AP-111

Investigation Report (SWMU-10 Sludge Pits) (3 of 3)

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605875**

07-Jul-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **lcs-25469**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **25469**	RunNo: **34461**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063512** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.670	0	70.0	45.8	99.8			
4-Chloro-3-methylphenol	2.2	0.50	3.330	0	66.5	51.5	103			
2-Chlorophenol	1.8	0.20	3.330	0	54.1	46.5	105			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.3	45.5	103			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	66.9	36	87.2			
N-Nitrosodi-n-propylamine	0.80	0.20	1.670	0	48.1	47.3	104			
4-Nitrophenol	2.2	0.25	3.330	0	65.7	47.3	95.3			
Pentachlorophenol	1.9	0.40	3.330	0	56.6	38.7	89.3			
Phenol	1.8	0.20	3.330	0	54.5	47.8	106			
Pyrene	1.2	0.20	1.670	0	72.6	33.4	105			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.4	50.4	115			
Surr: 2-Fluorophenol	1.6		3.330		47.4	28.3	102			
Surr: Phenol-d5	1.9		3.330		56.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.3	35.2	108			
Surr: Nitrobenzene-d5	1.0		1.670		59.7	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		70.2	35.4	111			
Surr: 4-Terphenyl-d14	0.74		1.670		44.5	15	91.7			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605875**

07-Jul-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**MB-25448**	SampType: **MBLK**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **25448**		RunNo: **34452**					
Prep Date:	**5/23/2016**	Analysis Date: **5/24/2016**		SeqNo: **1062465**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00083	0.033								J

Sample ID	**LCS-25448**	SampType: **LCS**		TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **25448**		RunNo: **34452**					
Prep Date:	**5/23/2016**	Analysis Date: **5/24/2016**		SeqNo: **1062466**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	110	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605875**

07-Jul-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**MB-25447**	SampType: **MBLK**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID: **25447**		RunNo: **34439**					
Prep Date:	**5/23/2016**	Analysis Date: **5/24/2016**		SeqNo: **1061954**		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								
Beryllium	ND	0.15								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Lead	ND	0.25								
Manganese	0.047	0.10								J
Nickel	ND	0.50								
Selenium	1.3	2.5								J
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID	**LCS-25447**	SampType: **LCS**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**LCSS**	Batch ID: **25447**		RunNo: **34439**					
Prep Date:	**5/23/2016**	Analysis Date: **5/24/2016**		SeqNo: **1061955**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	23	2.5	25.00	0	90.0	80	120			
Arsenic	24	2.5	25.00	0	95.3	80	120			
Beryllium	24	0.15	25.00	0	97.0	80	120			
Cadmium	24	0.10	25.00	0	94.4	80	120			
Chromium	23	0.30	25.00	0	93.1	80	120			
Cobalt	23	0.30	25.00	0	90.9	80	120			
Lead	23	0.25	25.00	0	91.3	80	120			
Manganese	24	0.10	25.00	0	94.1	80	120			
Nickel	23	0.50	25.00	0	92.2	80	120			
Selenium	24	2.5	25.00	0	97.6	80	120			
Silver	4.7	0.25	5.000	0	93.8	80	120			
Vanadium	24	2.5	25.00	0	95.9	80	120			
Zinc	24	2.5	25.00	0	94.2	80	120			

Sample ID	**MB-25586**	SampType: **MBLK**		TestCode: **EPA Method 6010B: Soil Metals**					
Client ID:	**PBS**	Batch ID: **25586**		RunNo: **34597**					
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**		SeqNo: **1067058**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605875**

07-Jul-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**LCS-25586**	SampType: **LCS**			TestCode: **EPA Method 6010B: Soil Metals**				
Client ID:	**LCSS**	Batch ID: **25586**			RunNo: **34597**				
Prep Date:	**5/31/2016**	Analysis Date: **6/1/2016**			SeqNo: **1067059**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	22	0.10	25.00	0	88.8	80	120			

Sample ID	**MB-25586**	SampType: **MBLK**			TestCode: **EPA Method 6010B: Soil Metals**				
Client ID:	**PBS**	Batch ID: **25586**			RunNo: **34951**				
Prep Date:	**5/31/2016**	Analysis Date: **6/16/2016**			SeqNo: **1079711**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.0	2.5								J

Sample ID	**LCS-25586**	SampType: **LCS**			TestCode: **EPA Method 6010B: Soil Metals**				
Client ID:	**LCSS**	Batch ID: **25586**			RunNo: **34951**				
Prep Date:	**5/31/2016**	Analysis Date: **6/16/2016**			SeqNo: **1079712**	Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	25	2.5	25.00	0	99.4	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605875**

07-Jul-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **C34413**	RunNo: **34413**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061608** 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	500		500.0		100	70	130			

Sample ID **2.5ug gro icv**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **C34413**	RunNo: **34413**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061609** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	62.9	123			
Surr: BFB	510		500.0		102	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1605375 RcptNo: 1

Received by/date: SA 05/18/16

Logged By: **Lindsay Mangin** 5/18/2016 4:00:00 PM

Completed By: **Lindsay Mangin** 5/19/2016 7:00:19 AM

Reviewed By: 05/19/16

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

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

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0217
email or Fax#: ED.RIEGE@WNR.COM
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other ______
☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush ______
Project Name:
SWMU 10
Project #:

Project Manager:
ED RIEGE
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1605875	BTEX + MTBE + TMB's (8021)	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,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	METALS & CYANIDE (SEE ATTACHED LIST)			Air Bubbles (Y or N)
17-16	1325	SOIL	SWMU 10-20(8-10')	JARS-3	NEAT	-001			✓							✓	✓	✓			
↓	↓	↓	↓	VIALS-2	MEOH	-001										✓					
↓	↓	↓	↓	VIALS-2	SOBI	-001										✓					
↓	1610	↓	SWMU 10-20(10-12')	JARS-3	NEAT	-002			✓							✓	✓	✓			
↓	↓	↓	↓	VIALS-2	MEOH	-002										✓					
↓	↓	↓	↓	VIALS-2	SOBI	-002										✓					
↓	1625	↓	SWMU 10-20(16-18')	JARS-3	NEAT	-003			✓							✓	✓	✓			
↓	↓	↓	↓	VIALS-2	MEOH	-003										✓					
↓	↓	↓	↓	VIALS-2	SOBI	-003										✓					
↓	1635	↓	SWMU 10-20(20-22')	JARS-3	NEAT	-004			✓							✓	✓	✓			
↓	↓	↓	↓	VIALS-2	MEOH	-004										✓					
↓	↓	↓	↓	VIALS-2	SOBI	-004										✓					

Date	Time	Relinquished by	Received by	Date	Time
8.16	0720	[signature]	[signature]	5/18/16	800
/16	1400	[signature]	[signature]	05/18/16	1600

Remarks: PLEASE INCLUDE J FLAGS AND MDL

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

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0217
Email or Fax#: ED.RIEGE@WNR.COM
QA/QC Package: ☐ Standard ☒ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: SWMU 10
Project #:
Project Manager: ED RIEGE
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1605875	BTEX + MTBE + TMB's (8021)	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 ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	METALS & CYANIDE (SEE ATTACHED LIST)			Air Bubbles (Y or N)
17.16	0915	SOIL	SWMU 10-19 (2-2.5)	JARS-3	NEAT	-005			✓							✓	✓	✓			
				VIALS-2	MEOH	-005										✓					
				VIALS-2	SOBI	-005										✓					
	1015		SWMU 10-19 (12-14')	JARS-3	NEAT	-006			✓							✓	✓	✓			
				VIALS-2	MEOH	-006										✓					
				VIALS-2	SOBI	-006										✓					
	1025		SWMU 10-19 (18-20')	JARS-3	NEAT	-007			✓							✓	✓	✓			
				VIALS-2	MEOH	-007										✓					
				VIALS-2	SOBI	-007										✓					
	1310		SWMU 10-20 (2-2.5')	JARS-3	NEAT	-008			✓							✓	✓	✓			
				VIALS-2	MEOH	-008										✓					
				VIALS-2	SOBI	-008										✓					

Date: 5.18.16 Time: 0720 Relinquished by: [signature]
Received by: [signature] Date Time: 5/18/16 800

Date: 5/18/16 Time: 1400 Relinquished by: [signature]
Received by: [signature] Date Time: 05/18/16 1600

Remarks: PLEASE INCLUDE J FLAGS AND MDL

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR SOIL SAMPLES

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 28, 2016

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

RE: SWMU 10 OrderNo.: 1605943

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 7 sample(s) on 5/19/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 9:05:00 AM
Lab ID: 1605943-001 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	32	3.7	10		mg/Kg-dr	1	5/24/2016 2:54:59 PM	25449
Motor Oil Range Organics (MRO)	ND	52	52		mg/Kg-dr	1	5/24/2016 2:54:59 PM	25449
Surr: DNOP	110	0	70-130		%Rec	1	5/24/2016 2:54:59 PM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	7.7	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.056	0.00062	0.036		mg/Kg-dr	1	5/26/2016 3:40:58 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	1.3	2.7		mg/Kg-dr	1	5/31/2016 9:51:45 AM	25508
Arsenic	3.3	0.79	2.7		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Barium	570	0.26	0.54		mg/Kg-dr	5	5/31/2016 10:06:38 AM	25508
Beryllium	0.72	0.0050	0.16		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Cadmium	ND	0.069	0.11		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Chromium	9.2	0.14	0.33		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Cobalt	3.7	0.041	0.33		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Iron	9900	110	270		mg/Kg-dr	100	5/31/2016 10:08:25 AM	25508
Lead	2.1	0.19	0.27		mg/Kg-dr	1	5/31/2016 9:51:45 AM	25508
Manganese	440	0.24	0.54		mg/Kg-dr	5	5/31/2016 10:06:38 AM	25508
Nickel	6.0	0.12	0.54		mg/Kg-dr	1	5/31/2016 9:51:45 AM	25508
Selenium	ND	1.2	2.7		mg/Kg-dr	1	5/31/2016 9:51:45 AM	25508
Silver	ND	0.034	0.27		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Vanadium	16	0.038	2.7		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
Zinc	16	0.62	2.7		mg/Kg-dr	1	5/26/2016 4:04:00 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.092	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Acenaphthylene	ND	0.087	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Aniline	ND	0.10	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Anthracene	ND	0.071	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Azobenzene	ND	0.13	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benz(a)anthracene	ND	0.092	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzo(a)pyrene	ND	0.081	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzo(b)fluoranthene	ND	0.097	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzo(g,h,i)perylene	ND	0.095	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzo(k)fluoranthene	ND	0.095	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzoic acid	ND	0.089	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Benzyl alcohol	ND	0.084	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Bis(2-chloroethoxy)methane	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 9:05:00 AM
Lab ID: 1605943-001 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.079	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.096	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Bis(2-ethylhexyl)phthalate	0.17	0.088	0.54	J	mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Bromophenyl phenyl ether	ND	0.10	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Butyl benzyl phthalate	ND	0.095	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Carbazole	ND	0.073	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Chloro-3-methylphenol	ND	0.13	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Chloroaniline	ND	0.12	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Chloronaphthalene	ND	0.085	0.27		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Chlorophenol	ND	0.085	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Chlorophenyl phenyl ether	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Chrysene	ND	0.091	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Di-n-butyl phthalate	ND	0.080	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Di-n-octyl phthalate	ND	0.092	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Dibenz(a,h)anthracene	ND	0.087	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Dibenzofuran	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
1,2-Dichlorobenzene	ND	0.082	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
1,3-Dichlorobenzene	ND	0.083	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
1,4-Dichlorobenzene	ND	0.091	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
3,3´-Dichlorobenzidine	ND	0.079	0.27		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Diethyl phthalate	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Dimethyl phthalate	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4-Dichlorophenol	ND	0.10	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4-Dimethylphenol	ND	0.12	0.32		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.065	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4-Dinitrophenol	ND	0.071	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4-Dinitrotoluene	ND	0.096	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,6-Dinitrotoluene	ND	0.11	0.54		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Fluoranthene	ND	0.062	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Fluorene	ND	0.098	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Hexachlorobenzene	ND	0.085	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Hexachlorobutadiene	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Hexachlorocyclopentadiene	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Hexachloroethane	ND	0.092	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.084	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
1-Methylnaphthalene	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Methylnaphthalene	ND	0.13	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Methylphenol	ND	0.090	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
3+4-Methylphenol	ND	0.078	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 9:05:00 AM
Lab ID: 1605943-001 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.10	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
N-Nitrosodiphenylamine	ND	0.10	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Naphthalene	ND	0.10	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Nitroaniline	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
3-Nitroaniline	ND	0.095	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Nitroaniline	ND	0.076	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Nitrobenzene	ND	0.11	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2-Nitrophenol	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
4-Nitrophenol	ND	0.082	0.27		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Pentachlorophenol	ND	0.069	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Phenanthrene	ND	0.073	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Phenol	ND	0.081	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Pyrene	ND	0.081	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Pyridine	ND	0.085	0.43		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
1,2,4-Trichlorobenzene	ND	0.12	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4,5-Trichlorophenol	ND	0.11	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
2,4,6-Trichlorophenol	ND	0.089	0.21		mg/Kg-dr	1	5/26/2016 6:23:14 PM	25469
Surr: 2-Fluorophenol	61.9	0	28.3-102		%Rec	1	5/26/2016 6:23:14 PM	25469
Surr: Phenol-d5	65.9	0	35.7-103		%Rec	1	5/26/2016 6:23:14 PM	25469
Surr: 2,4,6-Tribromophenol	83.3	0	35.2-108		%Rec	1	5/26/2016 6:23:14 PM	25469
Surr: Nitrobenzene-d5	65.7		24-118		%Rec	1	5/26/2016 6:23:14 PM	25469
Surr: 2-Fluorobiphenyl	80.8		35.4-111		%Rec	1	5/26/2016 6:23:14 PM	25469
Surr: 4-Terphenyl-d14	67.2		15-91.7		%Rec	1	5/26/2016 6:23:14 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Toluene	4.77	0.271	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Ethylbenzene	1.22	0.301	2.24	J	µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.377	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2,4-Trimethylbenzene	1.95	0.380	2.24	J	µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,3,5-Trimethylbenzene	0.774	0.370	2.24	J	µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2-Dichloroethane (EDC)	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2-Dibromoethane (EDB)	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Naphthalene	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1-Methylnaphthalene	0.370	0.255	4.49	J	µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
2-Methylnaphthalene	ND	0.590	4.49		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Acetone	13.9	0.664	11.2		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Bromobenzene	ND	0.228	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Bromodichloromethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Bromoform	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 9:05:00 AM
Lab ID: 1605943-001 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.404	3.36		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
2-Butanone	ND	0.809	11.2		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Carbon disulfide	ND	0.830	11.2		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Carbon tetrachloride	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Chlorobenzene	ND	0.257	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Chloroethane	ND	0.414	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Chloroform	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Chloromethane	ND	0.568	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
2-Chlorotoluene	ND	0.382	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
4-Chlorotoluene	ND	0.373	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
cis-1,2-DCE	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
cis-1,3-Dichloropropene	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.239	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Dibromochloromethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Dibromomethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2-Dichlorobenzene	ND	0.327	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,3-Dichlorobenzene	ND	0.414	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,4-Dichlorobenzene	ND	0.420	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Dichlorodifluoromethane	ND	1.31	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1-Dichloroethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1-Dichloroethene	ND	0.367	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2-Dichloropropane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,3-Dichloropropane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
2,2-Dichloropropane	ND	0.283	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1-Dichloropropene	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Hexachlorobutadiene	ND	0.511	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
2-Hexanone	ND	0.559	11.2		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Isopropylbenzene	ND	0.282	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
4-Isopropyltoluene	ND	0.421	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
4-Methyl-2-pentanone	ND	4.49	11.2		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Methylene chloride	ND	2.24	3.36		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
n-Butylbenzene	ND	0.546	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
n-Propylbenzene	ND	0.402	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
sec-Butylbenzene	ND	0.398	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Styrene	ND	0.287	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
tert-Butylbenzene	ND	0.328	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Tetrachloroethene (PCE)	ND	0.295	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 9:05:00 AM
Lab ID: 1605943-001
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.227	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
trans-1,3-Dichloropropene	ND	0.272	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.543	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.680	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1,1-Trichloroethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,1,2-Trichloroethane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Trichloroethene (TCE)	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Trichlorofluoromethane	ND	0.282	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
1,2,3-Trichloropropane	ND	2.24	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Vinyl chloride	ND	0.590	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Xylenes, Total	4.46	0.894	2.24		µg/Kg-dry	1	5/25/2016 4:59:00 PM	25468
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	5/25/2016 4:59:00 PM	25468
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	5/25/2016 4:59:00 PM	25468
Surr: Dibromofluoromethane	93.0	0	70-130		%Rec	1	5/25/2016 4:59:00 PM	25468
Surr: Toluene-d8	97.5	0	70-130		%Rec	1	5/25/2016 4:59:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	2.0	0.61	4.1	J	mg/Kg-dr	1	5/24/2016 12:36:41 PM	A34454
Surr: BFB	99.7	0	70-130		%Rec	1	5/24/2016 12:36:41 PM	A34454

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (12-14')
Project: SWMU 10
Collection Date: 5/18/2016 10:15:00 AM
Lab ID: 1605943-002 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	4.5	12		mg/Kg-dr	1	5/24/2016 12:43:18 PM	25449
Motor Oil Range Organics (MRO)	ND	62	62		mg/Kg-dr	1	5/24/2016 12:43:18 PM	25449
Surr: DNOP	104	0	70-130		%Rec	1	5/24/2016 12:43:18 PM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	19	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0043	0.00069	0.040	J	mg/Kg-dr	1	5/26/2016 3:46:15 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	7.3	15		mg/Kg-dr	5	6/15/2016 6:59:11 AM	25508
Arsenic	1.8	0.90	3.1	J	mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Barium	220	0.060	0.12		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Beryllium	1.3	0.0057	0.19		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Chromium	11	0.15	0.37		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Cobalt	5.6	0.047	0.37		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Iron	20000	120	310		mg/Kg-dr	100	5/31/2016 10:09:54 AM	25508
Lead	5.1	0.22	0.31		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Manganese	240	0.055	0.12		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Nickel	11	0.14	0.62		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Selenium	ND	1.3	3.1		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Silver	ND	0.039	0.31		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Vanadium	21	0.043	3.1		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
Zinc	20	0.70	3.1		mg/Kg-dr	1	5/26/2016 4:08:33 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Anthracene	ND	0.082	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzo(a)pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzoic acid	ND	0.10	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Benzyl alcohol	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (12-14')
Project: SWMU 10
Collection Date: 5/18/2016 10:15:00 AM
Lab ID: 1605943-002
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.091	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Bis(2-ethylhexyl)phthalate	0.14	0.10	0.62	J	mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Carbazole	ND	0.083	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Chloro-3-methylphenol	ND	0.15	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Chloroaniline	ND	0.13	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Chloronaphthalene	ND	0.097	0.31		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Chlorophenol	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Di-n-butyl phthalate	0.11	0.092	0.49	J	mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Di-n-octyl phthalate	ND	0.11	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Dibenzofuran	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
1,2-Dichlorobenzene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
1,3-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
3,3´-Dichlorobenzidine	ND	0.091	0.31		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4-Dichlorophenol	ND	0.12	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.075	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4-Dinitrophenol	ND	0.082	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.62		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Fluoranthene	ND	0.071	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Hexachlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.096	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
1-Methylnaphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
3+4-Methylphenol	ND	0.089	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469

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Project: SWMU 10
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Lab ID: 1605943-002
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Nitroaniline	ND	0.087	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
4-Nitrophenol	ND	0.094	0.31		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Pentachlorophenol	ND	0.079	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Phenanthrene	ND	0.084	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Phenol	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Pyridine	ND	0.098	0.49		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 6:53:34 PM	25469
Surr: 2-Fluorophenol	48.1	0	28.3-102		%Rec	1	5/26/2016 6:53:34 PM	25469
Surr: Phenol-d5	55.6	0	35.7-103		%Rec	1	5/26/2016 6:53:34 PM	25469
Surr: 2,4,6-Tribromophenol	57.9	0	35.2-108		%Rec	1	5/26/2016 6:53:34 PM	25469
Surr: Nitrobenzene-d5	57.3		24-118		%Rec	1	5/26/2016 6:53:34 PM	25469
Surr: 2-Fluorobiphenyl	57.6		35.4-111		%Rec	1	5/26/2016 6:53:34 PM	25469
Surr: 4-Terphenyl-d14	56.0		15-91.7		%Rec	1	5/26/2016 6:53:34 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	1.93	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Toluene	1.47	0.226	1.87	J	µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Ethylbenzene	ND	0.252	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.315	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2,4-Trimethylbenzene	0.347	0.318	1.87	J	µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,3,5-Trimethylbenzene	ND	0.309	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2-Dichloroethane (EDC)	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2-Dibromoethane (EDB)	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Naphthalene	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1-Methylnaphthalene	ND	0.213	3.75		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
2-Methylnaphthalene	ND	0.493	3.75		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Acetone	5.84	0.554	9.37	J	µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Bromobenzene	ND	0.191	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Bromodichloromethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Bromoform	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468

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Lab ID: 1605943-002
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.337	2.81		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
2-Butanone	ND	0.675	9.37		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Carbon disulfide	ND	0.693	9.37		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Carbon tetrachloride	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Chlorobenzene	ND	0.215	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Chloroethane	ND	0.346	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Chloroform	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Chloromethane	ND	0.475	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
2-Chlorotoluene	ND	0.319	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
4-Chlorotoluene	ND	0.311	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
cis-1,2-DCE	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
cis-1,3-Dichloropropene	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.199	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Dibromochloromethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Dibromomethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2-Dichlorobenzene	ND	0.273	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,3-Dichlorobenzene	ND	0.346	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,4-Dichlorobenzene	ND	0.351	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Dichlorodifluoromethane	ND	1.09	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1-Dichloroethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1-Dichloroethene	ND	0.307	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2-Dichloropropane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,3-Dichloropropane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
2,2-Dichloropropane	ND	0.237	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1-Dichloropropene	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Hexachlorobutadiene	ND	0.427	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
2-Hexanone	ND	0.467	9.37		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Isopropylbenzene	ND	0.236	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
4-Isopropyltoluene	ND	0.351	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
4-Methyl-2-pentanone	ND	3.75	9.37		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Methylene chloride	ND	1.87	2.81		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
n-Butylbenzene	ND	0.456	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
n-Propylbenzene	ND	0.335	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
sec-Butylbenzene	ND	0.333	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Styrene	ND	0.239	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
tert-Butylbenzene	ND	0.274	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Tetrachloroethene (PCE)	ND	0.246	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468

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Lab ID: 1605943-002
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Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.189	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
trans-1,3-Dichloropropene	ND	0.227	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.453	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.568	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1,1-Trichloroethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,1,2-Trichloroethane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Trichloroethene (TCE)	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Trichlorofluoromethane	ND	0.235	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
1,2,3-Trichloropropane	ND	1.87	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Vinyl chloride	ND	0.493	1.87		µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Xylenes, Total	0.937	0.747	1.87	J	µg/Kg-dry	1	5/25/2016 5:24:00 PM	25468
Surr: 1,2-Dichloroethane-d4	99.7	0	70-130		%Rec	1	5/25/2016 5:24:00 PM	25468
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/25/2016 5:24:00 PM	25468
Surr: Dibromofluoromethane	91.9	0	70-130		%Rec	1	5/25/2016 5:24:00 PM	25468
Surr: Toluene-d8	97.2	0	70-130		%Rec	1	5/25/2016 5:24:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.60	0.48	3.2	J	mg/Kg-dr	1	5/24/2016 1:05:04 PM	A34454
Surr: BFB	93.4	0	70-130		%Rec	1	5/24/2016 1:05:04 PM	A34454

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (20-22')
Project: SWMU 10
Collection Date: 5/18/2016 10:25:00 AM
Lab ID: 1605943-003 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	3.8	11		mg/Kg-dr	1	5/24/2016 1:06:24 PM	25449
Motor Oil Range Organics (MRO)	ND	53	53		mg/Kg-dr	1	5/24/2016 1:06:24 PM	25449
Surr: DNOP	120	0	70-130		%Rec	1	5/24/2016 1:06:24 PM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	12	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	ND	0.00063	0.037		mg/Kg-dr	1	5/26/2016 3:48:01 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	6.8	14		mg/Kg-dr	5	5/31/2016 10:12:55 AM	25508
Arsenic	3.3	0.83	2.9		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Barium	1000	0.28	0.57		mg/Kg-dr	5	5/31/2016 10:12:55 AM	25508
Beryllium	0.91	0.0053	0.17		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Cadmium	ND	0.072	0.11		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Chromium	12	0.14	0.34		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Cobalt	8.8	0.043	0.34		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Iron	18000	110	290		mg/Kg-dr	100	5/31/2016 10:11:24 AM	25508
Lead	2.6	0.20	0.29		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Manganese	1800	0.51	1.1		mg/Kg-dr	10	5/31/2016 11:01:26 AM	25508
Nickel	15	0.13	0.57		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Selenium	ND	1.2	2.9		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Silver	ND	0.036	0.29		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Vanadium	17	0.040	2.9		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
Zinc	27	0.65	2.9		mg/Kg-dr	1	5/26/2016 4:10:03 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.096	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Acenaphthylene	ND	0.091	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Aniline	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Anthracene	ND	0.074	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Azobenzene	ND	0.14	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benz(a)anthracene	ND	0.096	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzo(a)pyrene	ND	0.085	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzo(b)fluoranthene	ND	0.10	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzo(g,h,i)perylene	ND	0.099	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzo(k)fluoranthene	ND	0.099	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzoic acid	ND	0.093	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Benzyl alcohol	ND	0.088	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Bis(2-chloroethoxy)methane	ND	0.12	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469

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Lab ID: 1605943-003
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.082	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.10	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Bis(2-ethylhexyl)phthalate	0.12	0.091	0.56	J	mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Bromophenyl phenyl ether	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Butyl benzyl phthalate	ND	0.099	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Carbazole	ND	0.076	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Chloro-3-methylphenol	ND	0.13	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Chloroaniline	ND	0.12	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Chloronaphthalene	ND	0.088	0.28		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Chlorophenol	ND	0.088	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Chlorophenyl phenyl ether	ND	0.13	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Chrysene	ND	0.095	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Di-n-butyl phthalate	ND	0.084	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Di-n-octyl phthalate	ND	0.096	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Dibenz(a,h)anthracene	ND	0.091	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Dibenzofuran	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
1,2-Dichlorobenzene	ND	0.086	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
1,3-Dichlorobenzene	ND	0.087	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
1,4-Dichlorobenzene	ND	0.095	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
3,3´-Dichlorobenzidine	ND	0.083	0.28		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Diethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Dimethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4-Dichlorophenol	ND	0.10	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4-Dimethylphenol	ND	0.12	0.34		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.068	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4-Dinitrophenol	ND	0.074	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4-Dinitrotoluene	ND	0.10	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,6-Dinitrotoluene	ND	0.12	0.56		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Fluoranthene	ND	0.065	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Fluorene	ND	0.10	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Hexachlorobenzene	ND	0.088	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Hexachlorobutadiene	ND	0.13	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Hexachlorocyclopentadiene	ND	0.13	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Hexachloroethane	ND	0.096	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.087	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
1-Methylnaphthalene	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Methylnaphthalene	ND	0.13	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Methylphenol	ND	0.094	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
3+4-Methylphenol	ND	0.081	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469

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Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
N-Nitrosodiphenylamine	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Naphthalene	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Nitroaniline	ND	0.12	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
3-Nitroaniline	ND	0.099	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Nitroaniline	ND	0.079	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Nitrobenzene	ND	0.12	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2-Nitrophenol	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
4-Nitrophenol	ND	0.085	0.28		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Pentachlorophenol	ND	0.072	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Phenanthrene	ND	0.076	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Phenol	ND	0.084	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Pyrene	ND	0.085	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Pyridine	ND	0.089	0.45		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
1,2,4-Trichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4,5-Trichlorophenol	ND	0.11	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
2,4,6-Trichlorophenol	ND	0.093	0.22		mg/Kg-dr	1	5/26/2016 7:23:47 PM	25469
Surr: 2-Fluorophenol	50.2	0	28.3-102		%Rec	1	5/26/2016 7:23:47 PM	25469
Surr: Phenol-d5	54.9	0	35.7-103		%Rec	1	5/26/2016 7:23:47 PM	25469
Surr: 2,4,6-Tribromophenol	67.1	0	35.2-108		%Rec	1	5/26/2016 7:23:47 PM	25469
Surr: Nitrobenzene-d5	52.9		24-118		%Rec	1	5/26/2016 7:23:47 PM	25469
Surr: 2-Fluorobiphenyl	64.6		35.4-111		%Rec	1	5/26/2016 7:23:47 PM	25469
Surr: 4-Terphenyl-d14	51.3		15-91.7		%Rec	1	5/26/2016 7:23:47 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	8.48	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Toluene	6.22	0.212	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Ethylbenzene	1.32	0.236	1.75	J	µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.295	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2,4-Trimethylbenzene	1.03	0.297	1.75	J	µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,3,5-Trimethylbenzene	0.684	0.289	1.75	J	µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2-Dichloroethane (EDC)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2-Dibromoethane (EDB)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Naphthalene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1-Methylnaphthalene	0.219	0.199	3.51	J	µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
2-Methylnaphthalene	ND	0.462	3.51		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Acetone	6.34	0.519	8.77	J	µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Bromobenzene	ND	0.178	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Bromodichloromethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Bromoform	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.316	2.63		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
2-Butanone	ND	0.632	8.77		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Carbon disulfide	ND	0.649	8.77		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Carbon tetrachloride	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Chlorobenzene	ND	0.201	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Chloroethane	ND	0.324	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Chloroform	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Chloromethane	ND	0.444	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
2-Chlorotoluene	ND	0.298	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
4-Chlorotoluene	ND	0.292	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
cis-1,2-DCE	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
cis-1,3-Dichloropropene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.187	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Dibromochloromethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Dibromomethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2-Dichlorobenzene	ND	0.255	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,3-Dichlorobenzene	ND	0.324	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,4-Dichlorobenzene	ND	0.328	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Dichlorodifluoromethane	ND	1.02	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1-Dichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1-Dichloroethene	ND	0.287	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2-Dichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,3-Dichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
2,2-Dichloropropane	ND	0.221	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1-Dichloropropene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Hexachlorobutadiene	ND	0.400	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
2-Hexanone	ND	0.437	8.77		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Isopropylbenzene	ND	0.221	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
4-Isopropyltoluene	ND	0.329	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
4-Methyl-2-pentanone	ND	3.51	8.77		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Methylene chloride	ND	1.75	2.63		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
n-Butylbenzene	ND	0.427	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
n-Propylbenzene	ND	0.314	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
sec-Butylbenzene	ND	0.311	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Styrene	ND	0.224	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
tert-Butylbenzene	ND	0.256	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Tetrachloroethene (PCE)	ND	0.230	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21 (20-22')
Project: SWMU 10
Collection Date: 5/18/2016 10:25:00 AM
Lab ID: 1605943-003
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.177	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
trans-1,3-Dichloropropene	ND	0.212	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.424	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.532	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1,1-Trichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,1,2-Trichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Trichloroethene (TCE)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Trichlorofluoromethane	ND	0.220	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
1,2,3-Trichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Vinyl chloride	ND	0.461	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Xylenes, Total	3.85	0.699	1.75		µg/Kg-dry	1	5/25/2016 5:49:00 PM	25468
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	1	5/25/2016 5:49:00 PM	25468
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/25/2016 5:49:00 PM	25468
Surr: Dibromofluoromethane	92.3	0	70-130		%Rec	1	5/25/2016 5:49:00 PM	25468
Surr: Toluene-d8	96.1	0	70-130		%Rec	1	5/25/2016 5:49:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.76	0.54	3.6	J	mg/Kg-dr	1	5/24/2016 1:33:30 PM	A34454
Surr: BFB	101	0	70-130		%Rec	1	5/24/2016 1:33:30 PM	A34454

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 4:35:00 PM
Lab ID: 1605943-004 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	4.5	12		mg/Kg-dr	1	5/24/2016 1:28:09 PM	25449
Motor Oil Range Organics (MRO)	ND	62	62		mg/Kg-dr	1	5/24/2016 1:28:09 PM	25449
Surr: DNOP	109	0	70-130		%Rec	1	5/24/2016 1:28:09 PM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	19	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.044	0.00071	0.041		mg/Kg-dr	1	5/26/2016 3:49:49 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	7.3	15		mg/Kg-dr	5	5/31/2016 10:16:13 AM	25508
Arsenic	2.4	0.90	3.1	J	mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Barium	290	0.060	0.12		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Beryllium	0.89	0.0057	0.18		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Chromium	12	0.15	0.37		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Cobalt	4.9	0.047	0.37		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Iron	14000	60	150		mg/Kg-dr	50	5/31/2016 10:14:41 AM	25508
Lead	4.3	0.22	0.31		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Manganese	570	0.27	0.62		mg/Kg-dr	5	5/31/2016 10:16:13 AM	25508
Nickel	8.6	0.14	0.62		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Selenium	ND	1.3	3.1		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Silver	ND	0.039	0.31		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Vanadium	18	0.043	3.1		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
Zinc	20	0.70	3.1		mg/Kg-dr	1	5/26/2016 4:11:42 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Anthracene	ND	0.081	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzo(a)pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Benzyl alcohol	ND	0.096	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 4:35:00 PM
Lab ID: 1605943-004
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.090	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Bis(2-ethylhexyl)phthalate	0.19	0.10	0.61	J	mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Carbazole	ND	0.083	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Chloro-3-methylphenol	ND	0.15	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Chloronaphthalene	ND	0.097	0.31		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Chlorophenol	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Chrysene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Di-n-butyl phthalate	0.12	0.092	0.49	J	mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Dibenz(a,h)anthracene	ND	0.099	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Dibenzofuran	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
1,2-Dichlorobenzene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
1,3-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
3,3´-Dichlorobenzidine	ND	0.090	0.31		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Diethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.074	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4-Dinitrophenol	ND	0.081	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Fluoranthene	ND	0.071	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Hexachlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.096	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
1-Methylnaphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
3+4-Methylphenol	ND	0.089	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469

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Qualifiers:

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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 4:35:00 PM
Lab ID: 1605943-004
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
4-Nitrophenol	ND	0.093	0.31		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Pentachlorophenol	ND	0.079	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Phenanthrene	ND	0.083	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Phenol	ND	0.092	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Pyridine	ND	0.097	0.49		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 7:53:55 PM	25469
Surr: 2-Fluorophenol	62.9	0	28.3-102		%Rec	1	5/26/2016 7:53:55 PM	25469
Surr: Phenol-d5	64.7	0	35.7-103		%Rec	1	5/26/2016 7:53:55 PM	25469
Surr: 2,4,6-Tribromophenol	83.2	0	35.2-108		%Rec	1	5/26/2016 7:53:55 PM	25469
Surr: Nitrobenzene-d5	66.7		24-118		%Rec	1	5/26/2016 7:53:55 PM	25469
Surr: 2-Fluorobiphenyl	70.6		35.4-111		%Rec	1	5/26/2016 7:53:55 PM	25469
Surr: 4-Terphenyl-d14	95.9		15-91.7	S	%Rec	1	5/26/2016 7:53:55 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Toluene	1.18	0.201	1.67	J	µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Ethylbenzene	ND	0.224	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.280	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2,4-Trimethylbenzene	0.300	0.283	1.67	J	µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,3,5-Trimethylbenzene	ND	0.275	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2-Dichloroethane (EDC)	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2-Dibromoethane (EDB)	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Naphthalene	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1-Methylnaphthalene	ND	0.189	3.33		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
2-Methylnaphthalene	ND	0.439	3.33		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Acetone	11.7	0.493	8.34		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Bromobenzene	ND	0.170	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Bromodichloromethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Bromoform	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468

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Qualifiers:

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R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 4:35:00 PM
Lab ID: 1605943-004
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.300	2.50		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
2-Butanone	ND	0.601	8.34		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Carbon disulfide	ND	0.617	8.34		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Carbon tetrachloride	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Chlorobenzene	ND	0.191	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Chloroethane	ND	0.308	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Chloroform	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Chloromethane	ND	0.422	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
2-Chlorotoluene	ND	0.284	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
4-Chlorotoluene	ND	0.277	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
cis-1,2-DCE	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
cis-1,3-Dichloropropene	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.177	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Dibromochloromethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Dibromomethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2-Dichlorobenzene	ND	0.243	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,3-Dichlorobenzene	ND	0.308	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,4-Dichlorobenzene	ND	0.312	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Dichlorodifluoromethane	ND	0.973	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1-Dichloroethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1-Dichloroethene	ND	0.273	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2-Dichloropropane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,3-Dichloropropane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
2,2-Dichloropropane	ND	0.210	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1-Dichloropropene	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Hexachlorobutadiene	ND	0.380	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
2-Hexanone	ND	0.415	8.34		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Isopropylbenzene	ND	0.210	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
4-Isopropyltoluene	ND	0.313	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
4-Methyl-2-pentanone	ND	3.33	8.34		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Methylene chloride	ND	1.67	2.50		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
n-Butylbenzene	ND	0.406	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
n-Propylbenzene	ND	0.298	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
sec-Butylbenzene	ND	0.296	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Styrene	ND	0.213	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
tert-Butylbenzene	ND	0.244	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Tetrachloroethene (PCE)	ND	0.219	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (2-2.5')
Project: SWMU 10
Collection Date: 5/18/2016 4:35:00 PM
Lab ID: 1605943-004
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.168	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
trans-1,3-Dichloropropene	ND	0.202	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.403	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.506	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1,1-Trichloroethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,1,2-Trichloroethane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Trichloroethene (TCE)	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Trichlorofluoromethane	ND	0.209	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
1,2,3-Trichloropropane	ND	1.67	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Vinyl chloride	ND	0.439	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Xylenes, Total	ND	0.664	1.67		µg/Kg-dry	1	5/25/2016 6:14:00 PM	25468
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	5/25/2016 6:14:00 PM	25468
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/25/2016 6:14:00 PM	25468
Surr: Dibromofluoromethane	93.8	0	70-130		%Rec	1	5/25/2016 6:14:00 PM	25468
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	5/25/2016 6:14:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.60	0.49	3.2	J	mg/Kg-dr	1	5/24/2016 2:01:48 PM	A34454
Surr: BFB	97.6	0	70-130		%Rec	1	5/24/2016 2:01:48 PM	A34454

