	70	130			
Surr: 4-Bromofluorobenzene	0.0209		0.02500		83.5	70	130			
Surr: Dibromofluoromethane	0.0224		0.02500		89.5	70	130			
Surr: Toluene-d8	0.0231		0.02500		92.5	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19270		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBS		Batch ID: 19270		RunNo: 26300					
Prep Date:	5/18/2015		Analysis Date: 5/19/2015		SeqNo: 781322		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3'-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19270		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBS		Batch ID: 19270		RunNo: 26300					
Prep Date:	5/18/2015		Analysis Date: 5/19/2015		SeqNo: 781322		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	3.0		3.330		89.3	26.4	129			
Surr: Phenol-d5	2.9		3.330		86.8	34.8	118			
Surr: 2,4,6-Tribromophenol	2.9		3.330		85.8	26.8	128			
Surr: Nitrobenzene-d5	1.5		1.670		88.3	35.8	124			
Surr: 2-Fluorobiphenyl	1.5		1.670		87.0	24.5	139			
Surr: 4-Terphenyl-d14	1.4		1.670		84.5	29.4	129			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19270		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS		Batch ID: 19270		RunNo: 26300					
Prep Date:	5/18/2015		Analysis Date: 5/19/2015		SeqNo: 781323		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	86.6	45.8	114			
4-Chloro-3-methylphenol	2.9	0.50	3.330	0	88.6	52.3	122			
2-Chlorophenol	2.9	0.20	3.330	0	87.7	49.9	115			
1,4-Dichlorobenzene	1.5	0.20	1.670	0	91.5	43.7	107			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	74.4	36	106			
N-Nitrosodi-n-propylamine	1.3	0.20	1.670	0	80.6	39.5	110			
4-Nitrophenol	2.8	0.25	3.330	0	83.9	45.1	121			
Pentachlorophenol	2.5	0.40	3.330	0	75.8	23.7	111			
Phenol	3.2	0.20	3.330	0	97.0	52.7	119			
Pyrene	1.5	0.20	1.670	0	90.1	50.4	116			
1,2,4-Trichlorobenzene	1.7	0.20	1.670	0	101	40.1	114			
Surr: 2-Fluorophenol	3.3		3.330		98.7	26.4	129			
Surr: Phenol-d5	3.4		3.330		103	34.8	118			
Surr: 2,4,6-Tribromophenol	3.4		3.330		101	26.8	128			
Surr: Nitrobenzene-d5	1.6		1.670		96.4	35.8	124			
Surr: 2-Fluorobiphenyl	1.7		1.670		100	24.5	139			
Surr: 4-Terphenyl-d14	1.5		1.670		87.2	29.4	129			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19279	SampType: MBLK			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID: 19279			RunNo: 26309					
Prep Date:	5/18/2015	Analysis Date: 5/20/2015			SeqNo: 781613		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Arsenic	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	0.82	2.5								J
Lead	ND	0.25								
Manganese	ND	0.10								
Nickel	ND	0.50								
Selenium	ND	2.5								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID	LCS-19279		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 19279		RunNo: 26309					
Prep Date:	5/18/2015		Analysis Date: 5/20/2015		SeqNo: 781614		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	26	2.5	25.00	0	105	80	120			
Arsenic	25	2.5	25.00	0	99.0	80	120			
Barium	25	0.10	25.00	0	100	80	120			
Beryllium	26	0.15	25.00	0	106	80	120			
Cadmium	25	0.10	25.00	0	100	80	120			
Chromium	25	0.30	25.00	0	101	80	120			
Cobalt	25	0.30	25.00	0	99.6	80	120			
Iron	26	2.5	25.00	0	104	80	120			
Lead	25	0.25	25.00	0	99.1	80	120			
Manganese	25	0.10	25.00	0	100	80	120			
Nickel	25	0.50	25.00	0	99.1	80	120			
Selenium	25	2.5	25.00	0	101	80	120			
Silver	5.1	0.25	5.000	0	103	80	120			
Vanadium	26	2.5	25.00	0	103	80	120			
Zinc	25	2.5	25.00	0	100	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505705

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID:	R26221	RunNo:	26221					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	778746	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.2	67.4	150			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID:	R26221	RunNo:	26221					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	778747	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.8	79.9	135			
Surr: BFB	480		500.0		96.4	67.4	150			

Sample ID	1505705-001b ms	SampType:	MS	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SWMU 10-16 (2-4')	Batch ID:	R26221	RunNo:	26221					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	778757	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	11	3.0	14.94	0	73.9	65.2	156			
Surr: BFB	320		298.8		106	67.4	150			

Sample ID	1505705-001B MSD	SampType:	MSD	TestCode:	EPA Method 8015D Mod: Gasoline Range					
Client ID:	SWMU 10-16 (2-4')	Batch ID:	R26221	RunNo:	26221					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	778758	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	11	3.0	14.94	0	70.6	65.2	156	4.60	20	
Surr: BFB	310		298.8		103	67.4	150	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1505705**

RcptNo: 1

Received by/date:

[Signature]

05/15/15

Logged By: **Lindsay Mangin**

5/15/2015 8:55:00 AM

[Signature]

Completed By: **Lindsay Mangin**

5/15/2015 9:53:30 AM

[Signature]

Reviewed By:

[Signature]

05/15/15

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? Client

Log In

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

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

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

www.hallenvironmental.com

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

BTEx + MTBE + TMB's (8021)	BTEx + MTBE + TMB's (8021)
BTEx + MTBE + TPH (Gas only)	BTEx + MTBE + TPH (Gas only)
TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)
	EDB (Method 504.1)
	PAH's (8310 or 8270 SIMS)
	RCRA 8 Metals
	Anions (F ⁻ , Cl ⁻ , NO ₃ ⁻ , PO ₄ ⁻ , SO ₄ ⁻)
	8081 Pesticides / 8082 PCB's
	8260B (VOA)
	8270 (Semi-VOA)
	METALS & CYANIDE
	(SEE ATTACHED SHEET)
	Air Bubbles (Y or N)

05/15/85 This serves as notice of this

6444	220	1947
------	-----	------

if necessary, samples submitted to Hatter 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

November 04, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505708

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 26, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	1.0	0.91	1.0		mg/L	1	5/15/2015 9:05:01 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 9:05:01 PM	19246
Surr: DNOP	125	0	76.5-150		%REC	1	5/15/2015 9:05:01 PM	19246
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.55	0.15	0.50		mg/L	5	5/21/2015 12:19:15 AM	R26328
Chloride	2300	27	100		mg/L	200	5/21/2015 12:31:40 AM	R26328
Sulfate	440	2.3	10		mg/L	20	5/15/2015 6:26:16 PM	R26247
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF	
Barium	0.22	0.00095	0.0020		mg/L	1	5/15/2015 5:35:46 PM	R26242
Beryllium	ND	0.00031	0.0020		mg/L	1	5/15/2015 5:35:46 PM	R26242
Cadmium	ND	0.00097	0.0020		mg/L	1	5/19/2015 5:01:37 PM	R26291
Chromium	0.0094	0.0018	0.0060		mg/L	1	5/15/2015 5:35:46 PM	R26242
Cobalt	0.023	0.0013	0.0060		mg/L	1	5/15/2015 5:35:46 PM	R26242
Iron	0.61	0.0073	0.020	*	mg/L	1	5/15/2015 5:35:46 PM	R26242
Manganese	2.4	0.0013	0.010	*	mg/L	5	5/19/2015 5:04:37 PM	R26291
Nickel	0.65	0.0021	0.010	*	mg/L	1	5/15/2015 5:35:46 PM	R26242
Silver	ND	0.0012	0.0050		mg/L	1	5/19/2015 5:01:37 PM	R26291
Vanadium	0.0057	0.0015	0.050	J	mg/L	1	5/15/2015 5:35:46 PM	R26242
Zinc	0.15	0.0028	0.010		mg/L	1	5/15/2015 5:35:46 PM	R26242
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	0.37	0.00095	0.0020		mg/L	1	5/21/2015 4:29:04 PM	19333
Beryllium	0.0015	0.00031	0.0020	J	mg/L	1	5/21/2015 4:29:04 PM	19333
Cadmium	ND	0.00097	0.0020		mg/L	1	5/21/2015 4:29:04 PM	19333
Chromium	0.0062	0.0022	0.0060		mg/L	1	5/21/2015 4:29:04 PM	19333
Cobalt	0.025	0.0013	0.0060		mg/L	1	5/21/2015 4:29:04 PM	19333
Iron	9.4	0.15	0.40	*	mg/L	20	5/27/2015 3:41:18 PM	19333
Manganese	2.9	0.0076	0.010	*	mg/L	5	5/21/2015 4:30:52 PM	19333
Nickel	0.64	0.0023	0.010	*	mg/L	1	5/21/2015 4:29:04 PM	19333
Silver	ND	0.0021	0.0050		mg/L	1	5/21/2015 4:29:04 PM	19333
Vanadium	0.019	0.0015	0.050	J	mg/L	1	5/21/2015 4:29:04 PM	19333
Zinc	0.046	0.0036	0.010		mg/L	1	5/21/2015 4:29:04 PM	19333
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Antimony	ND	0.0014	0.010		mg/L	10	5/19/2015 4:42:54 PM	R26294
Arsenic	0.011	0.0013	0.020	*J	mg/L	20	5/22/2015 6:15:34 PM	R26392
Lead	0.0026	0.00026	0.010	J	mg/L	10	5/19/2015 4:42:54 PM	R26294
Selenium	0.020	0.0019	0.010		mg/L	10	5/19/2015 4:42:54 PM	R26294