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (8-9')
Project: SWMU 10
Collection Date: 5/18/2016 4:50:00 PM
Lab ID: 1605943-005 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	4.1	11		mg/Kg-dr	1	5/24/2016 2:11:34 PM	25449
Motor Oil Range Organics (MRO)	ND	57	57		mg/Kg-dr	1	5/24/2016 2:11:34 PM	25449
Surr: DNOP	92.7	0	70-130		%Rec	1	5/24/2016 2:11:34 PM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	17	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	ND	0.00067	0.039		mg/Kg-dr	1	5/26/2016 3:51:37 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	2.9	6.1		mg/Kg-dr	2	5/31/2016 10:19:25 AM	25508
Arsenic	2.6	0.88	3.0	J	mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Barium	350	0.12	0.24		mg/Kg-dr	2	5/31/2016 10:19:25 AM	25508
Beryllium	0.97	0.0056	0.18		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Chromium	13	0.15	0.36		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Cobalt	7.8	0.046	0.36		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Iron	17000	120	300		mg/Kg-dr	100	5/31/2016 10:17:54 AM	25508
Lead	3.2	0.21	0.30		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Manganese	520	0.11	0.24		mg/Kg-dr	2	5/31/2016 10:19:25 AM	25508
Nickel	15	0.14	0.61		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Selenium	ND	1.3	3.0		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Silver	ND	0.038	0.30		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Vanadium	17	0.042	3.0		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
Zinc	23	0.69	3.0		mg/Kg-dr	1	5/26/2016 4:13:12 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Acenaphthylene	ND	0.097	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Anthracene	ND	0.079	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzo(a)pyrene	ND	0.091	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzoic acid	ND	0.099	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Benzyl alcohol	ND	0.094	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (8-9')
Project: SWMU 10
Collection Date: 5/18/2016 4:50:00 PM
Lab ID: 1605943-005 **Matrix:** SOIL **Received Date:** 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.088	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Bis(2-ethylhexyl)phthalate	0.17	0.098	0.60	J	mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Carbazole	ND	0.081	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Chloro-3-methylphenol	ND	0.14	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Chloroaniline	ND	0.13	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Chloronaphthalene	ND	0.094	0.30		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Chlorophenol	ND	0.094	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Di-n-butyl phthalate	0.11	0.089	0.48	J	mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Di-n-octyl phthalate	ND	0.10	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Dibenz(a,h)anthracene	ND	0.097	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
1,2-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
1,3-Dichlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
3,3´-Dichlorobenzidine	ND	0.088	0.30		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4-Dichlorophenol	ND	0.11	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.072	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4-Dinitrophenol	ND	0.079	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.60		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Fluoranthene	ND	0.069	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Hexachlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Methylphenol	ND	0.10	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
3+4-Methylphenol	ND	0.087	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (8-9')
Project: SWMU 10
Collection Date: 5/18/2016 4:50:00 PM
Lab ID: 1605943-005
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Nitroaniline	ND	0.084	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Nitrobenzene	ND	0.12	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
4-Nitrophenol	ND	0.091	0.30		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Pentachlorophenol	ND	0.077	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Phenanthrene	ND	0.081	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Phenol	ND	0.090	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Pyrene	ND	0.090	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Pyridine	ND	0.095	0.48		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
2,4,6-Trichlorophenol	ND	0.099	0.24		mg/Kg-dr	1	5/26/2016 8:23:56 PM	25469
Surr: 2-Fluorophenol	54.0	0	28.3-102		%Rec	1	5/26/2016 8:23:56 PM	25469
Surr: Phenol-d5	55.0	0	35.7-103		%Rec	1	5/26/2016 8:23:56 PM	25469
Surr: 2,4,6-Tribromophenol	68.4	0	35.2-108		%Rec	1	5/26/2016 8:23:56 PM	25469
Surr: Nitrobenzene-d5	61.5		24-118		%Rec	1	5/26/2016 8:23:56 PM	25469
Surr: 2-Fluorobiphenyl	67.3		35.4-111		%Rec	1	5/26/2016 8:23:56 PM	25469
Surr: 4-Terphenyl-d14	59.9		15-91.7		%Rec	1	5/26/2016 8:23:56 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	9.54	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Toluene	7.02	0.268	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Ethylbenzene	1.43	0.298	2.22	J	µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.373	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2,4-Trimethylbenzene	1.08	0.376	2.22	J	µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,3,5-Trimethylbenzene	0.677	0.366	2.22	J	µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2-Dichloroethane (EDC)	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2-Dibromoethane (EDB)	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Naphthalene	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1-Methylnaphthalene	ND	0.252	4.44		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
2-Methylnaphthalene	ND	0.584	4.44		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Acetone	2.93	0.657	11.1	J	µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Bromobenzene	ND	0.226	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Bromodichloromethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Bromoform	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468

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

Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (8-9')
Project: SWMU 10
Collection Date: 5/18/2016 4:50:00 PM
Lab ID: 1605943-005
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.400	3.33		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
2-Butanone	ND	0.800	11.1		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Carbon disulfide	ND	0.821	11.1		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Carbon tetrachloride	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Chlorobenzene	ND	0.255	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Chloroethane	ND	0.410	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Chloroform	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Chloromethane	ND	0.562	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
2-Chlorotoluene	ND	0.378	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
4-Chlorotoluene	ND	0.369	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
cis-1,2-DCE	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
cis-1,3-Dichloropropene	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.236	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Dibromochloromethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Dibromomethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2-Dichlorobenzene	ND	0.323	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,3-Dichlorobenzene	ND	0.410	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,4-Dichlorobenzene	ND	0.415	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Dichlorodifluoromethane	ND	1.30	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1-Dichloroethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1-Dichloroethene	ND	0.363	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2-Dichloropropane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,3-Dichloropropane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
2,2-Dichloropropane	ND	0.280	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1-Dichloropropene	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Hexachlorobutadiene	ND	0.506	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
2-Hexanone	ND	0.553	11.1		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Isopropylbenzene	ND	0.279	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
4-Isopropyltoluene	ND	0.416	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
4-Methyl-2-pentanone	ND	4.44	11.1		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Methylene chloride	ND	2.22	3.33		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
n-Butylbenzene	ND	0.540	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
n-Propylbenzene	ND	0.397	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
sec-Butylbenzene	ND	0.394	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Styrene	ND	0.284	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
tert-Butylbenzene	ND	0.324	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Tetrachloroethene (PCE)	ND	0.292	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-22 (8-9')
Project: SWMU 10
Collection Date: 5/18/2016 4:50:00 PM
Lab ID: 1605943-005
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.224	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
trans-1,3-Dichloropropene	ND	0.269	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.537	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.673	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1,1-Trichloroethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,1,2-Trichloroethane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Trichloroethene (TCE)	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Trichlorofluoromethane	ND	0.279	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
1,2,3-Trichloropropane	ND	2.22	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Vinyl chloride	ND	0.584	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Xylenes, Total	4.19	0.885	2.22		µg/Kg-dry	1	5/25/2016 6:39:00 PM	25468
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	5/25/2016 6:39:00 PM	25468
Surr: 4-Bromofluorobenzene	99.3	0	70-130		%Rec	1	5/25/2016 6:39:00 PM	25468
Surr: Dibromofluoromethane	90.9	0	70-130		%Rec	1	5/25/2016 6:39:00 PM	25468
Surr: Toluene-d8	96.4	0	70-130		%Rec	1	5/25/2016 6:39:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.73	0.52	3.4	J	mg/Kg-dr	1	5/24/2016 2:30:18 PM	A34454
Surr: BFB	97.7	0	70-130		%Rec	1	5/24/2016 2:30:18 PM	A34454

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: DUP01
Project: SWMU 10
Collection Date: 5/18/2016
Lab ID: 1605943-006
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	4.3	12		mg/Kg-dr	1	5/25/2016 9:22:37 AM	25449
Motor Oil Range Organics (MRO)	ND	60	60		mg/Kg-dr	1	5/25/2016 9:22:37 AM	25449
Surr: DNOP	106	0	70-130		%Rec	1	5/25/2016 9:22:37 AM	25449
PERCENT MOISTURE							Analyst: **BCN**	
Percent Moisture	19	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.018	0.00071	0.041	J	mg/Kg-dr	1	5/26/2016 3:53:25 PM	25509
EPA METHOD 6010B: SOIL METALS							Analyst: **MED**	
Antimony	ND	7.3	15		mg/Kg-dr	5	5/31/2016 10:28:43 AM	25508
Arsenic	2.2	0.90	3.1	J	mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Barium	730	0.30	0.62		mg/Kg-dr	5	5/31/2016 10:28:43 AM	25508
Beryllium	0.90	0.0057	0.18		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Chromium	9.8	0.15	0.37		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Cobalt	4.4	0.047	0.37		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Iron	14000	60	150		mg/Kg-dr	50	5/31/2016 10:21:09 AM	25508
Lead	4.6	0.22	0.31		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Manganese	510	0.27	0.62		mg/Kg-dr	5	5/31/2016 10:28:43 AM	25508
Nickel	8.0	0.14	0.62		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Selenium	ND	1.3	3.1		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Silver	ND	0.039	0.31		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Vanadium	19	0.043	3.1		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
Zinc	24	0.70	3.1		mg/Kg-dr	1	5/26/2016 4:14:40 PM	25508
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Acenaphthylene	ND	0.099	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Anthracene	ND	0.081	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzo(a)pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Benzyl alcohol	ND	0.095	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: DUP01
Project: SWMU 10
Collection Date: 5/18/2016
Lab ID: 1605943-006
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Bis(2-chloroethyl)ether	ND	0.089	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Bis(2-ethylhexyl)phthalate	0.16	0.099	0.61	J	mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Bromophenyl phenyl ether	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Carbazole	ND	0.082	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Chloro-3-methylphenol	ND	0.14	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Chloronaphthalene	ND	0.096	0.30		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Chlorophenol	ND	0.096	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Di-n-butyl phthalate	ND	0.091	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Dibenz(a,h)anthracene	ND	0.098	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
1,2-Dichlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
1,3-Dichlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
3,3´-Dichlorobenzidine	ND	0.089	0.30		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.073	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4-Dinitrophenol	ND	0.080	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Fluoranthene	ND	0.070	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Hexachlorobenzene	ND	0.096	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Hexachlorobutadiene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.095	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
3+4-Methylphenol	ND	0.088	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: DUP01
Project: SWMU 10
Collection Date: 5/18/2016
Lab ID: 1605943-006
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Naphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
4-Nitrophenol	ND	0.092	0.30		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Pentachlorophenol	ND	0.078	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Phenanthrene	ND	0.082	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Phenol	ND	0.091	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Pyridine	ND	0.096	0.49		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
2,4,6-Trichlorophenol	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 8:54:00 PM	25469
Surr: 2-Fluorophenol	32.2	0	28.3-102		%Rec	1	5/26/2016 8:54:00 PM	25469
Surr: Phenol-d5	37.7	0	35.7-103		%Rec	1	5/26/2016 8:54:00 PM	25469
Surr: 2,4,6-Tribromophenol	61.5	0	35.2-108		%Rec	1	5/26/2016 8:54:00 PM	25469
Surr: Nitrobenzene-d5	36.4		24-118		%Rec	1	5/26/2016 8:54:00 PM	25469
Surr: 2-Fluorobiphenyl	45.6		35.4-111		%Rec	1	5/26/2016 8:54:00 PM	25469
Surr: 4-Terphenyl-d14	65.4		15-91.7		%Rec	1	5/26/2016 8:54:00 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Benzene	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Toluene	0.918	0.217	1.80	J	µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Ethylbenzene	ND	0.242	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Methyl tert-butyl ether (MTBE)	ND	0.302	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2,4-Trimethylbenzene	ND	0.305	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,3,5-Trimethylbenzene	ND	0.297	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2-Dichloroethane (EDC)	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2-Dibromoethane (EDB)	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Naphthalene	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1-Methylnaphthalene	ND	0.205	3.60		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
2-Methylnaphthalene	ND	0.474	3.60		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Acetone	8.23	0.533	9.00	J	µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Bromobenzene	ND	0.183	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Bromodichloromethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Bromoform	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: DUP01
Project: SWMU 10
Collection Date: 5/18/2016
Lab ID: 1605943-006
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
Bromomethane	ND	0.324	2.70		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
2-Butanone	ND	0.649	9.00		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Carbon disulfide	ND	0.666	9.00		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Carbon tetrachloride	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Chlorobenzene	ND	0.206	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Chloroethane	ND	0.332	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Chloroform	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Chloromethane	ND	0.456	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
2-Chlorotoluene	ND	0.306	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
4-Chlorotoluene	ND	0.299	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
cis-1,2-DCE	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
cis-1,3-Dichloropropene	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2-Dibromo-3-chloropropane	ND	0.192	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Dibromochloromethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Dibromomethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2-Dichlorobenzene	ND	0.262	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,3-Dichlorobenzene	ND	0.332	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,4-Dichlorobenzene	ND	0.337	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Dichlorodifluoromethane	ND	1.05	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1-Dichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1-Dichloroethene	ND	0.295	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2-Dichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,3-Dichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
2,2-Dichloropropane	ND	0.227	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1-Dichloropropene	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Hexachlorobutadiene	ND	0.410	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
2-Hexanone	ND	0.448	9.00		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Isopropylbenzene	ND	0.226	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
4-Isopropyltoluene	ND	0.338	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
4-Methyl-2-pentanone	ND	3.60	9.00		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Methylene chloride	ND	1.80	2.70		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
n-Butylbenzene	ND	0.438	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
n-Propylbenzene	ND	0.322	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
sec-Butylbenzene	ND	0.320	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Styrene	ND	0.230	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
tert-Butylbenzene	ND	0.263	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1,1,2-Tetrachloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1,2,2-Tetrachloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Tetrachloroethene (PCE)	ND	0.236	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: DUP01
Project: SWMU 10
Collection Date: 5/18/2016
Lab ID: 1605943-006
Matrix: SOIL
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: **BCN**	
trans-1,2-DCE	ND	0.182	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
trans-1,3-Dichloropropene	ND	0.218	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2,3-Trichlorobenzene	ND	0.435	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2,4-Trichlorobenzene	ND	0.546	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1,1-Trichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,1,2-Trichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Trichloroethene (TCE)	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Trichlorofluoromethane	ND	0.226	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
1,2,3-Trichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Vinyl chloride	ND	0.473	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Xylenes, Total	ND	0.717	1.80		µg/Kg-dry	1	5/25/2016 7:04:00 PM	25468
Surr: 1,2-Dichloroethane-d4	103	0	70-130		%Rec	1	5/25/2016 7:04:00 PM	25468
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/25/2016 7:04:00 PM	25468
Surr: Dibromofluoromethane	92.5	0	70-130		%Rec	1	5/25/2016 7:04:00 PM	25468
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	5/25/2016 7:04:00 PM	25468
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.70	0.51	3.4	J	mg/Kg-dr	1	5/24/2016 2:58:36 PM	A34454
Surr: BFB	99.9	0	70-130		%Rec	1	5/24/2016 2:58:36 PM	A34454

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: MeOH Blank
Project: SWMU 10
Collection Date:
Lab ID: 1605943-007
Matrix: MEOH BLAN
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.020	0.025		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Toluene	ND	0.0030	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Ethylbenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.016	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2,4-Trimethylbenzene	ND	0.0037	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,3,5-Trimethylbenzene	ND	0.0036	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2-Dichloroethane (EDC)	ND	0.013	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2-Dibromoethane (EDB)	ND	0.0036	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Naphthalene	0.023	0.0078	0.10	J	mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1-Methylnaphthalene	0.050	0.011	0.20	J	mg/Kg	1	5/24/2016 3:55:15 PM	C34454
2-Methylnaphthalene	0.060	0.011	0.20	J	mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Acetone	ND	0.065	0.75		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Bromobenzene	ND	0.0040	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Bromodichloromethane	ND	0.0029	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Bromoform	ND	0.0061	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Bromomethane	ND	0.018	0.15		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
2-Butanone	ND	0.029	0.50		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Carbon disulfide	ND	0.017	0.50		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Carbon tetrachloride	ND	0.0033	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Chlorobenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Chloroethane	ND	0.010	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Chloroform	ND	0.0038	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Chloromethane	ND	0.0044	0.15		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
2-Chlorotoluene	ND	0.0037	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
4-Chlorotoluene	ND	0.0044	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
cis-1,2-DCE	ND	0.0029	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
cis-1,3-Dichloropropene	ND	0.0046	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2-Dibromo-3-chloropropane	ND	0.015	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Dibromochloromethane	ND	0.0045	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Dibromomethane	ND	0.0043	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2-Dichlorobenzene	ND	0.0044	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,3-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,4-Dichlorobenzene	ND	0.0062	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Dichlorodifluoromethane	ND	0.015	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1-Dichloroethane	ND	0.0027	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1-Dichloroethene	ND	0.016	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2-Dichloropropane	ND	0.0042	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,3-Dichloropropane	ND	0.0057	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
2,2-Dichloropropane	ND	0.0029	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: MeOH Blank
Project: SWMU 10
Collection Date:
Lab ID: 1605943-007
Matrix: MEOH BLAN
Received Date: 5/19/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.0040	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Hexachlorobutadiene	ND	0.0061	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
2-Hexanone	ND	0.027	0.50		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Isopropylbenzene	ND	0.0043	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
4-Isopropyltoluene	ND	0.0045	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
4-Methyl-2-pentanone	ND	0.015	0.50		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Methylene chloride	0.016	0.014	0.15	J	mg/Kg	1	5/24/2016 3:55:15 PM	C34454
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
n-Propylbenzene	ND	0.0038	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
sec-Butylbenzene	ND	0.0069	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Styrene	ND	0.0045	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
tert-Butylbenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0048	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0081	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Tetrachloroethene (PCE)	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
trans-1,2-DCE	ND	0.014	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
trans-1,3-Dichloropropene	ND	0.0073	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2,3-Trichlorobenzene	ND	0.0075	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2,4-Trichlorobenzene	ND	0.0053	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1,1-Trichloroethane	ND	0.0031	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,1,2-Trichloroethane	ND	0.0059	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Trichloroethene (TCE)	ND	0.0054	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Trichlorofluoromethane	ND	0.0037	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
1,2,3-Trichloropropane	ND	0.0086	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Vinyl chloride	ND	0.0041	0.050		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Xylenes, Total	ND	0.0095	0.10		mg/Kg	1	5/24/2016 3:55:15 PM	C34454
Surr: Dibromofluoromethane	86.8		70-130		%Rec	1	5/24/2016 3:55:15 PM	C34454
Surr: 1,2-Dichloroethane-d4	78.8		70-130		%Rec	1	5/24/2016 3:55:15 PM	C34454
Surr: Toluene-d8	99.5		70-130		%Rec	1	5/24/2016 3:55:15 PM	C34454
Surr: 4-Bromofluorobenzene	104		70-130		%Rec	1	5/24/2016 3:55:15 PM	C34454

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Qualifiers:

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Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:13	WG874409

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	2.20		0.0390	0.250	1	05/31/2016 10:25	WG875385

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:13	WG874409

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0485	J	0.0390	0.250	1	05/31/2016 10:27	WG875385

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:15	WG874409

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0438	J	0.0390	0.250	1	06/02/2016 09:27	WG876669

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:16	WG874409

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0403	J	0.0390	0.250	1	06/02/2016 09:28	WG876669

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:16	WG874403

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	06/02/2016 09:29	WG876663

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	05/26/2016 19:17	WG874409

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	U		0.0390	0.250	1	06/02/2016 09:30	WG876669

Method Blank (MB)

(MB) R3140072-1 05/26/16 18:42

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Chromium,Hexavalent	U		0.640	2.00

L837120-10 Original Sample (OS) • Duplicate (DUP)

(OS) L837120-10 05/26/16 18:49 • (DUP) R3140072-4 05/26/16 18:49

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	U	ND	1	0.000		20

L837333-03 Original Sample (OS) • Duplicate (DUP)

(OS) L837333-03 05/26/16 19:15 • (DUP) R3140072-8 05/26/16 19:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Chromium,Hexavalent	U	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3140072-2 05/26/16 18:43 • (LCSD) R3140072-3 05/26/16 18:44

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Chromium,Hexavalent	56.9	60.0	62.8	105	110	80.0-120			5.00	20

L837120-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L837120-10 05/26/16 18:49 • (MS) R3140072-5 05/26/16 18:52 • (MSD) R3140072-6 05/26/16 18:53

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Chromium,Hexavalent	23.8	U	17.9	17.9	75.0	75.0	1	75.0-125			0.000	20

Method Blank (MB)

(MB) R3140567-4 05/31/16 10:11

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0390	0.250

L837333-01 Original Sample (OS) • Duplicate (DUP)

(OS) L837333-01 05/31/16 10:25 • (DUP) R3140567-7 05/31/16 10:26

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	2.20	2.52	1	13.0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3140567-5 05/31/16 10:12 • (LCSD) R3140567-6 05/31/16 10:13

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	48.4	66.4	59.4	137	123	50.0-150			11.0	20

Method Blank (MB)

(MB) R3141092-4 06/02/16 09:22

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0390	0.250

L837358-05 Original Sample (OS) • Duplicate (DUP)

(OS) L837358-05 06/02/16 09:36 • (DUP) R3141092-7 06/02/16 09:37

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Cyanide	0.104	ND	1	47.0	J P1	20

L837397-01 Original Sample (OS) • Duplicate (DUP)

(OS) L837397-01 06/02/16 09:58 • (DUP) R3141092-8 06/02/16 09:59

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Cyanide	ND	ND	10	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3141092-5 06/02/16 09:23 • (LCSD) R3141092-6 06/02/16 09:24

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	48.4	49.0	43.2	101	89.0	50.0-150			13.0	20

L837397-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L837397-03 06/02/16 10:01 • (MS) R3141092-9 06/02/16 10:02 • (MSD) R3141092-10 06/02/16 10:03

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	3.78	1.10	3.76	4.23	70.0	83.0	1	80.0-120	J6		12.0	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**LCS-25449**	SampType:	**LCS**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**LCSS**	Batch ID:	**25449**		RunNo:	**34433**				
Prep Date:	**5/23/2016**	Analysis Date:	**5/24/2016**		SeqNo:	**1061812**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	109	62.6	124			
Surr: DNOP	5.5		5.000		109	70	130			

Sample ID	**MB-25449**	SampType:	**MBLK**		TestCode:	**EPA Method 8015M/D: Diesel Range Organics**				
Client ID:	**PBS**	Batch ID:	**25449**		RunNo:	**34433**				
Prep Date:	**5/23/2016**	Analysis Date:	**5/24/2016**		SeqNo:	**1061813**	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	11		10.00		113	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **C34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **C34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		99.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.7	70	130			
Surr: Toluene-d8	0.49		0.5000		98.8	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		107	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **C34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062797** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	70	130			
Toluene	0.97	0.050	1.000	0	97.4	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.4	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**
28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **C34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062797** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.1	0.050	1.000	0	106	70	130			
Trichloroethene (TCE)	0.98	0.050	1.000	0	98.2	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.0	70	130			
Surr: Toluene-d8	0.49		0.5000		98.0	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		109	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **LCS-25468**	SampType: **LCS**	TestCode: **Method 8260B/5035LOW: VOLATILES**
Client ID: **LCSS**	Batch ID: **25468**	RunNo: **34484**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063539** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	10.2	2.00	10.00	0	102	70	130			
Toluene	11.1	2.00	10.00	0	111	70	130			
Chlorobenzene	11.1	2.00	10.00	0	111	70	130			
1,1-Dichloroethene	10.3	2.00	10.00	0	103	68	129			
Trichloroethene (TCE)	10.2	2.00	10.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.00		10.00		90.0	70	130			
Surr: 4-Bromofluorobenzene	10.0		10.00		100	70	130			
Surr: Dibromofluoromethane	8.76		10.00		87.6	70	130			
Surr: Toluene-d8	9.90		10.00		99.0	70	130			

Sample ID **LCSD-25468**	SampType: **LCS**	TestCode: **Method 8260B/5035LOW: VOLATILES**
Client ID: **LCSS**	Batch ID: **25468**	RunNo: **34484**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063540** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	10.3	2.00	10.00	0	103	70	130	1.08	0	
Toluene	11.2	2.00	10.00	0	112	70	130	0.629	0	
Chlorobenzene	11.3	2.00	10.00	0	113	70	130	1.96	0	
1,1-Dichloroethene	10.4	2.00	10.00	0	104	68	129	1.16	0	
Trichloroethene (TCE)	10.2	2.00	10.00	0	102	70	130	0.295	0	
Surr: 1,2-Dichloroethane-d4	8.93		10.00		89.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	10.1		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	8.72		10.00		87.2	70	130	0	0	
Surr: Toluene-d8	9.86		10.00		98.6	70	130	0	0	

Sample ID **MB-25468**	SampType: **MBLK**	TestCode: **Method 8260B/5035LOW: VOLATILES**
Client ID: **PBS**	Batch ID: **25468**	RunNo: **34484**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063541** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	2.00								
Toluene	ND	2.00								
Ethylbenzene	ND	2.00								
Methyl tert-butyl ether (MTBE)	ND	2.00								
1,2,4-Trimethylbenzene	ND	2.00								
1,3,5-Trimethylbenzene	ND	2.00								
1,2-Dichloroethane (EDC)	ND	2.00								
1,2-Dibromoethane (EDB)	ND	2.00								
Naphthalene	ND	2.00								
1-Methylnaphthalene	ND	4.00								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**
28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **MB-25468**	SampType: **MBLK**	TestCode: **Method 8260B/5035LOW: VOLATILES**
Client ID: **PBS**	Batch ID: **25468**	RunNo: **34484**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063541** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	4.00								
Acetone	ND	10.0								
Bromobenzene	ND	2.00								
Bromodichloromethane	ND	2.00								
Bromoform	ND	2.00								
Bromomethane	ND	3.00								
2-Butanone	ND	10.0								
Carbon disulfide	ND	10.0								
Carbon tetrachloride	ND	2.00								
Chlorobenzene	ND	2.00								
Chloroethane	ND	2.00								
Chloroform	ND	2.00								
Chloromethane	ND	2.00								
2-Chlorotoluene	ND	2.00								
4-Chlorotoluene	ND	2.00								
cis-1,2-DCE	ND	2.00								
cis-1,3-Dichloropropene	ND	2.00								
1,2-Dibromo-3-chloropropane	ND	2.00								
Dibromochloromethane	ND	2.00								
Dibromomethane	ND	2.00								
1,2-Dichlorobenzene	ND	2.00								
1,3-Dichlorobenzene	ND	2.00								
1,4-Dichlorobenzene	ND	2.00								
Dichlorodifluoromethane	ND	2.00								
1,1-Dichloroethane	ND	2.00								
1,1-Dichloroethene	ND	2.00								
1,2-Dichloropropane	ND	2.00								
1,3-Dichloropropane	ND	2.00								
2,2-Dichloropropane	ND	2.00								
1,1-Dichloropropene	ND	2.00								
Hexachlorobutadiene	ND	2.00								
2-Hexanone	ND	10.0								
Isopropylbenzene	ND	2.00								
4-Isopropyltoluene	ND	2.00								
4-Methyl-2-pentanone	ND	10.0								
Methylene chloride	ND	3.00								
n-Butylbenzene	ND	2.00								
n-Propylbenzene	ND	2.00								
sec-Butylbenzene	ND	2.00								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **MB-25468**	SampType: **MBLK**	TestCode: **Method 8260B/5035LOW: VOLATILES**
Client ID: **PBS**	Batch ID: **25468**	RunNo: **34484**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063541** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Styrene	ND	2.00								
tert-Butylbenzene	ND	2.00								
1,1,1,2-Tetrachloroethane	ND	2.00								
1,1,2,2-Tetrachloroethane	ND	2.00								
Tetrachloroethene (PCE)	ND	2.00								
trans-1,2-DCE	ND	2.00								
trans-1,3-Dichloropropene	ND	2.00								
1,2,3-Trichlorobenzene	ND	2.00								
1,2,4-Trichlorobenzene	ND	2.00								
1,1,1-Trichloroethane	ND	2.00								
1,1,2-Trichloroethane	ND	2.00								
Trichloroethene (TCE)	ND	2.00								
Trichlorofluoromethane	ND	2.00								
1,2,3-Trichloropropane	ND	2.00								
Vinyl chloride	ND	2.00								
Xylenes, Total	ND	2.00								
Surr: 1,2-Dichloroethane-d4	8.94		10.00		89.4	70	130			
Surr: 4-Bromofluorobenzene	10.0		10.00		100	70	130			
Surr: Dibromofluoromethane	8.80		10.00		88.0	70	130			
Surr: Toluene-d8	9.82		10.00		98.2	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **mb-25469**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **25469**	RunNo: **34461**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063511** 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	0.15	0.50								J
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	0.12	0.40								J
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	0.087	0.40								J
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **mb-25469**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **25469**	RunNo: **34461**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063511** 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								
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	2.0		3.330		60.1	28.3	102			
Surr: Phenol-d5	2.2		3.330		65.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.330		75.8	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.670		68.4	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		73.2	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		64.4	15	91.7			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **lcs-25469**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **25469**	RunNo: **34461**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063512** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.670	0	70.0	45.8	99.8			
4-Chloro-3-methylphenol	2.2	0.50	3.330	0	66.5	51.5	103			
2-Chlorophenol	1.8	0.20	3.330	0	54.1	46.5	105			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.3	45.5	103			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	66.9	36	87.2			
N-Nitrosodi-n-propylamine	0.80	0.20	1.670	0	48.1	47.3	104			
4-Nitrophenol	2.2	0.25	3.330	0	65.7	47.3	95.3			
Pentachlorophenol	1.9	0.40	3.330	0	56.6	38.7	89.3			
Phenol	1.8	0.20	3.330	0	54.5	47.8	106			
Pyrene	1.2	0.20	1.670	0	72.6	33.4	105			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.4	50.4	115			
Surr: 2-Fluorophenol	1.6		3.330		47.4	28.3	102			
Surr: Phenol-d5	1.9		3.330		56.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.3	35.2	108			
Surr: Nitrobenzene-d5	1.0		1.670		59.7	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		70.2	35.4	111			
Surr: 4-Terphenyl-d14	0.74		1.670		44.5	15	91.7			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**MB-25509**	SampType: **MBLK**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **25509**			RunNo: **34523**					
Prep Date:	**5/25/2016**	Analysis Date: **5/26/2016**			SeqNo: **1064862**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-25509**	SampType: **LCS**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **25509**			RunNo: **34523**					
Prep Date:	**5/25/2016**	Analysis Date: **5/26/2016**			SeqNo: **1064863**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.8	80	120			

Sample ID	**1605943-001BMS**	SampType: **MS**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**SWMU 10-21 (2-2.5')**	Batch ID: **25509**			RunNo: **34523**					
Prep Date:	**5/25/2016**	Analysis Date: **5/26/2016**			SeqNo: **1064865**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.23	0.036	0.1803	0.05558	98.8	75	125			

Sample ID	**1605943-001BMSD**	SampType: **MSD**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**SWMU 10-21 (2-2.5')**	Batch ID: **25509**			RunNo: **34523**					
Prep Date:	**5/25/2016**	Analysis Date: **5/26/2016**			SeqNo: **1064866**		Units: **mg/Kg-dry**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.23	0.036	0.1817	0.05558	93.9	75	125	3.25	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**MB-25508**	SampType:	**MBLK**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**PBS**	Batch ID:	**25508**	RunNo:	**34511**
Prep Date:	**5/25/2016**	Analysis Date:	**5/26/2016**	SeqNo:	**1064307** 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	1.7	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-25508**	SampType:	**LCS**	TestCode:	**EPA Method 6010B: Soil Metals**
Client ID:	**LCSS**	Batch ID:	**25508**	RunNo:	**34511**
Prep Date:	**5/25/2016**	Analysis Date:	**5/26/2016**	SeqNo:	**1064308** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	25	2.5	25.00	0	99.8	80	120			
Arsenic	26	2.5	25.00	0	104	80	120			
Barium	25	0.10	25.00	0	99.1	80	120			
Beryllium	26	0.15	25.00	0	103	80	120			
Cadmium	25	0.10	25.00	0	101	80	120			
Chromium	25	0.30	25.00	0	100	80	120			
Cobalt	24	0.30	25.00	0	95.6	80	120			
Iron	26	2.5	25.00	0	105	80	120			
Lead	25	0.25	25.00	0	98.3	80	120			
Manganese	25	0.10	25.00	0	99.6	80	120			
Nickel	25	0.50	25.00	0	99.1	80	120			
Selenium	25	2.5	25.00	0	99.6	80	120			
Silver	5.0	0.25	5.000	0	101	80	120			
Vanadium	26	2.5	25.00	0	103	80	120			
Zinc	25	2.5	25.00	0	99.1	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **1605943-001BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **25508**	RunNo: **34511**
Prep Date: **5/25/2016**	Analysis Date: **5/26/2016**	SeqNo: **1064368** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	28	2.7	27.29	3.337	90.8	75	125			
Beryllium	25	0.16	27.29	0.7180	89.7	75	125			
Cadmium	24	0.11	27.29	0	88.8	75	125			
Chromium	35	0.33	27.29	9.159	95.8	75	125			
Cobalt	25	0.33	27.29	3.682	76.6	75	125			
Silver	4.8	0.27	5.459	0	88.0	75	125			
Vanadium	47	2.7	27.29	16.05	112	75	125			
Zinc	50	2.7	27.29	16.14	123	75	125			

Sample ID **1605943-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **25508**	RunNo: **34511**
Prep Date: **5/25/2016**	Analysis Date: **5/26/2016**	SeqNo: **1064369** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	29	2.7	26.83	3.337	96.3	75	125	3.65	20	
Beryllium	24	0.16	26.83	0.7180	88.6	75	125	2.80	20	
Cadmium	24	0.11	26.83	0	91.2	75	125	1.00	20	
Chromium	30	0.32	26.83	9.159	76.9	75	125	16.9	20	
Cobalt	23	0.32	26.83	3.682	72.4	75	125	6.20	20	S
Silver	4.8	0.27	5.367	0	89.2	75	125	0.310	20	
Vanadium	40	2.7	26.83	16.05	88.1	75	125	15.8	20	
Zinc	35	2.7	26.83	16.14	70.7	75	125	34.4	20	RS

Sample ID **1605943-001BMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **25508**	RunNo: **34558**
Prep Date: **5/25/2016**	Analysis Date: **5/31/2016**	SeqNo: **1065752** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	8.7	2.7	27.29	0	31.9	75	125			S
Lead	23	0.27	27.29	2.127	74.7	75	125			S
Nickel	27	0.55	27.29	6.041	78.0	75	125			
Selenium	21	2.7	27.29	0	75.9	75	125			

Sample ID **1605943-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **25508**	RunNo: **34558**
Prep Date: **5/25/2016**	Analysis Date: **5/31/2016**	SeqNo: **1065753** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	4.5	2.7	26.83	0	16.9	75	125	63.2	20	RS
Lead	21	0.27	26.83	2.127	71.1	75	125	5.99	20	S

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**
28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**1605943-001BMSD**	SampType: **MSD**		TestCode: **EPA Method 6010B: Soil Metals**						
Client ID:	**SWMU 10-21 (2-2.5')**	Batch ID: **25508**		RunNo: **34558**						
Prep Date:	**5/25/2016**	Analysis Date: **5/31/2016**		SeqNo: **1065753**		Units: **mg/Kg-dry**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	25	0.54	26.83	6.041	71.1	75	125	8.39	20	S
Selenium	19	2.7	26.83	0	69.3	75	125	10.9	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605943**

28-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **A34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062581** 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	510		500.0		101	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062582** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	62.9	123			
Surr: BFB	500		500.0		99.4	70	130			

Sample ID **1605943-001bms**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **A34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062584** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.1	20.41	1.968	106	52.3	132			
Surr: BFB	410		408.2		101	70	130			

Sample ID **1605943-001bmsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **SWMU 10-21 (2-2.5')**	Batch ID: **A34454**	RunNo: **34454**
Prep Date:	Analysis Date: **5/24/2016**	SeqNo: **1062585** Units: **mg/Kg-dry**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.1	20.41	1.968	99.4	52.3	132	6.01	20	
Surr: BFB	390		408.2		96.6	70	130	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1605943 RcptNo: 1

Received by/date: AG 05/19/16

Logged By: **Lindsay Mangin** 5/19/2016 4:30:00 PM

Completed By: **Lindsay Mangin** 5/20/2016 8:48:48 AM

Reviewed By: 05/23/16

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0217
email or Fax#: ED.RIEGE@WNR.COM
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: SWMU 10
Project #:
Project Manager: ED RIEGE
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1605943	BTEX + MTBE + TMB's (8021)	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,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals & Cyanide (See attached list)			Air Bubbles (Y or N)
5-18-16	0905	SOIL	SWMU 10-21 (2-2.5')	JARS-3	NEAT	-001			✓							✓	✓	✓			
				VIALS-2	MeOH	-001										✓					
				VIALS-2	SOBI	-001										✓					
	0915		SWMU 10-21 (12-14')	JARS-3	NEAT	-002			✓							✓	✓	✓			
				VIALS-2	MeOH	-002										✓					
				VIALS-2	SOBI	-002										✓					
	1025		SWMU 10-21 (20-22')	JARS-3	NEAT	-003			✓							✓	✓	✓			
				VIALS-2	MeOH	-003										✓					
				VIALS-2	SOBI	-003										✓					
	1635		SWMU 10-22 (2-2.5')	JARS-3	NEAT	-004			✓							✓	✓	✓			
				VIALS-2	MeOH	-004										✓					
				VIALS-2	SOBI	-004										✓					

Date	Time	Relinquished by:	Received by:	Date	Time
5.19.16	0715			5/19/16	1230
5/19/16	1430			05/19/16	1630

Remarks: PLEASE INCLUDE J FLAGS AND MDL

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

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY
Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
Phone #: 505-722-0217
email or Fax#: ED.RIEGE@WNR.COM
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: SWMU 10
Project #:
Project Manager: ED RIEGE
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1605143	BTEX + MTBE + TMB's (8021)	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,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	METALS & CYANIDE (SEE ATTACHED LIST)				Air Bubbles (Y or N)
5.18.16	1650	SOIL	SWMU 10-22(8-9')	JARS-3	NEAT	-005			✓							✓	✓	✓				
	↓		↓	VIALS-2	MeOH	-005										✓						
	↓		↓	VIALS-2	SOIL	-005										✓						
	—		DUP01	JARS-3	NEAT	-006										✓	✓	✓				
	↓		↓	VIALS-2	MeOH	-006										✓						
	↓	↓	↓	VIALS-2	SOIL	-006										✓						
↓	—	MeOH	MeOH BLANK	VIALS-2	MeOH	-007										✓						

Date	Time	Relinquished by:	Received by:	Date	Time
5.19.16	0715			5/19/16	1230
5/19/16	430			05/19/16	1630