EPA 200.8: METALS

Analyst: **TES**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: TES	
Antimony	ND	0.0022	0.0050		mg/L	5	5/26/2015 4:48:32 PM	19333
Arsenic	0.012	0.0015	0.0050	*	mg/L	5	5/21/2015 4:39:52 PM	19333
Lead	0.014	0.00024	0.0025		mg/L	5	5/21/2015 4:39:52 PM	19333
Selenium	0.019	0.00097	0.0050		mg/L	5	5/21/2015 4:39:52 PM	19333
EPA METHOD 245.1: MERCURY							Analyst: MED	
Mercury	ND	0.000059	0.00020		mg/L	1	5/29/2015 3:42:35 PM	19431
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Acenaphthylene	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Aniline	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Anthracene	ND	1.6	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Azobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benz(a)anthracene	ND	2.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzo(a)pyrene	ND	2.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzo(b)fluoranthene	ND	2.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzo(g,h,i)perylene	ND	3.1	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzo(k)fluoranthene	ND	2.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzoic acid	ND	1.0	20		µg/L	1	5/19/2015 7:27:38 PM	19289
Benzyl alcohol	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Bis(2-chloroethoxy)methane	ND	1.8	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Bis(2-chloroethyl)ether	ND	1.8	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Bis(2-chloroisopropyl)ether	ND	2.1	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Bis(2-ethylhexyl)phthalate	ND	3.3	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Bromophenyl phenyl ether	ND	1.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Butyl benzyl phthalate	ND	2.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Carbazole	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Chloro-3-methylphenol	ND	1.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Chloroaniline	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Chloronaphthalene	ND	1.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Chlorophenol	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Chlorophenyl phenyl ether	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Chrysene	ND	2.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Di-n-butyl phthalate	ND	2.1	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Di-n-octyl phthalate	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Dibenz(a,h)anthracene	ND	3.3	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Dibenzofuran	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
1,2-Dichlorobenzene	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
1,3-Dichlorobenzene	ND	1.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
1,4-Dichlorobenzene	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
3,3'-Dichlorobenzidine	ND	2.6	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Diethyl phthalate	ND	1.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Dimethyl phthalate	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2,4-Dichlorophenol	ND	1.4	20		µg/L	1	5/19/2015 7:27:38 PM	19289
2,4-Dimethylphenol	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4,6-Dinitro-2-methylphenol	ND	1.4	20		µg/L	1	5/19/2015 7:27:38 PM	19289
2,4-Dinitrophenol	ND	1.1	20		µg/L	1	5/19/2015 7:27:38 PM	19289
2,4-Dinitrotoluene	ND	1.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2,6-Dinitrotoluene	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Fluoranthene	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Fluorene	ND	1.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Hexachlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Hexachlorobutadiene	ND	1.9	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Hexachlorocyclopentadiene	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Hexachloroethane	ND	1.6	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Indeno(1,2,3-cd)pyrene	ND	2.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Isophorone	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
1-Methylnaphthalene	ND	1.8	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Methylnaphthalene	ND	2.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Methylphenol	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
3+4-Methylphenol	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
N-Nitrosodi-n-propylamine	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
N-Nitrosodimethylamine	ND	1.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
N-Nitrosodiphenylamine	ND	2.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Naphthalene	ND	1.8	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Nitroaniline	ND	1.8	10		µg/L	1	5/19/2015 7:27:38 PM	19289
3-Nitroaniline	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Nitroaniline	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Nitrobenzene	ND	1.5	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2-Nitrophenol	ND	1.2	10		µg/L	1	5/19/2015 7:27:38 PM	19289
4-Nitrophenol	ND	1.4	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Pentachlorophenol	ND	1.1	20		µg/L	1	5/19/2015 7:27:38 PM	19289
Phenanthrene	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Phenol	ND	1.1	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Pyrene	ND	2.3	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Pyridine	ND	1.7	10		µg/L	1	5/19/2015 7:27:38 PM	19289
1,2,4-Trichlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:27:38 PM	19289
2,4,5-Trichlorophenol	ND	1.6	10		µg/L	1	5/19/2015 7:27:38 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
2,4,6-Trichlorophenol	ND	1.3	10		µg/L	1	5/19/2015 7:27:38 PM	19289
Surr: 2-Fluorophenol	59.1	0	14.9-111		%REC	1	5/19/2015 7:27:38 PM	19289
Surr: Phenol-d5	70.7	0	11.3-108		%REC	1	5/19/2015 7:27:38 PM	19289
Surr: 2,4,6-Tribromophenol	72.4	0	15.7-154		%REC	1	5/19/2015 7:27:38 PM	19289
Surr: Nitrobenzene-d5	105	0	47.8-106		%REC	1	5/19/2015 7:27:38 PM	19289
Surr: 2-Fluorobiphenyl	102	0	21.3-123		%REC	1	5/19/2015 7:27:38 PM	19289
Surr: 4-Terphenyl-d14	102	0	14.3-135		%REC	1	5/19/2015 7:27:38 PM	19289
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.51	0.13	2.0	J	µg/L	2	5/20/2015 7:39:53 PM	R26322
Toluene	ND	0.22	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Ethylbenzene	ND	0.20	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Methyl tert-butyl ether (MTBE)	150	0.35	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2,4-Trimethylbenzene	ND	0.32	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,3,5-Trimethylbenzene	ND	0.25	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.35	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.27	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Naphthalene	ND	0.44	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1-Methylnaphthalene	ND	1.1	8.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
2-Methylnaphthalene	ND	1.2	8.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Acetone	9.7	1.9	20	J	µg/L	2	5/20/2015 7:39:53 PM	R26322
Bromobenzene	ND	0.22	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Bromodichloromethane	ND	0.18	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Bromoform	ND	0.32	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Bromomethane	ND	2.3	6.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
2-Butanone	2.9	0.73	20	J	µg/L	2	5/20/2015 7:39:53 PM	R26322
Carbon disulfide	ND	1.3	20		µg/L	2	5/20/2015 7:39:53 PM	R26322
Carbon Tetrachloride	ND	0.16	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Chlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Chloroethane	ND	0.21	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Chloroform	ND	0.43	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Chloromethane	ND	0.35	6.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
2-Chlorotoluene	ND	0.16	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
4-Chlorotoluene	ND	0.30	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
cis-1,2-DCE	ND	0.16	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
cis-1,3-Dichloropropene	ND	0.27	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.27	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Dibromochloromethane	ND	0.19	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Dibromomethane	ND	0.47	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2-Dichlorobenzene	ND	0.24	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,3-Dichlorobenzene	ND	0.19	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,4-Dichlorobenzene	ND	0.33	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Dichlorodifluoromethane	ND	1.4	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1-Dichloroethane	ND	0.80	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1-Dichloroethene	ND	0.20	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2-Dichloropropane	ND	0.30	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,3-Dichloropropane	ND	0.34	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
2,2-Dichloropropane	ND	0.30	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Hexachlorobutadiene	ND	0.50	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
2-Hexanone	ND	0.95	20		µg/L	2	5/20/2015 7:39:53 PM	R26322
Isopropylbenzene	ND	0.30	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
4-Isopropyltoluene	ND	0.38	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
4-Methyl-2-pentanone	ND	0.51	20		µg/L	2	5/20/2015 7:39:53 PM	R26322
Methylene Chloride	ND	0.72	6.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
n-Butylbenzene	ND	0.49	6.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
n-Propylbenzene	ND	0.33	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
sec-Butylbenzene	ND	0.46	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Styrene	ND	0.21	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
tert-Butylbenzene	ND	0.26	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.22	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.36	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Tetrachloroethene (PCE)	ND	0.32	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
trans-1,2-DCE	ND	0.19	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
trans-1,3-Dichloropropene	ND	0.23	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2,3-Trichlorobenzene	ND	0.53	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2,4-Trichlorobenzene	ND	0.57	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1,1-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,1,2-Trichloroethane	ND	0.16	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Trichloroethene (TCE)	ND	0.33	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Trichlorofluoromethane	ND	0.25	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
1,2,3-Trichloropropane	ND	0.32	4.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Vinyl chloride	ND	0.25	2.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Xylenes, Total	ND	0.56	3.0		µg/L	2	5/20/2015 7:39:53 PM	R26322
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%REC	2	5/20/2015 7:39:53 PM	R26322
Surr: 4-Bromofluorobenzene	91.4	0	70-130		%REC	2	5/20/2015 7:39:53 PM	R26322
Surr: Dibromofluoromethane	115	0	70-130		%REC	2	5/20/2015 7:39:53 PM	R26322
Surr: Toluene-d8	102	0	70-130		%REC	2	5/20/2015 7:39:53 PM	R26322

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **cadg**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-15-GW

Project: SWMU 10

Collection Date: 5/14/2015 4:00:00 PM

Lab ID: 1505708-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	0.78	0.080	0.10		mg/L	2	5/20/2015 7:39:53 PM	R26322
Surr: BFB	97.8	0	70-130		%REC	2	5/20/2015 7:39:53 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: SWMU 10

Collection Date:

Lab ID: 1505708-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	ND	0.065	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Methyl tert-butyl ether (MTBE)	ND	0.17	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2,4-Trimethylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.18	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Acetone	ND	0.94	10		µg/L	1	5/20/2015 8:08:38 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 8:08:38 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 8:08:38 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
cis-1,2-DCE	ND	0.081	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1-Dichloroethene	ND	0.099	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505708

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: SWMU 10

Collection Date:

Lab ID: 1505708-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 8:08:38 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 8:08:38 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Trichloroethene (TCE)	ND	0.16	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Vinyl chloride	ND	0.13	1.0		µg/L	1	5/20/2015 8:08:38 PM	R26322
Xylenes, Total	ND	0.28	1.5		µg/L	1	5/20/2015 8:08:38 PM	R26322
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%REC	1	5/20/2015 8:08:38 PM	R26322
Surr: 4-Bromofluorobenzene	101	0	70-130		%REC	1	5/20/2015 8:08:38 PM	R26322
Surr: Dibromofluoromethane	106	0	70-130		%REC	1	5/20/2015 8:08:38 PM	R26322
Surr: Toluene-d8	97.7	0	70-130		%REC	1	5/20/2015 8:08:38 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 8:08:38 PM	R26322
Surr: BFB	99.0	0	70-130		%REC	1	5/20/2015 8:08:38 PM	R26322

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

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



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505708-001H SWMU 10-15-GW
Collected By :
Collection Date : 05/14/15 16:00

ESC Sample # : L765932-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Cyanide	0.055	0.0050	mg/l	9012B	05/28/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:33 Printed: 06/02/15 11:33



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505708-001I SWMU 10-15-GW
Collected By :
Collection Date : 05/14/15 16:00

ESC Sample # : L765932-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Hexavalent Chromium	BDL	0.00050	mg/l	7199	05/26/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 06/02/15 11:33 Printed: 06/02/15 11:33
L765932-02 (CR6ICFFP) - pH=7.69



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765932

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Result	Units	Laboratory Blank % Rec	Limit	Batch	Date Analyzed
Hexavalent Chromium	< .0005	mg/l			WG791515	05/26/15 20:02
Cyanide	< .005	mg/l			WG791484	05/28/15 00:29

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766104-01	WG791515
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766399-01	WG791515
Cyanide	mg/l	0.0	0.0	0.0	20	L766164-02	WG791484
Cyanide	mg/l	0.0	0.0	0.0	20	L766258-01	WG791484

Analyte	Units	Known Val	Sample Result	% Rec	Limit	Batch
Hexavalent Chromium	mg/l	.002	0.00218	109.	90-110	WG791515
Cyanide	mg/l	.1	0.105	105.	90-110	WG791484

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
Hexavalent Chromium	mg/l	0.00216	0.00218	108.	90-110	0.922	20	WG791515
Cyanide	mg/l	0.103	0.105	103.	90-110	1.92	20	WG791484

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0528	0.0	.05	100.	90-110	L766097-01	WG791515
Cyanide	mg/l	0.199	0.0	.2	100.	90-110	L766168-02	WG791484

Analyte	Units	MSD	Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0524	0.0528	105.	90-110	0.760	20	L766097-01	WG791515
Cyanide	mg/l	0.172	0.199	86.0*	90-110	14.6	20	L766168-02	WG791484

Batch number /Run number / Sample number cross reference

WG791515: R3039614: L765932-02

WG791484: R3039673: L765932-01

* * Calculations are performed prior to rounding of reported values.

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19333	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	19333	RunNo:	26358					
Prep Date:	5/20/2015	Analysis Date:	5/21/2015	SeqNo:	783226	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.0078	0.020								J
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS-19333	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	19333	RunNo:	26358					
Prep Date:	5/20/2015	Analysis Date:	5/21/2015	SeqNo:	783227	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.5	85	115			
Beryllium	0.52	0.0020	0.5000	0	104	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.1	85	115			
Iron	0.48	0.020	0.5000	0	96.5	85	115			
Manganese	0.48	0.0020	0.5000	0	95.3	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	104	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.2	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R26242			RunNo: 26242					
Prep Date:		Analysis Date: 5/15/2015			SeqNo: 779016		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0011	0.0020								J
Beryllium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Nickel	ND	0.010								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26242		RunNo: 26242					
Prep Date:			Analysis Date: 5/15/2015		SeqNo: 779017		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.6	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.3	85	115			
Chromium	0.48	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.50	0.0060	0.5000	0	99.5	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Nickel	0.48	0.010	0.5000	0	95.9	85	115			
Vanadium	0.49	0.050	0.5000	0	97.4	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R26291			RunNo: 26291					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 780950		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Manganese	ND	0.0020								
Silver	0.0014	0.0050								J

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26291		RunNo: 26291					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 780951		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	97.7	85	115			
Manganese	0.47	0.0020	0.5000	0	93.4	85	115			
Silver	0.097	0.0050	0.1000	0	96.8	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781112		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781113		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781115		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781116		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB-19333		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: 19333		RunNo: 26348					
Prep Date:	5/20/2015		Analysis Date: 5/21/2015		SeqNo: 782930		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LLLCS-19333			SampType:	LCSLL		TestCode:	EPA 200.8: Metals			
Client ID:	BatchQC			Batch ID:	19333		RunNo:	26348			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015		SeqNo:	782932		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.023	0.0010	0.02500	0	92.4	85	115				
Lead	0.013	0.00050	0.01250	0	102	85	115				
Selenium	0.022	0.0010	0.02500	0	88.9	85	115				

Sample ID	1505708-001FLLMS			SampType:	MS		TestCode:	EPA 200.8: Metals		
Client ID:	SWMU 10-15-GW		Batch ID:	19333		RunNo:	26348			
Prep Date:	5/20/2015		Analysis Date:	5/21/2015		SeqNo:	782992		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.033	0.0050	0.02500	0.01167	86.1	70	130			
Lead	0.028	0.0025	0.01250	0.01383	114	70	130			
Selenium	0.041	0.0050	0.02500	0.01931	86.7	70	130			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784378		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784379		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	MB	SampType: MBLK		TestCode: EPA 200.8: Metals						
Client ID:	PBW	Batch ID: R26392		RunNo: 26392						
Prep Date:		Analysis Date: 5/22/2015		SeqNo: 784380		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784381		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	1505708-001FLLMS		SampType:	MSLL		TestCode:	EPA 200.8: Metals				
Client ID:	SWMU 10-15-GW		Batch ID:	19333		RunNo:	26412				
Prep Date:	5/20/2015		Analysis Date:	5/26/2015		SeqNo:	784803		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Antimony	0.011	0.0050	0.02500	0	43.5	70	130			S	

Sample ID	LLLCS-19333		SampType: LCSLL		TestCode: EPA 200.8: Metals					
Client ID:	BatchQC		Batch ID: 19333		RunNo: 26606					
Prep Date:	5/20/2015		Analysis Date: 6/3/2015		SeqNo: 792066		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.028	0.0010	0.02500	0	114	85	115			

Sample ID	MB-19333		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: 19333		RunNo: 26606					
Prep Date:	5/20/2015		Analysis Date: 6/3/2015		SeqNo: 792073		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781144		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781145		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781146		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781147		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784403		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784404		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784408		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784409		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19431	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	19431	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787555	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-19431	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	19431	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787556	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	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779359	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.500								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R26247	RunNo:	26247					
Prep Date:		Analysis Date:	5/15/2015	SeqNo:	779360	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10.2	0.500	10.00	0	102	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R26328	RunNo:	26328					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782445	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								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R26328	RunNo:	26328					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782446	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	97.3	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 19246			RunNo: 26216					
Prep Date:	5/15/2015	Analysis Date: 5/15/2015			SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101	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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782103	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781333		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	150		200.0		76.8	14.9	111			
Surr: Phenol-d5	160		200.0		80.8	11.3	108			
Surr: 2,4,6-Tribromophenol	160		200.0		80.2	15.7	154			
Surr: Nitrobenzene-d5	76		100.0		76.1	47.8	106			
Surr: 2-Fluorobiphenyl	78		100.0		78.4	21.3	123			
Surr: 4-Terphenyl-d14	110		100.0		105	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19289		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781334		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	47.8	99.7			
4-Chloro-3-methylphenol	160	10	200.0	0	79.9	58.1	103			
2-Chlorophenol	140	10	200.0	0	70.4	49.5	96.8			
1,4-Dichlorobenzene	73	10	100.0	0	72.6	40.4	89.4			
2,4-Dinitrotoluene	70	10	100.0	0	69.6	38.6	91.3			
N-Nitrosodi-n-propylamine	80	10	100.0	0	80.1	53.9	95.6			
4-Nitrophenol	140	10	200.0	0	71.9	26.4	108			
Pentachlorophenol	120	20	200.0	0	61.8	36.5	86.6			
Phenol	160	10	200.0	0	77.8	29.3	108			
Pyrene	74	10	100.0	0	73.9	45.7	100			
1,2,4-Trichlorobenzene	81	10	100.0	0	80.7	39.3	94.5			
Surr: 2-Fluorophenol	150		200.0		74.2	14.9	111			
Surr: Phenol-d5	170		200.0		83.5	11.3	108			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	15.7	154			
Surr: Nitrobenzene-d5	82		100.0		81.8	47.8	106			
Surr: 2-Fluorobiphenyl	86		100.0		86.4	21.3	123			
Surr: 4-Terphenyl-d14	79		100.0		78.7	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505708

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1505708

RcptNo: 1

Received by/date:



05/15/15

Logged By:

Ashley Gallegos

5/15/2015 10:03:00 AM



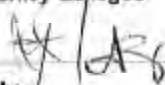
Completed By:

Ashley Gallegos

5/15/2015 10:16:08 AM



Reviewed By:



05/15/15

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of >0° C to 6.0° C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted?

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

Checked by:

(If no, notify customer for authorization.)

2
(2 or > 12 unless noted)
NO


Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

November 04, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505709

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 26, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	1.1	0.91	1.0		mg/L	1	5/15/2015 9:31:35 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 9:31:35 PM	19246
Surr: DNOP	125	0	76.5-150		%REC	1	5/15/2015 9:31:35 PM	19246
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.55	0.15	0.50		mg/L	5	5/21/2015 12:44:04 AM	R26328
Chloride	2400	27	100		mg/L	200	5/21/2015 12:56:28 AM	R26328
Sulfate	470	2.3	10		mg/L	20	5/15/2015 6:01:26 PM	R26247
EPA METHOD 200.7: DISSOLVED METALS							Analyst: JLF	
Barium	0.22	0.00095	0.0020		mg/L	1	5/15/2015 5:37:44 PM	R26242
Beryllium	0.00033	0.00031	0.0020	J	mg/L	1	5/15/2015 5:37:44 PM	R26242
Cadmium	ND	0.00097	0.0020		mg/L	1	5/19/2015 5:06:41 PM	R26291
Chromium	0.0094	0.0018	0.0060		mg/L	1	5/15/2015 5:37:44 PM	R26242
Cobalt	0.023	0.0013	0.0060		mg/L	1	5/15/2015 5:37:44 PM	R26242
Iron	2.2	0.036	0.10	*	mg/L	5	5/19/2015 5:10:46 PM	R26291
Manganese	2.5	0.0013	0.010	*	mg/L	5	5/19/2015 5:10:46 PM	R26291
Nickel	0.66	0.0021	0.010	*	mg/L	1	5/15/2015 5:37:44 PM	R26242
Silver	ND	0.0012	0.0050		mg/L	1	5/19/2015 5:06:41 PM	R26291
Vanadium	0.0076	0.0015	0.050	J	mg/L	1	5/15/2015 5:37:44 PM	R26242
Zinc	0.036	0.0028	0.010		mg/L	1	5/15/2015 5:37:44 PM	R26242
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	0.31	0.00095	0.0020		mg/L	1	5/21/2015 4:32:36 PM	19333
Beryllium	0.0014	0.00031	0.0020	J	mg/L	1	5/21/2015 4:32:36 PM	19333
Cadmium	ND	0.00097	0.0020		mg/L	1	5/21/2015 4:32:36 PM	19333
Chromium	0.0059	0.0022	0.0060	J	mg/L	1	5/21/2015 4:32:36 PM	19333
Cobalt	0.025	0.0013	0.0060		mg/L	1	5/21/2015 4:32:36 PM	19333
Iron	7.4	0.15	0.40	*	mg/L	20	6/11/2015 10:56:49 AM	19333
Manganese	3.0	0.0076	0.010	*	mg/L	5	5/21/2015 4:34:26 PM	19333
Nickel	0.65	0.0023	0.010	*	mg/L	1	5/21/2015 4:32:36 PM	19333
Silver	ND	0.0021	0.0050		mg/L	1	5/21/2015 4:32:36 PM	19333
Vanadium	0.017	0.0015	0.050	J	mg/L	1	5/21/2015 4:32:36 PM	19333
Zinc	0.034	0.0036	0.010		mg/L	1	5/21/2015 4:32:36 PM	19333
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Antimony	ND	0.0014	0.010		mg/L	10	5/19/2015 4:47:49 PM	R26294
Arsenic	0.011	0.0013	0.020	J*	mg/L	20	5/22/2015 6:18:37 PM	R26392
Lead	0.0039	0.00026	0.010	J	mg/L	10	5/19/2015 4:47:49 PM	R26294
Selenium	0.023	0.0019	0.010		mg/L	10	5/19/2015 4:47:49 PM	R26294