Remarks: PLEASE INCLUDE J FLAGS AND MDL

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - SWMU 10

METALS AND CYANIDE ANALYSES FOR SOIL SAMPLES

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 30, 2016

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

RE: SWMU 10 OrderNo.: 1605998

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/20/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: **TOM**	
Diesel Range Organics (DRO)	440	6.9	10		mg/L	10	5/26/2016 3:40:44 PM	25494
Motor Oil Range Organics (MRO)	ND	50	50		mg/L	10	5/26/2016 3:40:44 PM	25494
Surr: DNOP	0	0	70-141	S	%Rec	10	5/26/2016 3:40:44 PM	25494
EPA METHOD 300.0: ANIONS							Analyst: **LGT**	
Fluoride	ND	0.11	0.50		mg/L	5	5/23/2016 5:26:04 PM	R34434
Chloride	1600	2.7	50		mg/L	100	5/25/2016 3:02:36 PM	R34487
Sulfate	260	1.3	10		mg/L	20	5/23/2016 5:38:29 PM	R34434
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **ELS**	
Barium	0.11	0.0013	0.0020		mg/L	1	5/25/2016 1:47:55 PM	C34463
Beryllium	ND	0.00031	0.0020		mg/L	1	5/25/2016 1:47:55 PM	C34463
Cadmium	ND	0.00075	0.0020		mg/L	1	5/25/2016 1:47:55 PM	C34463
Chromium	ND	0.0018	0.0060		mg/L	1	5/25/2016 1:47:55 PM	C34463
Cobalt	0.0074	0.00074	0.0060		mg/L	1	5/25/2016 1:47:55 PM	C34463
Iron	0.42	0.0091	0.020	*	mg/L	1	5/25/2016 1:47:55 PM	C34463
Manganese	1.2	0.0016	0.010	*	mg/L	5	5/25/2016 1:49:50 PM	C34463
Nickel	0.019	0.0024	0.010		mg/L	1	5/25/2016 1:47:55 PM	C34463
Silver	ND	0.0028	0.0050		mg/L	1	5/25/2016 1:47:55 PM	C34463
Vanadium	0.010	0.0013	0.050	J	mg/L	1	5/25/2016 1:47:55 PM	C34463
Zinc	0.046	0.0028	0.010		mg/L	1	5/25/2016 1:47:55 PM	C34463
EPA METHOD 200.7: METALS							Analyst: **ELS**	
Barium	0.26	0.0013	0.0020		mg/L	1	5/25/2016 11:04:43 AM	25486
Beryllium	0.0011	0.00031	0.0020	J	mg/L	1	5/25/2016 11:04:43 AM	25486
Cadmium	ND	0.00075	0.0020		mg/L	1	5/25/2016 11:04:43 AM	25486
Chromium	0.030	0.0022	0.0060		mg/L	1	5/25/2016 11:04:43 AM	25486
Cobalt	0.011	0.00085	0.0060		mg/L	1	5/25/2016 11:04:43 AM	25486
Iron	7.1	0.091	0.20	*	mg/L	10	6/1/2016 6:14:15 PM	25486
Manganese	1.4	0.015	0.020	*	mg/L	10	5/27/2016 12:19:04 PM	25486
Nickel	0.026	0.0024	0.010		mg/L	1	5/25/2016 11:04:43 AM	25486
Silver	ND	0.0028	0.0050		mg/L	1	5/25/2016 11:04:43 AM	25486
Vanadium	0.024	0.0015	0.050	J	mg/L	1	5/25/2016 11:04:43 AM	25486
Zinc	0.043	0.0039	0.010		mg/L	1	5/25/2016 11:04:43 AM	25486
EPA 200.8: DISSOLVED METALS							Analyst: **DBD**	
Antimony	ND	0.0024	0.0050		mg/L	5	5/23/2016 5:07:26 PM	C34426
Arsenic	ND	0.050	0.050		mg/L	50	5/23/2016 6:56:47 PM	C34426
Lead	ND	0.00084	0.0025		mg/L	5	5/23/2016 5:07:26 PM	C34426
Selenium	0.038	0.011	0.050	J	mg/L	50	5/23/2016 6:56:47 PM	C34426
EPA 200.8: METALS							Analyst: **DBD**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001 **Matrix:** AQUEOUS **Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: **DBD**	
Antimony	ND	0.0024	0.0050		mg/L	5	5/25/2016 2:30:09 PM	25486
Arsenic	0.026	0.0029	0.010	*	mg/L	10	5/25/2016 3:11:35 PM	25486
Lead	0.011	0.00084	0.0025		mg/L	5	5/25/2016 2:30:09 PM	25486
Selenium	0.040	0.0021	0.010		mg/L	10	5/25/2016 3:11:35 PM	25486
EPA METHOD 245.1: MERCURY							Analyst: **pmf**	
Mercury	0.00016	0.000053	0.00020	J	mg/L	1	5/26/2016 6:31:07 PM	25512
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Acenaphthylene	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Aniline	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Anthracene	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Azobenzene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benz(a)anthracene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzo(a)pyrene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzo(b)fluoranthene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzo(g,h,i)perylene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzo(k)fluoranthene	ND	150	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzoic acid	ND	130	1000	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Benzyl alcohol	ND	150	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Bis(2-chloroethoxy)methane	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Bis(2-chloroethyl)ether	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Bis(2-chloroisopropyl)ether	ND	95	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Bis(2-ethylhexyl)phthalate	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Bromophenyl phenyl ether	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Butyl benzyl phthalate	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Carbazole	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Chloro-3-methylphenol	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Chloroaniline	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Chloronaphthalene	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Chlorophenol	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Chlorophenyl phenyl ether	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Chrysene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Di-n-butyl phthalate	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Di-n-octyl phthalate	ND	99	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Dibenz(a,h)anthracene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Dibenzofuran	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
1,2-Dichlorobenzene	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
1,3-Dichlorobenzene	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001 **Matrix:** AQUEOUS **Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
1,4-Dichlorobenzene	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
3,3´-Dichlorobenzidine	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Diethyl phthalate	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Dimethyl phthalate	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,4-Dichlorophenol	ND	120	1000	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,4-Dimethylphenol	62000	1500	5000		µg/L	100	5/25/2016 11:48:15 AM	25437
4,6-Dinitro-2-methylphenol	ND	90	1000	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,4-Dinitrophenol	ND	140	1000	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,4-Dinitrotoluene	ND	160	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,6-Dinitrotoluene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Fluoranthene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Fluorene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Hexachlorobenzene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Hexachlorobutadiene	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Hexachlorocyclopentadiene	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Hexachloroethane	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Indeno(1,2,3-cd)pyrene	ND	150	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Isophorone	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
1-Methylnaphthalene	170	150	500	JD	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Methylnaphthalene	240	140	500	JD	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Methylphenol	130000	2500	10000		µg/L	200	5/25/2016 11:18:11 AM	25437
3+4-Methylphenol	190000	2300	10000		µg/L	200	5/25/2016 11:18:11 AM	25437
N-Nitrosodi-n-propylamine	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
N-Nitrosodimethylamine	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
N-Nitrosodiphenylamine	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Naphthalene	240	130	500	JD	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Nitroaniline	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
3-Nitroaniline	ND	150	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Nitroaniline	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Nitrobenzene	ND	140	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2-Nitrophenol	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
4-Nitrophenol	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Pentachlorophenol	ND	120	1000	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Phenanthrene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Phenol	89000	990	5000		µg/L	100	5/25/2016 11:48:15 AM	25437
Pyrene	ND	150	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Pyridine	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
1,2,4-Trichlorobenzene	ND	130	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
2,4,5-Trichlorophenol	ND	110	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4,6-Trichlorophenol	ND	120	500	D	µg/L	10	5/24/2016 4:35:11 PM	25437
Surr: 2-Fluorophenol	67.7	0	15-123	D	%Rec	10	5/24/2016 4:35:11 PM	25437
Surr: Phenol-d5	42.0	0	4.13-124	D	%Rec	10	5/24/2016 4:35:11 PM	25437
Surr: 2,4,6-Tribromophenol	92.8	0	18.4-134	D	%Rec	10	5/24/2016 4:35:11 PM	25437
Surr: Nitrobenzene-d5	107	0	28.8-134	D	%Rec	10	5/24/2016 4:35:11 PM	25437
Surr: 2-Fluorobiphenyl	96.4	0	35.9-125	D	%Rec	10	5/24/2016 4:35:11 PM	25437
Surr: 4-Terphenyl-d14	76.6	0	15-146	D	%Rec	10	5/24/2016 4:35:11 PM	25437
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	1600	9.6	100		µg/L	100	5/26/2016 4:43:13 PM	A34513
Toluene	4000	12	100		µg/L	100	5/26/2016 4:43:13 PM	A34513
Ethylbenzene	290	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Methyl tert-butyl ether (MTBE)	3.8	2.1	10	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2,4-Trimethylbenzene	220	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,3,5-Trimethylbenzene	64	1.2	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2-Dichloroethane (EDC)	ND	1.2	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2-Dibromoethane (EDB)	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Naphthalene	310	0.93	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
1-Methylnaphthalene	140	2.0	40		µg/L	10	5/26/2016 12:37:51 PM	A34513
2-Methylnaphthalene	210	1.6	40		µg/L	10	5/26/2016 12:37:51 PM	A34513
Acetone	1400	49	100		µg/L	10	5/26/2016 12:37:51 PM	A34513
Bromobenzene	ND	0.98	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Bromodichloromethane	ND	1.4	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Bromoform	ND	1.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Bromomethane	ND	7.8	30		µg/L	10	5/26/2016 12:37:51 PM	A34513
2-Butanone	630	7.4	100		µg/L	10	5/26/2016 12:37:51 PM	A34513
Carbon disulfide	ND	6.0	100		µg/L	10	5/26/2016 12:37:51 PM	A34513
Carbon Tetrachloride	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Chlorobenzene	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Chloroethane	ND	1.9	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
Chloroform	ND	0.89	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Chloromethane	ND	2.1	30		µg/L	10	5/26/2016 12:37:51 PM	A34513
2-Chlorotoluene	ND	4.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
4-Chlorotoluene	ND	1.3	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
cis-1,2-DCE	ND	1.2	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
cis-1,3-Dichloropropene	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2-Dibromo-3-chloropropane	ND	2.3	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
Dibromochloromethane	ND	0.87	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Dibromomethane	ND	1.2	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2-Dichlorobenzene	ND	4.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001 **Matrix:** AQUEOUS **Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,3-Dichlorobenzene	ND	1.4	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,4-Dichlorobenzene	ND	1.4	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Dichlorodifluoromethane	ND	3.6	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1-Dichloroethane	6.1	1.1	10	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1-Dichloroethene	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2-Dichloropropane	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,3-Dichloropropane	ND	1.6	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
2,2-Dichloropropane	ND	1.7	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1-Dichloropropene	ND	1.3	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Hexachlorobutadiene	ND	2.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
2-Hexanone	69	8.4	100	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
Isopropylbenzene	20	1.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
4-Isopropyltoluene	2.5	1.4	10	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
4-Methyl-2-pentanone	63	4.3	100	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
Methylene Chloride	3.4	1.9	30	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
n-Butylbenzene	4.0	1.6	30	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
n-Propylbenzene	30	1.3	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
sec-Butylbenzene	1.7	1.2	10	J	µg/L	10	5/26/2016 12:37:51 PM	A34513
Styrene	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
tert-Butylbenzene	ND	1.2	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1,1,2-Tetrachloroethane	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1,2,2-Tetrachloroethane	ND	1.3	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
Tetrachloroethene (PCE)	ND	1.5	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
trans-1,2-DCE	ND	4.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
trans-1,3-Dichloropropene	ND	1.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2,3-Trichlorobenzene	ND	1.1	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2,4-Trichlorobenzene	ND	1.3	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1,1-Trichloroethane	ND	0.91	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,1,2-Trichloroethane	ND	1.3	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Trichloroethene (TCE)	ND	1.8	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Trichlorofluoromethane	ND	2.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
1,2,3-Trichloropropane	ND	2.0	20		µg/L	10	5/26/2016 12:37:51 PM	A34513
Vinyl chloride	ND	2.0	10		µg/L	10	5/26/2016 12:37:51 PM	A34513
Xylenes, Total	1900	3.7	15		µg/L	10	5/26/2016 12:37:51 PM	A34513
Surr: 1,2-Dichloroethane-d4	96.2	0	70-130		%Rec	10	5/26/2016 12:37:51 PM	A34513
Surr: 4-Bromofluorobenzene	109	0	70-130		%Rec	10	5/26/2016 12:37:51 PM	A34513
Surr: Dibromofluoromethane	100	0	70-130		%Rec	10	5/26/2016 12:37:51 PM	A34513
Surr: Toluene-d8	102	0	70-130		%Rec	10	5/26/2016 12:37:51 PM	A34513
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-20-GW
Project: SWMU 10
Collection Date: 5/20/2016 10:45:00 AM
Lab ID: 1605998-001 **Matrix:** AQUEOUS **Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	25	0.15	0.50		mg/L	10	5/26/2016 12:37:51 PM	C34513
Surr: BFB	101	0	70-130		%Rec	10	5/26/2016 12:37:51 PM	C34513

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: Trip Blank
Project: SWMU 10
Collection Date:
Lab ID: 1605998-002
Matrix: TRIP BLANK
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.096	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Toluene	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Naphthalene	ND	0.093	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1-Methylnaphthalene	1.1	0.20	4.0	J	µg/L	1	5/26/2016 2:09:48 PM	A34513
2-Methylnaphthalene	1.3	0.16	4.0	J	µg/L	1	5/26/2016 2:09:48 PM	A34513
Acetone	ND	4.9	10		µg/L	1	5/26/2016 2:09:48 PM	A34513
Bromobenzene	ND	0.098	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Bromodichloromethane	ND	0.14	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Bromoform	ND	0.10	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Bromomethane	ND	0.78	3.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
2-Butanone	ND	0.74	10		µg/L	1	5/26/2016 2:09:48 PM	A34513
Carbon disulfide	ND	0.60	10		µg/L	1	5/26/2016 2:09:48 PM	A34513
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Chlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Chloroethane	ND	0.19	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Chloroform	ND	0.089	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Chloromethane	ND	0.21	3.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Dibromochloromethane	ND	0.087	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Dibromomethane	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: Trip Blank
Project: SWMU 10
Collection Date:
Lab ID: 1605998-002
Matrix: TRIP BLANK
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
2-Hexanone	ND	0.84	10		µg/L	1	5/26/2016 2:09:48 PM	A34513
Isopropylbenzene	ND	0.10	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	5/26/2016 2:09:48 PM	A34513
Methylene Chloride	0.33	0.19	3.0	J	µg/L	1	5/26/2016 2:09:48 PM	A34513
n-Butylbenzene	ND	0.16	3.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
n-Propylbenzene	ND	0.13	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Styrene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/26/2016 2:09:48 PM	A34513
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/26/2016 2:09:48 PM	A34513
Surr: 1,2-Dichloroethane-d4	94.9	0	70-130		%Rec	1	5/26/2016 2:09:48 PM	A34513
Surr: 4-Bromofluorobenzene	111	0	70-130		%Rec	1	5/26/2016 2:09:48 PM	A34513
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	5/26/2016 2:09:48 PM	A34513
Surr: Toluene-d8	103	0	70-130		%Rec	1	5/26/2016 2:09:48 PM	A34513

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21-GW
Project: SWMU 10
Collection Date: 5/20/2016 9:36:00 AM
Lab ID: 1605998-003
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Acenaphthylene	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Aniline	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Anthracene	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Azobenzene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benz(a)anthracene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzo(a)pyrene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzo(b)fluoranthene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzo(g,h,i)perylene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzo(k)fluoranthene	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzoic acid	ND	13	100	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Benzyl alcohol	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Bis(2-chloroethoxy)methane	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Bis(2-chloroethyl)ether	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Bis(2-chloroisopropyl)ether	ND	9.5	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Bis(2-ethylhexyl)phthalate	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Bromophenyl phenyl ether	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Butyl benzyl phthalate	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Carbazole	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Chloro-3-methylphenol	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Chloroaniline	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Chloronaphthalene	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Chlorophenol	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Chlorophenyl phenyl ether	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Chrysene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Di-n-butyl phthalate	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Di-n-octyl phthalate	ND	9.9	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Dibenz(a,h)anthracene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Dibenzofuran	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
1,2-Dichlorobenzene	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
1,3-Dichlorobenzene	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
1,4-Dichlorobenzene	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
3,3´-Dichlorobenzidine	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Diethyl phthalate	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Dimethyl phthalate	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,4-Dichlorophenol	ND	12	100	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,4-Dimethylphenol	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4,6-Dinitro-2-methylphenol	ND	9.0	100	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,4-Dinitrophenol	ND	14	100	D	µg/L	1	5/24/2016 4:04:33 PM	25437

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21-GW
Project: SWMU 10
Collection Date: 5/20/2016 9:36:00 AM
Lab ID: 1605998-003
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
2,4-Dinitrotoluene	ND	16	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,6-Dinitrotoluene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Fluoranthene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Fluorene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Hexachlorobenzene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Hexachlorobutadiene	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Hexachlorocyclopentadiene	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Hexachloroethane	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Indeno(1,2,3-cd)pyrene	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Isophorone	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
1-Methylnaphthalene	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Methylnaphthalene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Methylphenol	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
3+4-Methylphenol	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
N-Nitrosodi-n-propylamine	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
N-Nitrosodimethylamine	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
N-Nitrosodiphenylamine	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Naphthalene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Nitroaniline	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
3-Nitroaniline	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Nitroaniline	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Nitrobenzene	ND	14	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2-Nitrophenol	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
4-Nitrophenol	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Pentachlorophenol	ND	12	100	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Phenanthrene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Phenol	ND	9.9	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Pyrene	ND	15	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Pyridine	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
1,2,4-Trichlorobenzene	ND	13	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,4,5-Trichlorophenol	ND	11	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
2,4,6-Trichlorophenol	ND	12	50	D	µg/L	1	5/24/2016 4:04:33 PM	25437
Surr: 2-Fluorophenol	55.1	0	15-123	D	%Rec	1	5/24/2016 4:04:33 PM	25437
Surr: Phenol-d5	41.1	0	4.13-124	D	%Rec	1	5/24/2016 4:04:33 PM	25437
Surr: 2,4,6-Tribromophenol	70.0	0	18.4-134	D	%Rec	1	5/24/2016 4:04:33 PM	25437
Surr: Nitrobenzene-d5	74.5	0	28.8-134	D	%Rec	1	5/24/2016 4:04:33 PM	25437
Surr: 2-Fluorobiphenyl	71.6	0	35.9-125	D	%Rec	1	5/24/2016 4:04:33 PM	25437
Surr: 4-Terphenyl-d14	37.0	0	15-146	D	%Rec	1	5/24/2016 4:04:33 PM	25437
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21-GW
Project: SWMU 10
Collection Date: 5/20/2016 9:36:00 AM
Lab ID: 1605998-003
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.15	0.096	1.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Toluene	0.30	0.12	1.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Methyl tert-butyl ether (MTBE)	0.80	0.21	1.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2,4-Trimethylbenzene	0.50	0.11	1.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Naphthalene	1.3	0.093	2.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
1-Methylnaphthalene	3.9	0.20	4.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
2-Methylnaphthalene	4.9	0.16	4.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Acetone	20	4.9	10		µg/L	1	5/26/2016 1:41:29 PM	A34513
Bromobenzene	ND	0.098	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Bromodichloromethane	1.8	0.14	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Bromoform	0.16	0.10	1.0	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Bromomethane	ND	0.78	3.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
2-Butanone	5.7	0.74	10	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Carbon disulfide	ND	0.60	10		µg/L	1	5/26/2016 1:41:29 PM	A34513
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Chlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Chloroethane	ND	0.19	2.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Chloroform	3.4	0.089	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Chloromethane	ND	0.21	3.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Dibromochloromethane	1.3	0.087	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Dibromomethane	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	5/26/2016 1:41:29 PM	A34513

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company
Client Sample ID: SWMU 10-21-GW
Project: SWMU 10
Collection Date: 5/20/2016 9:36:00 AM
Lab ID: 1605998-003
Matrix: AQUEOUS
Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
2-Hexanone	3.2	0.84	10	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Isopropylbenzene	ND	0.10	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
4-Methyl-2-pentanone	2.4	0.43	10	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
n-Butylbenzene	ND	0.16	3.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
n-Propylbenzene	ND	0.13	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Styrene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/26/2016 1:41:29 PM	A34513
Xylenes, Total	0.72	0.37	1.5	J	µg/L	1	5/26/2016 1:41:29 PM	A34513
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	5/26/2016 1:41:29 PM	A34513
Surr: 4-Bromofluorobenzene	113	0	70-130		%Rec	1	5/26/2016 1:41:29 PM	A34513
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	5/26/2016 1:41:29 PM	A34513
Surr: Toluene-d8	101	0	70-130		%Rec	1	5/26/2016 1:41:29 PM	A34513
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **DJF**	
Gasoline Range Organics (GRO)	0.047	0.015	0.050	J	mg/L	1	5/26/2016 1:41:29 PM	C34513
Surr: BFB	102	0	70-130		%Rec	1	5/26/2016 1:41:29 PM	C34513

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Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Cyanide	1.05		0.0180	0.0500	10	05/31/2016 14:43	WG876094

Method Blank (MB)

(MB) R3140646-2 05/31/16 13:55

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l		mg/l	mg/l
Cyanide	0.00218	BJ	0.00180	0.00500

L836467-02 Original Sample (OS) • Duplicate (DUP)

(OS) L836467-02 05/31/16 14:01 • (DUP) R3140646-5 05/31/16 14:02

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Cyanide	0.00518	ND	1	10.0		20

L837343-01 Original Sample (OS) • Duplicate (DUP)

(OS) L837343-01 05/31/16 14:43 • (DUP) R3140646-8 05/31/16 14:44

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/l	mg/l		%		%
Cyanide	1.05	1.18	10	12.0		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3140646-3 05/31/16 13:56 • (LCSD) R3140646-4 05/31/16 13:57

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%	%	%			%	%
Cyanide	0.100	0.103	0.103	103	103	90.0-110			0.000	20

L836467-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L836467-03 05/31/16 14:03 • (MS) R3140646-6 05/31/16 14:04 • (MSD) R3140646-7 05/31/16 14:07

	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.200	0.00548	0.187	0.183	91.0	89.0	1	90.0-110		J6	2.00	20

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	0.000500		0.000150	0.000500	1	05/31/2016 20:03	WG876252

Method Blank (MB)

(MB) R3140841-2 05/31/16 17:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Hexavalent Chromium	U		0.000150	0.000500

L836719-01 Original Sample (OS) • Duplicate (DUP)

(OS) L836719-01 05/31/16 18:42 • (DUP) R3140841-5 05/31/16 18:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Hexavalent Chromium	ND	ND	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3140841-3 05/31/16 18:07 • (LCSD) R3140841-4 05/31/16 18:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Hexavalent Chromium	0.00200	0.00200	0.00200	100	100	90.0-110			0.000	20

L838184-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L838184-02 05/31/16 21:17 • (MS) R3140841-6 05/31/16 21:25 • (MSD) R3140841-7 05/31/16 21:33

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Hexavalent Chromium	0.0500	ND	0.0522	0.0512	104	102	1	90.0-110			2.00	20

Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**
30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **MB-25486**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW**	Batch ID: **25486**	RunNo: **34463**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1062877** 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	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID **LCS-25486**	SampType: **LCS**	TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW**	Batch ID: **25486**	RunNo: **34463**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1062878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	99.2	85	115			
Beryllium	0.50	0.0020	0.5000	0	100	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.50	0.0060	0.5000	0	101	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.1	85	115			
Iron	0.50	0.020	0.5000	0	99.9	85	115			
Manganese	0.48	0.0020	0.5000	0	96.8	85	115			
Nickel	0.49	0.010	0.5000	0	97.2	85	115			
Silver	0.099	0.0050	0.1000	0	98.8	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.50	0.010	0.5000	0	101	85	115			

Sample ID **LLLCS-25486**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC**	Batch ID: **25486**	RunNo: **34463**
Prep Date: **5/24/2016**	Analysis Date: **5/25/2016**	SeqNo: **1062880** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0013	0.0020	0.002000	0	66.5	50	150			J
Beryllium	0.0020	0.0020	0.002000	0	103	50	150			
Cadmium	0.0022	0.0020	0.002000	0	110	50	150			
Chromium	0.0050	0.0060	0.006000	0	82.8	50	150			J
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Iron	0.024	0.020	0.02000	0	121	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**LLLCS-25486**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**					
Client ID:	**BatchQC**	Batch ID:	**25486**	RunNo:	**34463**					
Prep Date:	**5/24/2016**	Analysis Date:	**5/25/2016**	SeqNo:	**1062880**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0027	0.0020	0.002000	0	136	50	150			
Nickel	0.0056	0.010	0.005000	0	113	50	150			J
Silver	0.0054	0.0050	0.005000	0	109	50	150			
Vanadium	0.0096	0.050	0.01000	0	95.8	50	150			J
Zinc	0.0063	0.010	0.005000	0	126	50	150			J

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **MB-C**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C34463**	RunNo: **34463**
Prep Date:	Analysis Date: **5/25/2016**	SeqNo: **1062977** 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	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID **LCS-C**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C34463**	RunNo: **34463**
Prep Date:	Analysis Date: **5/25/2016**	SeqNo: **1062978** 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	97.1	85	115			
Beryllium	0.51	0.0020	0.5000	0	101	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.8	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.9	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Nickel	0.47	0.010	0.5000	0	93.1	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			
Vanadium	0.50	0.050	0.5000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.3	85	115			

Sample ID **LLLCS-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C34463**	RunNo: **34463**
Prep Date:	Analysis Date: **5/25/2016**	SeqNo: **1062979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	110	50	150			
Beryllium	0.0022	0.0020	0.002000	0	108	50	150			
Cadmium	0.0020	0.0020	0.002000	0	99.5	50	150			J
Chromium	0.0055	0.0060	0.006000	0	91.3	50	150			J
Cobalt	0.0071	0.0060	0.006000	0	118	50	150			
Iron	0.026	0.020	0.02000	0	128	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**LLLCS-C**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**BatchQC**	Batch ID:	**C34463**	RunNo:	**34463**
Prep Date:		Analysis Date:	**5/25/2016**	SeqNo:	**1062979** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Nickel	0.0042	0.010	0.005000	0	83.8	50	150			J
Silver	0.0055	0.0050	0.005000	0	109	50	150			
Vanadium	0.011	0.050	0.01000	0	109	50	150			J
Zinc	0.0060	0.010	0.005000	0	121	50	150			J

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID	**MB-25486**	SampType: **MBLK**		TestCode: **EPA 200.8: Metals**					
Client ID:	**PBW**	Batch ID: **25486**		RunNo: **34477**					
Prep Date:	**5/24/2016**	Analysis Date: **5/25/2016**		SeqNo: **1063236**		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	**MSLCS-25486**	SampType: **LCS**		TestCode: **EPA 200.8: Metals**					
Client ID:	**LCSW**	Batch ID: **25486**		RunNo: **34477**					
Prep Date:	**5/24/2016**	Analysis Date: **5/25/2016**		SeqNo: **1063238**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.026	0.0010	0.02500	0	103	85	115			
Arsenic	0.023	0.0010	0.02500	0	92.3	85	115			
Lead	0.012	0.00050	0.01250	0	99.9	85	115			
Selenium	0.023	0.0010	0.02500	0	93.7	85	115			

Sample ID	**MSLLLCS-25486**	SampType: **LCSLL**		TestCode: **EPA 200.8: Metals**					
Client ID:	**BatchQC**	Batch ID: **25486**		RunNo: **34477**					
Prep Date:	**5/24/2016**	Analysis Date: **5/25/2016**		SeqNo: **1063240**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00078	0.0010	0.001000	0	78.0	50	150			J
Arsenic	0.00086	0.0010	0.001000	0	86.2	50	150			J
Lead	0.00055	0.00050	0.0005000	0	110	50	150			
Selenium	0.00090	0.0010	0.001000	0	90.1	50	150			J

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C34426**	RunNo: **34426**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061595** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	100	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.013	0.00050	0.01250	0	103	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			

Sample ID **LCSLL**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C34426**	RunNo: **34426**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061599** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0010	0.0010	0.001000	0	100	50	150			
Arsenic	0.00097	0.0010	0.001000	0	96.6	50	150			J
Lead	0.00053	0.00050	0.0005000	0	106	50	150			
Selenium	0.00097	0.0010	0.001000	0	97.1	50	150			J

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C34426**	RunNo: **34426**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061601** 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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**MB-25512**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**25512**	RunNo:	**34519**					
Prep Date:	**5/25/2016**	Analysis Date:	**5/26/2016**	SeqNo:	**1064697**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000076	0.00020								J

Sample ID	**LCS-25512**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**25512**	RunNo:	**34519**					
Prep Date:	**5/25/2016**	Analysis Date:	**5/26/2016**	SeqNo:	**1064698**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	103	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**
30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34434**	RunNo: **34434**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061743** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID **LCSb**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34434**	RunNo: **34434**
Prep Date:	Analysis Date: **5/23/2016**	SeqNo: **1061747** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	108	90	110			
Sulfate	9.9	0.50	10.00	0	98.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R34487**	RunNo: **34487**
Prep Date:	Analysis Date: **5/25/2016**	SeqNo: **1063631** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R34487**	RunNo: **34487**
Prep Date:	Analysis Date: **5/25/2016**	SeqNo: **1063632** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	98.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **MB-25494**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **25494**	RunNo: **34483**
Prep Date: **5/25/2016**	Analysis Date: **5/25/2016**	SeqNo: **1063745** 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	0.98		1.000		97.7	70	141			

Sample ID **LCS-25494**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **25494**	RunNo: **34489**
Prep Date: **5/25/2016**	Analysis Date: **5/26/2016**	SeqNo: **1064130** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	111	71.3	139			
Surr: DNOP	0.50		0.5000		101	70	141			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**
30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **A34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **A34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064513** 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	0.45	3.0								J
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **A34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064514** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.7	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	99.4	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **A34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064514** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **mb-25437**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **25437**	RunNo: **34450**
Prep Date: **5/23/2016**	Analysis Date: **5/24/2016**	SeqNo: **1062341** 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	6.7	20								J
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	3.8	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	4.8	10								J
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID **mb-25437**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **25437**	RunNo: **34450**
Prep Date: **5/23/2016**	Analysis Date: **5/24/2016**	SeqNo: **1062341** 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	120		200.0		57.6	15	123			
Surr: Phenol-d5	87		200.0		43.6	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		79.7	18.4	134			
Surr: Nitrobenzene-d5	75		100.0		74.9	28.8	134			
Surr: 2-Fluorobiphenyl	71		100.0		71.3	35.9	125			
Surr: 4-Terphenyl-d14	65		100.0		65.5	15	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company

Project: SWMU 10

Sample ID	**lcs-25437**	SampType:	**LCS**	TestCode:	**EPA Method 8270C: Semivolatiles**					
Client ID:	**LCSW**	Batch ID:	**25437**	RunNo:	**34450**					
Prep Date:	**5/23/2016**	Analysis Date:	**5/24/2016**	SeqNo:	**1062342**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	84	10	100.0	0	83.7	35	113			
4-Chloro-3-methylphenol	130	10	200.0	0	66.0	40.7	114			
2-Chlorophenol	130	10	200.0	0	64.4	37.6	113			
1,4-Dichlorobenzene	69	10	100.0	0	68.7	37.7	106			
2,4-Dinitrotoluene	70	10	100.0	0	70.1	37	91			
N-Nitrosodi-n-propylamine	74	10	100.0	0	74.5	45.4	105			
4-Nitrophenol	73	10	200.0	0	36.4	33.4	104			
Pentachlorophenol	120	20	200.0	0	58.0	29.5	94.9			
Phenol	77	10	200.0	0	38.4	30.6	119			
Pyrene	82	10	100.0	0	82.0	26.2	120			
1,2,4-Trichlorobenzene	82	10	100.0	0	81.6	39.9	125			
Surr: 2-Fluorophenol	95		200.0		47.6	15	123			
Surr: Phenol-d5	75		200.0		37.5	4.13	124			
Surr: 2,4,6-Tribromophenol	150		200.0		74.3	18.4	134			
Surr: Nitrobenzene-d5	68		100.0		68.2	28.8	134			
Surr: 2-Fluorobiphenyl	70		100.0		70.0	35.9	125			
Surr: 4-Terphenyl-d14	61		100.0		61.5	15	146			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605998**

30-Jun-16

Client: Western Refining Company
Project: SWMU 10

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **C34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064532** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.7		10.00		96.9	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **C34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064533** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	103	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Sample ID **1605998-001B MS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SWMU 10-20-GW**	Batch ID: **C34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064538** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	0.50	5.000	25.03	72.5	53.8	128			
Surr: BFB	97		100.0		97.1	70	130			

Sample ID **1605998-001B MSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SWMU 10-20-GW**	Batch ID: **C34513**	RunNo: **34513**
Prep Date:	Analysis Date: **5/26/2016**	SeqNo: **1064539** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	0.50	5.000	25.03	78.6	53.8	128	1.05	20	
Surr: BFB	98		100.0		98.4	70	130	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1605998 RcptNo: 1

Received by/date: AF 05/20/16

Logged By: **Lindsay Mangin** 5/20/2016 3:00:00 PM

Completed By: **Lindsay Mangin** 5/20/2016 3:34:27 PM

Reviewed By: 05/23/16

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☑ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☑
9. Was preservative added to bottles? Yes ☑ No ☑ NA ☐
   See Remarks AG 05/23/16
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: 2,1 (<2 or >12 unless noted)
Adjusted? 00 yes
Checked by: AG

Special Handling (if applicable)

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

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

17. Additional remarks: For Metals analysis, added 1mL HNO3 to ~pH for acceptable pH, held for 24hrs prior to analysis. AG 05/23/16
18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY

Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301

Phone #: 505-722-0231

email or Fax#: ED.RIEGE@WNR.COM

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

Accreditation
☐ NELAP ☐ Other _____

☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: SWMU 10

Project #:

Project Manager: ED RIEGE

Sampler: TRACY PAYNE

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.2

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1605998	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)	~~RCRA 8 Metals~~ CYANIDE	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	METALS (TOTAL & DISSOLVED)	GEN CHEM	CR 6		Air Bubbles (Y or N)
5-20-16	1045	WATER	SWMU 10-20-GW	40 ML VOA-6	HCL	-001			✓							✓						
				1 LITER AMBER-2	NEAT	-001											✓		✓			
				250 ML AMBER-1	NEAT	-001				✓												
				100 ML PLASTIC-1	HNO_3	-001												✓				
				500 ML PLASTIC-1	HNO_3	-001												✓				
				50 ML PLASTIC-1	$NH_4 2SO_4$	-001														✓		
				500 ML PLASTIC-1	NaOH	-001							✓									
	—	↓	TRIP BLANK	40 ML VOA-4	HCL	-002										✓						
	1045	WATER	SWMU 10-20-GW	500 ML PLASTIC-1	NEAT	-003													✓			
	0936	WATER	SWMU 10-21-GW	40 ML VOA-6	HCL	-004			✓							✓	-					
↓	↓	↓	↓	1 LITER AMBER-1	NEAT	-004			✓	TP						✓	TP ✓					

Date:	Time:	Relinquished by:	Received by:	Date	Time
5-20-16	1115			5/20/16	1200
Date:	Time:	Relinquished by:	Received by:	Date	Time
5/20/16	300			5/21/16	1500

Remarks:

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

WESTERN REFINING SOUTHWEST, INC.

GALLUP REFINERY - NORTH DRAINAGE DITCH

METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES

AND WATER QA/QC 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
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
AND WATER QA/QC SAMPLES

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

Appendix E

Quality Assurance/Quality Control Review

DATA VALIDATION INTRODUCTION

This summary presents data verification results for soil and groundwater samples collected from soil boring and monitoring wells installed at SWMU10 at the Gallup Refinery. The data review was performed in accordance with Provision IV.J.3.b (Review of Field and Laboratory QA/QC Data) of the RCRA Permit issued by NMED in October 2013, USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc.

A total of 73 soil samples and 11 groundwater samples (excluding QA samples) were collected from April 28, 2015 through September 21, 2016 in accordance with the SWMU 10 Investigation Work Plan (Western Refining Southwest, Inc., 2014). Soil and groundwater samples were submitted to Hall Environmental Analysis Laboratory for the following parameters in accordance with the approved Work Plan:

- volatile organic compounds (VOCs) by USEPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline, diesel, and motor oil range organics by SW-846 Method 8015B;
- Total recoverable and dissolved metals (Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by SW846 Method 6010/6020;
- Chromium VI by SW-846 method 3060A;
- Tetraethyl lead by SW-846 method 3546;
- Cyanide by SW-846 method 9012; and
- Mercury by EPA Method 7470.

The groundwater samples were analyzed for water quality parameters including, sulfate, chloride, and fluoride.

Additionally, 29 quality assurance samples consisting of trip blanks, field blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table A-1 presents a summary of the field sample identifications, laboratory sample identifications, and sample collection dates.

QUALITY CONTROL PARAMETERS REVIEWED

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample Preservation and Temperature Upon Laboratory Receipt
- Holding Times;
- Blank Contamination (method blanks, trip blanks, field blanks, and equipment rinsate blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

J+	The analyte was positively identified; however, the result should be considered an estimated value with a potential high bias.
J-	The analyte was positively identified; however, the result should be considered an estimated value with a potential low bias.
UJ	The reporting limit for a constituent that was not detected is considered an estimated value.
R	Quality control indicates that the data is not usable.

Results qualified as "J+", "J-", or "UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines.

Results for the performance monitoring events that required qualification based on the data verification are summarized in Table A-2.

CHAIN-OF-CUSTODY

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact by Hall Environmental Laboratories, Inc. Samples were received by the laboratory at a temperature of 6.0 degrees Celsius or lower. Data qualification on lower temperature samples was not required. The hexavalent chromium field sample SWMU 10-12-GW was received at a pH of 7.5 rather than the range of 8 to 10 units. The field sample was not qualified. The sample bottle for the total metals analyses for sample SWMU 10-20-GW was apparently received with a pH outside the desired range, thus the lab added one milliliter of HNO3 and held the sample for 24 hours prior to analysis to ensure no metals had precipitated in the sample. The associated sample results are not qualified.

HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits with the exception of the following:

- Lab Report 1505618 - Sample SWMU 10 EB06 was extracted 2 days after the 7 day holding time. This affected only the Method 8270C semi volatile analyses and only one sample. Since results may be biased low, the sample non-detect results were qualified "UJ".

See Table A-2 for qualified data.

BLANK CONTAMINATION

Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks, with the exception of the following:

- 1,2,4-Trimethylbenzene, acetone, 2-butanone (MEK), chloromethane, and 1,1-dichloroethane were detected in the blank for batch 19008. Acetone, 2-butanone, chloromethane, and 1,1-dichloroethane were not detected in the associated samples and qualification was not required. 1,2,4-Trimethylbenzene was detected at concentrations

greater than 5x blank in associated samples; and qualification of the field samples was not necessary.

- Zinc was detected in the method blank for batch 19025. Zinc was detected at similar concentrations in associated sample SWMU 10-3-GW; and the field sample was qualified with a" J+".
- Toluene and 2-butanone were detected in the blank for batch 19032. Toluene was detected in 2 associated samples and 2-butanone was detected in 10 associated samples at similar concentrations; and the field samples were qualified with a" J+".
- Lead, iron and zinc were detected in the method blank for batch for 19080. Lead, iron and zinc were detected in associated samples at concentrations greater than 5x the concentrations in the blank; and qualification of field samples was not necessary;
- Lead and iron were detected in the method blank for batch 19081. Lead and iron were detected in associated samples. The concentration for lead in one sample SWMU 10-8 (18-20') was less than 5x the concentration in the blank and this sample was qualified "J+". The results for remaining associated samples were greater than 5x the blank and qualification was not necessary.
- Cadmium and iron were detected in the method blank for batch 19082. Cadmium was not detected in associated samples. Iron was detected in associated samples but the concentrations were greater than 5x the blank and qualification of field samples was not necessary.
- 2-Butanone and toluene were detected in the method blank for batch 19107. 2-Butanone was detected in six associated samples at similar concentrations; and the field samples were qualified "J+". Toluene was detected in associated samples at concentrations greater than 5x the blank and qualification of the field samples was not necessary.
- 2-Butanone was detected in the blank for batch 19243. 2-Butanone was detected in three associated samples SWMU 10-16 (2-4'), SWMU 10-16 (4.5-5') and SWMU 10-16 (8-9") at similar concentrations; and the field samples were qualified "J+".
- Iron and silver were detected in the method blank for batch 19259. Silver was not detected in associated samples. Iron was detected in associated samples but the concentrations were greater than 5x the blank; and field samples were not qualified.
- Iron was detected in the blank for batch 19279. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.
- Iron was detected in the blank for batch 19280. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.

- Iron was detected in the blank for batch 19333. Iron was detected in associated samples but the concentrations were greater than 5x the blank and field samples were not qualified.
- Mercury was detected in the blank for batch 19401. Mercury was also detected in the equipment blank EB06 and in an associated sample SWMU 10-11-GW at similar concentrations. The field samples were qualified "J+".
- Beryllium was detected in the method blank for batch R26030. Beryllium was detected in three associated samples SWMU 10-1-GW, SWMU 10-3-GW and SWMU 10-5-GW at similar concentrations. The field samples were qualified "J+".
- 2-Butanone, chloroethane, and chloromethane were detected in the method blank for batch R26144. 2-Butanone, chloroethane, and chloromethane were not detected in associated samples and qualification of field samples is not necessary.
- 1,2,4- Trimethylbenzene, 2-butanone, and toluene were detected in the method blank for batch R25982. 1,2,4- Trimethylbenzene was detected in associated samples SWMU 10-1 (2-4') and SWMU 10-8 (4-6') at a similar concentration and the field samples were flagged "J+". 2-Butanone was not detected and toluene was detected in associated samples but concentrations were 5x the blank; and qualification of field samples is not necessary.
- 1,2,4-Trimethylbenzene, 1,2-dichloroethane, bromomethane, and chloroethane were detected in the blank for batch R26221. 1,2,4-Trimethylbenzene was detected in associated samples but concentrations were 5x the blank; and bromomethane, chloroethane, and 1,2-Dichloroethane were not detected in associated samples. Qualification of field samples was not necessary.
- Silver was detected in the method blank for analytical batch R25881. Silver was not detected in the associated sample and qualification was not required.
- Bromomethane and 1,2,4-trimethylbenzene were detected in the method blank for batch R26209; Bromomethane was detected in associated samples SWMU 10-11 (8-10"), SWMU 10-13 (6-8') and SWMU 10-14 (6-8') at similar concentrations; and field samples were flagged "J+". 1,2,4-Trimethylbenzene was detected in associated samples but concentrations were 5x the blank; and qualification of field samples was not necessary.
- Barium was detected in the blank for batch R26242. Barium was detected in associated samples but concentrations were 5x the blank; and qualification of field samples is not necessary.
- Silver was detected in the blank for batch R26291. Silver was not detected in associated samples; and qualification of field samples was not necessary.

- 1,2,4-Trimethylbenzene, 1,2-dichlorethane, and vinyl chloride were detected in the blank for batch R26332. 1,2,4-Trimethylbenzene was detected in associated samples SWMU 10-12-GW, SWMU 10-14-GW, SWMU 10-16-GW and two Trip Blanks at similar concentrations; and field samples were flagged "J+". 1,2-Dichlorethane and vinyl chloride were detected in associated sample SWMU 10-16-GW at similar concentrations and field samples were flagged "J+".
- Bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, and 4,6-dinitro-2-methylphenol were detected in the method blank for batch 25469 but many sample results were non-detect and are not qualified. Samples SWMU 10-18 (2-2.5' and 8-10') had detections of di-n-butyl phthalate at concentrations close to that detected in the method blank and are both flagged as "J+". Samples SWMU 10-21 (2-2.5', 12-14', and 20-22') and SWMU 10-22 (2-2.5' and 8-9') were flagged as J+ for bis(2-ethylhexyl)phthalate. Samples SWMU 10-21 (12-14') and SWMU 10-22 (2-2.5' and 8-9') were flagged as J+ for di-n-butyl phthalate.
- Mercury was detected in the method blank for sample batch 25448 and associated samples SWMU 10-18 (2-2.5', 8-10', and 18-20'), SWMU 10-19 (2-2.5', 12-14' and 18-20'), and SWMU 10-20 (2-2.5', 8-10', 10-12', 16-18', and 20-22') are all qualified as J+.
- Manganese was detected in the method blank for sample batch 25447 and associated samples SWMU 10-18 (2-2.5', 8-10', and 18-20') are all qualified as J+.
- 1-Methlynaphthalene and methylene chloride were both detected in the method blank for batch D34413. Associated samples SWMU 10-19 (12-14' and 18-20') and SWMU 10-20 (8-10', 10-12', and 16-18') all flagged as J+ for 1-methlynaphthalene, while only samples SWMU 10-19 (12-14') and SWMU 10-20 (8-10' and 10-12') are flagged as J+ for methylene chloride.
- Cyanide, mercury and methylene chloride were detected in the method blanks for batches WG876094, 25512, and A34513, respectively and the associated results in sample SWMU 10-20-GW are flagged as J+.
- Toluene and bromomethane were detected in the method blank for batch S37464 and associated sample SWMU 10-24 (6-8') is flagged as J+.
- 1,2,4-Trimethylbenzene was detected in the method blank for batch S37484 and sample SWMU 10-25 (2-2.5') is flagged as J+.
- 1-Methlynaphthalene was detected in method blank for batch S37484 and samples SWMU 10-23 (15-16'), SWMU 10-24 (15-16'), and SWMU 10-25 (2-2.5') were flagged as J+.
- Bis(2-ethylhexyl)phthalate and di-n-butyl phthalate were both detected in the method blank for batch W37464 and associated samples SWMU 10-23 (2-2.5' and 15-16'), SWMU 10-24

(2-2.5', 8-10', and 15-16'), and SWMU 10-25 (2-2.5', 10-12', and 16.8-18') are flagged as J+.