EPA 200.8: METALS

Analyst: **TES**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: TES	
Antimony	ND	0.0022	0.0050		mg/L	5	5/26/2015 5:06:47 PM	19333
Arsenic	0.012	0.0015	0.0050	*	mg/L	5	5/21/2015 4:50:46 PM	19333
Lead	0.012	0.00094	0.010		mg/L	20	5/21/2015 4:53:29 PM	19333
Selenium	0.022	0.00097	0.0050		mg/L	5	5/21/2015 4:50:46 PM	19333
EPA METHOD 245.1: MERCURY							Analyst: MED	
Mercury	ND	0.000059	0.00020		mg/L	1	5/29/2015 3:44:33 PM	19431
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Acenaphthylene	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Aniline	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Anthracene	ND	1.6	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Azobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benz(a)anthracene	ND	2.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzo(a)pyrene	ND	2.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzo(b)fluoranthene	ND	2.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzo(g,h,i)perylene	ND	3.1	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzo(k)fluoranthene	ND	2.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzoic acid	ND	1.0	20		µg/L	1	5/19/2015 7:55:52 PM	19289
Benzyl alcohol	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Bis(2-chloroethoxy)methane	ND	1.8	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Bis(2-chloroethyl)ether	ND	1.8	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Bis(2-chloroisopropyl)ether	ND	2.1	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Bis(2-ethylhexyl)phthalate	ND	3.3	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Bromophenyl phenyl ether	ND	1.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Butyl benzyl phthalate	ND	2.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Carbazole	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Chloro-3-methylphenol	ND	1.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Chloroaniline	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Chloronaphthalene	ND	1.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Chlorophenol	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Chlorophenyl phenyl ether	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Chrysene	ND	2.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Di-n-butyl phthalate	ND	2.1	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Di-n-octyl phthalate	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Dibenz(a,h)anthracene	ND	3.3	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Dibenzofuran	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
1,2-Dichlorobenzene	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
1,3-Dichlorobenzene	ND	1.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
1,4-Dichlorobenzene	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
3,3'-Dichlorobenzidine	ND	2.6	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Diethyl phthalate	ND	1.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Dimethyl phthalate	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2,4-Dichlorophenol	ND	1.4	20		µg/L	1	5/19/2015 7:55:52 PM	19289
2,4-Dimethylphenol	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4,6-Dinitro-2-methylphenol	ND	1.4	20		µg/L	1	5/19/2015 7:55:52 PM	19289
2,4-Dinitrophenol	ND	1.1	20		µg/L	1	5/19/2015 7:55:52 PM	19289
2,4-Dinitrotoluene	ND	1.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2,6-Dinitrotoluene	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Fluoranthene	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Fluorene	ND	1.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Hexachlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Hexachlorobutadiene	ND	1.9	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Hexachlorocyclopentadiene	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Hexachloroethane	ND	1.6	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Indeno(1,2,3-cd)pyrene	ND	2.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Isophorone	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
1-Methylnaphthalene	ND	1.8	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Methylnaphthalene	ND	2.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Methylphenol	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
3+4-Methylphenol	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
N-Nitrosodi-n-propylamine	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
N-Nitrosodimethylamine	ND	1.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
N-Nitrosodiphenylamine	ND	2.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Naphthalene	ND	1.8	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Nitroaniline	ND	1.8	10		µg/L	1	5/19/2015 7:55:52 PM	19289
3-Nitroaniline	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Nitroaniline	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Nitrobenzene	ND	1.5	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2-Nitrophenol	ND	1.2	10		µg/L	1	5/19/2015 7:55:52 PM	19289
4-Nitrophenol	ND	1.4	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Pentachlorophenol	ND	1.1	20		µg/L	1	5/19/2015 7:55:52 PM	19289
Phenanthrene	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Phenol	ND	1.1	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Pyrene	ND	2.3	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Pyridine	ND	1.7	10		µg/L	1	5/19/2015 7:55:52 PM	19289
1,2,4-Trichlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 7:55:52 PM	19289
2,4,5-Trichlorophenol	ND	1.6	10		µg/L	1	5/19/2015 7:55:52 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
2,4,6-Trichlorophenol	ND	1.3	10		µg/L	1	5/19/2015 7:55:52 PM	19289
Surr: 2-Fluorophenol	18.1	0	14.9-111		%REC	1	5/19/2015 7:55:52 PM	19289
Surr: Phenol-d5	27.8	0	11.3-108		%REC	1	5/19/2015 7:55:52 PM	19289
Surr: 2,4,6-Tribromophenol	31.3	0	15.7-154		%REC	1	5/19/2015 7:55:52 PM	19289
Surr: Nitrobenzene-d5	110	0	47.8-106	S	%REC	1	5/19/2015 7:55:52 PM	19289
Surr: 2-Fluorobiphenyl	112	0	21.3-123		%REC	1	5/19/2015 7:55:52 PM	19289
Surr: 4-Terphenyl-d14	96.8	0	14.3-135		%REC	1	5/19/2015 7:55:52 PM	19289
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.40	0.065	1.0	J	µg/L	1	5/20/2015 8:37:19 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Methyl tert-butyl ether (MTBE)	150	0.17	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2,4-Trimethylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.18	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Acetone	16	0.94	10		µg/L	1	5/20/2015 8:37:19 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
2-Butanone	2.9	0.36	10	J	µg/L	1	5/20/2015 8:37:19 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 8:37:19 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
cis-1,2-DCE	ND	0.081	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1-Dichloroethene	ND	0.099	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 8:37:19 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 8:37:19 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Trichloroethene (TCE)	ND	0.16	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Vinyl chloride	ND	0.13	1.0		µg/L	1	5/20/2015 8:37:19 PM	R26322
Xylenes, Total	ND	0.28	1.5		µg/L	1	5/20/2015 8:37:19 PM	R26322
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%REC	1	5/20/2015 8:37:19 PM	R26322
Surr: 4-Bromofluorobenzene	88.0	0	70-130		%REC	1	5/20/2015 8:37:19 PM	R26322
Surr: Dibromofluoromethane	136	0	70-130	S	%REC	1	5/20/2015 8:37:19 PM	R26322
Surr: Toluene-d8	92.4	0	70-130		%REC	1	5/20/2015 8:37:19 PM	R26322

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **cadg**

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10 DUP01GW

Project: SWMU 10

Collection Date: 5/14/2015

Lab ID: 1505709-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	0.73	0.040	0.050		mg/L	1	5/20/2015 8:37:19 PM	R26322
Surr: BFB	97.7	0	70-130		%REC	1	5/20/2015 8:37:19 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: SWMU 10

Collection Date:

Lab ID: 1505709-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	ND	0.065	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Methyl tert-butyl ether (MTBE)	ND	0.17	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2,4-Trimethylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2-Dichloroethane (EDC)	ND	0.18	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Acetone	ND	0.94	10		µg/L	1	5/20/2015 9:05:59 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 9:05:59 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 9:05:59 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
cis-1,2-DCE	ND	0.081	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1-Dichloroethane	ND	0.40	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1-Dichloroethene	ND	0.099	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505709

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: SWMU 10

Collection Date:

Lab ID: 1505709-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 9:05:59 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 9:05:59 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Trichloroethene (TCE)	ND	0.16	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Vinyl chloride	ND	0.13	1.0		µg/L	1	5/20/2015 9:05:59 PM	R26322
Xylenes, Total	ND	0.28	1.5		µg/L	1	5/20/2015 9:05:59 PM	R26322
Surr: 1,2-Dichloroethane-d4	103	0	70-130		%REC	1	5/20/2015 9:05:59 PM	R26322
Surr: 4-Bromofluorobenzene	106	0	70-130		%REC	1	5/20/2015 9:05:59 PM	R26322
Surr: Dibromofluoromethane	97.9	0	70-130		%REC	1	5/20/2015 9:05:59 PM	R26322
Surr: Toluene-d8	96.4	0	70-130		%REC	1	5/20/2015 9:05:59 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 9:05:59 PM	R26322
Surr: BFB	99.8	0	70-130		%REC	1	5/20/2015 9:05:59 PM	R26322

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

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



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859
Tax I.D. 62-0814289
Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505709-001H SWMU 10 DUP01GW
Collected By :
Collection Date : 05/14/15 00:00

ESC Sample # : L765930-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Cyanide	0.051	0.0050	mg/l	9012B	05/28/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: Printed: 06/02/15 11:32



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

June 02, 2015

Hall Environmental Analysis Laborat
4901 Hawkins NE
Albuquerque, NM 87109

Date Received : May 19, 2015
Description :
Sample ID : 1505709-001I SWMU 10 DUP01GW
Collected By :
Collection Date : 05/14/15 00:00

ESC Sample # : L765930-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Hexavalent Chromium	0.00061	0.00050	mg/l	7199	05/26/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: Printed: 06/02/15 11:32



YOUR LAB OF CHOICE

Hall Environmental Analysis Laboratory

4901 Hawkins NE

Albuquerque, NM 87109

Quality Assurance Report
Level II

L765930

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

June 02, 2015

Analyte	Result	Laboratory Blank Units	% Rec	Limit	Batch	Date Analyzed
Hexavalent Chromium	< .0005	mg/l			WG791515	05/26/15 20:02
Cyanide	< .005	mg/l			WG791484	05/28/15 00:29

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766104-01	WG791515
Hexavalent Chromium	mg/l	0.0	0.0	0.0	20	L766399-01	WG791515
Cyanide	mg/l	0.0	0.0	0.0	20	L766164-02	WG791484
Cyanide	mg/l	0.0	0.0	0.0	20	L766258-01	WG791484

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Hexavalent Chromium	mg/l	.002	0.00218	109.	90-110	WG791515
Cyanide	mg/l	.1	0.105	105.	90-110	WG791484

Analyte	Units	Result	Laboratory Control Sample Duplicate Ref	%Rec	Limit	RPD	Limit	Batch
Hexavalent Chromium	mg/l	0.00216	0.00218	108.	90-110	0.922	20	WG791515
Cyanide	mg/l	0.103	0.105	103.	90-110	1.92	20	WG791484

Analyte	Units	MS Res	Matrix Spike Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0528	0.0	.05	100.	90-110	L766097-01	WG791515
Cyanide	mg/l	0.199	0.0	.2	100.	90-110	L766168-02	WG791484

Analyte	Units	MSD	Matrix Spike Duplicate Ref	%Rec	Limit	RPD	Limit	Ref Samp	Batch
Hexavalent Chromium	mg/l	0.0524	0.0528	105.	90-110	0.760	20	L766097-01	WG791515
Cyanide	mg/l	0.172	0.199	86.0*	90-110	14.6	20	L766168-02	WG791484

Batch number /Run number / Sample number cross reference

WG791515: R3039614: L765930-02
WG791484: R3039673: L765930-01

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19333	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	19333	RunNo:	26358					
Prep Date:	5/20/2015	Analysis Date:	5/21/2015	SeqNo:	783226	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.0078	0.020								J
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS-19333	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	19333	RunNo:	26358					
Prep Date:	5/20/2015	Analysis Date:	5/21/2015	SeqNo:	783227	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.5	85	115			
Beryllium	0.52	0.0020	0.5000	0	104	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.1	85	115			
Iron	0.48	0.020	0.5000	0	96.5	85	115			
Manganese	0.48	0.0020	0.5000	0	95.3	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	104	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.2	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	R26242		RunNo:	26242			
Prep Date:			Analysis Date:	5/15/2015		SeqNo:	779016	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0011	0.0020								J
Beryllium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Nickel	ND	0.010								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R26242		RunNo:	26242			
Prep Date:			Analysis Date:	5/15/2015		SeqNo:	779017	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.6	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.3	85	115			
Chromium	0.48	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.50	0.0060	0.5000	0	99.5	85	115			
Nickel	0.48	0.010	0.5000	0	95.9	85	115			
Vanadium	0.49	0.050	0.5000	0	97.4	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	R26291		RunNo:	26291			
Prep Date:			Analysis Date:	5/19/2015		SeqNo:	780950	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	0.0014	0.0050								J

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R26291		RunNo:	26291			
Prep Date:			Analysis Date:	5/19/2015		SeqNo:	780951	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	97.7	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Manganese	0.47	0.0020	0.5000	0	93.4	85	115			
Silver	0.097	0.0050	0.1000	0	96.8	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: R26294			RunNo: 26294						
Prep Date:	Analysis Date: 5/19/2015			SeqNo: 781112		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: R26294			RunNo: 26294						
Prep Date:	Analysis Date: 5/19/2015			SeqNo: 781113		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: R26294			RunNo: 26294						
Prep Date:	Analysis Date: 5/19/2015			SeqNo: 781115		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: R26294			RunNo: 26294						
Prep Date:	Analysis Date: 5/19/2015			SeqNo: 781116		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID MB-19333	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: 19333			RunNo: 26348						
Prep Date: 5/20/2015	Analysis Date: 5/21/2015			SeqNo: 782930		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LLLCS-19333			SampType:	LCSLL		TestCode:	EPA 200.8: Metals			
Client ID:	BatchQC			Batch ID:	19333		RunNo:	26348			
Prep Date:	5/20/2015			Analysis Date:	5/21/2015		SeqNo:	782932		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.023	0.0010	0.02500	0	92.4	85	115				
Lead	0.013	0.00050	0.01250	0	102	85	115				
Selenium	0.022	0.0010	0.02500	0	88.9	85	115				