- Manganese and zinc were detected in the method blank for batch 27709 and associated samples SWMU 10-23 (2-2.5' and 15-16'), SWMU 10-24 (2-2.5', 6-8', 8-10', and 15-16'), and SWMU 10-25 (2-2.5', 10-12', and 16.8-18') are flagged as J+.
- Manganese was detected in the method blank for batch 27858 and associated samples SWMU 10-25-GW is flagged as J+. In addition, bis(2-ethylhexyl)phthalate was detected in the batch (27668) that is associated with SWMU 10-25-GW and the result is flagged as J+.

See Table A-2 for qualified data.

Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Permit. Target compounds were not detected in the trip blanks with the following exceptions:

Lab Report 1505698

- The VOCs ethylbenzene (0.11-J ug/L), naphthalene (0.31-J ug/L), 1-methylnaphthalene (0.71-J ug/L), 2-methylnaphthalene (1.1-J ug/L), 1,2,4-trimethylbenzene (0.29-J ug/L), and xylenes (0.041-J ug/L) were detected in TRIP Blank Sample No. 1501698-002a. The analytes were detected in the groundwater sample 1505698-001a associated with this trip blank at concentrations more than 5x the concentration detected in the blank. Sample results were not qualified; and

Lab Report 1505700

- The VOCs toluene (0.14-J ug/L) and 1,2,4-trimethylbenzene (0.18-J ug/L) were detected in TRIP Blank Sample No. 1505700-002a. Toluene was not detected and 1,2,4-trimethybenzene was detected in the groundwater sample 1505700-001a (SWMU 10-12-GW) associated with this trip blank. The detected concentration of 1,2,4-trimethylbenzene (0.66 ug/L) was less than 5 times the concentration in the trip blank and may be biased high. The 1,2,4-trimethylbenzene result for the field sample was flagged "J+".

See Table A-2 for qualified data.

Field Blanks/Equipment Rinsate Blank

Field and equipment rinsate blanks were collected as specified in the SWMU10 Investigation Work Plan and the Permit.

Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, chloromethane, and methylene chloride. Common laboratory contaminants for SVOC analysis include phthalates. Data qualification was not required for MEK in sample batches 19032, 19107, and 19243 where the laboratory contaminant was detected in the blank. Data qualification was required for other samples with methylene chloride and phthalates since there were detection in blanks and field analytical results were detected at concentrations less than 10 times the blank concentration in field samples. See Table A-2 for qualified data.

Methanol Blanks

Methanol Blanks provided by the laboratory were analyzed for VOCs. There were no analytes detected in the methanol blanks above the respective laboratory reporting limits.

SURROGATE RECOVERY

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

Lab Report 1504C86

- Surrogate recovery for nitrobenzene-d6 was high and above the acceptance limit for field sample SWMU 10 EB01. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505002

- Surrogate recovery for nitrobenzene-d6 was high and above the acceptance limit for field sample SWMU 10 EB02. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505003

- Surrogate recovery for di-n-octyl phthalate (DNOP) was below the acceptance limit for field samples SWMU 10-5 (0-2') and SWMU 10-5 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 diesel range organics (DRO) or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10-5 (0-2'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505004

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-4 (2-4'). Low surrogate was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10 DUP01. Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505005

- Surrogate recovery for bromofluorobenzene (BFB) was high and above the upper acceptance limit for field sample SWMU 10-3-GW. The associated field sample results for Method 8015 gasoline range organics (GRO) are qualified J+ due to a potential high bias.

Lab Report 1505057

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-9 (4-6') and SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505058

- Surrogate recovery for DNOP was below the lower acceptance limit for field sample SWMU 10-10 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not required.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field sample SWMU 10-10 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505218

- Surrogate recovery for BFB was high and above the upper acceptance limit for field sample SWMU 10-5-GW. The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect results are not qualified.
- Surrogate recoveries for 2-fluorophenol and 2,4,6-tribromophenol were below the acceptance limit for field sample SWMU 10-5-GW. The surrogate recovery for three of the six surrogates included in Method 8270C were within limits. Since only two of six surrogates were outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.

Lab Report 1505570

- Surrogate recovery for DNOP was below the lower acceptance limit for field samples SWMU 10-14 (6-8') and SWMU 10-11 (4-6'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8015 DRO or matrix interference; therefore data qualification was not qualified.
- Surrogate recovery for DNOP was high and above the upper acceptance limit for field sample SWMU 10-11 (8-10'). The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect results are not qualified.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-9 (4-6') and SWMU 10-8 (2-4'). Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 15056174

- Surrogate recovery for DNOP was below the lower acceptance limit for field samples SWMU 10-13 (6-8'), SWMU 10-17 (6-8'), and SWMU 10 DUP04. Low surrogate recovery was due to required sample dilution for analytical analysis by Method 8015 DRO or matrix effects; therefore data qualification was not qualified.
- Surrogate recoveries for Method 8270C were below the lower acceptance limits for field samples SWMU 10-17 (6-8') and SWMU DUP04. Low surrogate recovery was related to required sample dilution for analytical analysis by Method 8270C or matrix effects; therefore data qualification was not required.

Lab Report 1505709

- Surrogate recovery for nitrobenzene d-5 was high and above the upper acceptance limit for field sample SWMU 10 DUP01GW. The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one of six surrogates was outside limits, the associated field sample results for semi-volatile organic compounds were not qualified.
- Surrogate recovery for dibromofluorobenzene was high and above the acceptance limit for field sample SWMU10 DUP01GW. The surrogate recovery for four of the five surrogates included in Method 8260 were within limits. Since only one of five surrogates was outside limits, the associated field sample results for volatile organic compounds were not qualified.

See Table A-2 for qualified data.

LCS RECOVERY AND RELATIVE PERCENT DIFFERENCE

Laboratory control samples (LCS0/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J+" to account for a potential high bias.

- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J-" for detected results) to account for a potential low bias.

LCS/LCSD percent recoveries and relative percent differences (RPDs) were within acceptance limits and no qualification was required.

MS/MSD RECOVERY AND RELATIVE PERCENT DIFFERENCE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified "J+" to account for a potential high bias.
- Low MS/MSD recoveries for organic or inorganic parameters result in sample qualification of the associated analytical batch with a "J-".
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits except for the following:

Lab Report 1505003

- The MS/MSD recoveries for benzene and toluene for Method 8260B Batch 19032 were below the lower acceptance limits for field sample SWMU 10-5 (22-24). Low recovery was related to dilution or matrix interference. Since results may be biased low, detected results in the batch are qualified "J-"and non-detect results are qualified "UJ".

Lab Report 1505057

- The MS recovery of 127% and the MSD recovery of 172% for mercury was above the acceptance limit of 125% for Method 7471 batch 19445 and field sample SWMU 10-9 (2-4'). Since results may be biased high, the detected results are qualified "J+".

Lab Report 1505218

- The MS/MSD recovery of 166% for BFB is above the upper limit of 120% for Method 8015 GRO batch R26016 in field sample SWMU 10-5-GW. The associated field sample results for Method 8015 GRO are qualified J+ due to a potential high bias. Non-detect samples were not qualified.
- The MS/MSD recoveries were low and the relative percent difference (RPD) were outside the acceptance limits for several chemicals and surrogates for Method 8270C batch 19150 performed for field sample SWMU 10-5-GW. Low recovery was related to dilution or matrix interference. Since results may be biased low, the associated semi-volatile results were qualified "J-"if detected or "UJ" if non-detect.

Lab Report 1505570

- The MS/MSD recoveries for all compounds and surrogates for Method 8270C batch 19270 were within limits for field sample SWMU 10-14 (4-6'). The RPD of 30.4 for N-nitroso-n-propyl amine was above the limit of 27.5. Since the RPDs for other compounds were within limits, and the N-nitroso-n-propyl amine RPD was only slightly out of specifications, the field data were not qualified.
- The MS recovery of 33.2% and the MSD recovery of 33.3% for antimony was below the lower limit of 75% for Method 6010 batch 19259 and field sample SWMU 10-14 (6-8'). Low recovery was related to dilution or matrix interference. The associated field sample results for antimony are qualified "UJ" due to a potential low bias.
- The MS recovery for lead was within limits and MSD recovery of 74.4 for lead was below the acceptance limit of 75% for Method 6010 batch 19259 and field sample SWMU 10-14 (6-8'). Since MSD recovery was only slightly low, the associated field sample results were not qualified.

Lab Report 1505698

- MS recoveries for benzene (16.4%), toluene (13.4%), chlorobenzene (11.7%), 1,1-dichloroethylene (6.58%), and trichloroethylene (9.98%) were below the lower acceptance limit of 30% for Method 8260 batch R26322 and field sample SWMU 10-11-GW. The RPDs for these compounds were outside acceptance limits. Low recovery was related to dilution or matrix interference. The field sample results for volatile organics are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias.

Lab Report 1605874

- The MS and MSD recoveries for N-Nitrosodi-n-propylamine, 42.7% and 40.7, respectively, were below the lower limit of 43.5%. Antimony, cobalt, lead, manganese, nickel, and selenium had low MS recoveries of 29.8%, 69.2%, 67%, 74.6%, 72.6%, and 68.2%, respectively, vs the lower limit of 75%. Antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel, and selenium had low MSD recoveries of 27.2%, 71.4%, 73.6%, 74.6%, 66.6%, 63.9%, 74.4%, 71.7%, and 66.2%, respectively, vs the lower limit of 75% .Low recovery was related to dilution or matrix interference. The field sample results with low recovery are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias. Barium had both MS and MSD recoveries (133.9% and 133.9%) above the upper limit of 125% and the results are flagged as J+.

Lab Report 160875

- Antimony, cobalt, lead, manganese, nickel, and selenium had low MS recoveries of 29.8%, 69.2%, 67%, 74.6%, 72.6%, and 68.2%, respectively, vs the lower limit of 75%. Antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel, and selenium had low MSD recoveries of 27.2%, 71.4%, 73.6%, 74.6%, 66.6%, 63.9%, 74.4%, 71.7%, and 66.2%, respectively, vs the lower limit of 75% .Low recovery was related to dilution or matrix interference. The field sample results with low recovery are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias. Barium had both MS and MSD recoveries (133.9% and 133.9%) above the upper limit of 125% and the results are flagged as J+.

Lab Report 1605943

- Cyanide had a low MS recovery of 70% vs. the lower limit of 80%. Cobalt, nickel, selenium, and zinc had low MSD recoveries of 72.4%, 71.1%, 69.3%, and 70.7% vs. the lower limit of 75%. Antimony and lead had low recoveries for the MS (31.9% and 74.7%, respectively, vs. 75%) and MSD (16.9% and 71.1%, respectively, vs. 75%). The field sample results with low recovery are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias.

Lab Report 1605998

- Cyanide had a low MSD recovery of 89% vs. the lower limit of 90%. The field sample result with low recovery is qualified "J-"due to a potential low bias.

Lab Report 1609B57

- Antimony, arsenic, lead, manganese, nickel, selenium, and zinc had low MS recoveries of 48.0%, 70.9%, 72.9%, -407%, 73%, 60.5, and 74.9%, respectively, vs. a lower limit of 75%. Antimony, manganese, and selenium had low MSD recoveries of 48.1%, -195%, and 59.2%, respectively, vs. a lower limit of 75%. The field sample results with low recovery are qualified "J-"and non-detect results are qualified "UJ" due to a potential low bias. Barium had a MSD recovery of 295%, above the upper limit of 125% and the results are flagged as J+.

Lab Report 1609C66

- 4-Nitrophenol had a low MSD recovery of 9.01% vs the lower limit of 15% and a RPD of 58.3% vs. a limit of 41.5%. The field sample result was non-detect and the result is qualified "UJ" due to a potential low bias.

See Table A-2 for qualified data.

DUPLICATES

Field Duplicates

Field duplicates were collected at a rate as stated in the approved SWMU10 Investigation Work Plan. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table A-3. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 35 percent for soil and 25 percent for ground water samples.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits except for the following soil sample:

- GRO and DRO for field sample SWMU 10-9 (4-6);
- 1,2,4-Trimethylbenzene, 1,3,5-trimethylbenzene, 1-methylnaphthalene, 2-methylnaphthalene, hexachlorobutadiene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, and xylene(s) for field sample SWMU10-9 (4-6');
- 1-methylnaphthalene and 2-methylnaphthalene for field sample SWMU10-25 (2-2.5'); and
- Iron and zinc in field sample SWMU 10-15-GW.

See Table 3A for a field duplicate summary.

COMPLETENESS SUMMARY

The following equation was used to calculate the technical completeness:

$$\% \text{ Technical Completeness} = \left(\frac{\text{Number of usable results}}{\text{Number of reported results}}\right) \times 100$$

The technical completeness attained for SWMU10 RCRA Investigation activities was 100 percent. The completeness results are provided in Table A-4. The analytical results for the required analytes per the approved SWMU10 Work Plan were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sample Identification
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SWMU 10 EB01	1504c86-001a	4/28/2015	EB
SWMU 10-1 (2-4')	1504c87-001a	4/28/2015	N
SWMU 10-1 (4-6')	1504c87-002a	4/28/2015	N
SWMU 10-1 (18-20')	1504c87-003a	4/28/2015	N
SWMU 10-3 (2-4')	1504c87-004a	4/28/2015	N
SWMU 10-3 (6-8')	1504c87-005a	4/28/2015	N
SWMU 10-3 (18-20')	1504c87-006a	4/28/2015	N
SWMU 10-1-GW	1505001-001a	4/28/2015	GW
Trip Blank	1505001-002a	NA	TB
SWMU 10 EB02	1505002-001a	4/29/2015	EB
SWMU 10-5 (0-2')	1505003-001a	4/29/2015	N
SWMU 10-5 (2-4')	1505003-002a	4/29/2015	N
SWMU 10-5 (4-6')	1505003-003a	4/29/2015	N
SWMU 10-5 (14-16')	1505003-004a	4/29/2015	N
SWMU 10-5 (22-24')	1505003-005A	4/29/2015	N
SWMU 10-4 (0-2')	1505004-001A	4/29/2015	N
SWMU 10-4 (2-4')	1505004-002a	4/29/2015	N
SWMU 10-4 (6-8')	1505004-003A	4/29/2015	N
SWMU 10-4 (18-20')	1505004-004A	4/29/2015	N
SWMU 10 DUP01	1505004-005A	4/29/2015	FD
SWMU 10-3-GW	1505005-001a	4/29/2015	GW
Trip Blank	1505005-002a	NA	TB
SWMU 10 EB04	1505047-001a	5/1/2015	EB
SWMU 10 EB03	1505048-001a	4/30/2015	EB
SWMU 10-9 (2-4')	1505057-001A	4/30/2015	N
SWMU 10-9 (4-6')	1505057-002a	4/30/2015	N
SWMU 10-9 (18-20')	1505057-003A	4/30/2015	N
SWMU 10-9DUP02	1505057-004a	4/30/2015	FD
SWMU 10-8 (2-4')	1505057-005a	4/30/2015	N
SWMU 10-8 (4-6')	1505057-006a	4/30/2015	N
SWMU 10-8 (18-20')	1505057-007A	4/30/2015	N
SWMU 10-10 (2-4')	1505058-001A	4/30/2015	N
SWMU 10-10 (4-6')	1505058-002a	4/30/2015	N
SWMU 10-10 (18-20')	1505058-003A	4/30/2015	N
SWMU 10-7 (2-4')	1505059-001A	5/1/2015	N
SWMU 10-7 (4-6')	1505059-002A	5/1/2015	N
SWMU 10-7 (18-20')	1505059-003A	5/1/2015	N
SWMU 10-5-GW	1505218-001a	5/4/2015	GW
TRIP BLANK	1505218-002a	NA	TB
SWMU 10 EB05	1505222-001a	5/4/2015	EB
TRIP BLANK	1505222-002a	NA	TB
SWMU 10-6 (2-4')	1505223-001A	5/4/2015	N
SWMU 10-6 (10-12')	1505223-002A	5/4/2015	N
SWMU 10-2 (0-2')	1505223-003A	5/4/2015	N
SWMU 10-2 (2-4')	1505223-004A	5/4/2015	N
SWMU 10 DUP03	1505223-005A	5/4/2015	FD
MEOH BLANK	1505223-006	5/4/2015	FB
SWMU 10-14 (6-8')	1505570-001a	5/12/2015	N
SWMU 10-14 (21-23')	1505570-002a	5/12/2015	N
SWMU 10-11 (4-6')	1505570-003a	5/12/2015	N
SWMU 10-11 (8-10')	1505570-004a	5/12/2015	N
SWMU 10-11 (18-20')	1505570-005A	5/12/2015	N
SWMU 10-12 (6-8')	1505617-001a	5/12/2015	N

Table A-1
Sample Identification
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SWMU 10-12 (20-22')	1505617-002a	5/12/2015	N
SWMU 10-13 (2-4')	1505617-003a	5/13/2015	N
SWMU 10-13 (6-8')	1505617-004a	5/13/2015	N
SWMU 10-13 (18-20')	1505617-005a	5/13/2015	N
SWMU 10-15 (2-4')	1505617-006a	5/13/2015	N
SWMU 10-15 (4-6')	1505617-007a	5/13/2015	N
SWMU 10-15 (18-20')	1505617-008a	5/13/2015	N
SWMU 10-17 (6-8')	1505617-009a	5/13/2015	N
SWMU 10 DUP04	1505617-010a	5/13/2015	FD
MEOH BLANK	1505617-011	5/13/2015	FB
SWMU 10 EB06	1505618-001a	5/12/2015	EB
SWMU 10-11-GW	1505698-001a	5/14/2015	GW
Trip Blank	1505698-002a	NA	TB
SWMU 10-12-GW	1505700-001a	5/14/2015	GW
Trip Blank	1505700-002a	NA	TB
SWMU 10-14-GW	1505701-001a	5/14/2015	GW
Trip Blank	1505701-002a	NA	TB
SWMU 10-16 (2-4')	1505705-001a	5/13/2015	N
SWMU 10-16 (4-5.5')	1505705-002a	5/13/2015	N
SWMU 10-16 (8-9')	1505705-003a	5/13/2015	N
SWMU 10-15-GW	1505708-001a	5/14/2015	GW
TRIP BLANK	1505708-002a	NA	TB
SWMU 10 DUP01GW	1505709-001a	5/14/2015	FD
TRIP BLANK	1505709-002a	NA	TB
SWMU 10-16-GW	1505710-001a	5/14/2015	GW
SWMU 10-18 (2-2.5')	1605874-001	5/16/2016	N
SWMU 10-18 (8-10')	1605874-002	5/16/2016	N
SWMU 10-18 (18-20')	1605874-003	5/16/2016	N
SWMU 10-19 (2-2.5')	1605875-005	5/17/2016	N
SWMU 10-19 (12-14')	1605875-006	5/17/2016	N
SWMU 10-19 (18-20')	1605875-007	5/17/2016	N
SWMU 10-20 (2-2.5')	1605875-008	5/17/2016	N
SWMU 10-20 (8-10')	1605875-001	5/17/2016	N
SWMU 10-20 (10-12')	1605875-002	5/17/2016	N
SWMU 10-20 (16-18')	1605875-003	5/17/2016	N
SWMU 10-20 (20-22')	1605875-004	5/17/2016	N
SWMU 10-21 (2-2.5')	1605943-001	5/18/2016	N
SWMU 10-21 (12-14')	1605943-002	5/18/2016	N
SWMU 10-21 (20-22')	1605943-003	5/18/2016	N
SWMU 10-22 (2-2.5')	1605943-004	5/18/2016	N
SWMU 10-22 (8-9')	1605943-005	5/18/2016	N
DUP01	1605943-006	5/18/2016	FD
MeOH BLANK	1605943-007	NA	MB
SWMU 10-23 (2-2.5')	1609B57-001	9/19/2016	N
SWMU 10-23 (15-16')	1609B57-002	9/19/2016	N
SWMU 10-24 (2-2.5')	1609B57-003	9/19/2016	N
SWMU 10-24 (6-8')	1609B57-004	9/19/2016	N
SWMU 10-24 (8-10')	1609B57-005	9/19/2016	N
SWMU 10-24 (15-16')	1609B57-006	9/19/2016	N
SWMU 10-25 (2-2.5')	1609B57-007	9/19/2016	N
SWMU 10-25 (10-12')	1609B57-008	9/19/2016	N
SWMU 10-25 (16.5-18')	1609B57-009	9/19/2016	N
SWMU 10 DUP01	1609B57-010	9/19/2016	FD

Table A-1
Sample Identification
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
MeOH BLANK	1609B57-011	NA	MB
EB091916	1609B57-012	9/19/2016	EB
SWMU 10-20-GW	1605998-001	5/20/2016	GW
Trip Blank	1605998-002	NA	TB
SWMU 10-21-GW	1605998-003	5/20/2016	GW
SWMU 10-25-GW	1609C66-001	9/21/2016	GW
Trip Blank	1609C66-002	NA	TB

Notes:

N = Normal field sample
FD = Field duplicate
FB = Field Blank
NA = Not Applicable
TB = Trip Blank
EB = Equipment Blank
GW = Groundwater
MB = Methanol Blank

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01	4/29/2015	1,3,5-Trimethylbenzene	0.000422	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Methylene chloride	0.00051	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	sec-Butylbenzene	0.000534	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Ethylbenzene	0.000638	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Hexanone	0.000653	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,4-Trimethylbenzene	0.000972	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Benzene	0.00104	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Xylenes, Total	0.00171	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Toluene	0.00232	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Acetone	0.0166	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Barium	380	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP01	4/29/2015	2-Butanone	0.00253	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10 DUP01GW	5/14/2015	Benzene	0.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Butanone	2.9	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Acetone	16	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Methyl tert-butyl ether (MTBE)	150	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 DUP01GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP01GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10 DUP04	5/13/2015	Fluorene	3.2	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Phenanthrene	6	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Naphthalene	8.8	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2,4-Dimethylphenol	18	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	Phenol	26	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	1-Methylnaphthalene	28	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2-Methylphenol	29	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	2-Methylnaphthalene	45	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 DUP04	5/13/2015	3+4-Methylphenol	60	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10 EB05	5/4/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB05	5/4/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB05	5/4/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB05	5/4/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10 EB06	5/12/2015	Mercury	0.00015	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10 EB06	5/12/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10 EB06	5/12/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10 EB06	5/12/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias since extracted 2 days after the 7 day holding time
SWMU 10-1 (18-20')	4/28/2015	Methylene chloride	0.000566	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	sec-Butylbenzene	0.000715	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.000993	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (18-20')	4/28/2015	1,2,4-Trimethylbenzene	0.00162	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Ethylbenzene	0.00192	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Acetone	0.00324	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Xylenes, Total	0.00647	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Toluene	0.00836	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Benzene	0.0146	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Butanone	0.00156	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (18-20')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.000993	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (2-4')	4/28/2015	1,2,4-Trimethylbenzene	0.0061	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-1 (4-6')	4/28/2015	1,3,5-Trimethylbenzene	0.000318	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	sec-Butylbenzene	0.000593	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,4-Trimethylbenzene	0.000619	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Methylene chloride	0.000619	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Naphthalene	0.000877	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Benzene	0.00211	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Toluene	0.00253	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Methyl tert-butyl ether (MTBE)	0.00669	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Acetone	0.00926	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Ethylbenzene	0.0318	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Xylenes, Total	0.197	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Butanone	0.00257	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-1 (4-6')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-1 (4-6')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	n-Propylbenzene	0.000372	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	sec-Butylbenzene	0.000688	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Naphthalene	0.000725	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00151	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00238	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Ethylbenzene	0.00241	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Acetone	0.00422	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Toluene	0.0104	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Benzene	0.018	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Butanone	0.00159	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Hexanone	0.000582	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Acetone	0.00792	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Toluene	0.000255	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Butanone	0.00161	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Methylene chloride	0.00051	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (2-4')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Benzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-10 (2-4')	4/30/2015	Ethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (2-4')	4/30/2015	Xylenes, Total	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-10 (4-6')	4/30/2015	Fluorene	2.2	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	Phenanthrene	4.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	Naphthalene	5.9	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	1-Methylnaphthalene	17	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-10 (4-6')	4/30/2015	2-Methylnaphthalene	25	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-11 (4-6')	5/12/2015	Mercury	0.05	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-11 (8-10')	5/12/2015	Bromomethane	0.026	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-11 (8-10')	5/12/2015	Mercury	0.014	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-11-GW	5/14/2015	1,1-Dichloroethane	0.93	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	sec-Butylbenzene	2.2	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Benzene	2.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Isopropyltoluene	2.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	n-Butylbenzene	3.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Toluene	6	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Isopropylbenzene	8.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Acetone	8.8	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	n-Propylbenzene	11	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3,5-Trimethylbenzene	22	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Ethylbenzene	40	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Naphthalene	45	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,4-Trimethylbenzene	64	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1-Methylnaphthalene	70	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Methylnaphthalene	98	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Xylenes, Total	230	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-11-GW	5/14/2015	Mercury	0.00075	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-11-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	14	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-11-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-11-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Benzene	0.47	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Naphthalene	0.52	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Methylnaphthalene	1.5	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Acetone	3.4	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	13	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,4-Trimethylbenzene	0.66	ug/l	Water	J+/J+/J-	Qualified high bias since detected in method blank & trip blank and field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-12-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-12-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-13 (6-8')	5/13/2015	Bromomethane	0.023	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-14 (21-23')	5/12/2015	Mercury	0.0032	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-14 (6-8')	5/12/2015	Bromomethane	0.023	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-14 (6-8')	5/12/2015	Mercury	0.0046	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-14 (6-8')	5/12/2015	Antimony	ND	mg/kg	Soil	UJ	Qualfied low since Method 6010 MS/SMSD recovery low
SWMU 10-14-GW	5/14/2015	Toluene	0.3	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Benzene	0.47	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-14-GW	5/14/2015	Acetone	2.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	16	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,4-Trimethylbenzene	0.44	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-14-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-14-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Benzene	0.51	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Butanone	2.9	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Acetone	9.7	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	150	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-15-GW	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-15-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-15-GW	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16 (2-4')	5/13/2015	2-Butanone	0.00304	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16 (4-5.5')	5/13/2015	2-Butanone	0.00146	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16 (8-9')	5/13/2015	2-Butanone	0.00173	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-16-GW	5/14/2015	Benzene	0.24	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Xylenes, Total	0.35	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	cis-1,2-DCE	0.39	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloroethene	0.73	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Trichloroethene (TCE)	0.77	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Acetone	1.6	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloroethane	3.1	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Methyl tert-butyl ether (MTBE)	19	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,4-Trimethylbenzene	0.18	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichloroethane (EDC)	0.47	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Vinyl chloride	0.47	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-16-GW	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-16-GW	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-17 (6-8')	5/13/2015	Fluorene	7.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Phenanthrene	15	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Naphthalene	24	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	Phenol	52	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	2-Methylphenol	56	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-17 (6-8')	5/13/2015	1-Methylnaphthalene	76	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	3+4-Methylphenol	100	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-17 (6-8')	5/13/2015	2-Methylnaphthalene	130	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-1-GW	4/29/2015	Beryllium	0.00052	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-2 (0-2')	5/4/2015	2-Butanone	0.0038	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-2 (2-4')	5/4/2015	2-Butanone	0.00283	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-3 (18-20')	4/28/2015	2-Hexanone	0.000748	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Methylene chloride	0.00077	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	sec-Butylbenzene	0.000781	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3,5-Trimethylbenzene	0.00123	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Acetone	0.00158	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,4-Trimethylbenzene	0.00184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Ethylbenzene	0.00231	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Xylenes, Total	0.00707	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Toluene	0.01	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Benzene	0.0141	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Butanone	0.00151	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (18-20')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (18-20')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Ethylbenzene	0.000313	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Methylene chloride	0.000387	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Hexanone	0.000656	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Benzene	0.000872	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Xylenes, Total	0.00108	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Toluene	0.00116	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Acetone	0.0201	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Butanone	0.00273	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
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SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (2-4')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (2-4')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (2-4')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3,5-Trimethylbenzene	0.000351	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Methylene chloride	0.000547	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	sec-Butylbenzene	0.000555	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,4-Trimethylbenzene	0.000564	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Hexanone	0.000588	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Ethylbenzene	0.0008	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Xylenes, Total	0.00181	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Toluene	0.00301	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Benzene	0.00319	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Acetone	0.00534	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Butanone	0.00136	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3 (6-8')	4/28/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3 (6-8')	4/28/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-3-GW	4/29/2015	Gasoline Range Organics (GRO)	0.033	mg/l	Water	J+	Qualified high bias due to surrogate recovery

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-3-GW	4/29/2015	Beryllium	0.0004	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-3-GW	4/29/2015	Zinc	0.023	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-4 (0-2')	4/29/2015	1,3,5-Trimethylbenzene	0.000347	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Methylene chloride	0.000606	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	sec-Butylbenzene	0.000645	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Ethylbenzene	0.000703	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,4-Trimethylbenzene	0.00077	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Hexanone	0.000886	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Benzene	0.00118	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Xylenes, Total	0.00182	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Toluene	0.00263	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Acetone	0.0237	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Butanone	0.00407	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (0-2')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (0-2')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Isopropylbenzene	0.000482	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	n-Propylbenzene	0.00051	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Methylene chloride	0.000612	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	sec-Butylbenzene	0.000714	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Naphthalene	0.000742	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Acetone	0.0018	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3,5-Trimethylbenzene	0.00184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,4-Trimethylbenzene	0.00277	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Ethylbenzene	0.00291	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Xylenes, Total	0.00975	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Toluene	0.0127	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Benzene	0.0204	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (18-20')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-4 (18-20')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (18-20')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-4 (6-8')	4/29/2015	2-Butanone	0.00153	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-5 (22-24')	4/29/2015	n-Propylbenzene	0.000469	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Methylene chloride	0.000565	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	sec-Butylbenzene	0.000766	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Naphthalene	0.000785	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1-Methylnaphthalene	0.000843	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Methylnaphthalene	0.000852	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3,5-Trimethylbenzene	0.00179	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Acetone	0.00186	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Ethylbenzene	0.00258	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,4-Trimethylbenzene	0.00263	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Xylenes, Total	0.00849	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Toluene	0.0112	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Benzene	0.0179	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5 (22-24')	4/29/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5 (22-24')	4/29/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-5-GW	5/4/2015	Gasoline Range Organics (GRO)	0.21	mg/l	Water	J+/J+	Qualified high bias due to surrogate recovery and Method GRO MS/MSD
SWMU 10-5-GW	5/4/2015	Beryllium	0.00042	mg/l	Water	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-5-GW	5/4/2015	Bis(2-chloroethyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	N-Nitrosodimethylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pentachlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5-GW	5/4/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4,5-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4,6-Trichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dichlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dimethylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dinitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,6-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Chloronaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Chlorophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3,3´-Dichlorobenzidine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3+4-Methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	3-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4,6-Dinitro-2-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Bromophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chloro-3-methylphenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chloroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Chlorophenyl phenyl ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Nitroaniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	4-Nitrophenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Acenaphthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Acenaphthylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Aniline	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Azobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benz(a)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(a)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(b)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(g,h,i)perylene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzo(k)fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzoic acid	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Benzyl alcohol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-chloroethoxy)methane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-chloroisopropyl)ether	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Bis(2-ethylhexyl)phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-5-GW	5/4/2015	Butyl benzyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Carbazole	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Chrysene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dibenz(a,h)anthracene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dibenzofuran	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Diethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Dimethyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Di-n-butyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Di-n-octyl phthalate	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Fluoranthene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Fluorene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachlorocyclopentadiene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Hexachloroethane	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Indeno(1,2,3-cd)pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Isophorone	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Naphthalene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Nitrobenzene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	N-Nitrosodi-n-propylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	N-Nitrosodiphenylamine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Phenanthrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Phenol	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pyrene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	Pyridine	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-5-GW	5/4/2015	2,4-Dinitrotoluene	ND	ug/l	Water	UJ	Qualified low bias due to Method 8270C MS/MSD recoveryand RPD for batch
SWMU 10-6 (2-4')	5/4/2015	2-Butanone	0.00176	mg/kg	Unknown	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-7 (2-4')	5/1/2015	2-Butanone	0.00273	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-7 (4-6')	5/1/2015	2-Butanone	0.00175	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration
SWMU 10-8 (18-20')	4/30/2015	n-Propylbenzene	0.000428	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Isopropylbenzene	0.000447	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	sec-Butylbenzene	0.000714	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Naphthalene	0.000809	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00159	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00236	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Ethylbenzene	0.00285	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Acetone	0.00466	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Xylenes, Total	0.00872	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Toluene	0.0122	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Benzene	0.0178	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Lead	0.27	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is ≤ 5x blank concentration

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-8 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-8 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-8 (2-4')	4/30/2015	Fluorene	8.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	Naphthalene	18	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	1-Methylnaphthalene	68	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (2-4')	4/30/2015	2-Methylnaphthalene	89	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-8 (4-6')	4/30/2015	1,2,4-Trimethylbenzene	0.021	mg/kg	Soil	J+	Qualified high bias since detected in method blank & field concentration is $\leq$ 5x blank concentration
SWMU 10-9 (18-20')	4/30/2015	sec-Butylbenzene	0.000849	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Naphthalene	0.000873	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3,5-Trimethylbenzene	0.00151	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,4-Trimethylbenzene	0.00229	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Ethylbenzene	0.00242	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Acetone	0.00359	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Xylenes, Total	0.00807	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Toluene	0.0115	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Benzene	0.0159	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (18-20')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Butanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Methylene chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (18-20')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (18-20')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Methylene chloride	0.000438	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Benzene	0.000788	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Acetone	0.0184	mg/kg	Soil	J-	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bis(2-ethylhexyl)phthalate	1.5	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-9 (2-4')	4/30/2015	Mercury	0.07	mg/kg	Soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-9 (2-4')	4/30/2015	Toluene	0.000797	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Butanone	0.00234	mg/kg	Soil	J+/ J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,1,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,1-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,2,2-Tetrachloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1,2-Trichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloroethene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,1-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,3-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,3-Trichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,4-Trichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2,4-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dibromo-3-chloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dibromoethane (EDB)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichloroethane (EDC)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3,5-Trimethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,3-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1,4-Dichlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	1-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2,2-Dichloropropane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Hexanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	2-Methylnaphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Chlorotoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Isopropyltoluene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	4-Methyl-2-pentanone	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromodichloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Bromoform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-9 (2-4')	4/30/2015	Bromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Carbon disulfide	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Carbon tetrachloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chlorobenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloroethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloroform	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Chloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	cis-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	cis-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dibromochloromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dibromomethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Dichlorodifluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Ethylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Hexachlorobutadiene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Isopropylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Methyl tert-butyl ether (MTBE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Naphthalene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	n-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	n-Propylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	sec-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Styrene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	tert-Butylbenzene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Tetrachloroethene (PCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	trans-1,2-DCE	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	trans-1,3-Dichloropropene	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Trichloroethene (TCE)	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Trichlorofluoromethane	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Vinyl chloride	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (2-4')	4/30/2015	Xylenes, Total	ND	mg/kg	Soil	UJ	Qualified low bias due to Method 8260B MS/MSD recovery for batch
SWMU 10-9 (4-6')	4/30/2015	2-Methylnaphthalene	1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
SWMU 10-9 (4-6')	4/30/2015	1-Methylnaphthalene	1.1	mg/kg	Soil	J-	Qualified low bias due to surrogate recovery
Trip Blank	5/14/2015	Ethylbenzene	0.11	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	0.31	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	0.41	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	0.71	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	1.1	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	0.14	ug/l	Water	J-	Qualified low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	0.29	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	0.18	ug/l	Water	J+/J-	Qualified high bias since detected in method blank & field concentration <5x blank concentration/Qualified low bias due to Method SW8270C MSD recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
Trip Blank	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
Trip Blank	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,1-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2,2-Tetrachloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1,2-Trichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloroethene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,1-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,3-Trichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2,4-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromo-3-chloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dibromoethane (EDB)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloroethane (EDC)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3,5-Trimethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,3-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1,4-Dichlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	1-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2,2-Dichloropropane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Butanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Hexanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	2-Methylnaphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Chlorotoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Isopropyltoluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	4-Methyl-2-pentanone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Acetone	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Benzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromodichloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromoform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Bromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
TRIP BLANK	5/14/2015	Carbon disulfide	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Carbon Tetrachloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chlorobenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloroform	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Chloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	cis-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromochloromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dibromomethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Dichlorodifluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Ethylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Hexachlorobutadiene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Isopropylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methyl tert-butyl ether (MTBE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Methylene Chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Naphthalene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	n-Propylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	sec-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Styrene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	tert-Butylbenzene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Tetrachloroethene (PCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Toluene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,2-DCE	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	trans-1,3-Dichloropropene	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichloroethene (TCE)	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Trichlorofluoromethane	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Vinyl chloride	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
TRIP BLANK	5/14/2015	Xylenes, Total	ND	ug/l	Water	UJ	Qualfied low bias due to Method SW8270C MS recovery and RPD for batch
SWMU 10-18 (2-2.5')	5/6/2016	Di-n-butyl phthalate	0.14	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-18 (8-10')	5/6/2016	Di-n-butyl phthalate	0.089	mg/kg	soil	J+	qualifed as non-detect due to presence in field sample below concentration in method blank
SWMU 10-18 (2-2.5')	5/6/2016	mercury	0.0044	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-18 (8-10')	5/6/2016	mercury	0.0052	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-18 (18-20')	5/6/2016	mercury	0.0011	mg/kg	soil	J+	qualified as non-detect due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-18 (2-2.5')	5/6/2016	manganese	200	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-18 (8-10')	5/6/2016	manganese	700	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-18 (18-20')	5/6/2016	manganese	690	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-18 (2-2.5')	5/6/2016	chromium VI	<0.64	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (8-10')	5/6/2016	chromium VI	<0.64	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (18-20')	5/6/2016	chromium VI	<0.64	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-18 (2-2.5')	5/6/2016	N-Nitrosodi-n-propylamine	< 0.1165	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (8-10')	5/6/2016	N-Nitrosodi-n-propylamine	< 0.1126	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (18-20')	5/6/2016	N-Nitrosodi-n-propylamine	< 0.1105	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (2-2.5')	5/6/2016	Antimony	2.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Arsenic	1.8	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Barium	130	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Beryllium	1.1	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Cadmium	< 0.0757	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (2-2.5')	5/6/2016	cobalt	4.7	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-18 (2-2.5')	5/6/2016	Lead	5.2	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	manganese	200	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Nickel	8.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (2-2.5')	5/6/2016	Selenium	< 1.3042	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (8-10')	5/6/2016	Antimony	< 2.8	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (8-10')	5/6/2016	Arsenic	2.2	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (8-10')	5/6/2016	Barium	170	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-18 (8-10')	5/6/2016	Beryllium	1.1	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (8-10')	5/6/2016	Cadmium	< 0.15	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (8-10')	5/6/2016	cobalt	6.4	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-18 (8-10')	5/6/2016	Lead	4.9	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (8-10')	5/6/2016	manganese	700	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (8-10')	5/6/2016	Nickel	12	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (8-10')	5/6/2016	Selenium	< 2.6	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (18-20')	5/6/2016	Antimony	2.9	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Arsenic	2	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Barium	1000	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Beryllium	0.86	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Cadmium	< 0.074	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-18 (18-20')	5/6/2016	cobalt	8.3	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-18 (18-20')	5/6/2016	Lead	2.6	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (18-20')	5/6/2016	manganese	690	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Nickel	15	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-18 (18-20')	5/6/2016	Selenium	< 1.3	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (12-14')	5/17/2016	1-Methylnaphthalene	7.2	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-19 (18-20')	5/17/2016	1-Methylnaphthalene	0.0014	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (8-10')	5/17/2016	1-Methylnaphthalene	41	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (10-12')	5/17/2016	1-Methylnaphthalene	25	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (16-18')	5/17/2016	1-Methylnaphthalene	8.4	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-19 (12-14')	5/17/2016	Methylene chloride	0.05	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-20 (8-10')	5/17/2016	Methylene chloride	0.51	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-20 (10-12')	5/17/2016	Methylene chloride	0.5	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-19 (2-2.5')	5/17/2016	mercury	0.002	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-19 (12-14')	5/17/2016	mercury	0.0019	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-19 (18-20')	5/17/2016	mercury	0.00081	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-20 (2-2.5')	5/17/2016	mercury	2	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (8-10')	5/17/2016	mercury	0.23	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (10-12')	5/17/2016	mercury	0.0041	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-20 (16-18')	5/17/2016	mercury	0.37	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20 (20-22')	5/17/2016	mercury	0.0012	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-19 (2-2.5')	5/17/2016	Antimony	4	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Arsenic	1.9	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Barium	160	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Beryllium	1.2	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Cadmium	< 0.0759	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (2-2.5')	5/17/2016	cobalt	5.2	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-19 (2-2.5')	5/17/2016	Lead	5.1	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	manganese	280	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Nickel	9.8	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (2-2.5')	5/17/2016	Selenium	< 1.3064	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (12-14')	5/17/2016	Antimony	< 6.8559	mg/kg	soil	UJ	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Arsenic	< 4.2233	mg/kg	soil	UJ	Qualified low bias due to Method MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Barium	830	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Beryllium	1.1	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Cadmium	< 0.3668	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (12-14')	5/17/2016	cobalt	6.5	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-19 (12-14')	5/17/2016	Lead	5.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (12-14')	5/17/2016	manganese	1200	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Nickel	15	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (12-14')	5/17/2016	Selenium	< 6.3156	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (18-20')	5/17/2016	Antimony	3.2	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Arsenic	3	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Barium	480	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Beryllium	1	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Cadmium	< 0.071	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-19 (18-20')	5/17/2016	cobalt	7.9	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-19 (18-20')	5/17/2016	Lead	3.5	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (18-20')	5/17/2016	manganese	410	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Nickel	15	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-19 (18-20')	5/17/2016	Selenium	< 1.219	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (2-2.5')	5/17/2016	Antimony	2.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	Arsenic	5.4	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	Barium	490	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-20 (2-2.5')	5/17/2016	Beryllium	0.77	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	Cadmium	< 0.076	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (2-2.5')	5/17/2016	cobalt	4.9	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-20 (2-2.5')	5/17/2016	Lead	21	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	manganese	520	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	Nickel	12	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (2-2.5')	5/17/2016	Selenium	< 1.3049	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (8-10')	5/17/2016	Antimony	2.8	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Arsenic	3.9	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Barium	410	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Beryllium	1.2	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Cadmium	< 0.079	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (8-10')	5/17/2016	cobalt	5.6	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-20 (8-10')	5/17/2016	Lead	2.8	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (8-10')	5/17/2016	manganese	370	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Nickel	11	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (8-10')	5/17/2016	Selenium	< 1.3674	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (10-12')	5/17/2016	Antimony	3.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Arsenic	1.9	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Barium	250	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Beryllium	1.1	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Cadmium	< 0.081	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (10-12')	5/17/2016	cobalt	5.6	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-20 (10-12')	5/17/2016	Lead	6	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (10-12')	5/17/2016	manganese	190	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Nickel	10	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (10-12')	5/17/2016	Selenium	< 1.3864	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (16-18')	5/17/2016	Antimony	2.5	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Arsenic	2.2	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Barium	210	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Beryllium	0.87	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Cadmium	< 0.075	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (16-18')	5/17/2016	cobalt	5.5	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-20 (16-18')	5/17/2016	Lead	5.3	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (16-18')	5/17/2016	manganese	750	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Nickel	10	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (16-18')	5/17/2016	Selenium	< 1.2956	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (20-22')	5/17/2016	Antimony	3.3	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (20-22')	5/17/2016	Arsenic	2.7	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20 (20-22')	5/17/2016	Barium	750	mg/kg	soil	J+	Qualified high bias due to Method MS/MSD recovery
SWMU 10-20 (20-22')	5/17/2016	Beryllium	0.88	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-20 (20-22')	5/17/2016	Cadmium	< 0.072	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-20 (20-22')	5/17/2016	cobalt	8.5	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-20 (20-22')	5/17/2016	Lead	3.5	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (20-22')	5/17/2016	manganese	1100	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (20-22')	5/17/2016	Nickel	14	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-20 (20-22')	5/17/2016	Selenium	< 1.2368	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-21 (20-22')	5/17/2016	cyanide	0.044	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-22 (2-2.5')	5/17/2016	cyanide	0.04	mg/kg	soil	J-	Qualified low bias due to Method MS recovery
SWMU 10-22 (8-9')	5/17/2016	cyanide	< 0.039	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-21 (2-2.5')	5/17/2016	Bis(2-ethylhexyl)phthalate	0.17	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-21 (12-14')	5/17/2016	Bis(2-ethylhexyl)phthalate	0.14	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-21 (20-22')	5/17/2016	Bis(2-ethylhexyl)phthalate	0.12	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-22 (2-2.5')	5/17/2016	Bis(2-ethylhexyl)phthalate	0.19	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-22 (8-9')	5/17/2016	Bis(2-ethylhexyl)phthalate	0.17	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-21 (12-14')	5/17/2016	Di-n-butyl phthalate	0.11	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-22 (2-2.5')	5/17/2016	Di-n-butyl phthalate	0.12	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-22 (8-9')	5/17/2016	Di-n-butyl phthalate	0.11	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-21 (2-2.5')	5/17/2016	Antimony	< 1.3	mg/kg	soil	UJ	Qualified low bias due to Method MS/MSD recovery
SWMU 10-21 (2-2.5')	5/17/2016	cobalt	3.7	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-21 (2-2.5')	5/17/2016	Lead	2.1	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-21 (2-2.5')	5/17/2016	Nickel	6	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-21 (2-2.5')	5/17/2016	Selenium	< 1.2	mg/kg	soil	UJ	Qualified low bias due to Method MSD recovery
SWMU 10-21 (2-2.5')	5/17/2016	zinc	16	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-21 (12-14')	5/17/2016	Antimony	< 7.3205	mg/kg	soil	UJ	Qualified low bias due to Method MS/MSD recovery
SWMU 10-21 (12-14')	5/17/2016	cobalt	5.6	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-21 (12-14')	5/17/2016	Lead	5.1	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-21 (12-14')	5/17/2016	Nickel	11	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-21 (12-14')	5/17/2016	Selenium	< 1.3487	mg/kg	soil	UJ	Qualified low bias due to Method MSD recovery
SWMU 10-21 (12-14')	5/17/2016	zinc	20	mg/kg	soil	J-	Qualified low bias due to Method MSD recovery
SWMU 10-20-GW	5/20/2016	cyanide	1.05	mg/l	Water	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20-GW	5/20/2016	mercury	0.00016	mg/l	Water	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-20-GW	5/20/2016	methlyene chloride	3.4	ug/l	Water	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-20-GW	5/20/2016	cyanide	1.05	mg/l	Water	J-	Qualified low bias due to Method MSD recovery
SWMU 10-23 (2-2.5')	9/19/2016	Antimony	< 2.2222	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-23 (2-2.5')	9/19/2016	Arsenic	< 1.9626	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-23 (2-2.5')	9/19/2016	Barium	220	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (2-2.5')	9/19/2016	Lead	2.6	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (2-2.5')	9/19/2016	Nickel	12	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (2-2.5')	9/19/2016	Selenium	< 4.0179	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-23 (2-2.5')	9/19/2016	zinc	21	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (15-16')	9/19/2016	Antimony	< 1.1461	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-23 (15-16')	9/19/2016	Arsenic	1	mg/kg	soil	J-	Qualfied low bias due to MS recovery for batch
SWMU 10-23 (15-16')	9/19/2016	Barium	730	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (15-16')	9/19/2016	Lead	0.95	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (15-16')	9/19/2016	Nickel	13	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-23 (15-16')	9/19/2016	Selenium	< 2.0723	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-23 (15-16')	9/19/2016	zinc	25	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (2-2.5')	9/19/2016	Antimony	1.1	mg/kg	soil	J-	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (2-2.5')	9/19/2016	Arsenic	< 0.9076	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-24 (2-2.5')	9/19/2016	Barium	190	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (2-2.5')	9/19/2016	Lead	2.3	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (2-2.5')	9/19/2016	Nickel	5.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (2-2.5')	9/19/2016	Selenium	< 1.858	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (2-2.5')	9/19/2016	zinc	11	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (6-8')	9/19/2016	Antimony	< 1.2345	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (6-8')	9/19/2016	Arsenic	< 1.0903	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-24 (6-8')	9/19/2016	Barium	120	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (6-8')	9/19/2016	Lead	3.9	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (6-8')	9/19/2016	Nickel	9.9	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (6-8')	9/19/2016	Selenium	< 2.2321	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (6-8')	9/19/2016	zinc	18	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (8-10')	9/19/2016	Antimony	< 2.4091	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (8-10')	9/19/2016	Arsenic	< 2.1276	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-24 (8-10')	9/19/2016	Barium	130	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (8-10')	9/19/2016	Lead	1.5	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (8-10')	9/19/2016	Nickel	12	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (8-10')	9/19/2016	Selenium	< 4.3557	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (8-10')	9/19/2016	zinc	22	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (15-16')	9/19/2016	Antimony	2.1	mg/kg	soil	J-	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (15-16')	9/19/2016	Arsenic	< 1.0181	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-24 (15-16')	9/19/2016	Barium	510	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (15-16')	9/19/2016	Lead	1.1	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (15-16')	9/19/2016	Nickel	16	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (15-16')	9/19/2016	Selenium	< 2.0843	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-24 (15-16')	9/19/2016	zinc	26	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (2-2.5')	9/19/2016	Antimony	< 1.1611	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (2-2.5')	9/19/2016	Arsenic	< 1.0254	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-25 (2-2.5')	9/19/2016	Barium	96	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (2-2.5')	9/19/2016	Lead	2.1	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (2-2.5')	9/19/2016	Nickel	5.7	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (2-2.5')	9/19/2016	Selenium	< 2.0993	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (2-2.5')	9/19/2016	zinc	11	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery

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Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-25 (10-12')	9/19/2016	Antimony	< 2.4915	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (10-12')	9/19/2016	Arsenic	< 2.2003	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-25 (10-12')	9/19/2016	Barium	190	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (10-12')	9/19/2016	Lead	2.9	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (10-12')	9/19/2016	Nickel	14	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (10-12')	9/19/2016	Selenium	< 4.5047	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (10-12')	9/19/2016	zinc	26	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (16.5-18')	9/19/2016	Antimony	1.6	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (16.5-18')	9/19/2016	Arsenic	< 1.0232	mg/kg	soil	UJ	Qualfied low bias due to MS recovery for batch
SWMU 10-25 (16.5-18')	9/19/2016	Barium	460	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (16.5-18')	9/19/2016	Lead	< 0.2001	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (16.5-18')	9/19/2016	Nickel	15	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-25 (16.5-18')	9/19/2016	Selenium	< 2.0948	mg/kg	soil	UJ	Qualfied low bias due to MS/MSD recovery for batch
SWMU 10-25 (16.5-18')	9/19/2016	zinc	27	mg/kg	soil	J-	Qualified low bias due to Method MS/MSD recovery
SWMU 10-24 (6-8')	9/19/2016	Toluene	0.25	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (6-8')	9/19/2016	Bromomethane	0.32	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (2-2.5')	9/19/2016	1,2,4-Trimethylbenzene	5.8	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-23 (15-16')	9/19/2016	1-Methylnaphthalene	0.0004	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (15-16')	9/19/2016	1-Methylnaphthalene	0.0008	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (2-2.5')	9/19/2016	1-Methylnaphthalene	13	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-23 (2-2.5')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.15	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-23 (2-2.5')	9/19/2016	Di-n-butyl phthalate	0.22	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-23 (15-16')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.17	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-23 (15-16')	9/19/2016	Di-n-butyl phthalate	0.25	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (2-2.5')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.16	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (2-2.5')	9/19/2016	Di-n-butyl phthalate	0.22	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (8-10')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.23	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (8-10')	9/19/2016	Di-n-butyl phthalate	0.28	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (15-16')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.16	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-24 (15-16')	9/19/2016	Di-n-butyl phthalate	0.15	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (2-2.5')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.22	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (2-2.5')	9/19/2016	Di-n-butyl phthalate	0.35	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (10-12')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.16	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (10-12')	9/19/2016	Di-n-butyl phthalate	0.22	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (16.5-18')	9/19/2016	Bis(2-ethylhexyl)phthalate	0.17	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-25 (16.5-18')	9/19/2016	Di-n-butyl phthalate	0.35	mg/kg	soil	J+	qualified as high due to presence in field sample at conc. <5 times conc. in method blank
SWMU 10-23 (2-2.5')	9/19/2016	manganese	450	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-23 (2-2.5')	9/19/2016	zinc	21	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-23 (15-16')	9/19/2016	manganese	850	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-23 (15-16')	9/19/2016	zinc	25	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (2-2.5')	9/19/2016	manganese	370	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration

Table A-2
Qualified Data
SWMU10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SWMU 10-24 (2-2.5')	9/19/2016	zinc	11	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (6-8')	9/19/2016	manganese	200	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (6-8')	9/19/2016	zinc	18	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (8-10')	9/19/2016	manganese	290	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (8-10')	9/19/2016	zinc	22	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (15-16')	9/19/2016	manganese	1400	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-24 (15-16')	9/19/2016	zinc	26	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (2-2.5')	9/19/2016	manganese	500	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (2-2.5')	9/19/2016	zinc	11	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (10-12')	9/19/2016	manganese	300	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (10-12')	9/19/2016	zinc	26	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (16.5-18')	9/19/2016	manganese	1100	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25 (16.5-18')	9/19/2016	zinc	27	mg/kg	soil	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25-GW	9/21/2016	manganese (total)	2.1	mg/l	Water	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25-GW	9/21/2016	Bis(2-ethylhexyl)phthalate	2.8	ug/l	Water	J+	qualified high due to presence in method blank, blank concentration <5 times field concentration
SWMU 10-25-GW	9/21/2016	4-Nitrophenol	< 2.553	ug/l	Water	UJ	Qualfied low bias due to MS/MSD recovery for batch

Notes:

UJ = Estimated reporting concentration
J- = Low bias
J+ = High bias

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	0.849320979 U	0.858017826 U	NC
	Diesel Range Organics (DRO)	160	150	1.6
	Motor Oil Range Organics (MRO)	330	310	1.6
VOCs (ug/kg-dry)	1,3,5-Trimethylbenzene	0.000347 J	0.000422 J	4.9
	Methylene chloride	0.000606 J	0.00051 J	4.3
	sec-Butylbenzene	0.000645 J	0.000534 J	4.7
	Ethylbenzene	0.000703 J	0.000638 J	2.4
	1,2,4-Trimethylbenzene	0.00077 J	0.000972 J	5.8
	2-Hexanone	0.000886 J	0.000653 J	7.6
	Benzene	0.00118 J	0.00104 J	3.2
	Xylenes, Total	0.00182 J	0.00171	1.6
	Toluene	0.00263	0.00232	3.1
	Acetone	0.0237	0.0166	8.8
	2-Butanone	0.00407 J	0.00253 J	11.7
	1,1,1,2-Tetrachloroethane	0.00031 U	0.00026 U	NC
	1,1,1-Trichloroethane	0.00027 U	0.00023 U	NC
	1,1,2,2-Tetrachloroethane	0.00042 U	0.00035 U	NC
	1,1,2-Trichloroethane	0.00193 U	0.00159 U	NC
	1,1-Dichloroethane	0.00045 U	0.00037 U	NC
	1,1-Dichloroethene	0.00032 U	0.00027 U	NC
	1,1-Dichloropropene	0.00035 U	0.00029 U	NC
	1,2,3-Trichlorobenzene	0.00070 U	0.00058 U	NC
	1,2,3-Trichloropropane	0.00068 U	0.00056 U	NC
	1,2,4-Trichlorobenzene	0.00072 U	0.00060 U	NC
	1,2-Dibromo-3-chloropropane	0.00057 U	0.00047 U	NC
	1,2-Dibromoethane (EDB)	0.00023 U	0.00019 U	NC
	1,2-Dichlorobenzene	0.00043 U	0.00035 U	NC
	1,2-Dichloroethane (EDC)	0.00052 U	0.00043 U	NC
	1,2-Dichloropropane	0.00041 U	0.00034 U	NC
	1,3-Dichlorobenzene	0.00033 U	0.00027 U	NC
	1,3-Dichloropropane	0.00030 U	0.00025 U	NC
	1,4-Dichlorobenzene	0.00030 U	0.00025 U	NC
	1-Methylnaphthalene	0.00076 U	0.00063 U	NC
	2,2-Dichloropropane	0.00033 U	0.00028 U	NC
	2-Chlorotoluene	0.00038 U	0.00031 U	NC
	2-Methylnaphthalene	0.00075 U	0.00062 U	NC
	4-Chlorotoluene	0.00037 U	0.00031 U	NC
	4-Isopropyltoluene	0.00075 U	0.00062 U	NC
	4-Methyl-2-pentanone	0.00081 U	0.00067 U	NC
	Bromobenzene	0.00054 U	0.00044 U	NC
	Bromodichloromethane	0.00026 U	0.00022 U	NC
	Bromoform	0.00050 U	0.00041 U	NC
	Bromomethane	0.00114 U	0.00094 U	NC
	Carbon disulfide	0.00087 U	0.00072 U	NC
	Carbon tetrachloride	0.00035 U	0.00029 U	NC
	Chlorobenzene	0.00020 U	0.00016 U	NC
	Chloroethane	0.00193 U	0.00159 U	NC
	Chloroform	0.00040 U	0.00033 U	NC
	Chloromethane	0.00023 U	0.00019 U	NC
	cis-1,2-DCE	0.00051 U	0.00042 U	NC
	cis-1,3-Dichloropropene	0.00193 U	0.00159 U	NC
	Dibromochloromethane	0.00022 U	0.00018 U	NC
	Dibromomethane	0.00109 U	0.00090 U	NC
	Dichlorodifluoromethane	0.00079 U	0.00065 U	NC
	Hexachlorobutadiene	0.00039 U	0.00032 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
	Isopropylbenzene	0.00045 U	0.00037 U	NC
	Methyl tert-butyl ether (MTBE)	0.00081 U	0.00067 U	NC
	Naphthalene	0.00063 U	0.00052 U	NC
	n-Butylbenzene	0.00079 U	0.00065 U	NC
	n-Propylbenzene	0.00036 U	0.00030 U	NC
	Styrene	0.00032 U	0.00026 U	NC
	tert-Butylbenzene	0.00030 U	0.00024 U	NC
	Tetrachloroethene (PCE)	0.00038 U	0.00032 U	NC
	trans-1,2-DCE	0.00031 U	0.00026 U	NC
	trans-1,3-Dichloropropene	0.00025 U	0.00021 U	NC
	Trichloroethene (TCE)	0.00038 U	0.00032 U	NC
	Trichlorofluoromethane	0.00039 U	0.00032 U	NC
	Vinyl chloride	0.00022 U	0.00018 U	NC
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	0.11459 U	2.81548 U	NC
	1,2-Dichlorobenzene	0.10707 U	2.63077 U	NC
	1,3-Dichlorobenzene	0.09942 U	2.44287 U	NC
	1,4-Dichlorobenzene	0.11708 U	2.87684 U	NC
	1-Methylnaphthalene	0.10376 U	2.54942 U	NC
	2,4,5-Trichlorophenol	0.13045 U	3.20523 U	NC
	2,4,6-Trichlorophenol	0.12941 U	3.17980 U	NC
	2,4-Dichlorophenol	0.11194 U	2.75040 U	NC
	2,4-Dimethylphenol	0.08799 U	2.16194 U	NC
	2,4-Dinitrophenol	0.04651 U	1.14282 U	NC
	2,4-Dinitrotoluene	0.10014 U	2.46060 U	NC
	2,6-Dinitrotoluene	0.12442 U	3.05723 U	NC
	2-Chloronaphthalene	0.11993 U	2.94674 U	NC
	2-Chlorophenol	0.10446 U	2.56672 U	NC
	2-Methylnaphthalene	0.10244 U	2.51697 U	NC
	2-Methylphenol	0.11222 U	2.75733 U	NC
	2-Nitroaniline	0.12737 U	3.12964 U	NC
	2-Nitrophenol	0.10061 U	2.47207 U	NC
	3,3´-Dichlorobenzidine	0.08619 U	2.11789 U	NC
	3+4-Methylphenol	0.11601 U	2.85059 U	NC
	3-Nitroaniline	0.10785 U	2.64997 U	NC
	4,6-Dinitro-2-methylphenol	0.06086 U	1.49551 U	NC
	4-Bromophenyl phenyl ether	0.11876 U	2.91810 U	NC
	4-Chloro-3-methylphenol	0.11145 U	2.73851 U	NC
	4-Chloroaniline	0.10352 U	2.54359 U	NC
	4-Chlorophenyl phenyl ether	0.16668 U	4.09557 U	NC
	4-Nitroaniline	0.10054 U	2.47040 U	NC
	4-Nitrophenol	0.09644 U	2.36972 U	NC
	Acenaphthene	0.13640 U	3.35154 U	NC
	Acenaphthylene	0.11339 U	2.78620 U	NC
	Aniline	0.09743 U	2.39403 U	NC
	Anthracene	0.09508 U	2.33627 U	NC
	Azobenzene	0.12548 U	3.08325 U	NC
	Benz(a)anthracene	0.08798 U	2.16169 U	NC
	Benzo(a)pyrene	0.12562 U	3.08667 U	NC
	Benzo(b)fluoranthene	0.10629 U	2.61175 U	NC
	Benzo(g,h,i)perylene	0.12738 U	3.12986 U	NC
	Benzo(k)fluoranthene	0.12650 U	3.10822 U	NC
	Benzoic acid	0.06378 U	1.56717 U	NC
	Benzyl alcohol	0.09943 U	2.44304 U	NC
	Bis(2-chloroethoxy)methane	0.10684 U	2.62506 U	NC
	Bis(2-chloroethyl)ether	0.11060 U	2.71765 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-14 (0-2') Sample Result	SWMU 10 DUP01 Duplicate Result	RPD (%)
	Bis(2-chloroisopropyl)ether	0.08552 U	2.10120 U	NC
	Bis(2-ethylhexyl)phthalate	0.12576 U	3.09000 U	NC
	Butyl benzyl phthalate	0.13665 U	3.35771 U	NC
	Carbazole	0.10425 U	2.56160 U	NC
	Chrysene	0.11240 U	2.76177 U	NC
	Dibenz(a,h)anthracene	0.12127 U	2.97976 U	NC
	Dibenzofuran	0.11971 U	2.94148 U	NC
	Diethyl phthalate	0.12704 U	3.12139 U	NC
	Dimethyl phthalate	0.10302 U	2.53119 U	NC
	Di-n-butyl phthalate	0.12659 U	3.11051 U	NC
	Di-n-octyl phthalate	0.12461 U	3.06182 U	NC
	Fluoranthene	0.13583 U	3.33755 U	NC
	Fluorene	0.15239 U	3.74428 U	NC
	Hexachlorobenzene	0.10565 U	2.59588 U	NC
	Hexachlorobutadiene	0.11074 U	2.72107 U	NC
	Hexachlorocyclopentadiene	0.07764 U	1.90769 U	NC
	Hexachloroethane	0.09964 U	2.44821 U	NC
	Indeno(1,2,3-cd)pyrene	0.12721 U	3.12562 U	NC
	Isophorone	0.11934 U	2.93240 U	NC
	Naphthalene	0.10651 U	2.61700 U	NC
	Nitrobenzene	0.11525 U	2.83176 U	NC
	N-Nitrosodi-n-propylamine	0.11603 U	2.85088 U	NC
	N-Nitrosodiphenylamine	0.10022 U	2.46238 U	NC
	Pentachlorophenol	0.06989 U	1.71719 U	NC
	Phenanthrene	0.11710 U	2.87735 U	NC
	Phenol	0.10032 U	2.46489 U	NC
	Pyrene	0.14447 U	3.54968 U	NC
	Pyridine	0.09406 U	2.31115 U	NC
Metals (mg/kg-dry):	Antimony	1.51 U	1.45 U	NC
	Arsenic	1.4 J	2.7 J	15.9
	Barium	460	380	4.8
	Beryllium	0.71	0.59	4.6
	Cadmium	0.03 U	0.03 U	NC
	Chromium	14	16	3.3
	Cobalt	3.8	3.4	2.8
	Cyanide	0.28 U	0.28 U	NC
	Hexavalent Chromium	2.26 U	2.26 U	NC
	Iron	10000	9100	2.4
	Lead	3.8	3.6	1.4
	Manganese	440	490	2.7
	Mercury	0.034 J	0.035 J	0.7
	Nickel	6.5	5.6	3.7
	Selenium	1.76 U	1.69 U	NC
	Silver	0.03 U	0.03 U	NC
	Vanadium	17	21	5.3
	Zinc	29	24	4.7

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	12 J	69	**35.2**
	Diesel Range Organics (DRO)	300	530	13.9
	Motor Oil Range Organics (MRO)	120	170	8.6
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	0.01186 U	0.02684 U	NC
	1,1,1-Trichloroethane	0.02196 U	0.04971 U	NC
	1,1,2,2-Tetrachloroethane	0.01752 U	0.03967 U	NC
	1,1,2-Trichloroethane	0.01738 U	0.03933 U	NC
	1,1-Dichloroethane	0.05784 U	0.13093 U	NC
	1,1-Dichloroethene	0.00995 U	0.02253 U	NC
	1,1-Dichloropropene	0.02153 U	0.04874 U	NC
	1,2,3-Trichlorobenzene	0.03086 U	0.06986 U	NC
	1,2,3-Trichloropropane	0.02426 U	0.05491 U	NC
	1,2,4-Trichlorobenzene	0.02668 U	0.06040 U	NC
	1,2,4-Trimethylbenzene	0.42	2.8	**37.0**
	1,2-Dibromo-3-chloropropane	0.02484 U	0.05622 U	NC
	1,2-Dibromoethane (EDB)	0.01152 U	0.02607 U	NC
	1,2-Dichlorobenzene	0.00872 U	0.01974 U	NC
	1,2-Dichloroethane (EDC)	0.05784 U	0.13093 U	NC
	1,2-Dichloropropane	0.00808 U	0.01830 U	NC
	1,3,5-Trimethylbenzene	0.12 J	0.82	**37.2**
	1,3-Dichlorobenzene	0.01703 U	0.03854 U	NC
	1,3-Dichloropropane	0.01991 U	0.04508 U	NC
	1,4-Dichlorobenzene	0.01801 U	0.04077 U	NC
	1-Methylnaphthalene	1.1	9.3	**39.4**
	2,2-Dichloropropane	0.02105 U	0.04765 U	NC
	2-Butanone	0.09296 U	0.21044 U	NC
	2-Chlorotoluene	0.01634 U	0.03699 U	NC
	2-Hexanone	0.03556 U	0.08050 U	NC
	2-Methylnaphthalene	1.5	13	**39.7**
	4-Chlorotoluene	0.01093 U	0.02475 U	NC
	4-Isopropyltoluene	0.01028 U	0.21 J	NC
	4-Methyl-2-pentanone	0.02509 U	0.05679 U	NC
	Acetone	0.10782 U	0.24407 U	NC
	Benzene	0.02144 U	0.04854 U	NC
	Bromobenzene	0.01073 U	0.02430 U	NC
	Bromodichloromethane	0.01183 U	0.02677 U	NC
	Bromoform	0.01162 U	0.02632 U	NC
	Bromomethane	0.02791 U	0.06318 U	NC
	Carbon disulfide	0.10405 U	0.23554 U	NC
	Carbon tetrachloride	0.01408 U	0.03188 U	NC
	Chlorobenzene	0.01113 U	0.02519 U	NC
	Chloroethane	0.11192 U	0.25337 U	NC
	Chloroform	0.01507 U	0.03412 U	NC
	Chloromethane	0.01674 U	0.03789 U	NC
	cis-1,2-DCE	0.01829 U	0.04141 U	NC
	cis-1,3-Dichloropropene	0.01003 U	0.02271 U	NC
	Dibromochloromethane	0.01084 U	0.02454 U	NC
	Dibromomethane	0.01522 U	0.03446 U	NC
	Dichlorodifluoromethane	0.03637 U	0.08232 U	NC
	Ethylbenzene	0.04 J	0.34	**39.5**
	Hexachlorobutadiene	0.02008 U	0.04545 U	NC
	Isopropylbenzene	0.016 J	0.16 J	**40.9**
	Methyl tert-butyl ether (MTBE)	0.02045 U	0.04629 U	NC
	Methylene chloride	0.05784 U	0.13093 U	NC
	Naphthalene	0.32	2.5	**38.7**
	n-Butylbenzene	0.065 J	0.4 J	**36.0**

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
	n-Propylbenzene	0.052 J	0.34	**36.7**
	sec-Butylbenzene	0.021 J	0.17 J	**39.0**
	Styrene	0.02654 U	0.06008 U	NC
	tert-Butylbenzene	0.01656 U	0.03749 U	NC
	Tetrachloroethene (PCE)	0.01253 U	0.02836 U	NC
	Toluene	0.01721 U	0.03895 U	NC
	trans-1,2-DCE	0.00940 U	0.02127 U	NC
	trans-1,3-Dichloropropene	0.02603 U	0.05893 U	NC
	Trichloroethene (TCE)	0.01408 U	0.03188 U	NC
	Trichlorofluoromethane	0.04364 U	0.09880 U	NC
	Vinyl chloride	0.05784 U	0.13093 U	NC
	Xylenes, Total	0.26 J	1.9	**38.0**
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	1.01696 U	0.12038 U	NC
	1,2-Dichlorobenzene	0.95024 U	0.11248 U	NC
	1,3-Dichlorobenzene	0.88237 U	0.10445 U	NC
	1,4-Dichlorobenzene	1.03912 U	0.12300 U	NC
	1-Methylnaphthalene	1.1 J	0.7	11.1
	2,4,5-Trichlorophenol	1.15774 U	0.13704 U	NC
	2,4,6-Trichlorophenol	1.14855 U	0.13595 U	NC
	2,4-Dichlorophenol	0.99345 U	0.11760 U	NC
	2,4-Dimethylphenol	0.78090 U	0.09244 U	NC
	2,4-Dinitrophenol	0.41279 U	0.04886 U	NC
	2,4-Dinitrotoluene	0.88877 U	0.10520 U	NC
	2,6-Dinitrotoluene	1.10428 U	0.13071 U	NC
	2-Chloronaphthalene	1.06437 U	0.12599 U	NC
	2-Chlorophenol	0.92710 U	0.10974 U	NC
	2-Methylnaphthalene	1 J	0.89	2.9
	2-Methylphenol	0.99595 U	0.11789 U	NC
	2-Nitroaniline	1.13043 U	0.13381 U	NC
	2-Nitrophenol	0.89292 U	0.10569 U	NC
	3,3´-Dichlorobenzidine	0.76499 U	0.09055 U	NC
	3+4-Methylphenol	1.02964 U	0.12188 U	NC
	3-Nitroaniline	0.95717 U	0.11330 U	NC
	4,6-Dinitro-2-methylphenol	0.54018 U	0.06394 U	NC
	4-Bromophenyl phenyl ether	1.05402 U	0.12477 U	NC
	4-Chloro-3-methylphenol	0.98915 U	0.11709 U	NC
	4-Chloroaniline	0.91875 U	0.10875 U	NC
	4-Chlorophenyl phenyl ether	1.47933 U	0.17511 U	NC
	4-Nitroaniline	0.89231 U	0.10562 U	NC
	4-Nitrophenol	0.85595 U	0.10132 U	NC
	Acenaphthene	1.21058 U	0.14330 U	NC
	Acenaphthylene	1.00638 U	0.11913 U	NC
	Aniline	0.86473 U	0.10236 U	NC
	Anthracene	0.84386 U	0.09989 U	NC
	Azobenzene	1.11368 U	0.13183 U	NC
	Benz(a)anthracene	0.78081 U	0.09242 U	NC
	Benzo(a)pyrene	1.11491 U	0.13197 U	NC
	Benzo(b)fluoranthene	0.94337 U	0.11167 U	NC
	Benzo(g,h,i)perylene	1.13051 U	0.13382 U	NC
	Benzo(k)fluoranthene	1.12270 U	0.13289 U	NC
	Benzoic acid	0.56607 U	0.06701 U	NC
	Benzyl alcohol	0.88243 U	0.10445 U	NC
	Bis(2-chloroethoxy)methane	0.94818 U	0.11224 U	NC
	Bis(2-chloroethyl)ether	0.98162 U	0.11619 U	NC
	Bis(2-chloroisopropyl)ether	0.75896 U	0.08984 U	NC
	Bis(2-ethylhexyl)phthalate	1.11611 U	0.13212 U	NC

Table 3A
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-9 (4-6') Sample Result	SWMU 10-9 DUP02 Duplicate Result	RPD (%)
	Butyl benzyl phthalate	1.21281 U	0.14356 U	NC
	Carbazole	0.92525 U	0.10952 U	NC
	Chrysene	0.99756 U	0.11808 U	NC
	Dibenz(a,h)anthracene	1.07629 U	0.12740 U	NC
	Dibenzofuran	1.06247 U	0.12577 U	NC
	Diethyl phthalate	1.12745 U	0.13346 U	NC
	Dimethyl phthalate	0.91427 U	0.10822 U	NC
	Di-n-butyl phthalate	1.12352 U	0.13299 U	NC
	Di-n-octyl phthalate	1.10594 U	0.13091 U	NC
	Fluoranthene	1.20553 U	0.14270 U	NC
	Fluorene	1.35244 U	0.16009 U	NC
	Hexachlorobenzene	0.93764 U	0.11099 U	NC
	Hexachlorobutadiene	0.98286 U	0.11634 U	NC
	Hexachlorocyclopentadiene	0.68906 U	0.08156 U	NC
	Hexachloroethane	0.88430 U	0.10467 U	NC
	Indeno(1,2,3-cd)pyrene	1.12898 U	0.13364 U	NC
	Isophorone	1.05919 U	0.12538 U	NC
	Naphthalene	0.94527 U	0.33	NC
	Nitrobenzene	1.02284 U	0.12107 U	NC
	N-Nitrosodi-n-propylamine	1.02975 U	0.12189 U	NC
	N-Nitrosodiphenylamine	0.88942 U	0.10528 U	NC
	Pentachlorophenol	0.62025 U	0.07342 U	NC
	Phenanthrene	1.03930 U	0.12302 U	NC
	Phenol	0.89032 U	0.10539 U	NC
	Pyrene	1.28215 U	0.15177 U	NC
	Pyridine	0.83479 U	0.09881 U	NC
Metals (mg/kg-dry):	Antimony	1.56 U	1.54 U	NC
	Arsenic	1.1 J	1.3 J	4.2
	Barium	250	190	6.8
	Beryllium	0.94	0.9	1.1
	Cadmium	0.033002519 U	0.03 U	NC
	Chromium	14	8.5	12.2
	Cobalt	5.3	4.1	6.4
	Cyanide	0.300287306 U	0.30 U	NC
	Hexavalent Chromium	2.40229845 U	2.37 U	NC
	Iron	16000	13000	5.2
	Lead	3.2	3.3	0.8
	Manganese	290	170	13.0
	Mercury	0.0086 J	0.0043 J	16.7
	Nickel	10	7.4	7.5
	Selenium	1.820599379 U	1.80 U	NC
	Silver	0.035376801 U	0.03 U	NC
	Vanadium	19	19	0.0
	Zinc	32	49	10.5

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	1.22 U	1.16 U	NC
	Diesel Range Organics (DRO)	5.32 U	5.44 U	NC
	Motor Oil Range Organics (MRO)	48.08 U	49.16 U	NC
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	0.000407 U	0.000378 U	NC
	1,1,1-Trichloroethane	0.000356 U	0.000331 U	NC
	1,1,2,2-Tetrachloroethane	0.000550 U	0.000511 U	NC
	1,1,2-Trichloroethane	0.002501 U	0.002325 U	NC
	1,1-Dichloroethane	0.000584 U	0.000543 U	NC
	1,1-Dichloroethene	0.000417 U	0.000388 U	NC
	1,1-Dichloropropene	0.000458 U	0.000426 U	NC
	1,2,3-Trichlorobenzene	0.000915 U	0.000851 U	NC
	1,2,3-Trichloropropane	0.000878 U	0.000816 U	NC
	1,2,4-Trichlorobenzene	0.000937 U	0.000871 U	NC
	1,2,4-Trimethylbenzene	0.00363	0.00292	5.4
	1,2-Dibromo-3-chloropropane	0.000735 U	0.000683 U	NC
	1,2-Dibromoethane (EDB)	0.000299 U	0.000278 U	NC
	1,2-Dichlorobenzene	0.000555 U	0.000516 U	NC
	1,2-Dichloroethane (EDC)	0.000670 U	0.000623 U	NC
	1,2-Dichloropropane	0.000534 U	0.000497 U	NC
	1,3,5-Trimethylbenzene	0.0022 J	0.00172 J	6.1
	1,3-Dichlorobenzene	0.000424 U	0.000394 U	NC
	1,3-Dichloropropane	0.000390 U	0.000362 U	NC
	1,4-Dichlorobenzene	0.000393 U	0.000365 U	NC
	1-Methylnaphthalene	0.000982 U	0.000913 U	NC
	2,2-Dichloropropane	0.000434 U	0.000404 U	NC
	2-Butanone	0.000801 U	0.000745 U	NC
	2-Chlorotoluene	0.000488 U	0.000454 U	NC
	2-Hexanone	0.000520 U	0.000484 U	NC
	2-Methylnaphthalene	0.000977 U	0.000909 U	NC
	4-Chlorotoluene	0.000482 U	0.000448 U	NC
	4-Isopropyltoluene	0.000971 U	0.000902 U	NC
	4-Methyl-2-pentanone	0.001056 U	0.000982 U	NC
	Acetone	0.00589 J	0.00256 J	19.7
	Benzene	0.0226	0.0206	2.3
	Bromobenzene	0.000696 U	0.000647 U	NC
	Bromodichloromethane	0.000338 U	0.000314 U	NC
	Bromoform	0.000648 U	0.000603 U	NC
	Bromomethane	0.001479 U	0.001375 U	NC
	Carbon disulfide	0.001132 U	0.001052 U	NC
	Carbon tetrachloride	0.000453 U	0.000421 U	NC
	Chlorobenzene	0.000254 U	0.000236 U	NC
	Chloroethane	0.002501 U	0.002325 U	NC
	Chloroform	0.000515 U	0.000479 U	NC
	Chloromethane	0.000295 U	0.000274 U	NC
	cis-1,2-DCE	0.000661 U	0.000615 U	NC
	cis-1,3-Dichloropropene	0.002501 U	0.002325 U	NC
	Dibromochloromethane	0.000281 U	0.000261 U	NC
	Dibromomethane	0.001419 U	0.001320 U	NC
	Dichlorodifluoromethane	0.001021 U	0.000949 U	NC
	Ethylbenzene	0.0035	0.00328	1.6
	Hexachlorobutadiene	0.000505 U	0.000469 U	NC
	Isopropylbenzene	0.000580 U	0.000539 U	NC
	Methyl tert-butyl ether (MTBE)	0.001049 U	0.000975 U	NC
	Methylene chloride	0.000618 U	0.000721 J	NC
	Naphthalene	0.00103 J	0.000837 J	5.2