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784378		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784379		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	MB	SampType:	MBLK			TestCode:	EPA 200.8: Metals				
Client ID:	PBW	Batch ID:	R26392			RunNo:	26392				
Prep Date:		Analysis Date:	5/22/2015			SeqNo:	784380	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	ND	0.0010									

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784381		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID	LLLCS-19333		SampType: LCSLL		TestCode: EPA 200.8: Metals					
Client ID:	BatchQC		Batch ID: 19333		RunNo: 26606					
Prep Date:	5/20/2015		Analysis Date: 6/3/2015		SeqNo: 792066		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.028	0.0010	0.02500	0	114	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19333	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: 19333			RunNo: 26606					
Prep Date:	5/20/2015	Analysis Date: 6/3/2015			SeqNo: 792073		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781144		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	97.5	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.023	0.0010	0.02500	0	92.7	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26294		RunNo: 26294					
Prep Date:			Analysis Date: 5/19/2015		SeqNo: 781145		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.1	85	115			
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.023	0.0010	0.02500	0	92.3	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781146		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26294			RunNo: 26294					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781147		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784403		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784404		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R26392			RunNo: 26392					
Prep Date:		Analysis Date: 5/22/2015			SeqNo: 784408		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R26392		RunNo: 26392					
Prep Date:			Analysis Date: 5/22/2015		SeqNo: 784409		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0	108	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19431	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	19431	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787555	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-19431	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	19431	RunNo:	26501					
Prep Date:	5/28/2015	Analysis Date:	5/29/2015	SeqNo:	787556	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	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R26247			RunNo: 26247					
Prep Date:		Analysis Date: 5/15/2015			SeqNo: 779359		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.500								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: R26247			RunNo: 26247				
Prep Date:			Analysis Date: 5/15/2015			SeqNo: 779360		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10.2	0.500	10.00	0	102	90	110			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R26328			RunNo: 26328					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782445		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								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: R26328			RunNo: 26328				
Prep Date:			Analysis Date: 5/20/2015			SeqNo: 782446		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	97.3	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 19246			RunNo: 26216					
Prep Date:	5/15/2015	Analysis Date: 5/15/2015			SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101	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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	150		200.0		76.8	14.9	111			
Surr: Phenol-d5	160		200.0		80.8	11.3	108			
Surr: 2,4,6-Tribromophenol	160		200.0		80.2	15.7	154			
Surr: Nitrobenzene-d5	76		100.0		76.1	47.8	106			
Surr: 2-Fluorobiphenyl	78		100.0		78.4	21.3	123			
Surr: 4-Terphenyl-d14	110		100.0		105	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19289		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781334		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	47.8	99.7			
4-Chloro-3-methylphenol	160	10	200.0	0	79.9	58.1	103			
2-Chlorophenol	140	10	200.0	0	70.4	49.5	96.8			
1,4-Dichlorobenzene	73	10	100.0	0	72.6	40.4	89.4			
2,4-Dinitrotoluene	70	10	100.0	0	69.6	38.6	91.3			
N-Nitrosodi-n-propylamine	80	10	100.0	0	80.1	53.9	95.6			
4-Nitrophenol	140	10	200.0	0	71.9	26.4	108			
Pentachlorophenol	120	20	200.0	0	61.8	36.5	86.6			
Phenol	160	10	200.0	0	77.8	29.3	108			
Pyrene	74	10	100.0	0	73.9	45.7	100			
1,2,4-Trichlorobenzene	81	10	100.0	0	80.7	39.3	94.5			
Surr: 2-Fluorophenol	150		200.0		74.2	14.9	111			
Surr: Phenol-d5	170		200.0		83.5	11.3	108			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	15.7	154			
Surr: Nitrobenzene-d5	82		100.0		81.8	47.8	106			
Surr: 2-Fluorobiphenyl	86		100.0		86.4	21.3	123			
Surr: 4-Terphenyl-d14	79		100.0		78.7	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505709

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

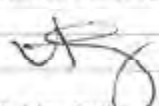
Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1505709

ReptNo: 1

Received by/date:



05/15/15

Logged By: Ashley Gallegos

5/15/2015 10:03:00 AM

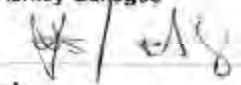


Completed By: Ashley Gallegos

5/15/2015 10:25:37 AM



Reviewed By:



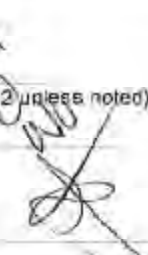
05/15/15

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: 2
 Adjusted: 1
 Checked by: 

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

 Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18 Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

November 04, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10

OrderNo.: 1505710

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/15/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued June 01, 2015.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.91	1.0		mg/L	1	5/15/2015 9:58:19 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 9:58:19 PM	19246
Surr: DNOP	137	0	76.5-150		%REC	1	5/15/2015 9:58:19 PM	19246
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Acenaphthylene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Aniline	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Anthracene	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Azobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benz(a)anthracene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(a)pyrene	ND	2.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(b)fluoranthene	ND	2.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(g,h,i)perylene	ND	3.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(k)fluoranthene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzoic acid	7.1	1.0	20	J	µg/L	1	5/19/2015 8:23:56 PM	19289
Benzyl alcohol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroethoxy)methane	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroethyl)ether	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroisopropyl)ether	ND	2.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-ethylhexyl)phthalate	ND	3.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Bromophenyl phenyl ether	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Butyl benzyl phthalate	ND	2.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Carbazole	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chloro-3-methylphenol	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chloroaniline	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Chloronaphthalene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Chlorophenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chlorophenyl phenyl ether	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Chrysene	ND	2.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Di-n-butyl phthalate	ND	2.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Di-n-octyl phthalate	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dibenz(a,h)anthracene	ND	3.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dibenzofuran	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,2-Dichlorobenzene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,3-Dichlorobenzene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,4-Dichlorobenzene	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3,3'-Dichlorobenzidine	ND	2.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Diethyl phthalate	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dimethyl phthalate	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
2,4-Dichlorophenol	ND	1.4	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dimethylphenol	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4,6-Dinitro-2-methylphenol	ND	1.4	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dinitrophenol	ND	1.1	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dinitrotoluene	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,6-Dinitrotoluene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Fluoranthene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Fluorene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorobutadiene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorocyclopentadiene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachloroethane	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Indeno(1,2,3-cd)pyrene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Isophorone	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1-Methylnaphthalene	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Methylnaphthalene	ND	2.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Methylphenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3+4-Methylphenol	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodi-n-propylamine	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodimethylamine	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodiphenylamine	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Naphthalene	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Nitroaniline	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3-Nitroaniline	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Nitroaniline	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Nitrobenzene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Nitrophenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Nitrophenol	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pentachlorophenol	ND	1.1	20		µg/L	1	5/19/2015 8:23:56 PM	19289
Phenanthrene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Phenol	ND	1.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pyrene	ND	2.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pyridine	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,2,4-Trichlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4,5-Trichlorophenol	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4,6-Trichlorophenol	ND	1.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Surr: 2-Fluorophenol	84.1	0	14.9-111		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: Phenol-d5	74.9	0	11.3-108		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 2,4,6-Tribromophenol	127	0	15.7-154		%REC	1	5/19/2015 8:23:56 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Surr: Nitrobenzene-d5	101	0	47.8-106		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 2-Fluorobiphenyl	118	0	21.3-123		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 4-Terphenyl-d14	129	0	14.3-135		%REC	1	5/19/2015 8:23:56 PM	19289
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.24	0.065	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Methyl tert-butyl ether (MTBE)	19	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,4-Trimethylbenzene	0.18	0.16	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichloroethane (EDC)	0.47	0.18	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Acetone	1.6	0.94	10	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
cis-1,2-DCE	0.39	0.081	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1-Dichloroethane	3.1	0.40	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloroethene	0.73	0.099	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Trichloroethene (TCE)	0.77	0.16	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Vinyl chloride	0.47	0.13	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Xylenes, Total	0.35	0.28	1.5	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: 4-Bromofluorobenzene	102	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: Dibromofluoromethane	91.6	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: Toluene-d8	98.5	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 9:34:45 PM	R26322
Surr: BFB	96.2	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 19246			RunNo: 26216					
Prep Date:	5/15/2015	Analysis Date: 5/15/2015			SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782103	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	150		200.0		76.8	14.9	111			
Surr: Phenol-d5	160		200.0		80.8	11.3	108			
Surr: 2,4,6-Tribromophenol	160		200.0		80.2	15.7	154			
Surr: Nitrobenzene-d5	76		100.0		76.1	47.8	106			
Surr: 2-Fluorobiphenyl	78		100.0		78.4	21.3	123			
Surr: 4-Terphenyl-d14	110		100.0		105	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19289		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781334		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	47.8	99.7			
4-Chloro-3-methylphenol	160	10	200.0	0	79.9	58.1	103			
2-Chlorophenol	140	10	200.0	0	70.4	49.5	96.8			
1,4-Dichlorobenzene	73	10	100.0	0	72.6	40.4	89.4			
2,4-Dinitrotoluene	70	10	100.0	0	69.6	38.6	91.3			
N-Nitrosodi-n-propylamine	80	10	100.0	0	80.1	53.9	95.6			
4-Nitrophenol	140	10	200.0	0	71.9	26.4	108			
Pentachlorophenol	120	20	200.0	0	61.8	36.5	86.6			
Phenol	160	10	200.0	0	77.8	29.3	108			
Pyrene	74	10	100.0	0	73.9	45.7	100			
1,2,4-Trichlorobenzene	81	10	100.0	0	80.7	39.3	94.5			
Surr: 2-Fluorophenol	150		200.0		74.2	14.9	111			
Surr: Phenol-d5	170		200.0		83.5	11.3	108			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	15.7	154			
Surr: Nitrobenzene-d5	82		100.0		81.8	47.8	106			
Surr: 2-Fluorobiphenyl	86		100.0		86.4	21.3	123			
Surr: 4-Terphenyl-d14	79		100.0		78.7	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

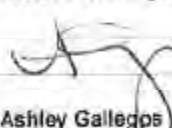
Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1505710

RcptNo: 1

Received by/date:



05/15/15

Logged By:

Ashley Gallegos

5/15/2015 10:03:00 AM



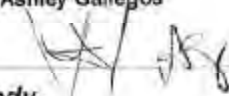
Completed By:

Ashley Gallegos

5/15/2015 10:37:57 AM



Reviewed By:



05/15/15

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(<2 or >12 unless noted)

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted?

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

Checked by:

(If no, notify customer for authorization.)