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
	n-Butylbenzene	0.001027 U	0.000955 U	NC
	n-Propylbenzene	0.000638 J	0.000477 J	7.2
	sec-Butylbenzene	0.000925 J	0.000849 J	2.1
	Styrene	0.000414 U	0.000385 U	NC
	tert-Butylbenzene	0.000383 U	0.000356 U	NC
	Tetrachloroethene (PCE)	0.000496 U	0.000461 U	NC
	Toluene	0.0146	0.0139	1.2
	trans-1,2-DCE	0.000404 U	0.000376 U	NC
	trans-1,3-Dichloropropene	0.000327 U	0.000304 U	NC
	Trichloroethene (TCE)	0.000497 U	0.000462 U	NC
	Trichlorofluoromethane	0.000505 U	0.000470 U	NC
	Vinyl chloride	0.000286 U	0.000266 U	NC
	Xylenes, Total	0.0116	0.00984	4.1
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	0.120870 U	0.112566 U	NC
	1,2-Dichlorobenzene	0.112940 U	0.105182 U	NC
	1,3-Dichlorobenzene	0.104874 U	0.097669 U	NC
	1,4-Dichlorobenzene	0.123504 U	0.115020 U	NC
	1-Methylnaphthalene	0.109448 U	0.101929 U	NC
	2,4,5-Trichlorophenol	0.137603 U	0.128149 U	NC
	2,4,6-Trichlorophenol	0.136511 U	0.127132 U	NC
	2,4-Dichlorophenol	0.118076 U	0.109965 U	NC
	2,4-Dimethylphenol	0.092814 U	0.086437 U	NC
	2,4-Dinitrophenol	0.049062 U	0.045692 U	NC
	2,4-Dinitrotoluene	0.105635 U	0.098378 U	NC
	2,6-Dinitrotoluene	0.131249 U	0.122232 U	NC
	2-Chloronaphthalene	0.126505 U	0.117815 U	NC
	2-Chlorophenol	0.110191 U	0.102621 U	NC
	2-Methylnaphthalene	0.108055 U	0.100632 U	NC
	2-Methylphenol	0.118374 U	0.110242 U	NC
	2-Nitroaniline	0.134357 U	0.125127 U	NC
	2-Nitrophenol	0.106127 U	0.098836 U	NC
	3,3´-Dichlorobenzidine	0.090922 U	0.084676 U	NC
	3+4-Methylphenol	0.122378 U	0.113970 U	NC
	3-Nitroaniline	0.113765 U	0.105949 U	NC
	4,6-Dinitro-2-methylphenol	0.064203 U	0.059792 U	NC
	4-Bromophenyl phenyl ether	0.125276 U	0.116669 U	NC
	4-Chloro-3-methylphenol	0.117566 U	0.109489 U	NC
	4-Chloroaniline	0.109198 U	0.101696 U	NC
	4-Chlorophenyl phenyl ether	0.175825 U	0.163746 U	NC
	4-Nitroaniline	0.106056 U	0.098770 U	NC
	4-Nitrophenol	0.101733 U	0.094744 U	NC
	Acenaphthene	0.143884 U	0.133999 U	NC
	Acenaphthylene	0.119613 U	0.111396 U	NC
	Aniline	0.102777 U	0.095717 U	NC
	Anthracene	0.100297 U	0.093407 U	NC
	Azobenzene	0.132366 U	0.123272 U	NC
	Benz(a)anthracene	0.092803 U	0.086427 U	NC
	Benzo(a)pyrene	0.132513 U	0.123409 U	NC
	Benzo(b)fluoranthene	0.112124 U	0.104421 U	NC
	Benzo(g,h,i)perylene	0.134367 U	0.125136 U	NC
	Benzo(k)fluoranthene	0.133438 U	0.124271 U	NC
	Benzoic acid	0.067280 U	0.062658 U	NC
	Benzyl alcohol	0.104881 U	0.097676 U	NC
	Bis(2-chloroethoxy)methane	0.112695 U	0.104953 U	NC
	Bis(2-chloroethyl)ether	0.116670 U	0.108655 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-6 (10-12') Sample Result	SWMU 10 DUP03 Field Duplicate	RPD (%)
	Bis(2-chloroisopropyl)ether	0.090206 U	0.084009 U	NC
	Bis(2-ethylhexyl)phthalate	0.132656 U	0.123542 U	NC
	Butyl benzyl phthalate	0.144149 U	0.134246 U	NC
	Carbazole	0.109971 U	0.102416 U	NC
	Chrysene	0.118564 U	0.110419 U	NC
	Dibenz(a,h)anthracene	0.127923 U	0.119135 U	NC
	Dibenzofuran	0.126280 U	0.117604 U	NC
	Diethyl phthalate	0.134003 U	0.124797 U	NC
	Dimethyl phthalate	0.108666 U	0.101200 U	NC
	Di-n-butyl phthalate	0.133536 U	0.124362 U	NC
	Di-n-octyl phthalate	0.131446 U	0.122416 U	NC
	Fluoranthene	0.143283 U	0.133440 U	NC
	Fluorene	0.160744 U	0.149701 U	NC
	Hexachlorobenzene	0.111443 U	0.103787 U	NC
	Hexachlorobutadiene	0.116817 U	0.108792 U	NC
	Hexachlorocyclopentadiene	0.081898 U	0.076272 U	NC
	Hexachloroethane	0.105103 U	0.097883 U	NC
	Indeno(1,2,3-cd)pyrene	0.134185 U	0.124967 U	NC
	Isophorone	0.125890 U	0.117241 U	NC
	Naphthalene	0.112350 U	0.104631 U	NC
	Nitrobenzene	0.121569 U	0.113217 U	NC
	N-Nitrosodi-n-propylamine	0.122390 U	0.113982 U	NC
	N-Nitrosodiphenylamine	0.105712 U	0.098449 U	NC
	Pentachlorophenol	0.073720 U	0.068656 U	NC
	Phenanthrene	0.123526 U	0.115040 U	NC
	Phenol	0.105819 U	0.098549 U	NC
	Pyrene	0.152390 U	0.141921 U	NC
	Pyridine	0.099219 U	0.092403 U	NC
Metals (mg/kg-dry):	Antimony	1.9 J	1.9 J	0.0
	Arsenic	2.1 J	2.2 J	1.2
	Barium	550	450	5.0
	Beryllium	1	0.95	1.3
	Cadmium	0.033 U	0.03 U	NC
	Chromium	14	13	1.9
	Cobalt	8	7	3.3
	Cyanide	0.296 U	0.28 U	NC
	Hexavalent Chromium	2.368 U	260	NC
	Iron	20000	20000	0.0
	Lead	1.6	1.4	3.3
	Manganese	760	730	1.0
	Mercury	0.0035 U	0.0031 U	NC
	Nickel	16	13	5.2
	Selenium	1.821 U	1.69 U	NC
	Silver	0.035 U	0.03 U	NC
	Vanadium	14	17	4.8
	Zinc	23	21	2.3

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-17 (6-8') Sample Result		SWMU 10 DUP04 Field Duplicate		RPD (%)
TPH (mg/kg-dry):	Gasoline Range Organics (GRO)	1300		1100	v	4.2
	Diesel Range Organics (DRO)	7800		3000	v	22.2
	Motor Oil Range Organics (MRO)	ND	U	< 488	u	NC
VOCs (ug/kg-dry)	1,1,1,2-Tetrachloroethane	ND	U	< 0.0526	u	NC
	1,1,1-Trichloroethane	ND	U	< 0.0975	u	NC
	1,1,2,2-Tetrachloroethane	ND	U	< 0.0778	u	NC
	1,1,2-Trichloroethane	ND	U	< 0.0771	u	NC
	1,1-Dichloroethane	ND	U	< 0.2568	u	NC
	1,1-Dichloroethene	ND	U	< 0.0442	u	NC
	1,1-Dichloropropene	ND	U	< 0.0956	u	NC
	1,2,3-Trichlorobenzene	ND	U	< 0.137	u	NC
	1,2,3-Trichloropropane	ND	U	< 0.1077	u	NC
	1,2,4-Trichlorobenzene	ND	U	< 0.11844	u	NC
	1,2,4-Trimethylbenzene	27		17	v	11.4
	1,2-Dibromo-3-chloropropane	ND	U	< 0.1103	u	NC
	1,2-Dibromoethane (EDB)	ND	U	< 0.0511	u	NC
	1,2-Dichlorobenzene	ND	U	< 0.03871	u	NC
	1,2-Dichloroethane (EDC)	ND	U	< 0.2568	u	NC
	1,2-Dichloropropane	ND	U	< 0.0359	u	NC
	1,3,5-Trimethylbenzene	10		6.2	v	11.7
	1,3-Dichlorobenzene	ND	U	< 0.07558	u	NC
	1,3-Dichloropropane	ND	U	< 0.0884	u	NC
	1,4-Dichlorobenzene	ND	U	< 0.07995	u	NC
	1-Methylnaphthalene	48		31	v	10.8
	2,2-Dichloropropane	ND	U	< 0.0934	u	NC
	2-Butanone	ND	U	< 0.4127	u	NC
	2-Chlorotoluene	ND	U	< 0.0725	u	NC
	2-Hexanone	ND	U	< 0.1579	u	NC
	2-Methylnaphthalene	87		60	v	9.2
	4-Chlorotoluene	ND	U	< 0.0485	u	NC
	4-Isopropyltoluene	1.6		1.1	v	9.3
	4-Methyl-2-pentanone	ND	U	< 0.1114	u	NC
	Acetone	ND	U	< 0.4786	u	NC
	Benzene	1.9		1.2	v	11.3
	Bromobenzene	ND	U	< 0.0476	u	NC
	Bromodichloromethane	ND	U	< 0.0525	u	NC
	Bromoform	ND	U	< 0.0516	u	NC
	Bromomethane	ND	U	< 0.1239	u	NC
	Carbon disulfide	ND	U	< 0.4619	u	NC
	Carbon tetrachloride	ND	U	< 0.0625	u	NC
	Chlorobenzene	ND	U	< 0.0494	u	NC
	Chloroethane	ND	U	< 0.4969	u	NC
	Chloroform	ND	U	< 0.0669	u	NC
	Chloromethane	ND	U	< 0.0743	u	NC
	cis-1,2-DCE	ND	U	< 0.0812	u	NC
	cis-1,3-Dichloropropene	ND	U	< 0.0445	u	NC
	Dibromochloromethane	ND	U	< 0.0481	u	NC
	Dibromomethane	ND	U	< 0.0676	u	NC
	Dichlorodifluoromethane	ND	U	< 0.1614	u	NC
	Ethylbenzene	11		8.3	v	7.0
	Hexachlorobutadiene	ND	U	< 0.08913	u	NC
	Isopropylbenzene	3.1		2.3	v	7.4
	Methyl tert-butyl ether (MTBE)	ND	U	< 0.0908	u	NC
	Methylene chloride	ND	U	< 0.2568	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-17 (6-8') Sample Result		SWMU 10 DUP04 Field Duplicate		RPD (%)
	Naphthalene	20		13	v	10.6
	n-Butylbenzene	2.8		1.9	J	9.6
	n-Propylbenzene	5.2		3.3	v	11.2
	sec-Butylbenzene	1.8		1	v	14.3
	Styrene	ND	U	< 0.1178	u	NC
	tert-Butylbenzene	ND	U	< 0.0735	u	NC
	Tetrachloroethene (PCE)	ND	U	< 0.0556	u	NC
	Toluene	34		23	v	9.6
	trans-1,2-DCE	ND	U	< 0.0417	u	NC
	trans-1,3-Dichloropropene	ND	U	< 0.1156	u	NC
	Trichloroethene (TCE)	ND	U	< 0.0625	u	NC
	Trichlorofluoromethane	ND	U	< 0.1938	u	NC
	Vinyl chloride	ND	U	< 0.2568	u	NC
	Xylenes, Total	86		65	v	7.0
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	ND	U	< 1.163	u	NC
	1,2-Dichlorobenzene	ND	U	< 1.0867	u	NC
	1,3-Dichlorobenzene	ND	U	< 1.0091	u	NC
	1,4-Dichlorobenzene	ND	U	< 1.1883	u	NC
	1-Methylnaphthalene	76		28	v	23.1
	2,4,5-Trichlorophenol	ND	U	< 1.324	u	NC
	2,4,6-Trichlorophenol	ND	U	< 1.3135	u	NC
	2,4-Dichlorophenol	ND	U	< 1.1361	u	NC
	2,4-Dimethylphenol	36		18	v	16.7
	2,4-Dinitrophenol	ND	U	< 0.4721	u	NC
	2,4-Dinitrotoluene	ND	U	< 1.0164	u	NC
	2,6-Dinitrotoluene	ND	U	< 1.2629	u	NC
	2-Chloronaphthalene	ND	U	< 1.2172	u	NC
	2-Chlorophenol	ND	U	< 1.0602	u	NC
	2-Methylnaphthalene	130		45	v	24.3
	2-Methylphenol	56		29	v	15.9
	2-Nitroaniline	ND	U	< 1.2928	u	NC
	2-Nitrophenol	ND	U	< 1.0211	u	NC
	3,3´-Dichlorobenzidine	ND	U	< 0.8748	u	NC
	3+4-Methylphenol	100		60	v	12.5
	3-Nitroaniline	ND	U	< 1.0946	u	NC
	4,6-Dinitro-2-methylphenol	ND	U	< 0.6178	u	NC
	4-Bromophenyl phenyl ether	ND	U	< 1.2054	u	NC
	4-Chloro-3-methylphenol	ND	U	< 1.1312	u	NC
	4-Chloroaniline	ND	U	< 1.0507	u	NC
	4-Chlorophenyl phenyl ether	ND	U	< 1.6918	u	NC
	4-Nitroaniline	ND	U	< 1.0205	u	NC
	4-Nitrophenol	ND	U	< 0.9789	u	NC
	Acenaphthene	ND	U	< 1.3844	u	NC
	Acenaphthylene	ND	U	< 1.1509	u	NC
	Aniline	ND	U	< 0.9889	u	NC
	Anthracene	ND	U	< 0.965	u	NC
	Azobenzene	ND	U	< 1.2736	u	NC
	Benz(a)anthracene	ND	U	< 0.8929	u	NC
	Benzo(a)pyrene	ND	U	< 1.275	u	NC
	Benzo(b)fluoranthene	ND	U	< 1.0788	u	NC
	Benzo(g,h,i)perylene	ND	U	< 1.2929	u	NC
	Benzo(k)fluoranthene	ND	U	< 1.2839	u	NC
	Benzoic acid	ND	U	< 0.6474	u	NC
	Benzyl alcohol	ND	U	< 1.0092	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-17 (6-8') Sample Result		SWMU 10 DUP04 Field Duplicate		RPD (%)
	Bis(2-chloroethoxy)methane	ND	U	< 1.0843	u	NC
	Bis(2-chloroethyl)ether	ND	U	< 1.1226	u	NC
	Bis(2-chloroisopropyl)ether	ND	U	< 0.8679	u	NC
	Bis(2-ethylhexyl)phthalate	ND	U	< 1.2764	u	NC
	Butyl benzyl phthalate	ND	U	< 1.387	u	NC
	Carbazole	ND	U	< 1.0581	u	NC
	Chrysene	ND	U	< 1.1408	u	NC
	Dibenz(a,h)anthracene	ND	U	< 1.2309	u	NC
	Dibenzofuran	ND	U	< 1.215	u	NC
	Diethyl phthalate	ND	U	< 1.2894	u	NC
	Dimethyl phthalate	ND	U	< 1.0456	u	NC
	Di-n-butyl phthalate	ND	U	< 1.2849	u	NC
	Di-n-octyl phthalate	ND	U	< 1.2648	u	NC
	Fluoranthene	ND	U	< 1.3787	u	NC
	Fluorene	7.1		3.2	v	18.9
	Hexachlorobenzene	ND	U	< 1.0723	u	NC
	Hexachlorobutadiene	ND	U	< 1.124	u	NC
	Hexachlorocyclopentadiene	ND	U	< 0.788	u	NC
	Hexachloroethane	ND	U	< 1.0113	u	NC
	Indeno(1,2,3-cd)pyrene	ND	U	< 1.2911	u	NC
	Naphthalene	24		8.8	v	23.2
	Nitrobenzene	ND	U	< 1.1697	u	NC
	N-Nitrosodi-n-propylamine	ND	U	< 1.1776	u	NC
	N-Nitrosodiphenylamine	ND	U	< 1.0171	u	NC
	Pentachlorophenol	ND	U	< 0.7093	u	NC
	Phenanthrene	15		6	v	21.4
	Phenol	52		26	v	16.7
	Pyrene	ND	U	< 1.4663	u	NC
	Pyridine	ND	U	< 0.9547	u	NC
Metals (mg/kg-dry):	Antimony	ND	U	< 1.5264	u	NC
	Arsenic	1.5	J	1.1	J	7.7
	Barium	200		160	v	5.6
	Beryllium	1		1.1	v	2.4
	Cadmium	ND	U	< 0.0322	u	NC
	Chromium	11		11	v	0.0
	Cobalt	5.3		< 2.2887	u	NC
	Cyanide	ND	U	5.4	v	NC
	Hexavalent Chromium	ND	U	< 0.2861	u	NC
	Iron	16000		16000	v	0.0
	Lead	4.4		5.3	v	4.6
	Manganese	210		200	v	1.2
	Mercury	ND	U	< 0.0032	u	NC
	Nickel	9.6		9.5	v	0.3
	Selenium	ND	U	< 1.7774	u	NC
	Silver	ND	U	< 0.0345	u	NC
	Vanadium	19		19	v	0.0
	Zinc	17		17	v	0.0

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

		SWMU 10-22 (2-2.5')		DUP01		
		1605943-004		1605943-006		RPD
	Parameter	Sample Result		Field Duplicate		%
TPH (mg/kg-dry)	Gasoline Range Organics (GRO)	0.6	J	< 0.858	u	NC
	Diesel Range Organics (DRO)	< 4.5	u	150	v	NC
	Motor Oil Range Organics (MRO)	< 62	u	310	v	NC
VOCs (mg/kg-dry)	1,1,1,2-Tetrachloroethane	< 0.0017	u	< 0.0003	u	NC
	1,1,1-Trichloroethane	< 0.0017	u	< 0.0002	u	NC
	1,1,2,2-Tetrachloroethane	< 0.0017	u	< 0.0004	u	NC
	1,1,2-Trichloroethane	< 0.0017	u	< 0.0016	u	NC
	1,1-Dichloroethane	< 0.0017	u	< 0.0004	u	NC
	1,1-Dichloroethene	< 0.0003	u	< 0.0003	u	NC
	1,1-Dichloropropene	< 0.0017	u	< 0.0003	u	NC
	1,2,3-Trichlorobenzene	< 0.0004	u	< 0.0006	u	NC
	1,2,3-Trichloropropane	< 0.0017	u	< 0.0006	u	NC
	1,2,4-Trichlorobenzene	< 0.0005	u	< 0.00059	u	NC
	1,2,4-Trimethylbenzene	0.0003	J	0.000972	J	26.4
	1,2-Dibromo-3-chloropropane	< 0.0002	u	< 0.0005	u	NC
	1,2-Dibromoethane (EDB)	< 0.0017	u	< 0.0002	u	NC
	1,2-Dichlorobenzene	< 0.0002	u	< 0.00035	u	NC
	1,2-Dichloroethane (EDC)	< 0.0017	u	< 0.0004	u	NC
	1,2-Dichloropropane	< 0.0017	u	< 0.0003	u	NC
	1,3,5-Trimethylbenzene	< 0.0003	u	0.000422	J	NC
	1,3-Dichlorobenzene	< 0.0003	u	< 0.00027	u	NC
	1,3-Dichloropropane	< 0.0017	u	< 0.0002	u	NC
	1,4-Dichlorobenzene	< 0.0003	u	< 0.00025	u	NC
	1-Methylnaphthalene	< 0.0002	u	< 0.00062	u	NC
	2,2-Dichloropropane	< 0.0002	u	< 0.0003	u	NC
	2-Butanone	< 0.0006	u	0.00253	J	NC
	2-Chlorotoluene	< 0.0003	u	< 0.0003	u	NC
	2-Hexanone	< 0.0004	u	0.000653	J	NC
	2-Methylnaphthalene	< 0.0004	u	< 0.00062	u	NC
	4-Chlorotoluene	< 0.0003	u	< 0.0003	u	NC
	4-Isopropyltoluene	< 0.0003	u	< 0.0006	u	NC
	4-Methyl-2-pentanone	< 0.0033	u	< 0.0007	u	NC
	Acetone	0.0117	v	0.0166	v	8.7
	Benzene	< 0.0017	u	0.00104	J	NC
	Bromobenzene	< 0.0002	u	< 0.0004	u	NC
	Bromodichloromethane	< 0.0017	u	< 0.0002	u	NC
	Bromoform	< 0.0017	u	< 0.0004	u	NC
	Bromomethane	< 0.0003	u	< 0.0009	u	NC
	Carbon disulfide	< 0.0006	u	< 0.0007	u	NC
	Carbon tetrachloride	< 0.0017	u	< 0.0003	u	NC
	Chlorobenzene	< 0.0002	u	< 0.0002	u	NC
	Chloroethane	< 0.0003	u	< 0.0016	u	NC
	Chloroform	< 0.0017	u	< 0.0003	u	NC
	Chloromethane	< 0.0004	u	< 0.0002	u	NC
	cis-1,2-DCE	< 0.0017	u	< 0.0004	u	NC
	cis-1,3-Dichloropropene	< 0.0017	u	< 0.0016	u	NC
	Dibromochloromethane	< 0.0017	u	< 0.0002	u	NC
	Dibromomethane	< 0.0017	u	< 0.0009	u	NC
	Dichlorodifluoromethane	< 0.001	u	< 0.0007	u	NC
	Ethylbenzene	< 0.0002	u	0.000638	J	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

		SWMU 10-22 (2-2.5')		DUP01		
		1605943-004		1605943-006		RPD
	Parameter	Sample Result		Field Duplicate		%
	Hexachlorobutadiene	< 0.0004	u	< 0.00032	u	NC
	Isopropylbenzene	< 0.0002	u	< 0.0004	u	NC
	Methyl tert-butyl ether (MTBE)	< 0.0003	u	< 0.0007	u	NC
	Methylene chloride	< 0.0017	u	0.00051	J	NC
	Naphthalene	< 0.0017	u	< 0.00052	u	NC
	n-Butylbenzene	< 0.0004	u	< 0.0007	u	NC
	n-Propylbenzene	< 0.0003	u	< 0.0003	u	NC
	sec-Butylbenzene	< 0.0003	u	0.000534	J	NC
	Styrene	< 0.0002	u	< 0.0003	u	NC
	tert-Butylbenzene	< 0.0002	u	< 0.0002	u	NC
	Tetrachloroethene (PCE)	< 0.0002	u	< 0.0003	u	NC
	Toluene	0.0012	J	0.00232	v	15.9
	trans-1,2-DCE	< 0.0002	u	< 0.0003	u	NC
	trans-1,3-Dichloropropene	< 0.0002	u	< 0.0002	u	NC
	Trichloroethene (TCE)	< 0.0017	u	< 0.0003	u	NC
	Trichlorofluoromethane	< 0.0002	u	< 0.0003	u	NC
	Vinyl chloride	< 0.0004	u	< 0.0002	u	NC
	Xylenes, Total	< 0.0007	u	0.00171	v	NC
SVOCs (mg/kg-dry)	1,2,4-Trichlorobenzene	< 0.13	u	< 2.8155	u	NC
	1,2-Dichlorobenzene	< 0.094	u	< 2.6308	u	NC
	1,3-Dichlorobenzene	< 0.095	u	< 2.4429	u	NC
	1,4-Dichlorobenzene	< 0.1	u	< 2.8768	u	NC
	1-Methylnaphthalene	< 0.12	u	< 2.5494	u	NC
	2,4,5-Trichlorophenol	< 0.12	u	< 3.2052	u	NC
	2,4,6-Trichlorophenol	< 0.1	u	< 3.1798	u	NC
	2,4-Dichlorophenol	< 0.11	u	< 2.7504	u	NC
	2,4-Dimethylphenol	< 0.13	u	< 2.1619	u	NC
	2,4-Dinitrophenol	< 0.081	u	< 1.1428	u	NC
	2,4-Dinitrotoluene	< 0.11	u	< 2.4606	u	NC
	2,6-Dinitrotoluene	< 0.13	u	< 3.0572	u	NC
	2-Chloronaphthalene	< 0.097	u	< 2.9467	u	NC
	2-Chlorophenol	< 0.097	u	< 2.5667	u	NC
	2-Methylnaphthalene	< 0.15	u	< 2.517	u	NC
	'2-Methylphenol (cresol,o-)	< 0.1	u	< 2.7573	u	NC
	2-Nitroaniline	< 0.13	u	< 3.1296	u	NC
	2-Nitrophenol	< 0.12	u	< 2.4721	u	NC
	3,3´-Dichlorobenzidine	< 0.09	u	< 2.1179	u	NC
	3+4-Methylphenol	< 0.089	u	< 2.8506	u	NC
	3-Nitroaniline	< 0.11	u	< 2.65	u	NC
	4,6-Dinitro-2-methylphenol	< 0.074	u	< 1.4955	u	NC
	4-Bromophenyl phenyl ether	< 0.12	u	< 2.9181	u	NC
	4-Chloro-3-methylphenol	< 0.15	u	< 2.7385	u	NC
	4-Chloroaniline	< 0.13	u	< 2.5436	u	NC
	4-Chlorophenyl phenyl ether	< 0.14	u	< 4.0956	u	NC
	4-Nitroaniline	< 0.086	u	< 2.4704	u	NC
	4-Nitrophenol	< 0.093	u	< 2.3697	u	NC
	Acenaphthene	< 0.11	u	< 3.3515	u	NC
	Acenaphthylene	< 0.1	u	< 2.7862	u	NC
	Aniline	< 0.12	u	< 2.394	u	NC
	Anthracene	< 0.081	u	< 2.3363	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-22 (2-2.5') 1605943-004 Sample Result		DUP01 1605943-006 Field Duplicate		RPD %
	Azobenzene	< 0.15	u	< 3.0833	u	NC
	Benz(a)anthracene	< 0.11	u	< 2.1617	u	NC
	Benzo(a)pyrene	< 0.093	u	< 3.0867	u	NC
	Benzo(b)fluoranthene	< 0.11	u	< 2.6117	u	NC
	Benzo(g,h,i)perylene	< 0.11	u	< 3.1299	u	NC
	Benzo(k)fluoranthene	< 0.11	u	< 3.1082	u	NC
	Benzoic acid	< 0.1	u	< 1.5672	u	NC
	Benzyl alcohol	< 0.096	u	< 2.443	u	NC
	Bis(2-chloroethoxy)methane	< 0.13	u	< 2.6251	u	NC
	Bis(2-chloroethyl)ether	< 0.09	u	< 2.7176	u	NC
	Bis(2-chloroisopropyl)ether	< 0.11	u	< 2.1012	u	NC
	Bis(2-ethylhexyl)phthalate	0.19	J	< 3.09	u	NC
	Butyl benzyl phthalate	< 0.11	u	< 3.3577	u	NC
	Carbazole	< 0.083	u	< 2.5616	u	NC
	Chrysene	< 0.1	u	< 2.7618	u	NC
	Dibenz(a,h)anthracene	< 0.099	u	< 2.9798	u	NC
	Dibenzofuran	< 0.12	u	< 2.9415	u	NC
	Diethyl phthalate	< 0.12	u	< 3.1214	u	NC
	Dimethyl phthalate	< 0.12	u	< 2.5312	u	NC
	Di-n-butyl phthalate	0.12	J	< 3.1105	u	NC
	Di-n-octyl phthalate	< 0.1	u	< 3.0618	u	NC
	Fluoranthene	< 0.071	u	< 3.3375	u	NC
	Fluorene	< 0.11	u	< 3.7443	u	NC
	Hexachlorobenzene	< 0.097	u	< 2.5959	u	NC
	Hexachlorobutadiene	< 0.14	u	< 2.7211	u	NC
	Hexachlorocyclopentadiene	< 0.14	u	< 1.9077	u	NC
	Hexachloroethane	< 0.11	u	< 2.4482	u	NC
	Indeno(1,2,3-cd)pyrene	< 0.096	u	< 3.1256	u	NC
	Naphthalene	< 0.12	u	< 2.617	u	NC
	Nitrobenzene	< 0.13	u	< 2.8318	u	NC
	N-Nitrosodi-n-propylamine	< 0.12	u	< 2.8509	u	NC
	N-Nitrosodiphenylamine	< 0.12	u	< 2.4624	u	NC
	Pentachlorophenol	< 0.079	u	< 1.7172	u	NC
	Phenanthrene	< 0.083	u	< 2.8773	u	NC
	Phenol	< 0.092	u	< 2.4649	u	NC
	Pyrene	< 0.093	u	< 3.5497	u	NC
	Pyridine	< 0.097	u	< 2.3111	u	NC
Metals (mg/kg-dry)	Antimony	< 7.3	u	< 1.4517	u	NC
	Arsenic	2.4	J	2.7	J	2.9
	Barium	290	v	380	v	6.7
	Beryllium	0.89	v	0.59	v	10.1
	Cadmium	< 0.0782	u	< 0.0306	u	NC
	Chromium	12	v	16	v	7.1
	Hexavalent Chromium	< 0.64	u	3.4	v	NC
	Cobalt	4.9	v	< 0.2828	u	NC
	Cyanide	0.04	J	< 2.2626	u	NC
	Iron	14000	v	9100	v	10.6
	Lead	4.3	v	3.6	v	4.4
	Manganese	570	v	490	v	3.8
	Mercury	0.044	v	0.035	J	5.7

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-22 (2-2.5') 1605943-004 Sample Result		DUP01 1605943-006 Field Duplicate		RPD %
	Nickel	8.6	v	5.6	v	10.6
	Selenium	< 1.346	u	< 1.6905	u	NC
	Silver	< 0.0391	u	< 0.0328	u	NC
	Vanadium	18	v	21	v	3.8
	Zinc	20	v	24	v	4.5

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-25 (2-2.5') 1609B57-007 Sample Result		SWMU 10 DUP01 1609B57-010 Field Duplicate		RPD %
TPH (mg/kg-dry)	Gasoline Range Organics (GRO)	730	v	510	Z	8.9
	Diesel Range Organics (DRO)	790	v	3400	v	31.1
	Motor Oil Range Organics (MRO)	100	v	< 560	u	NC
VOCs (mg/kg-dry)	1,1,1,2-Tetrachloroethane	< 0.2042	u	< 0.18	u	NC
	1,1,1-Trichloroethane	< 0.1302	u	< 0.11	u	NC
	1,1,2,2-Tetrachloroethane	< 0.3458	u	< 0.3	u	NC
	1,1,2-Trichloroethane	< 0.2515	u	< 0.22	u	NC
	1,1-Dichloroethane	< 0.1153	u	< 0.1	u	NC
	1,1-Dichloroethene	< 0.6989	u	< 0.61	u	NC
	1,1-Dichloropropene	< 0.1693	u	< 0.15	u	NC
	1,2,3-Trichlorobenzene	< 0.3193	u	< 0.28	u	NC
	1,2,3-Trichloropropane	< 0.3691	u	< 0.32	u	NC
	1,2,4-Trichlorobenzene	< 0.2282	u	< 0.2	u	NC
	1,2,4-Trimethylbenzene	5.8	v	5.8	Z	0.0
	1,2-Dibromo-3-chloropropane	< 0.6536	u	< 0.57	u	NC
	1,2-Dibromoethane (EDB)	< 0.1518	u	< 0.13	u	NC
	1,2-Dichlorobenzene	< 0.1862	u	< 0.16	u	NC
	1,2-Dichloroethane (EDC)	< 0.5564	u	< 0.48	u	NC
	1,2-Dichloropropane	< 0.179	u	< 0.16	u	NC
	1,3,5-Trimethylbenzene	2.6	v	2.5	Z	1.0
	1,3-Dichlorobenzene	< 0.175	u	< 0.15	u	NC
	1,3-Dichloropropane	< 0.2421	u	< 0.21	u	NC
	1,4-Dichlorobenzene	< 0.2644	u	< 0.23	u	NC
	1-Methylnaphthalene	13	v	13	Z	0.0
	2,2-Dichloropropane	< 0.1222	u	< 0.11	u	NC
	2-Butanone	< 1.2194	u	< 1.1	u	NC
	2-Chlorotoluene	< 0.1574	u	< 0.14	u	NC
	2-Hexanone	< 1.1611	u	< 1	u	NC
	2-Methylnaphthalene	16	v	18	Z	2.9
	4-Chlorotoluene	< 0.1887	u	< 0.16	u	NC
	4-Isopropyltoluene	0.61	J	0.59	J	0.8
	4-Methyl-2-pentanone	< 0.6219	u	< 0.54	u	NC
	Acetone	< 2.7608	u	< 2.4	u	NC
	Benzene	< 0.8538	u	< 0.74	u	NC
	Bromobenzene	< 0.172	u	< 0.15	u	NC
	Bromodichloromethane	< 0.1243	u	< 0.11	u	NC
	Bromoform	< 0.2599	u	< 0.23	u	NC
	Bromomethane	< 0.7861	u	0.69	J	NC
	Carbon disulfide	< 0.7045	u	< 0.61	u	NC
	Carbon tetrachloride	< 0.1401	u	< 0.12	u	NC
	Chlorobenzene	< 0.1737	u	< 0.15	u	NC
	Chloroethane	< 0.4259	u	< 0.37	u	NC
	Chloroform	< 0.161	u	< 0.14	u	NC
	Chloromethane	< 0.1899	u	< 0.17	u	NC
	cis-1,2-DCE	< 0.1241	u	< 0.11	u	NC
	cis-1,3-Dichloropropene	< 0.1967	u	< 0.17	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

		SWMU 10-25 (2-2.5')		SWMU 10 DUP01		
		1609B57-007		1609B57-010		RPD
	Parameter	Sample Result		Field Duplicate		%
	Dibromochloromethane	< 0.1928	u	< 0.17	u	NC
	Dibromomethane	< 0.1848	u	< 0.16	u	NC
	Dichlorodifluoromethane	< 0.6602	u	< 0.57	u	NC
	Ethylbenzene	1	J	0.99	J	0.3
	Hexachlorobutadiene	< 0.2609	u	< 0.23	u	NC
	Isopropylbenzene	0.54	J	0.5	J	1.9
	Methyl tert-butyl ether (MTBE)	< 0.6706	u	< 0.58	u	NC
	Methylene chloride	< 0.6153	u	< 0.54	u	NC
	Naphthalene	3.8	J	4.1	Z	1.9
	n-Butylbenzene	0.95	J	0.87	J	2.2
	n-Propylbenzene	0.93	J	0.98	J	1.3
	sec-Butylbenzene	0.74	J	0.67	J	2.5
	Styrene	< 0.1905	u	< 0.17	u	NC
	tert-Butylbenzene	< 0.1769	u	< 0.15	u	NC
	Tetrachloroethene (PCE)	< 0.177	u	< 0.15	u	NC
	Toluene	0.29	J	0.2	J	9.2
	trans-1,2-DCE	< 0.5973	u	< 0.52	u	NC
	trans-1,3-Dichloropropene	< 0.3123	u	< 0.27	u	NC
	Trichloroethene (TCE)	< 0.2288	u	< 0.2	u	NC
	Trichlorofluoromethane	< 0.1596	u	< 0.14	u	NC
	Vinyl chloride	< 0.1745	u	< 0.15	u	NC
	Xylenes, Total	10	v	9.9	Z	0.3
SVOCs (mg/kg-dry)	1,2,4-Trichlorobenzene	< 0.1232	u	< 1.1742	u	NC
	1,2-Dichlorobenzene	< 0.0872	u	< 0.8314	u	NC
	1,3-Dichlorobenzene	< 0.088	u	< 0.839	u	NC
	1,4-Dichlorobenzene	< 0.0963	u	< 0.9177	u	NC
	1-Methylnaphthalene	0.82	v	14	Z	**44.5**
	2,4,5-Trichlorophenol	< 0.114	u	< 1.0863	u	NC
	2,4,6-Trichlorophenol	< 0.0945	u	< 0.9006	u	NC
	2,4-Dichlorophenol	< 0.1063	u	< 1.0126	u	NC
	2,4-Dimethylphenol	0.17	J	< 1.1788	u	NC
	2,4-Dinitrophenol	< 0.0755	u	< 0.72	u	NC
	2,4-Dinitrotoluene	< 0.1017	u	< 0.9694	u	NC
	2,6-Dinitrotoluene	< 0.1205	u	< 1.1486	u	NC
	2-Chloronaphthalene	< 0.0897	u	< 0.8546	u	NC
	2-Chlorophenol	< 0.0898	u	< 0.8557	u	NC
	2-Methylnaphthalene	1.4	v	24	Z	**44.5**
	'2-Methylphenol (cresol,o-)	0.53	v	< 0.9073	u	NC
	2-Nitroaniline	< 0.1228	u	< 1.1699	u	NC
	2-Nitrophenol	< 0.113	u	< 1.0769	u	NC
	3,3´-Dichlorobenzidine	< 0.0839	u	< 0.7992	u	NC
	3+4-Methylphenol	< 0.0825	u	< 0.7858	u	NC
	3-Nitroaniline	< 0.1004	u	< 0.9569	u	NC
	4,6-Dinitro-2-methylphenol	< 0.0689	u	< 0.6564	u	NC
	4-Bromophenyl phenyl ether	< 0.1089	u	< 1.0377	u	NC
	4-Chloro-3-methylphenol	< 0.1359	u	< 1.2951	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-25 (2-2.5') 1609B57-007 Sample Result		SWMU 10 DUP01 1609B57-010 Field Duplicate		RPD %
	4-Chloroaniline	< 0.1238	u	< 1.1801	u	NC
	4-Chlorophenyl phenyl ether	< 0.1301	u	< 1.2402	u	NC
	4-Nitroaniline	< 0.0803	u	< 0.7654	u	NC
	4-Nitrophenol	< 0.0868	u	< 0.8269	u	NC
	Acenaphthene	< 0.0977	u	< 0.9308	u	NC
	Acenaphthylene	< 0.0927	u	< 0.8833	u	NC
	Aniline	< 0.1076	u	< 1.0256	u	NC
	Anthracene	< 0.0756	u	< 0.7205	u	NC
	Azobenzene	< 0.1388	u	< 1.3227	u	NC
	Benz(a)anthracene	< 0.0981	u	< 0.9344	u	NC
	Benzo(a)pyrene	< 0.0862	u	< 0.8219	u	NC
	Benzo(b)fluoranthene	< 0.1029	u	< 0.9803	u	NC
	Benzo(g,h,i)perylene	< 0.1004	u	< 0.9571	u	NC
	Benzo(k)fluoranthene	< 0.1003	u	< 0.9562	u	NC
	Benzoic acid	0.21	J	2.7	J	42.8
	Benzyl alcohol	< 0.0892	u	< 0.8497	u	NC
	Bis(2-chloroethoxy)methane	< 0.1236	u	< 1.1778	u	NC
	Bis(2-chloroethyl)ether	< 0.0837	u	< 0.7976	u	NC
	Bis(2-chloroisopropyl)ether	< 0.1017	u	< 0.9692	u	NC
	Bis(2-ethylhexyl)phthalate	0.22	J	< 0.8844	u	NC
	Butyl benzyl phthalate	< 0.1008	u	< 0.961	u	NC
	Carbazole	< 0.0769	u	< 0.733	u	NC
	Chrysene	< 0.097	u	< 0.9243	u	NC
	Dibenz(a,h)anthracene	< 0.0921	u	< 0.8777	u	NC
	Dibenzofuran	< 0.1146	u	< 1.0917	u	NC
	Diethyl phthalate	0.28	v	< 1.1007	u	NC
	Dimethyl phthalate	< 0.1114	u	< 1.0618	u	NC
	Di-n-butyl phthalate	0.35	J	< 0.8117	u	NC
	Di-n-octyl phthalate	< 0.0972	u	< 0.9259	u	NC
	Fluoranthene	< 0.0656	u	< 0.6252	u	NC
	Fluorene	0.19	J	2.8	Z	43.6
	Hexachlorobenzene	< 0.0898	u	< 0.8559	u	NC
	Hexachlorobutadiene	< 0.1284	u	< 1.2232	u	NC
	Hexachlorocyclopentadiene	< 0.1302	u	< 1.241	u	NC
	Hexachloroethane	< 0.0979	u	< 0.9325	u	NC
	Indeno(1,2,3-cd)pyrene	< 0.0889	u	< 0.8476	u	NC
	Naphthalene	0.28	v	< 1.2	u	NC
	Nitrobenzene	< 0.1175	u	4.7	Z	NC
	N-Nitrosodi-n-propylamine	< 0.1095	u	< 1.1201	u	NC
	N-Nitrosodiphenylamine	< 0.1112	u	< 1.0432	u	NC
	Pentachlorophenol	< 0.0732	u	< 1.06	u	NC
	Phenanthrene	0.39	v	< 0.6976	u	NC
	Phenol	< 0.0858	u	5.1	Z	NC
	Pyrene	< 0.0861	u	< 0.8175	u	NC
	Pyridine	< 0.0903	u	< 0.8203	u	NC
Metals (mg/kg-dry)	Antimony	< 1.1611	u	< 0.8604	u	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-25 (2-2.5') 1609B57-007 Sample Result		SWMU 10 DUP01 1609B57-010 Field Duplicate		RPD %
	Arsenic	< 1.0254	u	< 0.9931	u	NC
	Barium	96	v	130	v	7.5
	Beryllium	0.58	v	0.69	v	4.3
	Cadmium	< 0.0732	u	< 0.0709	u	NC
	Chromium	7.2	v	7.7	v	1.7
	Hexavalent Chromium	<0.1	u	6.1	v	NC
	Cobalt	0.12	J	0.063	J	15.6
	Cyanide	0.3	J	0.43	J	8.9
	Iron	12000	v	13000	v	2.0
	Lead	2.1	v	3.4	v	11.8
	Manganese	500	v	970	v	16.0
	Mercury	0.0031	J	0.0053	J	13.1
	Nickel	5.7	v	6.7	v	4.0
	Selenium	< 2.0993	u	< 2.0332	u	NC
	Silver	< 0.0722	u	< 0.07	u	NC
	Vanadium	15	v	17	v	3.1
	Zinc	11	v	16	v	9.3

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result	SWMU 10 DUP01GW Field Duplicate	RPD (%)
TPH (mg/l):	Gasoline Range Organics (GRO)	0.78	0.73	1.7
	Diesel Range Organics (DRO)	1	1.1	2.4
	Motor Oil Range Organics (MRO)	5 U	5 U	NC
VOCs (ug/l)	1,1,1,2-Tetrachloroethane	0.22094 U	0.11047 U	NC
	1,1,1-Trichloroethane	0.15544 U	0.07772 U	NC
	1,1,2,2-Tetrachloroethane	0.35915 U	0.17957 U	NC
	1,1,2-Trichloroethane	0.15763 U	0.07881 U	NC
	1,1-Dichloroethane	0.8 U	0.4 U	NC
	1,1-Dichloroethene	0.19865 U	0.09932 U	NC
	1,1-Dichloropropene	0.23043 U	0.11521 U	NC
	1,2,3-Trichlorobenzene	0.53278 U	0.26639 U	NC
	1,2,3-Trichloropropane	0.31673 U	0.15836 U	NC
	1,2,4-Trichlorobenzene	0.56547 U	0.28273 U	NC
	1,2,4-Trimethylbenzene	0.31893 U	0.15946 U	NC
	1,2-Dibromo-3-chloropropane	0.27209 U	0.13604 U	NC
	1,2-Dibromoethane (EDB)	0.26750 U	0.13375 U	NC
	1,2-Dichlorobenzene	0.23661 U	0.11831 U	NC
	1,2-Dichloroethane (EDC)	0.35297 U	0.17648 U	NC
	1,2-Dichloropropane	0.30239 U	0.15119 U	NC
	1,3,5-Trimethylbenzene	0.24576 U	0.12288 U	NC
	1,3-Dichlorobenzene	0.18698 U	0.09349 U	NC
	1,3-Dichloropropane	0.34440 U	0.17220 U	NC
	1,4-Dichlorobenzene	0.33168 U	0.16584 U	NC
	1-Methylnaphthalene	1.07678 U	0.53839 U	NC
	2,2-Dichloropropane	0.30330 U	0.15165 U	NC
	Benzene	0.51 J	0.4 J	6.0
	2-Butanone	2.9 J	2.9 J	0.0
	2-Chlorotoluene	0.15813 U	0.07906 U	NC
	2-Hexanone	0.95322 U	0.47661 U	NC
	2-Methylnaphthalene	1.18893 U	0.59446 U	NC
	4-Chlorotoluene	0.29868 U	0.14934 U	NC
	4-Isopropyltoluene	0.37722 U	0.18861 U	NC
	4-Methyl-2-pentanone	0.51323 U	0.25661 U	NC
	Acetone	9.7 J	16	12.3
	Bromobenzene	0.21555 U	0.10777 U	NC
	Bromodichloromethane	0.17935 U	0.08968 U	NC
	Bromoform	0.32470 U	0.16235 U	NC
	Bromomethane	2.32245 U	1.16123 U	NC
	Carbon disulfide	1.34646 U	0.67323 U	NC
	Carbon Tetrachloride	0.15607 U	0.07803 U	NC
	Chlorobenzene	0.18680 U	0.09340 U	NC
	Chloroethane	0.20937 U	0.10468 U	NC
	Chloroform	0.42972 U	0.21486 U	NC
	Chloromethane	0.34737 U	0.17368 U	NC
	cis-1,2-DCE	0.16120 U	0.08060 U	NC
	cis-1,3-Dichloropropene	0.26617 U	0.13308 U	NC
	Dibromochloromethane	0.19361 U	0.09681 U	NC
	Dibromomethane	0.46872 U	0.23436 U	NC
	Dichlorodifluoromethane	1.38481 U	0.69241 U	NC
	Ethylbenzene	0.20214 U	0.10107 U	NC
	Hexachlorobutadiene	0.50280 U	0.25140 U	NC
	Isopropylbenzene	0.30395 U	0.15197 U	NC
	Methyl tert-butyl ether (MTBE)	150	150	0.0
	Methylene Chloride	0.72072 U	0.36036 U	NC
	Naphthalene	0.43587 U	0.21793 U	NC
	n-Butylbenzene	0.49093 U	0.24546 U	NC
	n-Propylbenzene	0.32634 U	0.16317 U	NC
	sec-Butylbenzene	0.45720 U	0.22860 U	NC
	Styrene	0.21131 U	0.10566 U	NC
	tert-Butylbenzene	0.25893 U	0.12947 U	NC
	Tetrachloroethene (PCE)	0.32095 U	0.16047 U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result		SWMU 10 DUP01GW Field Duplicate		RPD (%)
	Toluene	0.21693	U	0.10847	U	NC
	trans-1,2-DCE	0.18810	U	0.09405	U	NC
	trans-1,3-Dichloropropene	0.22617	U	0.11309	U	NC
	Trichloroethene (TCE)	0.32669	U	0.16334	U	NC
	Trichlorofluoromethane	0.25403	U	0.12701	U	NC
	Vinyl chloride	0.25082	U	0.12541	U	NC
	Xylenes, Total	0.56497	U	0.28248	U	NC
SVOCs (mg/kg-dry):	1,2,4-Trichlorobenzene	1.99336	U	1.99336	U	NC
	1,2-Dichlorobenzene	1.89877	U	1.89877	U	NC
	1,3-Dichlorobenzene	1.69038	U	1.69038	U	NC
	1,4-Dichlorobenzene	1.23419	U	1.23419	U	NC
	1-Methylnaphthalene	1.80147	U	1.80147	U	NC
	2,4,5-Trichlorophenol	1.61671	U	1.61671	U	NC
	2,4,6-Trichlorophenol	1.25834	U	1.25834	U	NC
	2,4-Dichlorophenol	1.39496	U	1.39496	U	NC
	2,4-Dimethylphenol	1.85381	U	1.85381	U	NC
	2,4-Dinitrophenol	1.06974	U	1.06974	U	NC
	2,4-Dinitrotoluene	1.43393	U	1.43393	U	NC
	2,6-Dinitrotoluene	1.49035	U	1.49035	U	NC
	2-Chloronaphthalene	1.71573	U	1.71573	U	NC
	2-Chlorophenol	1.20402	U	1.20402	U	NC
	2-Methylnaphthalene	2.24599	U	2.24599	U	NC
	2-Methylphenol	1.24572	U	1.24572	U	NC
	2-Nitroaniline	1.79467	U	1.79467	U	NC
	2-Nitrophenol	1.23136	U	1.23136	U	NC
	3,3´-Dichlorobenzidine	2.60844	U	2.60844	U	NC
	3+4-Methylphenol	1.47532	U	1.47532	U	NC
	3-Nitroaniline	1.47977	U	1.47977	U	NC
	4,6-Dinitro-2-methylphenol	1.36786	U	1.36786	U	NC
	4-Bromophenyl phenyl ether	1.40872	U	1.40872	U	NC
	4-Chloro-3-methylphenol	1.35070	U	1.35070	U	NC
	4-Chloroaniline	1.87394	U	1.87394	U	NC
	4-Chlorophenyl phenyl ether	2.01318	U	2.01318	U	NC
	4-Nitroaniline	1.24171	U	1.24171	U	NC
	4-Nitrophenol	1.40498	U	1.40498	U	NC
	Acenaphthene	1.88470	U	1.88470	U	NC
	Acenaphthylene	1.86589	U	1.86589	U	NC
	Aniline	1.54599	U	1.54599	U	NC
	Anthracene	1.60486	U	1.60486	U	NC
	Azobenzene	2.00531	U	2.00531	U	NC
	Benz(a)anthracene	2.50627	U	2.50627	U	NC
	Benzo(a)pyrene	2.72398	U	2.72398	U	NC
	Benzo(b)fluoranthene	2.40284	U	2.40284	U	NC
	Benzo(g,h,i)perylene	3.12517	U	3.12517	U	NC
	Benzo(k)fluoranthene	2.51488	U	2.51488	U	NC
	Benzoic acid	1.02557	U	1.02557	U	NC
	Benzyl alcohol	1.17187	U	1.17187	U	NC
	Bis(2-chloroethoxy)methane	1.80486	U	1.80486	U	NC
	Bis(2-chloroethyl)ether	1.77363	U	1.77363	U	NC
	Bis(2-chloroisopropyl)ether	2.05946	U	2.05946	U	NC
	Bis(2-ethylhexyl)phthalate	3.32558	U	3.32558	U	NC
	Butyl benzyl phthalate	2.37012	U	2.37012	U	NC
	Carbazole	1.49023	U	1.49023	U	NC
	Chrysene	2.15442	U	2.15442	U	NC
	Dibenz(a,h)anthracene	3.26832	U	3.26832	U	NC
	Dibenzofuran	1.90194	U	1.90194	U	NC
	Diethyl phthalate	1.67338	U	1.67338	U	NC
	Dimethyl phthalate	1.99487	U	1.99487	U	NC
	Di-n-butyl phthalate	2.10312	U	2.10312	U	NC
	Di-n-octyl phthalate	1.93926	U	1.93926	U	NC
	Fluoranthene	1.47557	U	1.47557	U	NC

Table A-3
Field Duplicate Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	SWMU 10-15-GW Sample Result		SWMU 10 DUP01GW Field Duplicate		RPD (%)
	Fluorene	1.67191	U	1.67191	U	NC
	Hexachlorobenzene	2.02231	U	2.02231	U	NC
	Hexachlorobutadiene	1.94908	U	1.94908	U	NC
	Hexachlorocyclopentadiene	1.47091	U	1.47091	U	NC
	Hexachloroethane	1.61223	U	1.61223	U	NC
	Indeno(1,2,3-cd)pyrene	2.45952	U	2.45952	U	NC
	Isophorone	1.95246	U	1.95246	U	NC
	Naphthalene	1.83350	U	1.83350	U	NC
	Nitrobenzene	1.49388	U	1.49388	U	NC
	N-Nitrosodimethylamine	1.41684	U	1.41684	U	NC
	N-Nitrosodi-n-propylamine	2.03650	U	2.03650	U	NC
	N-Nitrosodiphenylamine	2.46700	U	2.46700	U	NC
	Pentachlorophenol	1.13741	U	1.13741	U	NC
	Phenanthrene	1.99666	U	1.99666	U	NC
	Phenol	1.08528	U	1.08528	U	NC
	Pyrene	2.31812	U	2.31812	U	NC
	Pyridine	1.67388	U	1.67388	U	NC
Water Quality (mg/l)	Chloride	2300		2400		1.1
	Fluoride	0.55		0.55		0.0
	Sulfate	440		470		1.6
Dissolved Metals (mg/l):	Antimony (d)	0.001429741	U	0.001	U	NC
	Arsenic (d)	0.011	J	0.011	J	0.0
	Barium (d)	0.22		0.22		0.0
	Beryllium (d)	0.000312692	U	0.00033	J	NC
	Cadmium (d)	0.000966229	U	0.001	U	NC
	Chromium (d)	0.0094		0.0094		0.0
	Cobalt (d)	0.023		0.023		0.0
	Iron (d)	0.61		2.2		**28.3**
	Lead (d)	0.0026	J	0.0039	J	10.0
	Manganese (d)	2.4		2.5		1.0
	Nickel (d)	0.65		0.66		0.4
	Selenium (d)	0.02		0.023		3.5
	Silver (d)	0.00121688	U	0.001	U	NC
	Vanadium (d)	0.0057	J	0.0076	J	7.1
	Zinc	0.15		0.036		**30.6**
Total Metals (mg/l):	Antimony	0.00215761	U	0.002	U	NC
	Arsenic	0.012		0.012		0.0
	Barium	0.37		0.31		4.4
	Beryllium	0.0015	J	0.0014	J	1.7
	Cadmium	0.000966229	U	0.001	U	NC
	Chromium	0.0062		0.0059	J	1.2
	Chromium, Hexavalent	0.0005	U	0.00061		NC
	Cobalt	0.025		0.025		0.0
	Cyanide	0.055		0.051		1.9
	Iron	9.4		7.4		6.0
	Lead	0.014		0.012		3.8
	Manganese	2.9		3		0.8
	Mercury	0.0000589	U	0.0000589	U	NC
	Nickel	0.64		0.65		0.4
	Selenium	0.019		0.022		3.7
	Silver	0.002112456	U	0.002	U	NC
	Vanadium	0.019	J	0.017	J	2.8

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/l = micrograms per liter
mg/l = milligrams per liter
bold value = Field Duplicate RPD Outlier

Table A-4
Completeness Summary
SWMU 10 Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	Total Number of Results	Number of Usable Results	Percent Technical Compliance
TPH :	Diesel Range Organics (DRO)	100	100	100
	Motor Oil Range Organics (MRO)	100	100	100
	Gasoline Range Organics (GRO)	100	100	100
VOCs:	All VOC Analytes	111	111	100
SVOCs:	All SVOC Analytes	100	100	100
Metals (total):	Antimony	98	98	100
	Arsenic	98	98	100
	Barium	98	98	100
	Beryllium	98	98	100
	Cadmium	98	98	100
	Chromium	98	98	100
	Cobalt	98	98	100
	Cyanide	98	98	100
	Hexavalent Chromium	98	98	100
	Iron	98	98	100
	Lead	98	98	100
	Manganese	98	98	100
	Mercury	98	98	100
	Nickel	98	98	100
	Selenium	98	98	100
	Silver	98	98	100
	Vanadium	98	98	100
	Zinc	98	98	100
Metals (mg/l dissolved):	Antimony	10	10	100
	Arsenic	10	10	100
	Barium	10	10	100
	Beryllium	10	10	100
	Cadmium	10	10	100
	Chromium	10	10	100
	Cobalt	10	10	100
	Iron	10	10	100
	Lead	10	10	100
	Manganese	10	10	100
	Nickel	10	10	100
	Selenium	10	10	100
	Silver	10	10	100
	Vanadium	10	10	100
	Zinc	10	10	100
Water Quality (mg/l)	Chloride	10	10	100
	Fluoride	10	10	100
	Sulfate	10	10	100

Notes:
Number of samples used in completeness calculations includes soil samples, groundwater samples, soil and groundwater field duplicates, equipment rinsate, and field blanks.
Percent Technial Compliance = (Number of usable results / Number of reported results) * 100

Appendix F
Historical Analyses

TABLE 2

Ciniza Refinery Metals Results for Wastewater samples
Taken During July and August,1980.

Metal	New Well Raw Water 7/23/80 0830 hrs.	Pond 3 Inlet /Softener Waste 8/11/80 1000 hrs.	Cooling Water Tower Blowdown 7/23/80 0830 hrs.	API Separator Overflow 7/17/80 1330 hrs.	API Sepatrator Overflow 7/19/80 1300 hrs.	API Separator Overflow 7/23/80 0830 hrs.
Arsenic	0.003	0.031	0.013	0.004	0.005	0.015
Barium	0.014	0.068	0.022	0.22	0.094	0.105
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.001	0.026	13.	0.91	0.64	1.2
Lead	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Selenium	<0.001	0.097	0.025	0.015	0.018	0.024
Silver	<0.001	0.002	0.010	0.006	0.012	0.005

Controls for Environmental Pollution, Inc.
P.O. BOX 5351 • Santa Fe, New Mexico 87502
IN STATE 505/982-9841
OUT OF STATE 800/545-2180

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REPORT OF ANALYSIS

LAB # 84-03-404

LE IDENTIFICATION	DATE COLLECTED	TYPE OF ANALYSIS	mg/liter	
Seperator Sludge	03/13/84	Silver	<0.01	
		Arsenic	<0.01	
		Barium	0.4	
		Cadmium	<0.001	
		Chromium	0.036	
		Chromium, Hexavalent	<0.01	
		Chromium	10	(ug/gram)
		Mercury	<0.0004	
		Oil and Grease	26,000	(ug/gram)
		Lead	<0.001	
		Lead	340	(ug/gram)
		pH	9.30	(units)
		Selenium	<0.01	
		Total Organic Carbon	>400,000	

Appendix G
Site-Specific Dilution/Attenuation Factor Calculations

Calculation of Site-Specific Dilution/Attenuation Factor (DAF)

The DAF value was calculated using equation 33 from NMED's *Risk Assessment Guidance for Site Investigations and Remediation (July, 2015).*

$$DAF = 1 + \left(\frac{K * i * D}{I * L} \right) \qquad DAF = 1 + \left(\frac{38.96 * 0.027 * 10.58}{0.000242 * 100} \right) = 295$$

Where:

$$D = \left(0.0112 * L^2\right)^{0.5} + D_a \left(1 - \exp\left[\frac{-L * I}{K * i * D_a} \right] \right)$$

$$D = \left(0.0112 * 100^2\right)^{0.5} + 12.5 \left(1 - \exp\left[\frac{-100 * 0.000242}{38.96 * 0.027 * 12.5} \right] \right) = 10.58 \text{ m}$$

K = Aquifer hydraulic conductivity (m/yr)
i = Hydraulic gradient (m/m)
D = Mixing zone depth (m)
I = Infiltration rate (m/yr)
L= Source length parallel to ground water flow (m)
D_a= Aquifer thickness (m)

Derivation of site-specific values:

K = 38.96 m/yr as determined from a slug test at well MW-1(completed in Sonsela Sandstone aquifer) and originally presented in Appendix C of the Discharge Plan Application for Giant Refining Company, Ciniza Refinery, dated November 21, 1985.

i = 0.013 m/m as measured during Fall 2015 ground water sampling event (potentiometric surface map of Sonsela aquifer attached)

D = 10.58 m [lower of aquifer thickness (12.5 m measured at nearest well that penetrates Sonsela aquifer – OW-12) or calculated mixing zone depth (10.58m)]

I = 0.000182 m/yr derivation using EPA's HELP model as described below

L = 100 m – conservative source area length measured across Aeration Basin and surrounding soils with potential impact

D_a= 12.5 m - saturated thickness measured at nearest well that penetrates Sonsela aquifer – OW-12 during August 2015 ground water sampling event

Calculation of Infiltration Rate

Pursuant to *EPA's Soil Screening Guidance: User's Guide (Second Edition, July 1996)*, infiltration rates can be calculated either of two ways: (1) assume that infiltration rate is

equivalent to recharge, or (2) use the EPA HELP model to estimate infiltration. Because the Gallup site is located in an area with low annual rainfall rates and high potential evapotranspiration rates, method 1 is not representative of site conditions. That is to say that it is unreasonable to assume that infiltration is equal to recharge.

EPA's HELP model was used to calculate the site-specific infiltration rate. Site-specific meteorological data was obtained from the Western Regional Climate Center and New Mexico State University, which operates a nearby weather station (Thoreau 5 ENE) as part of the NWS Cooperator Climate Stations. The weather station is located east northeast of Thoreau, New Mexico on HWY 371 and is approximately 16 miles south southeast of the Gallup Refinery.

Data obtained from the Thoreau 5 ENE station includes mean monthly temperature and average monthly precipitation. The average wind speed (11.3 km/hr) was obtained from the Western Regional Climate Center, as measured at the Gallup, NM airport. Daily solar radiation and quarterly relative humidity values were based on measurements from Albuquerque, NM. This data was obtained from the National Oceanic and Atmospheric Administration (NOAA) and is included in the HELP model's Weather Generator module. A review of the monthly average weather conditions (temperature and precipitation) at Gallup and Albuquerque as shown in the table below indicates very similar conditions such that use of quarterly relative humidity and solar radiation from Albuquerque should be sufficient to estimate conditions at the Western Refining Gallup Refinery. The quarterly relative humidity values used are 48%, 30%, 45%, and 50% for the first, second, third, and fourth quarters, respectively.

The HELP model soil profile was constructed with two layers. The Sonsela Aquifer is considered to be the uppermost aquifer in the area (reference the May 2000 RCRA Post-Closure Care Part B Permit Application). The upper layer (Layer 1.1) represents the unconsolidated deposits that overlie the Chinle Group (Petrified Forest Formation) bedrock. Based on the soil borings logs prepared from the recent investigation of SWMU 10, the predominant lithology in this upper layer is silty clay and clay, with lesser amounts of sandy clay. There are relatively thin (several feet thick) discontinuous layers of clayey sand and sand. The soil type chosen in the model was loam with an average thickness of 3 meters. Loam would normally be expected contain a higher percentage of silt and sand than observed in the most of the soil borings and is considered to be a conservative estimate of actual field conditions.

The land surface was assumed to have a poor stand of grass, which is more conservative than the other possible option of bare soil. The slope of the land surface was calculated to be 4.0 % based on surveyed elevations across the extent of SWMU 10. Based on the selected soil type (loam) the model default value for porosity is 0.463, field capacity is 0.232, wilting point is 0.116, and saturated hydraulic conductivity is 3.7E-4 cm/sec. These model default vales are taken from the US Department of Agriculture. Soil permeability tests conducted on soil samples collected beneath the nearby Land Treatment Unit indicated a permeability of 1.9E-5 cm/sec, thus the model default hydraulic conductivity of 3.7E-4 cm/sec is a conservative estimate (see attached page 2 of Appendix C from RCRA Post-Closure Care Permit Application).

The second layer (Layer 1.2) in the model represents the upper portion of the Chinle Group (i.e., Petrified Forest Formation), which overlies the Sonsela Aquifer. This upper portion of the Chinle Group consists of mudstone/claystone. The default soil type from

the HELP model chosen to represent the upper Chinle Group was moderately compacted clay. The model default value for porosity is 0.456, field capacity is 0.419, and wilting point is 0.332. The default porosity value of 0.456 is not believed to be representative of the claystone bedrock, thus a literature search was conducted to find more appropriate values. An average porosity of 0.165 was identified for the Jurassic Morrison Formation (claystone) at Long Park, Colorado (USDI, 1963). A site-specific hydraulic conductivity was used to be more representative of actual site conditions that the program default value. Yield tests, including slug tests and pumping tests have been performed at the refinery to estimate the hydraulic conductivity of the upper portion of the Chinle Group (see attached documentation). A slug test performed on July 3, 1984 in well OW-4 indicated a hydraulic conductivity of 4.0E-7 cm/sec. A pump test was performed in well OW-24 on February 20, 1985 and it yielded a hydraulic conductivity of 2.5E-7 cm/sec. The higher of these two conductivity values (4.0E-7 cm/sec) was utilized as a site-specific hydraulic conductivity for the lower layer (i.e., Chinle Group – mudstone/sandstone). The thickness of this layer was estimated at 24.4 meters from boing log for OW-12.

Using the model's synthetic weather generator and the aforementioned inputs, the model was run for a 40 year period to simulate potential infiltration (percolation or leakage through Layer 1.2). The model output is enclosed, showing the annual values. Over the modeled 40 year period, the average annual infiltration was 0.000182 meters/year. This average annual infiltration was used in the aforementioned calculation of the site-specific DAF value.

References

USDI, 1963, Porosity and Bulk Density of Sedimentary Rocks, United States Department of the Interior, Geological Survey Bulletin 1144-E, p.55.

Project : SWMU 10

Location Specific Infiltration Rates

Model : HELP
An US EPA model for predicting landfill hydrologic processes and testing of effectiveness of landfill designs

Author : Your title Scott Crouch

Client : Title Ed Riege

Location : Albuquerque

11/11/2016

1. Profile. EPA profile1

Model Settings

[HELP] Case Settings

Parameter	Value	Units
Runoff Method	Model calculated	(-)
Initial Moisture Settings	Model calculated	(-)

[HELP] Surface Water Settings

Parameter	Value	Units
Runoff Area	100	(%%)
Vegetation Class	Poor stand of grass	(-)

Profile Structure

Layer	Top (m)	Bottom (m)	Thickness (m)
Alluvium	0.0000	-3.0000	3.0000
Chinle Bedrock	-2.9995	-27.4000	24.4005

1.1. Layer. Alluvium

Top Slope Length: 100.0000
Bottom Slope Length: 0.0000
Top Slope: 4.0000
Bottom Slope : 0.0000

[HELP] Vertical Perc. Layer Parameters

Parameter	Value	Units
total porosity	0.463	(vol/vol)
field capacity	0.232	(vol/vol)
wilting point	0.116	(vol/vol)
sat.hydr.conductivity	3.7E-4	(cm/sec)
subsurface inflow	0	(mm/year)

1.2. Layer. Chinle Bedrock

Top Slope Length: 0.0000
Bottom Slope Length: 0.0000
Top Slope: 0.0000
Bottom Slope : 0.0000

[HELP] Barrier Soil Liner Parameters

Parameter	Value	Units
total porosity	0.165	(vol/vol)
field capacity	0.419	(vol/vol)
wilting point	0.332	(vol/vol)
sat.hydr.conductivity	4.0E-7	(cm/sec)
subsurface inflow	0	(mm/year)

Annual Totals rate (m)

	Precipitation (m)	Runoff (m)	Evapotranspiration	Change in water

			(m)	storage (m)
Year-1 (m)	1.9660E-01	0.0000E+00	1.9677E-01	-1.7350E-04
Year-2 (m)	3.0180E-01	9.1537E-04	3.0657E-01	-5.7573E-03
Year-3 (m)	2.3510E-01	0.0000E+00	2.4060E-01	-5.7839E-03
Year-4 (m)	2.3000E-01	2.5366E-03	2.3451E-01	-7.1001E-03
Year-5 (m)	2.5270E-01	0.0000E+00	2.4301E-01	9.6812E-03
Year-6 (m)	1.5870E-01	5.4743E-06	1.4507E-01	1.3598E-02
Year-7 (m)	1.8420E-01	0.0000E+00	1.8756E-01	-3.4412E-03
Year-8 (m)	2.5770E-01	1.2916E-05	2.4903E-01	8.6291E-03
Year-9 (m)	1.9170E-01	6.6953E-04	2.1089E-01	-1.9862E-02
Year-10 (m)	2.2820E-01	1.2865E-03	2.1390E-01	1.2470E-02
Year-11 (m)	2.3680E-01	1.5046E-03	2.5558E-01	-2.5677E-02
Year-12 (m)	2.5940E-01	4.5220E-06	2.4044E-01	1.8948E-02
Year-13 (m)	1.8440E-01	1.1864E-05	1.9941E-01	-1.5097E-02
Year-14 (m)	1.5860E-01	0.0000E+00	1.5141E-01	7.1785E-03
Year-15 (m)	2.4990E-01	0.0000E+00	2.5856E-01	-8.6762E-03
Year-16 (m)	1.6700E-01	0.0000E+00	1.5472E-01	1.2275E-02
Year-17 (m)	1.3040E-01	0.0000E+00	1.1903E-01	1.1365E-02
Year-18 (m)	1.5020E-01	0.0000E+00	1.6500E-01	-1.4840E-02
Year-19 (m)	2.0530E-01	0.0000E+00	1.9808E-01	7.1662E-03
Year-20 (m)	1.8180E-01	2.6583E-04	1.8840E-01	-6.8733E-03
Year-21 (m)	2.3550E-01	6.9849E-06	2.2949E-01	5.9732E-03
Year-22 (m)	1.3750E-01	0.0000E+00	1.4770E-01	-1.0197E-02
Year-23 (m)	2.3340E-01	3.9462E-03	2.2872E-01	7.1646E-04
Year-24 (m)	2.2170E-01	0.0000E+00	2.2689E-01	-5.1976E-03
Year-25 (m)	1.4510E-01	5.4743E-06	1.3219E-01	1.2899E-02
Year-26 (m)	2.0130E-01	1.1479E-03	1.8065E-01	1.9493E-02
Year-27 (m)	2.3200E-01	0.0000E+00	2.2765E-01	4.3452E-03
Year-28 (m)	1.9260E-01	0.0000E+00	2.1651E-01	-2.3992E-02
Year-29 (m)	2.3390E-01	1.2639E-06	2.3704E-01	-3.1509E-03
Year-30 (m)	1.8890E-01	0.0000E+00	1.9277E-01	-3.8754E-03
Year-31 (m)	2.4520E-01	1.2662E-04	2.3575E-01	9.3052E-03
Year-32 (m)	2.2790E-01	0.0000E+00	2.2550E-01	2.3827E-03
Year-33 (m)	3.1730E-01	5.2643E-03	3.1169E-01	2.3910E-04
Year-34 (m)	2.1170E-01	0.0000E+00	2.0234E-01	9.3490E-03
Year-35 (m)	2.7430E-01	9.5079E-04	2.7840E-01	-5.0673E-03
Year-36 (m)	1.5090E-01	0.0000E+00	1.3599E-01	1.4901E-02
Year-37 (m)	2.1680E-01	1.5524E-04	2.5088E-01	-3.4290E-02
Year-38 (m)	1.7490E-01	0.0000E+00	1.6844E-01	6.4508E-03
Year-39 (m)	2.1190E-01	1.0321E-03	1.8405E-01	2.6758E-02
Year-40 (m)	1.7540E-01	0.0000E+00	1.9942E-01	-2.4131E-02
Total (m)	8.3887E+00	1.9850E-02	8.3706E+00	-9.0586E-03

(continued)

	Water budget balance (m)	Percolation or leakance through Layer 2 (m)	Average head on top of Layer 2 (m)
Year-1 (m)	-2.9526E-09	5.2603E-06	1.5356E-08
Year-2 (m)	-4.5326E-09	6.6981E-05	1.0819E-07
Year-3 (m)	-3.5308E-09	2.8523E-04	4.2733E-07
Year-4 (m)	-3.4543E-09	5.7620E-05	1.4046E-07
Year-5 (m)	-3.7952E-09	7.9856E-06	2.3292E-08
Year-6 (m)	-2.3834E-09	2.3447E-05	2.0752E-08
Year-7 (m)	-2.7664E-09	8.1705E-05	9.5470E-08
Year-8 (m)	-3.8703E-09	3.1331E-05	9.1296E-08
Year-9 (m)	-2.8790E-09	5.0396E-06	1.4646E-08
Year-10 (m)	-3.4272E-09	5.4365E-04	7.2411E-07
Year-11 (m)	-3.5564E-09	5.3959E-03	8.2432E-06
Year-12 (m)	-3.8958E-09	1.1126E-05	2.9653E-08
Year-13 (m)	-2.7694E-09	7.7901E-05	1.6158E-07
Year-14 (m)	-2.3819E-09	1.0173E-05	1.4647E-08
Year-15 (m)	-3.7531E-09	1.8462E-05	5.4615E-08
Year-16 (m)	-2.5081E-09	6.0052E-06	1.7436E-08
Year-17 (m)	-1.9584E-09	1.9551E-06	5.6773E-09
Year-18 (m)	-2.2558E-09	4.1669E-05	9.2553E-08
Year-19 (m)	-3.0833E-09	5.3926E-05	3.3493E-08
Year-20 (m)	-2.7304E-09	8.4890E-06	2.4744E-08
Year-21 (m)	-3.5369E-09	2.8949E-05	6.4945E-08
Year-22 (m)	-2.0650E-09	2.4329E-06	7.0344E-09

Year-23 (m)	-3.5053E-09	1.8935E-05	5.4598E-08
Year-24 (m)	-3.3296E-09	6.2363E-06	1.8079E-08
Year-25 (m)	-2.1792E-09	1.6165E-06	4.8035E-09
Year-26 (m)	-3.0232E-09	5.5487E-06	1.6342E-08
Year-27 (m)	-3.4843E-09	4.4125E-06	1.3844E-08
Year-28 (m)	-2.8926E-09	8.3842E-05	1.3650E-07
Year-29 (m)	-3.5128E-09	1.1656E-05	3.0979E-08
Year-30 (m)	-2.8370E-09	7.6141E-06	2.2408E-08
Year-31 (m)	-3.6825E-09	1.7414E-05	3.8111E-08
Year-32 (m)	-3.4227E-09	1.5151E-05	4.4395E-08
Year-33 (m)	-4.7654E-09	1.0183E-04	1.6100E-07
Year-34 (m)	-3.1794E-09	6.1061E-06	1.8312E-08
Year-35 (m)	-4.1196E-09	1.5303E-05	4.4619E-08
Year-36 (m)	-2.2663E-09	4.3212E-06	8.5338E-09
Year-37 (m)	-3.2560E-09	5.0865E-05	1.0231E-07
Year-38 (m)	-2.6267E-09	1.0114E-05	2.9412E-08
Year-39 (m)	-3.1824E-09	5.6373E-05	9.4730E-08
Year-40 (m)	-2.6342E-09	1.0777E-04	2.2750E-07
Total (m)	-1.2599E-07	7.2903E-03	7.2903E-06

$\frac{7.2903E\text{-}03 \text{ meters}}{40 \text{ yrs}} = 1.82E\text{-}05 \text{ meters/yr}$

ALBUQUERQUE WSFO AIRPOR, NEW MEXICO (290234)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1914 to 12/31/2005

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	47.2	53.2	60.6	70.0	79.4	89.3	91.7	88.9	82.4	71.0	56.9	47.7	69.9
Average Min. Temperature (F)	23.4	27.8	33.0	40.8	50.1	59.2	64.6	62.9	56.0	44.0	31.4	24.4	43.1
Average Total Precipitation (in.)	0.37	0.40	0.52	0.54	0.63	0.61	1.38	1.46	0.96	0.88	0.46	0.46	8.67
Average Total SnowFall (in.)	2.3	1.8	1.6	0.6	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.2	9.6
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.
Max. Temp.: 91.2% Min. Temp.: 91.2% Precipitation: 96.6% Snowfall: 80.1% Snow Depth: 80.1%
Check Station Metadata or Metadata graphics for more detail about data completeness.

THOREAU 5 ENE, NEW MEXICO (298830)

Period of Record Monthly Climate Summary

Period of Record : 1/ 1/1930 to 11/30/1992

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	43.2	47.9	54.5	63.8	72.6	83.1	85.5	82.3	76.6	66.8	53.4	44.9	64.5
Average Min. Temperature (F)	18.6	21.9	26.5	32.3	40.7	49.8	55.8	53.8	47.4	37.2	26.5	19.8	35.9
Average Total Precipitation (in.)	0.64	0.61	0.68	0.45	0.58	0.56	1.72	2.16	1.19	0.88	0.59	0.65	10.71
Average Total SnowFall (in.)	8.3	5.6	5.3	1.1	0.4	0.0	0.0	0.0	0.0	1.4	3.1	8.1	33.3
Average Snow Depth (in.)	1	0	0	0	0	0	0	0	0	0	0	1	0

Percent of possible observations for period of record.
Max. Temp.: 46.1% Min. Temp.: 46.1% Precipitation: 68.4% Snowfall: 61.8% Snow Depth: 61.8%
Check Station Metadata or Metadata graphics for more detail about data completeness.

Western Regional Climate Center, wrcc@dri.edu

THOREAU 5 ENE, NEW MEXICO

Station Metadata

From NCDC Station Historical Listing for NWS Cooperative Network
ObsTyp: t-Temperature-1, p-Daily precip-2, w-(blank), s-(blank), e-Evap-5
h-Hourly precip - 6 0.01" Universal, or - 7 0.10" Fisher-Porter
U - Observed, but beginning date is uncertain

Count	Number (Coop)	Station Name (From NCDC listing)	Lat ddmm	Long dddmm	Elev ftx10	Start yy mm	t	ObsTyp p	w	s	e	h	End yy mm
1050	298830-4	THOREAU 6 ENE	3526	10808	0713	53 09	U	U					63 01
1051	298830-4	THOREAU 6 ENE	3526	10809	0711	63 01	U	U					88 04
1052	298830-4	THOREAU 5 ENE	3526	10809	0710	88 04	1	2				7	99 99

Statistics by element

(From WRCC data archives)
Last Compiled on Apr.23, 2009.
Dates are format of YYYYMMDD. Numbers are total Number of observations

STATION	START	END	PRECP	SNWFL	SNWDP	TMAX	TMIN	TOBS	EVAP	WNDM
298830	19300101	19921130	15723	14204	14192	10584	10584	10580	0	0

STATION - NCDC COOP Station number
START - First Date in record
END - Last Date in record (when last compiled)
PRECP - Precipitation
SNWFL - Snowfall
SNWDP - Snow depth
TMAX - Daily Max. Temperature
TMIN - Daily Min. Temperature
TOBS - Temperature at Observation time
EVAP - Evaporation
WNDMV - Wind Movement

Statistics by observation

(From WRCC data archives)
Last Compiled on Apr.23, 2009.
Dates are format of YYYYMMDD. Numbers represent one day and one day is considered present if

Average Wind Speeds - MPH

Average wind speeds are based on the hourly data from 1996-2006 from automated stations at reporting airports (ASOS) unless otherwise noted.