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

June 01, 2015

Cheryl Johnson
Western Refining Company
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX

RE: SWMU 10 Drill Cuttings

OrderNo.: 1505A00

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/22/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505A00

Date Reported: 6/1/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-Drill Cutting

Project: SWMU 10 Drill Cuttings

Collection Date: 5/20/2015 1:05:00 PM

Lab ID: 1505A00-001

Matrix: SOIL

Received Date: 5/22/2015 8:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	17	6.0		mg/Kg	20	5/27/2015 3:51:05 PM	19403
Chloride	1200	75		mg/Kg	50	5/29/2015 4:30:06 AM	19403
Nitrogen, Nitrite (As N)	ND	1.5		mg/Kg	5	6/1/2015 11:08:21 AM	19484
Bromide	ND	1.5		mg/Kg	5	6/1/2015 11:08:21 AM	19484
Nitrogen, Nitrate (As N)	13	6.0		mg/Kg	20	5/27/2015 3:51:05 PM	19403
Phosphorus, Orthophosphate (As P)	ND	7.5		mg/Kg	5	6/1/2015 11:08:21 AM	19484
Sulfate	420	30		mg/Kg	20	5/27/2015 3:51:05 PM	19403
MERCURY, TCLP							Analyst: MED
Mercury	ND	0.020		mg/L	1	5/28/2015 3:04:31 PM	19433
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Calcium	28000	250		mg/Kg	10	5/28/2015 12:27:25 PM	19423
Magnesium	5600	51		mg/Kg	2	5/28/2015 12:11:39 PM	19423
Potassium	2300	100		mg/Kg	2	5/28/2015 12:11:39 PM	19423
Sodium	1800	51		mg/Kg	2	5/28/2015 12:11:39 PM	19423
EPA METHOD 6010B: TCLP METALS							Analyst: ELS
Arsenic	ND	5.0		mg/L	1	5/28/2015 12:54:32 PM	19417
Barium	ND	100		mg/L	1	5/28/2015 12:54:32 PM	19417
Cadmium	ND	1.0		mg/L	1	5/28/2015 12:54:32 PM	19417
Chromium	ND	5.0		mg/L	1	5/28/2015 12:54:32 PM	19417
Lead	ND	5.0		mg/L	1	5/28/2015 12:54:32 PM	19417
Selenium	ND	1.0		mg/L	1	5/28/2015 12:54:32 PM	19417
Silver	ND	5.0		mg/L	1	5/28/2015 12:54:32 PM	19417
EPA METHOD 8015D: DIESEL RANGE ORGANICS							Analyst: KJH
Diesel Range Organics (DRO)	3600	100		mg/Kg	10	5/27/2015 9:57:59 AM	19340
Motor Oil Range Organics (MRO)	740	500		mg/Kg	10	5/27/2015 9:57:59 AM	19340
Surr: DNOP	0	57.9-140	S	%REC	10	5/27/2015 9:57:59 AM	19340
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	160	25		mg/Kg	5	5/27/2015 5:37:56 PM	19360
Surr: BFB	221	75.4-113	S	%REC	5	5/27/2015 5:37:56 PM	19360
EPA METHOD 8270C TCLP							Analyst: DAM
2-Methylphenol	ND	200		mg/L	1	5/29/2015 12:52:10 PM	19424
3+4-Methylphenol	ND	200		mg/L	1	5/29/2015 12:52:10 PM	19424
Phenol	ND	200		mg/L	1	5/29/2015 12:52:10 PM	19424
2,4-Dinitrotoluene	ND	0.13		mg/L	1	5/29/2015 12:52:10 PM	19424
Hexachlorobenzene	ND	0.13		mg/L	1	5/29/2015 12:52:10 PM	19424
Hexachlorobutadiene	ND	0.50		mg/L	1	5/29/2015 12:52:10 PM	19424

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 Not In Range
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505A00

Date Reported: 6/1/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-Drill Cutting

Project: SWMU 10 Drill Cuttings

Collection Date: 5/20/2015 1:05:00 PM

Lab ID: 1505A00-001

Matrix: SOIL

Received Date: 5/22/2015 8:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C TCLP							Analyst: DAM
Hexachloroethane	ND	3.0		mg/L	1	5/29/2015 12:52:10 PM	19424
Nitrobenzene	ND	2.0		mg/L	1	5/29/2015 12:52:10 PM	19424
Pentachlorophenol	ND	100		mg/L	1	5/29/2015 12:52:10 PM	19424
Pyridine	ND	5.0		mg/L	1	5/29/2015 12:52:10 PM	19424
2,4,5-Trichlorophenol	ND	400		mg/L	1	5/29/2015 12:52:10 PM	19424
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	5/29/2015 12:52:10 PM	19424
Cresols, Total	ND	200		mg/L	1	5/29/2015 12:52:10 PM	19424
Surr: 2-Fluorophenol	80.5	20.9-115		%REC	1	5/29/2015 12:52:10 PM	19424
Surr: Phenol-d5	80.4	13.6-102		%REC	1	5/29/2015 12:52:10 PM	19424
Surr: 2,4,6-Tribromophenol	119	11.3-133		%REC	1	5/29/2015 12:52:10 PM	19424
Surr: Nitrobenzene-d5	111	49.4-119		%REC	1	5/29/2015 12:52:10 PM	19424
Surr: 2-Fluorobiphenyl	116	48.2-114	S	%REC	1	5/29/2015 12:52:10 PM	19424
Surr: 4-Terphenyl-d14	93.9	35.5-125		%REC	1	5/29/2015 12:52:10 PM	19424
VOLATILES BY 8260B/1311							Analyst: DJF
Benzene	ND	0.50		mg/L	1	5/27/2015 1:24:20 PM	19393
2-Butanone	ND	200		mg/L	1	5/27/2015 1:24:20 PM	19393
Carbon Tetrachloride	ND	0.50		mg/L	1	5/27/2015 1:24:20 PM	19393
Chlorobenzene	ND	100		mg/L	1	5/27/2015 1:24:20 PM	19393
Chloroform	ND	6.0		mg/L	1	5/27/2015 1:24:20 PM	19393
1,4-Dichlorobenzene	ND	7.5		mg/L	1	5/27/2015 1:24:20 PM	19393
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	5/27/2015 1:24:20 PM	19393
1,1-Dichloroethene	ND	0.70		mg/L	1	5/27/2015 1:24:20 PM	19393
Hexachlorobutadiene	ND	0.50		mg/L	1	5/27/2015 1:24:20 PM	19393
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	5/27/2015 1:24:20 PM	19393
Trichloroethene (TCE)	ND	0.50		mg/L	1	5/27/2015 1:24:20 PM	19393
Vinyl chloride	ND	0.20		mg/L	1	5/27/2015 1:24:20 PM	19393
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	5/27/2015 1:24:20 PM	19393
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	5/27/2015 1:24:20 PM	19393
Surr: Dibromofluoromethane	104	70-130		%REC	1	5/27/2015 1:24:20 PM	19393
Surr: Toluene-d8	109	70-130		%REC	1	5/27/2015 1:24:20 PM	19393

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

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

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

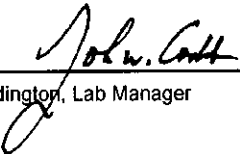
Batch #: 150527030
Project Name: 1505A00

Analytical Results Report

Sample Number	150527030-001	Sampling Date	5/20/2015	Date/Time Received	5/27/2015 12:00 PM
Client Sample ID	1505A00-001B / SWMU 10- DRILL CUTTING	Sampling Time	1:05 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	1.51	mg/Kg	1	5/28/2015	ETL	SW846 CH7	
Ignitability	Negative			5/27/2015	JWC	EPA 1030	
pH	8.74	ph Units		5/27/2015	KJS	EPA 9045	
Reactive sulfide	ND	mg/kg	10	5/28/2015	KJS	SW846 CH7	

Authorized Signature


John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Thursday, May 28, 2015

Page 1 of 1

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 150527030
Project Name: 1505A00

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Reactive sulfide	0.200	mg/kg	0.2	100.0	80-120	5/28/2015	5/28/2015
Cyanide (reactive)	0.477	mg/kg	0.5	95.4	70-130	5/28/2015	5/28/2015

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
150527029-001	Reactive sulfide	ND	35.0	mg/kg	50	70.0	70-130	5/28/2015	5/28/2015
150527029-001	Cyanide (reactive)	ND	11.7	mg/kg	12.5	93.6	70-130	5/28/2015	5/28/2015

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	12.2	mg/kg	12.5	97.6	4.2	0-25	5/28/2015	5/28/2015

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/Kg	1	5/28/2015	5/28/2015
Reactive sulfide	ND	mg/kg	10	5/28/2015	5/28/2015

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	MB-19403	SampType:	MBLK		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS	Batch ID:	19403		RunNo:	26448				
Prep Date:	5/27/2015	Analysis Date:	5/27/2015		SeqNo:	786139	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID	LCS-19403		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 19403		RunNo: 26448					
Prep Date:	5/27/2015		Analysis Date: 5/27/2015		SeqNo: 786140		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	105	90	110			
Chloride	14	1.5	15.00	0	93.1	90	110			
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	98.2	90	110			
Sulfate	29	1.5	30.00	0	97.5	90	110			

Sample ID	MB-19484	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID: 19484			RunNo: 26529					
Prep Date:	6/1/2015	Analysis Date: 6/1/2015			SeqNo: 788531		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								

Sample ID	LCS-19484		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSS		Batch ID: 19484		RunNo: 26529					
Prep Date:	6/1/2015		Analysis Date: 6/1/2015		SeqNo: 788532		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	97.7	90	110			
Bromide	7.1	0.30	7.500	0	94.5	90	110			
Phosphorus, Orthophosphate (As P)	14	1.5	15.00	0	96.0	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 Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	MB-19340	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 19340			RunNo: 26394					
Prep Date:	5/21/2015	Analysis Date: 5/26/2015			SeqNo: 784383		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.2		10.00		81.8	57.9	140			

Sample ID	LCS-19340		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 19340		RunNo: 26394					
Prep Date:	5/21/2015		Analysis Date: 5/26/2015		SeqNo: 784384		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.9	67.8	130			
Surr: DNOP	4.2		5.000		83.2	57.9	140			

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 Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID MB-19360	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 19360			RunNo: 26397						
Prep Date: 5/22/2015	Analysis Date: 5/26/2015			SeqNo: 784808		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		90.3	75.4	113			

Sample ID LCS-19360	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 19360			RunNo: 26397						
Prep Date: 5/22/2015	Analysis Date: 5/26/2015			SeqNo: 784809		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB	1000		1000		99.7	75.4	113			

Sample ID MB-19388	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 19388			RunNo: 26441						
Prep Date: 5/26/2015	Analysis Date: 5/27/2015			SeqNo: 785675		Units: %REC				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		89.6	75.4	113			

Sample ID LCS-19388	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 19388			RunNo: 26441						
Prep Date: 5/26/2015	Analysis Date: 5/27/2015			SeqNo: 785676		Units: %REC				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		99.3	75.4	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 Not In Range
 RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	mb-19393		SampType:	MBLK		TestCode:	Volatiles by 8260B/1311			
Client ID:	PBS		Batch ID:	19393		RunNo:	26430			
Prep Date:	5/26/2015		Analysis Date:	5/27/2015		SeqNo:	785934		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		96.2	70	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		107	70	130			
Surr: Dibromofluoromethane	0.21		0.2000		103	70	130			
Surr: Toluene-d8	0.22		0.2000		108	70	130			

Sample ID	lcs-19393		SampType:	LCS		TestCode:	Volatiles by 8260B/1311			
Client ID:	LCSS		Batch ID:	19393		RunNo:	26430			
Prep Date:	5/26/2015		Analysis Date:	5/27/2015		SeqNo:	785935		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.45	0.30	0.4000	0	111	70	130			
Chlorobenzene	0.45	0.30	0.4000	0	112	70	130			
1,1-Dichloroethene	0.45	0.30	0.4000	0	113	66.4	139			
Trichloroethene (TCE)	0.39	0.30	0.4000	0	97.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		102	70	130			
Surr: 4-Bromofluorobenzene	0.22		0.2000		111	70	130			
Surr: Dibromofluoromethane	0.21		0.2000		107	70	130			
Surr: Toluene-d8	0.21		0.2000		107	70	130			

Sample ID	1505a00-001ams		SampType:	MS		TestCode:	Volatiles by 8260B/1311			
Client ID:	SWMU 10-Drill Cutti		Batch ID:	19393		RunNo:	26430			
Prep Date:	5/26/2015		Analysis Date:	5/27/2015		SeqNo:	785937		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.43	0.30	0.3994	0	107	70	130			
Chlorobenzene	0.42	0.30	0.3994	0	104	70	130			
1,1-Dichloroethene	0.42	0.30	0.3994	0	106	70	130			
Trichloroethene (TCE)	0.38	0.30	0.3994	0	96.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	1505a00-001ams	SampType:	MS	TestCode:	Volatiles by 8260B/1311					
Client ID:	SWMU 10-Drill Cutti	Batch ID:	19393	RunNo:	26430					
Prep Date:	5/26/2015	Analysis Date:	5/27/2015	SeqNo:	785937	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.21		0.1997		106	70	130			
Surr: 4-Bromofluorobenzene	0.22		0.1997		108	70	130			
Surr: Dibromofluoromethane	0.21		0.1997		104	70	130			
Surr: Toluene-d8	0.20		0.1997		102	70	130			

Sample ID	1505a00-001amsd	SampType:	MSD	TestCode:	Volatiles by 8260B/1311					
Client ID:	SWMU 10-Drill Cutti	Batch ID:	19393	RunNo:	26430					
Prep Date:	5/26/2015	Analysis Date:	5/27/2015	SeqNo:	785938	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.42	0.30	0.3994	0	106	70	130	0.879	20	
Chlorobenzene	0.43	0.30	0.3994	0	109	70	130	3.95	20	
1,1-Dichloroethene	0.44	0.30	0.3994	0	110	70	130	3.54	20	
Trichloroethene (TCE)	0.38	0.30	0.3994	0	95.3	70	130	0.831	20	
Surr: 1,2-Dichloroethane-d4	0.21		0.1997		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.21		0.1997		108	70	130	0	0	
Surr: Dibromofluoromethane	0.21		0.1997		104	70	130	0	0	
Surr: Toluene-d8	0.21		0.1997		107	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	mb-19424		SampType:	MBLK		TestCode:	EPA Method 8270C TCLP			
Client ID:	PBS		Batch ID:	19424		RunNo:	26486			
Prep Date:	5/28/2015		Analysis Date:	5/29/2015		SeqNo:	788157		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.17		0.2000		86.3	20.9	115			
Surr: Phenol-d5	0.19		0.2000		96.6	13.6	102			
Surr: 2,4,6-Tribromophenol	0.19		0.2000		93.2	11.3	133			
Surr: Nitrobenzene-d5	0.097		0.1000		97.2	49.4	119			
Surr: 2-Fluorobiphenyl	0.086		0.1000		85.5	48.2	114			
Surr: 4-Terphenyl-d14	0.063		0.1000		63.3	35.5	125			

Sample ID	lcs-19424		SampType:	LCS		TestCode:	EPA Method 8270C TCLP			
Client ID:	LCSS		Batch ID:	19424		RunNo:	26486			
Prep Date:	5/28/2015		Analysis Date:	5/29/2015		SeqNo:	788159		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.087	0.010	0.1000	0	87.3	37.2	111			
3+4-Methylphenol	0.18	0.010	0.2000	0	90.8	33.3	150			
2,4-Dinitrotoluene	0.074	0.010	0.1000	0	74.2	30.7	110			
Hexachlorobenzene	0.073	0.010	0.1000	0	72.6	44.1	114			
Hexachlorobutadiene	0.085	0.010	0.1000	0	84.7	41	85.9			
Hexachloroethane	0.080	0.010	0.1000	0	80.0	39.9	101			
Nitrobenzene	0.083	0.010	0.1000	0	82.9	36.4	123			
Pentachlorophenol	0.061	0.010	0.1000	0	61.5	10.6	99.5			
Pyridine	0.074	0.010	0.1000	0	73.8	5.17	104			
2,4,5-Trichlorophenol	0.088	0.010	0.1000	0	87.8	33.8	114			
2,4,6-Trichlorophenol	0.074	0.010	0.1000	0	74.3	26.1	113			
Cresols, Total	0.27	0.010	0.3000	0	89.6	30	136			
Surr: 2-Fluorophenol	0.16		0.2000		80.6	20.9	115			
Surr: Phenol-d5	0.17		0.2000		83.0	13.6	102			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	lcs-19424		SampType:	LCS		TestCode:	EPA Method 8270C TCLP			
Client ID:	LCSS		Batch ID:	19424		RunNo:	26486			
Prep Date:	5/28/2015		Analysis Date:	5/29/2015		SeqNo:	788159		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.16		0.2000		80.5	11.3	133			
Surr: Nitrobenzene-d5	0.087		0.1000		86.8	49.4	119			
Surr: 2-Fluorobiphenyl	0.080		0.1000		79.9	48.2	114			
Surr: 4-Terphenyl-d14	0.062		0.1000		62.2	35.5	125			

Sample ID	1505a00-001ams		SampType:	MS		TestCode:	EPA Method 8270C TCLP			
Client ID:	SWMU 10-Drill Cutti		Batch ID:	19424		RunNo:	26486			
Prep Date:	5/28/2015		Analysis Date:	5/29/2015		SeqNo:	788164		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.091	0.010	0.1000	0	90.7	43.1	114			
3+4-Methylphenol	0.20	0.010	0.2000	0	99.2	37.8	128			
2,4-Dinitrotoluene	0.086	0.010	0.1000	0	85.8	36.5	125			
Hexachlorobenzene	0.095	0.010	0.1000	0	94.9	41.4	108			
Hexachlorobutadiene	0.086	0.010	0.1000	0	85.9	30.4	101			
Hexachloroethane	0.081	0.010	0.1000	0	80.7	37.3	115			
Nitrobenzene	0.094	0.010	0.1000	0	94.2	40.2	132			
Pentachlorophenol	0.030	0.010	0.1000	0	29.7	8.72	103			
Pyridine	0.077	0.010	0.1000	0	76.6	9.36	106			
2,4,5-Trichlorophenol	0.083	0.010	0.1000	0	82.6	16.5	123			
2,4,6-Trichlorophenol	0.049	0.010	0.1000	0	48.7	11.3	117			
Cresols, Total	0.29	0.010	0.3000	0	96.4	23.2	151			
Surr: 2-Fluorophenol	0.12		0.2000		62.1	20.9	115			
Surr: Phenol-d5	0.14		0.2000		69.5	13.6	102			
Surr: 2,4,6-Tribromophenol	0.17		0.2000		83.7	11.3	133			
Surr: Nitrobenzene-d5	0.11		0.1000		108	49.4	119			
Surr: 2-Fluorobiphenyl	0.099		0.1000		99.3	48.2	114			
Surr: 4-Terphenyl-d14	0.096		0.1000		96.5	35.5	125			

Sample ID	1505a00-001amsd		SampType:	MSD		TestCode:	EPA Method 8270C TCLP			
Client ID:	SWMU 10-Drill Cutti		Batch ID:	19424		RunNo:	26486			
Prep Date:	5/28/2015		Analysis Date:	5/29/2015		SeqNo:	788165		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.084	0.010	0.1000	0	83.5	43.1	114	8.20	28.4	
3+4-Methylphenol	0.29	0.010	0.2000	0	144	37.8	128	36.5	29.4	RS
2,4-Dinitrotoluene	0.086	0.010	0.1000	0	85.9	36.5	125	0.0932	24.7	
Hexachlorobenzene	0.092	0.010	0.1000	0	92.5	41.4	108	2.63	20	
Hexachlorobutadiene	0.092	0.010	0.1000	0	92.1	30.4	101	6.90	29	
Hexachloroethane	0.086	0.010	0.1000	0	86.1	37.3	115	6.45	25.2	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	1505a00-001amsd	SampType: MSD			TestCode: EPA Method 8270C TCLP					
Client ID:	SWMU 10-Drill Cutti	Batch ID: 19424			RunNo: 26486					
Prep Date:	5/28/2015	Analysis Date: 5/29/2015			SeqNo: 788165		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	0.090	0.010	0.1000	0	90.1	40.2	132	4.47	26.9	
Pentachlorophenol	0.023	0.010	0.1000	0	23.1	8.72	103	25.1	59.2	
Pyridine	0.076	0.010	0.1000	0	76.2	9.36	106	0.550	48	
2,4,5-Trichlorophenol	0.041	0.010	0.1000	0	41.4	16.5	123	66.5	70.8	
2,4,6-Trichlorophenol	0.029	0.010	0.1000	0	29.3	11.3	117	49.9	78	
Cresols, Total	0.37	0.010	0.3000	0	124	23.2	151	24.7	30.8	
Surr: 2-Fluorophenol	0.053		0.2000		26.5	20.9	115	0	0	
Surr: Phenol-d5	0.10		0.2000		52.2	13.6	102	0	0	
Surr: 2,4,6-Tribromophenol	0.079		0.2000		39.4	11.3	133	0	0	
Surr: Nitrobenzene-d5	0.10		0.1000		100	49.4	119	0	0	
Surr: 2-Fluorobiphenyl	0.095		0.1000		94.8	48.2	114	0	0	
Surr: 4-Terphenyl-d14	0.083		0.1000		82.7	35.5	125	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 Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	MB-19433		SampType: MBLK		TestCode: MERCURY, TCLP					
Client ID:	PBW		Batch ID: 19433		RunNo: 26466					
Prep Date:	5/28/2015		Analysis Date: 5/28/2015		SeqNo: 786651		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.020								

Sample ID	LCS-19433		SampType: LCS		TestCode: MERCURY, TCLP					
Client ID:	LCSW		Batch ID: 19433		RunNo: 26466					
Prep Date:	5/28/2015		Analysis Date: 5/28/2015		SeqNo: 786652		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	99.2	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 Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	MB-19423	SampType: MBLK			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID: 19423			RunNo: 26461					
Prep Date:	5/27/2015	Analysis Date: 5/28/2015			SeqNo: 786539		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	25								
Magnesium	ND	25								
Potassium	ND	50								
Sodium	ND	25								

Sample ID	LCS-19423		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 19423		RunNo: 26461					
Prep Date:	5/27/2015		Analysis Date: 5/28/2015		SeqNo: 786540		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	2600	25	2500	0	106	80	120			
Magnesium	2600	25	2500	0	104	80	120			
Potassium	2500	50	2500	0	101	80	120			
Sodium	2600	25	2500	0	102	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 Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505A00

01-Jun-15

Client: Western Refining Company

Project: SWMU 10 Drill Cuttings

Sample ID	MB-19417	SampType: MBLK			TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID: 19417			RunNo: 26461					
Prep Date:	5/27/2015	Analysis Date: 5/28/2015			SeqNo: 786566		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-19417		SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW		Batch ID: 19417		RunNo: 26461					
Prep Date:	5/27/2015		Analysis Date: 5/28/2015		SeqNo: 786567		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	112	80	120			
Barium	ND	100	0.5000	0	103	80	120			
Cadmium	ND	1.0	0.5000	0	107	80	120			
Chromium	ND	5.0	0.5000	0	101	80	120			
Lead	ND	5.0	0.5000	0	102	80	120			
Selenium	ND	1.0	0.5000	0	110	80	120			
Silver	ND	5.0	0.1000	0	107	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 Not In Range
RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3973 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1505A00

ReptNo: 1

Received by/date:

AT 05/22/15

Logged By: Ashley Gallegos

5/22/2015 8:20:00 AM

ASG

Completed By: Ashley Gallegos

5/22/2015 9:09:40 AM

ASG

Reviewed By:

DO

05/22/15

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?

Carrier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☐

No ☐

No VOA Vials ☒

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted? _____

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

Checked by: _____

(If no, notify customer for authorization.)

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.91	1.0		mg/L	1	5/15/2015 9:58:19 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/15/2015 9:58:19 PM	19246
Surr: DNOP	137	0	76.5-150		%REC	1	5/15/2015 9:58:19 PM	19246
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Acenaphthene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Acenaphthylene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Aniline	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Anthracene	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Azobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benz(a)anthracene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(a)pyrene	ND	2.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(b)fluoranthene	ND	2.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(g,h,i)perylene	ND	3.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzo(k)fluoranthene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Benzoic acid	7.1	1.0	20	J	µg/L	1	5/19/2015 8:23:56 PM	19289
Benzyl alcohol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroethoxy)methane	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroethyl)ether	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-chloroisopropyl)ether	ND	2.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Bis(2-ethylhexyl)phthalate	ND	3.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Bromophenyl phenyl ether	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Butyl benzyl phthalate	ND	2.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Carbazole	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chloro-3-methylphenol	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chloroaniline	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Chloronaphthalene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Chlorophenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Chlorophenyl phenyl ether	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Chrysene	ND	2.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Di-n-butyl phthalate	ND	2.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Di-n-octyl phthalate	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dibenz(a,h)anthracene	ND	3.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dibenzofuran	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,2-Dichlorobenzene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,3-Dichlorobenzene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,4-Dichlorobenzene	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3,3'-Dichlorobenzidine	ND	2.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Diethyl phthalate	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Dimethyl phthalate	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
2,4-Dichlorophenol	ND	1.4	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dimethylphenol	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4,6-Dinitro-2-methylphenol	ND	1.4	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dinitrophenol	ND	1.1	20		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4-Dinitrotoluene	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,6-Dinitrotoluene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Fluoranthene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Fluorene	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorobutadiene	ND	1.9	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachlorocyclopentadiene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Hexachloroethane	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Indeno(1,2,3-cd)pyrene	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Isophorone	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1-Methylnaphthalene	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Methylnaphthalene	ND	2.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Methylphenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3+4-Methylphenol	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodi-n-propylamine	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodimethylamine	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
N-Nitrosodiphenylamine	ND	2.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Naphthalene	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Nitroaniline	ND	1.8	10		µg/L	1	5/19/2015 8:23:56 PM	19289
3-Nitroaniline	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Nitroaniline	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Nitrobenzene	ND	1.5	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2-Nitrophenol	ND	1.2	10		µg/L	1	5/19/2015 8:23:56 PM	19289
4-Nitrophenol	ND	1.4	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pentachlorophenol	ND	1.1	20		µg/L	1	5/19/2015 8:23:56 PM	19289
Phenanthrene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Phenol	ND	1.1	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pyrene	ND	2.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Pyridine	ND	1.7	10		µg/L	1	5/19/2015 8:23:56 PM	19289
1,2,4-Trichlorobenzene	ND	2.0	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4,5-Trichlorophenol	ND	1.6	10		µg/L	1	5/19/2015 8:23:56 PM	19289
2,4,6-Trichlorophenol	ND	1.3	10		µg/L	1	5/19/2015 8:23:56 PM	19289
Surr: 2-Fluorophenol	84.1	0	14.9-111		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: Phenol-d5	74.9	0	11.3-108		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 2,4,6-Tribromophenol	127	0	15.7-154		%REC	1	5/19/2015 8:23:56 PM	19289

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Surr: Nitrobenzene-d5	101	0	47.8-106		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 2-Fluorobiphenyl	118	0	21.3-123		%REC	1	5/19/2015 8:23:56 PM	19289
Surr: 4-Terphenyl-d14	129	0	14.3-135		%REC	1	5/19/2015 8:23:56 PM	19289
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
Benzene	0.24	0.065	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Toluene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Ethylbenzene	ND	0.10	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Methyl tert-butyl ether (MTBE)	19	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,4-Trimethylbenzene	0.18	0.16	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichloroethane (EDC)	0.47	0.18	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dibromoethane (EDB)	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Naphthalene	ND	0.22	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1-Methylnaphthalene	ND	0.54	4.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Methylnaphthalene	ND	0.59	4.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Acetone	1.6	0.94	10	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromobenzene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromodichloromethane	ND	0.090	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromoform	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Bromomethane	ND	1.2	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Butanone	ND	0.36	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Carbon disulfide	ND	0.67	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Carbon Tetrachloride	ND	0.078	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloroethane	ND	0.10	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloroform	ND	0.21	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Chloromethane	ND	0.17	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Chlorotoluene	ND	0.079	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Chlorotoluene	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
cis-1,2-DCE	0.39	0.081	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
cis-1,3-Dichloropropene	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dibromo-3-chloropropane	ND	0.14	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dibromochloromethane	ND	0.097	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dibromomethane	ND	0.23	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichlorobenzene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3-Dichlorobenzene	ND	0.093	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,4-Dichlorobenzene	ND	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Dichlorodifluoromethane	ND	0.69	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1-Dichloroethane	3.1	0.40	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505710

Date Reported: 11/4/2015

CLIENT: Western Refining Company

Client Sample ID: SWMU 10-16-GW

Project: SWMU 10

Collection Date: 5/14/2015 2:30:00 PM

Lab ID: 1505710-001

Matrix: AQUEOUS

Received Date: 5/15/2015 10:03:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: cadg	
1,1-Dichloroethene	0.73	0.099	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2-Dichloropropane	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,3-Dichloropropane	ND	0.17	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2,2-Dichloropropane	ND	0.15	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1-Dichloropropene	ND	0.12	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Hexachlorobutadiene	ND	0.25	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
2-Hexanone	ND	0.48	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Isopropylbenzene	ND	0.15	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Isopropyltoluene	ND	0.19	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
4-Methyl-2-pentanone	ND	0.26	10		µg/L	1	5/20/2015 9:34:45 PM	R26322
Methylene Chloride	ND	0.36	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
n-Butylbenzene	ND	0.25	3.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
n-Propylbenzene	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
sec-Butylbenzene	ND	0.23	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Styrene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
tert-Butylbenzene	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,2,2-Tetrachloroethane	ND	0.18	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Tetrachloroethene (PCE)	ND	0.16	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
trans-1,2-DCE	ND	0.094	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
trans-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,3-Trichlorobenzene	ND	0.27	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,4-Trichlorobenzene	ND	0.28	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,1-Trichloroethane	ND	0.078	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,1,2-Trichloroethane	ND	0.079	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Trichloroethene (TCE)	0.77	0.16	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Trichlorofluoromethane	ND	0.13	1.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
1,2,3-Trichloropropane	ND	0.16	2.0		µg/L	1	5/20/2015 9:34:45 PM	R26322
Vinyl chloride	0.47	0.13	1.0	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Xylenes, Total	0.35	0.28	1.5	J	µg/L	1	5/20/2015 9:34:45 PM	R26322
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: 4-Bromofluorobenzene	102	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: Dibromofluoromethane	91.6	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
Surr: Toluene-d8	98.5	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg	
Gasoline Range Organics (GRO)	ND	0.040	0.050		mg/L	1	5/20/2015 9:34:45 PM	R26322
Surr: BFB	96.2	0	70-130		%REC	1	5/20/2015 9:34:45 PM	R26322

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	MB-19246		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101	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	0.20	1.0								J
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.35	1.0								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		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	0.43	1.0								J
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.5	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782103		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	107	75.6	144			
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	150		200.0		76.8	14.9	111			
Surr: Phenol-d5	160		200.0		80.8	11.3	108			
Surr: 2,4,6-Tribromophenol	160		200.0		80.2	15.7	154			
Surr: Nitrobenzene-d5	76		100.0		76.1	47.8	106			
Surr: 2-Fluorobiphenyl	78		100.0		78.4	21.3	123			
Surr: 4-Terphenyl-d14	110		100.0		105	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	lcs-19289		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781334		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	47.8	99.7			
4-Chloro-3-methylphenol	160	10	200.0	0	79.9	58.1	103			
2-Chlorophenol	140	10	200.0	0	70.4	49.5	96.8			
1,4-Dichlorobenzene	73	10	100.0	0	72.6	40.4	89.4			
2,4-Dinitrotoluene	70	10	100.0	0	69.6	38.6	91.3			
N-Nitrosodi-n-propylamine	80	10	100.0	0	80.1	53.9	95.6			
4-Nitrophenol	140	10	200.0	0	71.9	26.4	108			
Pentachlorophenol	120	20	200.0	0	61.8	36.5	86.6			
Phenol	160	10	200.0	0	77.8	29.3	108			
Pyrene	74	10	100.0	0	73.9	45.7	100			
1,2,4-Trichlorobenzene	81	10	100.0	0	80.7	39.3	94.5			
Surr: 2-Fluorophenol	150		200.0		74.2	14.9	111			
Surr: Phenol-d5	170		200.0		83.5	11.3	108			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	15.7	154			
Surr: Nitrobenzene-d5	82		100.0		81.8	47.8	106			
Surr: 2-Fluorobiphenyl	86		100.0		86.4	21.3	123			
Surr: 4-Terphenyl-d14	79		100.0		78.7	14.3	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505710

04-Nov-15

Client: Western Refining Company

Project: SWMU 10

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit



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 Gallup

Work Order Number: 1505710

ReptNo: 1

Received by/date:

[Signature]

05/15/15

Logged By:

Ashley Gallegos

5/15/2015 10:03:00 AM

[Signature]

Completed By:

Ashley Gallegos

5/15/2015 10:37:57 AM

[Signature]

Reviewed By:

[Signature]

05/15/15

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

Checked by:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

[Signature]

Date

[Signature]

By Whom:

[Signature]

Via

☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

[Signature]

Client Instructions:

[Signature]

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 Method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0