For more information click here on Western States, Alaska or Hawaii and Pacific Islands

Arizona California Colorado Hawaii Idaho Montana Nevada New Mexico Oregon Utah Washington Wyoming

MONTANA

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
BAKER AIRPORT ASOS	KBHK	1998-2006	10.4	10.5	12.2	12.5	12.7	11.7	10.7	10.8	10.0	10.3	10.5	10.7	11.1
BILLINGS-LOGAN AP ASOS	KBIL	1996-2006	12.8	12.2	11.0	10.5	10.4	10.0	9.3	9.2	9.6	10.3	12.0	13.0	10.9
BOZEMAN AIRPORT ASOS	KBZN	1996-2006	4.6	5.3	6.4	7.2	7.0	6.3	6.3	6.4	6.1	5.7	4.9	4.8	5.9
BUTTE AIRPORT ASOS	KBTM	1996-2006	4.7	5.0	6.8	7.3	7.7	7.3	6.9	6.6	6.2	6.2	5.2	4.9	6.2
CUT BANK AIRPORT ASOS	KCTB	1996-2006	14.6	12.8	13.3	12.8	13.4	12.3	11.2	10.2	11.4	13.0	13.6	14.6	12.8
DILLON AIRPORT ASOS	KDLN	1997-2006	10.2	9.7	10.3	10.0	9.6	8.4	8.0	8.0	8.7	9.0	9.3	9.2	9.2
GLASGOW AIRPORT ASOS	KGGW	1996-2006	9.3	9.3	11.7	12.4	12.6	11.4	10.7	11.0	10.5	10.3	9.3	9.4	10.6
GLENDIVE AIRPORT AWOS	KGDV	1996-2006	9.5	9.7	10.5	11.3	11.6	10.4	9.4	9.6	9.6	10.1	9.7	10.2	10.1
GREAT FALLS AP ASOS	KGTF	1996-2006	13.3	12.3	11.8	11.2	11.3	10.2	9.6	9.2	10.4	11.9	13.2	13.8	11.5
GREAT FALLS-MALSTROM AF	KGFA	1996-2006	12.3	9.9	11.9	10.7	10.3	9.7	9.1	8.8	9.9	10.4	13.2	13.2	10.9
HAVRE AIRPORT ASOS	KHVR	1996-2006	9.9	9.6	10.7	11.0	11.6	10.6	9.8	9.5	9.8	9.8	10.6	11.0	10.3
HELENA AIRPORT ASOS	KHLN	1996-2006	5.8	6.3	7.8	8.3	8.4	8.2	7.4	6.6	6.7	6.6	5.8	6.0	7.0
JORDAN AIRPORT ASOS	KJDN	1996-2006	7.3	7.9	9.3	10.0	10.5	9.7	8.4	8.4	8.2	8.2	7.9	8.1	8.6
KALISPELL AIRPORT ASOS	KGPI	1996-2006	4.1	3.8	6.0	6.7	6.6	5.7	5.2	5.0	4.6	4.2	4.0	3.2	4.9
LEWISTOWN AIRPORT ASOS	KLWT	1996-2006	10.6	9.5	10.2	9.8	9.9	9.0	7.9	8.0	8.5	9.2	10.2	10.7	9.5
LIVINGSTON AIRPORT ASOS	KLVM	1996-2006	19.8	17.4	16.2	14.0	13.1	11.9	11.0	11.2	12.7	14.6	18.4	20.4	15.2
MILES CITY AP ASOS	KMLS	1996-2006	8.8	9.4	10.6	11.2	11.3	10.5	9.9	9.7	9.7	9.7	9.3	9.3	9.9
MISSOULA AIRPORT ASOS	KMSO	1996-2006	3.2	3.7	5.4	6.1	6.0	6.1	5.7	5.2	4.3	3.9	3.5	3.7	4.7
SIDNEY AIRPORT AWOS	KSDY	1996-2006	8.9	9.0	9.5	10.2	10.4	9.0	7.7	7.9	8.2	8.8	8.7	9.4	9.0
WOLF POINT AIRPORT ASOS	KOLF	1998-2006	7.1	7.6	9.4	10.3	10.4	8.9	8.2	8.3	7.6	7.7	7.3	7.6	8.3

NEW MEXICO

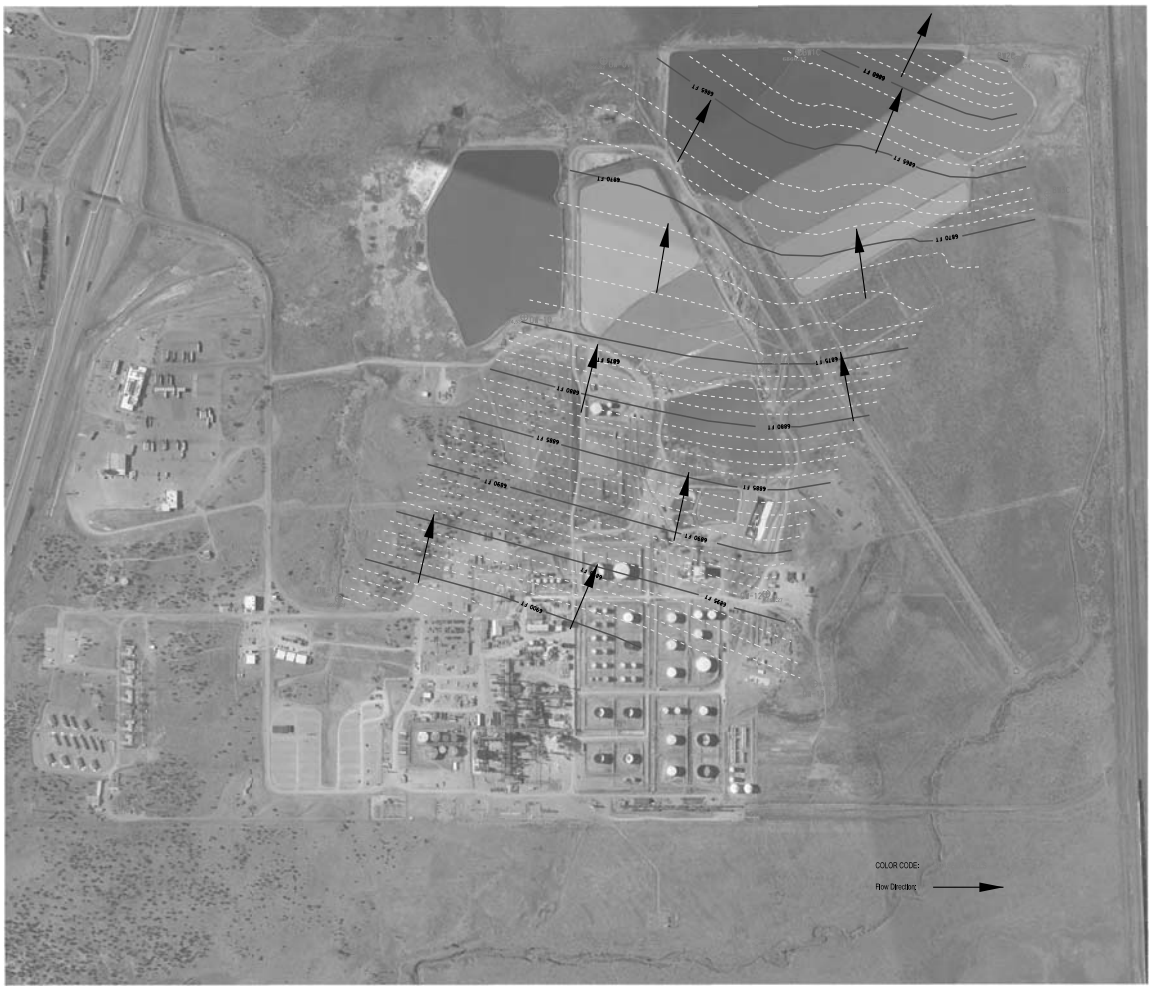
7.0 miles/hr × 1 kilo. / .62 miles = 11.3 K/hr

AVERAGE WIND SPEED - MPH

STATION	ID	Years	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
ALAMOGORDO AIRPORT ASOS	KALM	1996-2006	5.1	6.3	7.1	7.9	7.1	6.9	6.1	5.3	5.2	5.2	5.0	5.0	6.0
ALAMOGORDO-HOLLOMAN AFB	KHMN	1996-2006	8.5	9.7	10.6	11.8	10.8	10.6	9.8	9.1	8.8	8.5	8.1	8.3	9.6
ALBUQUERQUE AP ASOS	KABQ	1996-2006	7.0	8.2	9.3	11.1	10.0	10.0	8.7	8.3	8.0	7.9	7.2	6.9	8.5
ALBUQUERQUE-DBLE EAGLE	KAEG	1999-2006	7.1	7.9	9.0	10.6	9.5	8.6	7.0	6.2	7.0	6.5	6.5	6.1	7.7
ARTESIA AIRPORT ASOS	KATS	1997-2006	7.8	9.1	10.1	10.9	10.2	9.9	7.8	6.9	7.6	7.8	7.6	7.4	8.5
CARLSBAD AIRPORT ASOS	KCNM	1996-2006	9.2	9.8	10.9	11.4	10.4	9.9	8.5	7.7	8.2	8.5	8.4	8.8	9.3
CLAYTON MUNI AP ASOS	KCAO	1996-2006	11.9	12.7	13.4	14.6	13.4	13.0	11.7	10.8	11.8	12.1	12.1	12.0	12.4
CLINES CORNERS	KCQC	1998-2006	16.2	16.1	15.7	16.9	14.6	13.5	10.6	10.1	11.8	13.3	15.0	16.0	14.1
CLOVIS AIRPORT AWOS	KCVN	1996-2006	12.3	12.3	13.4	13.8	12.4	11.9	9.7	8.9	9.7	10.9	11.6	12.2	11.6
CLOVIS-CANNON AFB	KCVS	1996-2006	12.5	12.6	13.6	13.8	12.2	12.5	10.7	10.0	10.2	11.3	11.7	12.4	12.0
DEMING AIRPORT ASOS	KDMN	1996-2006	8.7	9.7	10.9	12.0	10.6	10.1	8.9	8.1	8.4	8.2	8.5	8.1	9.3
FARMINGTON AIRPORT ASOS	KFMN	1996-2006	7.3	8.3	9.0	9.8	9.4	9.4	8.7	8.2	8.0	7.8	7.6	7.3	8.4
GALLUP AIRPORT ASOS	KGUP	1996-2006	5.7	6.9	7.8	10.0	9.0	8.8	6.9	6.0	6.5	6.1	5.6	5.3	7.0
GRANTS-MILAN AP ASOS	KGNT	1997-2006	7.8	8.8	9.6	10.9	10.0	9.8	8.1	7.2	7.9	8.4	8.0	7.6	8.7
HOBBS AIRPORT AWOS	KHOB	1996-2006	11.3	11.9	12.6	13.4	12.5	12.3	11.0	10.0	10.2	10.6	10.7	11.1	11.4
LAS CRUCES AIRPORT AWOS	KLRU	2000-2006	6.4	7.5	8.8	10.1	8.7	8.2	6.8	6.0	6.2	6.1	6.4	6.0	7.3
LAS VEGAS AIRPORT ASOS	KLVS	1996-2006	10.9	12.2	12.5	14.3	12.4	11.8	10.0	9.2	10.9	10.8	11.0	10.9	11.4
LOS ALAMOS AP AWOS	KLAM	2005-2006	3.9	5.7	7.5	8.1	7.1	7.3	5.3	4.8	5.7	5.1	4.4	3.2	5.4
RATON AIRPORT ASOS	KRTN	1998-2006	8.9	9.4	10.4	12.2	10.8	10.2	8.4	8.1	8.6	9.0	8.6	8.5	9.4
ROSWELL AIRPORT ASOS	KROW	1996-2006	7.4	8.9	9.9	11.1	10.3	10.2	8.8	7.9	8.3	8.0	7.5	7.3	8.8
RUIDOSO AIRPORT AWOS	KSRR	1996-2006	8.8	9.6	10.0	11.6	10.0	8.4	5.9	5.3	6.4	7.4	7.9	8.7	8.3
SANTA FE AIRPORT ASOS	KSAF	1996-2006	8.9	9.5	9.9	11.2	10.6	10.5	9.2	8.8	8.8	9.1	8.7	8.5	9.5
SILVER CITY AP AWOS	KSVC	1999-2006	8.1	8.7	9.9	10.8	10.2	9.9	8.5	7.2	6.9	7.6	7.9	7.7	8.5
TAOS AIRPORT AWOS	KSKX	1996-2006	5.8	6.5	7.7	9.1	8.6	8.5	7.1	6.6	6.7	6.6	6.0	5.7	7.0
TRUTH OR CONSEQ AP ASOS	KTCS	1996-2006	7.4	8.7	9.9	11.1	10.4	9.8	8.1	7.4	7.7	8.0	7.7	7.3	8.6
TUCUMCARI AIRPORT ASOS	KTCC	1999-2006	10.0	11.2	11.9	13.6	11.9	11.6	9.9	9.3	10.0	10.0	10.4	10.2	10.8

SONSELA POTENTIOMETRIC SURFACE MAP
WESTERN REFINING COMPANY
GALLUP REFINERY

Fall 2015



4601 Ripley
El Paso, Texas
79922
915-584-1317

1"=500'

Project #: 06251104

Figure 9

Sonsela Water Elevation Map 2015

WESTERN REFINING - GALLUP REFINERY

Western Refining - Gallup Refinery
92 Giant Crossing Road
Gallup, New Mexico 87301

Date: August 5, 2016 - Revision 1

APPENDIX C – DISCHARGE PLAN APPLICATION
GIANT REFINING COMPANY
CINIZA REFINERY

November 21, 1985

APPENDIX C
AQUIFER-TEST DATA AND ANALYSES

TEST PUMPING OF CHINLE SHALE

METHODOLOGY AND DESCRIPTION OF THE TEST

The test consisted of a 5 hour pumping period and a 2 hour recovery period. An air-driven piston pump capable of sustaining pumping rates as low as 10 gallons/hour (0.167 gpm) was used for the test. Water level measurments were taken with an electronic sounder. The well (OW-24) is located approximately 250 feet northwest of the land treatment facility and is completed within the Chinle shale. The lithologic and completion log of the well is attached (Figure F-2).

Pumping began at 1515 hours on February 20, 1985 at a rate of 10 gallons/hour. The produced water was very turbid. Clogging of the pump and pump lines necessitated continuous monitoring and adjustment of the discharge.

After 4 hours of pumping at 10 gallons/hour, the drawdown of the well appeared to stabilize at about 7 feet. The discharge rate was increased to 20 gallons/hour in order to more effectively stress the aquitard. After one hour of additional pumping a total drawdown of 12 feet was observed. However, this higher pumping rate increased the turbidity of the discharge and caused instability of the pumping rate. The lack of control of the discharge rate and the potential of diamage to the pump forced the termination of the test after a total of 5 hours of pumping.

Water level recovery was observed for 100 minutes. At this time the water level had recovered to within 90% of the pre-pumping level.

TABLE F-1

Pump Test Data, OW-24

PUMP TEST ANALYSIS

Field measurements are summarized in Table F-1. Due to the short pumping time and potential well-bore and gravel-pack effects, the final analysis was based on methods developed by Shafer, for low-conductivity materials.

Partial penetration effects were neglected in the analysis because the low pumping rates and the expected anisotropy of the aquitard would prevent significant vertical flow to the well bore. The low pumping rate was also designed to completely drain the gravel pack in the well to insure accurate recovery data.

A copy of Shafer's methodology is attached, and the data for his analysis is given in Table F-2. Figure F-1 is a plot of the recovery data, according to Shafer's methods. This Figure includes calculation of T and K for the Chinle shales.

TD = 58'-4" = 58.33'
DW = 31.96
Pump @ 55' 26.37' of water
≈ 18 gal

PUMPING DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County : McKinley Co.
Location: Ciniza Refinery 2/25/85

Observation well no. _____
Pumped well no. OW-24

Average Q _____ gpm r = _____ ft. r^2 = _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
2-20	1515	0			31'-11.5"	0"	Feet		10 gph	STATIC LEVEL w/ PUMP
	1516	1			33-0	12.5	1.04			LARGE INITIAL DRAW DOWN FILL HOSE FILL
	1517	2			33-1	13.5	1.13			Setting pump rate
	1518	3			33-4	16.5	1.38			
	1519	4			33-8¾	20.75	1.73			
	1520	5			33-11½	24.0	2.0'			
	1521	6			34-2	26.5	2.22			
	1522	7			34-2½	27.0	2.25			
1 min	1523	8			34-3	27.5	2.27			
	1524	9			34-4	29.5	2.37			
	1525	10			34-5	29.5	2.46			
	1527	12			34-6¾	30.75	2.56			
	1529	14			34-9	33.5	2.79			
	1531	16			35-0	36.5"	3.04			
2 min	1533	18			35-2½	39.75	3.23			
	1535	20			35-4½	41.0	3.42			
	1540	25			35-10½	47.0	3.92			
	1545	30			36-3	51.5	4.28			
	1550	35			36-2½	51.0	4.25			
	1555	40			36-8	56.5	4.71		10 gal	CLEARED PUMP valve
5 min	1600	45			37-2¼	62.75	5.23			
	1605	50			36-10½	61.0	5.08			clear pump valve
	1610	55			NR	70.75				
	1615	60			37-10¼	~~88.75~~	5.90			Pumped 10 gal
10 min	1625	70			38'-½	85.0	6.08			

PUMPING DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County: _____ Observation well no. MW-24

Location: Cimiga Refinery Pumped well no. MW-24

Average Q 10 GPM s = — ft. s^2 = —

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s" (unadjusted)	Adjustment Δs	s' (adjusted)	Q GPM (approx)	Remarks
2-20	1635	80			39-3½	~~80.0~~ 78	6.33		10	
	1645	90			38-7-	~~91.5~~ 79.5	6.79			Lift pump to 60'
	1655	100			37-6½	69.0	5.75			clear pump, ready pretime
	1705	110			36-11½	~~94.0~~ 84.0	7.00			
2 hours	1715	120			39-2½		7.27			Pumped 20 gal
	1730	135			38-11		6.97			
15 min	1745	150			39-2½		7.25			
	1800	165			39-0½		7.08			
3 h	1815	180			39-2		7.21			Pumped 30 gal
	1830	195			39-5		7.46			
	1845	210			39-5		7.46			
	1900	225			39-2		7.21			
4 h	1915	240			38-11½		7.00			Pumped 40 gal
	1930	255			39-0		7.04		10	
	1932	257			39-4		7.38		20	INCREASE PUMP RATE TO 30 GPM
	1934	259			39-10		7.87			PUMP SLIPPED APPROX 1 FOOT - REPLACED TO APPROX SAME LEVEL
2 min	1936	261			40-3½		8.33			
	1938	263			40-3½		8.33			
	1940	265			40-1½		8.17			PUMPING RATE TELL-OFF SLIGHTLY
	1945	270			40-9		8.79			
	1950	275			41-9½		9.83			
5 min	1955	280			42-0		10.04			
	2000	285			41-8		9.72			
	2005	290			42-0½		9.75			
	2010	295			43-4		11.27			Silt in Pump
15 min 5 h	2015	300			43-2½		11.25			Adj pump valve
	2030	315			43-10½		11.92			pumped 10 gal

RECOVERY DATA

DATA SHEET FOR RECORDING PUMP TEST DATA

County: ______________________ Observation well no. ______

Location: *Cissy Refinery* Pumped well no. *Rw-24*

Average Q ________ gpm r = ________ ft. r^2 = ________

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
1/22	20:32		0		43-11½	144"	12.0'	0	20gph	
	2034		2		42-7-		10.63'	1.37		
	2036		4		41-8¾		9.69	2.31		
2min	2038		6		40-10¼		8.86	3.14		
	2040		8		40-2		8.21	3.79		
	2042		10		39-6¼		7.56	4.44		
	2047		15		38-0¾		6.11	5.89		
	2052		20		37-1½		5.17	6.83		
	2057		25		36'4-		4.38	7.62		
	2102		30		35-8½		3.75	8.25		
	2107		35		35-2¾		3.27	8.73		
	2112		40		34-9¾		2.86	9.14		
5min	2117		45		34-5¾		2.52	9.48		
	2122		50		34-2¾		2.27	9.73		
	2127		55		34-0½		2.07	9.93		
	2132		60		33-10½		1.92	10.08		
	2142		70		33-7½		1.66	10.34		
10min	2152		80		33-5¾		1.51	10.49		
	2202		90		33-4½		1.42	10.58		
	2212		100		33-3¼		1.32	10.68		
	2222		110							
	2232		120							
15min	2247		135							
	2302		150							
	2317		165							

TABLE F-2

DATA FOR SHAFER'S METHOD

Time Since Pumping Started (min)	Drawdown (feet) (s)	Feet of Casing Filled (ft)	Time To Fill (min)	Q (gpm)	S/Q (ft/gpm)
317	12.0	0	0	---	-----
319	10.63	1.37	2	.45	23.8
321	9.69	.94	2	.31	31.6
323	8.86	.83	2	.27	32.7
325	8.21	.65	2	.21	38.7
327	7.56	.65	2	.21	35.6
332	6.11	1.45	5	.19	32.3
337	5.17	.94	5	.13	42.1
342	4.38	.79	5	.10	42.5
347	3.75	.63	5	.08	45.6
352	3.27	.48	5	.06	52.2
357	2.86	.41	5	.05	53.4
362	2.52	.34	5	.04	56.8
367	2.27	.25	5	.03	69.5
372	2.07	.20	5	.026	79.3
377	1.92	.15	5	.019	98.0
387	1.66	.26	10	.017	97.8
397	1.51	.15	10	.009	154
407	1.42	.15	10	.009	145
417	1.32	.10	10	.006	202

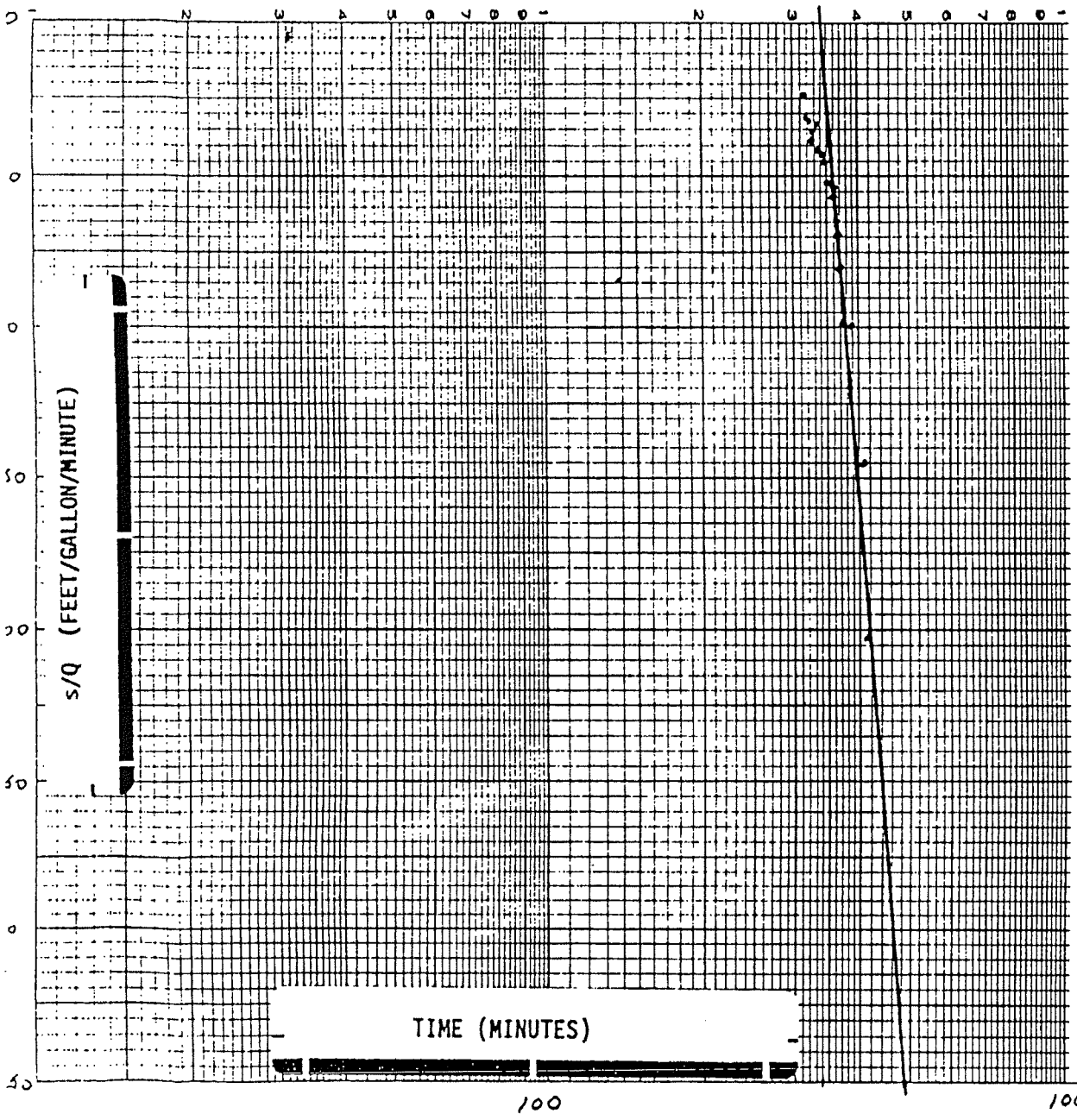


FIGURE F-1
SHAFER PLOT OF DATA FROM OW-24

Calculation of T & K

1) Over the total vertical scale of 350 feet/GPM, time varies by 0.1567 log cycles

2) For 1 full log cycle, s/Q equals 350/.1567 = 2233

3) T = 264/(s/Q) = 264/2233
or T = 0.110 gallons/day/foot

4) For a 20 foot screened interval K = T/b = 0.0055 gallons/day/square foot.

5) .0055 g/d/ft x 1.55×10^{-6} (ft/sec)/(g/d/ft)

$= 8.3 \times 10^{-9}$ ft/sec

BO. .IG OW-24

SURFACE ELEVATION: 6878 FEET

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)
0									
10									
20									
30									
40									
50									
60									
70									
80									
90									
100									
110									
120									
130									
140									
150									
160									

LABORATORY TEST DATA

PENETRATION RATE MINUTES/FOOT	SYMBOLS	DESCRIPTION
2.4	CL	TRIASSIC PERIOD CHINLE FORMATION REDDISH BROWN, VERY FINE SANDY CLAY, SOFT, HIGHLY WEATHERED
2.0		
2.0		
1.6		
2.0		
1.8		
2.3	SHALE	30 FEET: SHALE, REDDISH BROWN, SANDY, SOFT, FRESH
1.8		
2.3		
3.5		
3.3		
4.0		
3.7		
4.0		
2.0		
3.0		
2.3		
2.4		

BORING COMPLETED AT 65.0 FEET ON 1/2/81.
4-INCH PVC PIEZOMETER INSTALLED WITH PERFORATIONS FROM 41.0 TO 61.0 FEET.
GRAVEL PLACED FROM 28.0 TO 61.0 FEET AND BORING SEALED WITH BENTONITE AND CEMENT TO SURFACE.
GROUND WATER LEVEL MEASURED AT 32.5 FEET BELOW GROUND ON 1/5/81.

FIGURE F-2
LOG OF WELL OW-24

LOG OF BORINGS

DAMES & MOORE

Pumping Test Analyses for Low Yield Formations

by David C. Shafer

Occasionally it is necessary to determine aquifer characteristics of very low yielding formations—those with transmissivities less than 500 gallons per day per foot. Though interest in these aquifers is certainly not because of their productive capability, it may be desirable to determine groundwater flow characteristics even in these low yield formations in order to determine such things as regional groundwater flow patterns, effect of dewatering or migration of pollution plumes near point sources of contamination.

Different Approach

Conventional pumping test analysis using the standard time drawdown graph often does not work effectively in low T (transmissivity) formations for two reasons. First, the pumped well's low specific capacity (gallons per minute per foot of drawdown) may cause the pump to break suction during the test and it may be impractical to throttle back the pumping rate sufficiently to prevent this. Second, even if a constant pumping rate can be maintained without breaking suction, most of the data obtained will probably reflect casing storage effects rather than true aquifer parameters (see "Casing Storage Can Affect Pumping Test Data," Jan-Feb. 1978, Johnson Drillers Journal). Thus a different approach is required.

The best method for analyzing these formations is to pump a substantial portion of the casing empty, then shut the pump off and measure water levels as they recover. In ordinary pumping tests these measurements correspond to the non-pumping portion of the test. However, in the low T formations this "recovery period" is actually the "pumping period!"

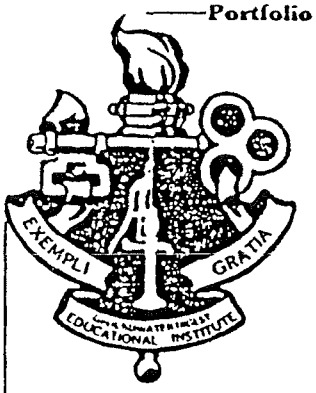
After pump shut-off, the casing slowly begins filling with water. This water comes from the aquifer and actually represents the water pumped during this so called "pumping period." The pumping rate is determined by measuring the volume of

William F. Achuff
Director

Pumping rate = 10 gpm
Pumping period = 15 minutes
Drawdown at pump shut off = 90 ft
Casing — 6" I.D.
Drop pipe — 1¼" I.D.

Time in minutes since pumping started (t)	Drawdown in feet (s)	Number of feet of casing filled	Time in minutes required to fill	Volume filled divided by time required in gallons per minute (Q)	s/Q in feet per gallon per minute
15 (pump shut off)	90				
17	85.66	4.34	2	3.04	28.2
20	79.7	5.96	3	2.78	28.6
30	64.2	15.5	10	2.17	29.5
40	51.9	12.3	10	1.72	30.2
60	35.6	13.3	20	1.14	31.1
80	24.6	11.0	20	.77	31.8

Table 1



casing filled in a given length of time.

During the test, careful measurements are made of time since pumping began (t) along with drawdown (s) at each of these times. Then a calculation is made to determine Q for each time t and finally the ratio s/Q is computed for each measured drawdown value. The ratio is simply the reciprocal of the specific capacity.

A graph is then constructed showing t versus the ratio s/Q plotted as usual on semi-logarithmic graph paper with t on the log scale. A straight line of best fit is drawn through the data points and T is calculated as follows:

$$T = \frac{264}{\Delta(s/Q)}$$

where $\Delta(s/Q)$ is the change in s/Q over one log cycle of graph paper.

This graph has the unique advantage that it will accurately reflect aquifer transmissivity independent of casing storage effects. In addition it will be sensitive to nearby recharge and/or negative boundaries and will reveal these conditions like any ordinary time drawdown graph.

To see how this technique works it is best to work an example. Table 1 shows data obtained from a 6-inch well pumped at 10 gpm for 15 minutes. Drawdown after 15 minutes of pumping measured 90 feet.

The next data point was recorded two minutes following pump shut-off or 17 minutes since pumping started. At this time the pumping water level was 85.66 feet, indicating that 4.34 feet of casing had filled during the two minute interval.

The annulus between the 6-inch casing and 1¼" drop pipe holds 1.4 gallons per foot so that the volume of casing filled is 1.4 times 4.34, or 6.08 gallons in two minutes. Thus,

$$Q = 6.08 \text{ gallons}/2 \text{ minutes} = 3.04 \text{ gpm}$$

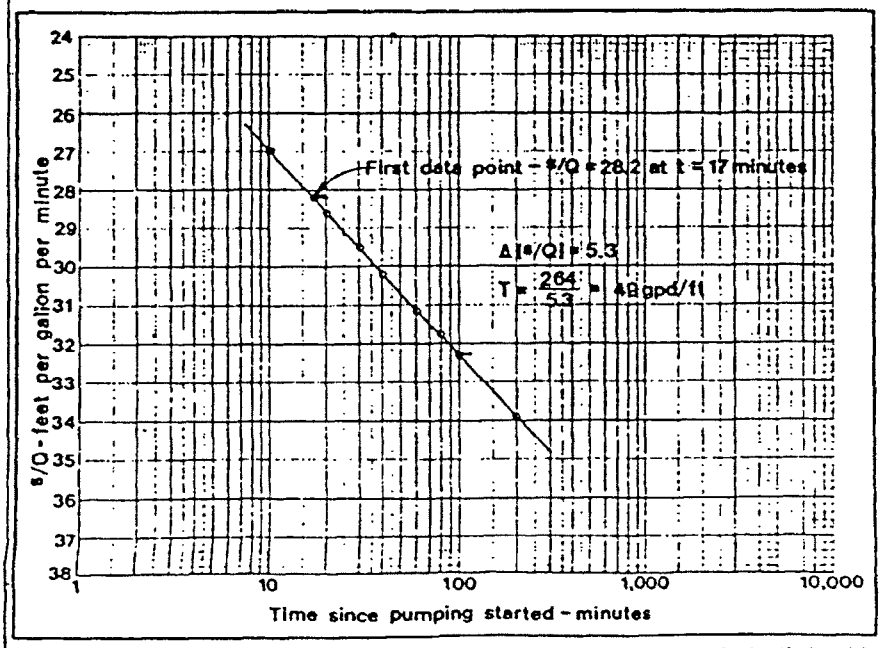
finally,

$$s/Q = 85.66 \text{ ft}/3.04 \text{ gpm} = 28.2 \text{ ft/gpm}$$

which is plotted at a time of 17 minutes on the graph shown here.

This analysis is repeated for each drawdown measurement. The resultant calculated s/Q values are shown in the table and plotted in the figure. The formation T value from the graph is

$$T = \frac{264}{\Delta(s/Q)} = 264/5.3 = 49 \text{ gpd/ft}$$



In low transmissivity situations, readings are taken after pump shut-off. In this method, s/Q is the reciprocal of the specific capacity and t is time, measured after shut-off as water begins to enter the casing.

Conventional Analysis

Examination of the hydraulic characteristics of this well (not included here) shows that if a conventional time drawdown graph had been used, casing storage effects would have lasted for approximately twelve hours. This means that data recorded in the first twelve hours of pumping would have been useless and longer pumping than this would have been required to obtain any usable data at all. However, data collected after twelve hours of pumping probably would be more influenced by boundary conditions than by aquifer transmissivity. Thus, in practice it actually might have been impossible to determine the T values using conventional analysis techniques regardless of the length of the test. The value of the method described above becomes very clear; it may be the only way to determine T values in certain low yielding aquifers.

In order to maximize the accuracy of this method, it is best to unload (empty) the casing as rapidly as possible. Thus it is actually better to use a high capacity pump than a low capacity pump in analyzing extremely low-yielding wells!

Another good idea is to unload the casing with compressed air since this can typically be done in one minute or less.

Recorded Data Must Be Accurate

An additional important consideration is that all data recorded for this type of analysis must be absolutely accurate. Small errors in the recorded values of time and/or drawdown can result in large errors in the calculated values of s/Q. For best results, drawdown should be recorded to the nearest hundredth of a foot and timed to the nearest second or two.

JOHN W. SHOMAKER
CONSULTING GEOLOGIST
3236 CANDELARIA, N.E.
ALBUQUERQUE, NEW MEXICO 87107

(505) 884-2897

RECEIVED SEP 24 1984

September 20, 1984

Carl D. Shook, Plant Manager
Giant Refining Company, Ciniza Refinery
Route 3, Box 7
Gallup, New Mexico 87301

Re: results of permeability tests, July 2 and 3, 1984

Dear Carl:

Copies of the field notes, calculations, and data plots for the two permeability tests are attached. The tests are summarized as follows:

Well OW-4 The well is completed principally in the clay and shale sequence which overlies the uppermost aquifer; a small thickness of sandstone which may be part of the uppermost aquifer was also penetrated. Total depth when drilled was 102.0 ft. Perforations are from 62.0 ft to 102 ft. The well is located near the center of the land-treatment area. A slug test was performed on July 3, 1984, following the method described by S. W. Lohman (1972, Ground-Water Hydraulics, U. S. Geol. Survey Prof. Paper 708, p. 27-29), which indicates the permeability of the section open to the well to be about 4×10^{-7} cm/sec.

Well MW-1 This well is one of the monitoring wells on the boundary of the land-treatment area, and is completed in the uppermost aquifer. It was drilled to 120 ft, and is screened in the interval 87 to 120 ft; the casing is sealed above 89 ft so as to isolate the uppermost aquifer. The slug test performed on July 3, 1984 indicated a permeability of about 1.2×10^{-4} cm/sec.

Information as to the construction of the wells is taken from Dames and Moore (March, 1981; Ground water and soils investigation, Ciniza Refinery near Gallup, New Mexico, and November, 1981, Groundwater monitoring plan, Ciniza Refinery near Gallup, New Mexico).

Please let me know if there are questions.

Sincerely,

John W. Shomaker
Consulting Geologist

cc: Tom Andrews, Delta H Engineering w/encl

well: Town Center OW-4
date: 7-3-84

casing size: nominal 4½" ID 4.0 csg. matl. PVC
water levels measured from top 4½ OD PVC casing, S side
which is 1.7 ± above ground level.

volume of slug:

OD, ft $\left(\frac{0.27}{0.30}\right)$	$\times \frac{1}{2})^2 \times \pi \times$ length, ft	=	ft^3
0.243	0.10	=	0.006
0.27	0.04		0.003
0.243	4.84		0.224
0.27	0.26		0.015
0.18	4.81		0.223
0.11	0.26		0.015
	0.03		0.001
	0.25		0.002
	sum		0.489 = V, ft^3 = 3.66 gal.

Note - obstruction in casing at 33. won't pass 0.27 OD.

r_c = internal radius of casing above perfs: 0.165 ft

r_s = radius of screen or open hole: _____ ft

initial water level 26.15 ft below MP, time 07:51

$$H_o = \frac{V}{\pi r_c^2} = \frac{0.489}{\pi (0.165)^2} = 5.72 \text{ ft}$$

clock time	t, sec.	water level	H	H/Ho	remarks
08:20:54	0				slug released top slug: 23.2' MP
21:25?	31 ±	20.75	5.40	0.944	
22:28	94	20.76	5.39	0.942	
23:14	140	20.80	5.35	0.935	
23:51	177	20.81	5.34	0.934	
24:42	228	20.83	5.32	0.930	
25:42	288	20.87	5.28	0.923	
27:06	372	20.90	5.25	0.918	
28:14	440	20.92	5.23	0.914	
29:43	529	20.95	5.20	0.909	
30:55	601	20.97	5.18	0.906	
32:46	712	21.00	5.15	0.900	
35:16	862	21.04	5.11	0.893	
38:38	1064	21.10	5.05	0.883	
43:30	1356	21.19	4.96	0.867	
46:52	1558	21.21	4.94	0.864	raised slug 0.4ft.
49:26	1712	21.25	4.90	0.857	
52:54	1920	21.30	4.85	0.848	

t_0 = 08:20:54

0:00 = 23:46

clock time	t, sec.	level	H	H/H₀	remarks
~~08:54:13~~		~~21.34~~			
08:56:50	2096	21.35	4.80	0.839	
09:00:16	2362	21.39	4.76	0.832	
:05:00	2646	21.45	4.70	0.822	
09:55	2941	21.50	4.65	0.813	
17:46	3412	21.60	4.55	0.795	
28:25	4051	21.71	4.44	0.776	m-scope trouble
46:00	5106	21.89	4.26	0.745	
10:02:23	6089	22.05	4.10	0.717	
14:00	6786	22.15	4.00	0.699	
10:24:26	7412	22.25	3.90	0.682	stopped test; slug almost uncovered

late data matches: $\alpha = 10^{-1}$ curve, $Tt/r_c^2 = 1$ at $t = 50{,}000$ sec.

$T = \frac{1.0\, r_c^2}{t} = \frac{(1.0)(0.165)^2}{50{,}000} = 5.4 \times 10^{-7}$ ft²/sec

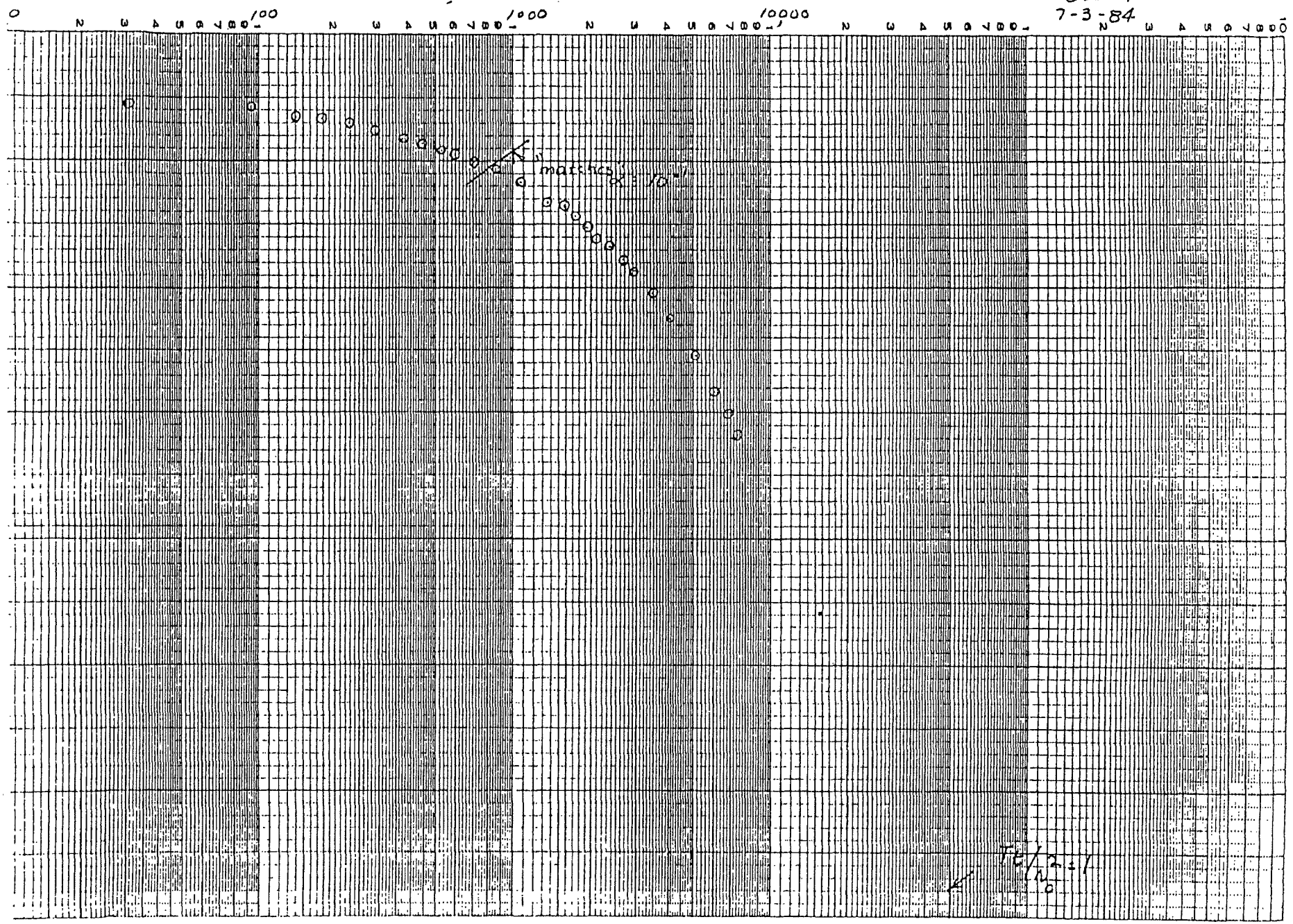
$= 0.05$ ft²/day $= 0.35$ gpd/ft

$K_h = \frac{0.05 \text{ ft}^2/\text{day}}{40 \text{ ft screen}} = 0.001$ ft/day

0.001 ft/day $\times$ 30.5 cm/ft $\times \frac{1}{60 \times 1440}$ sec/day $= 4 \times 10^{-7}$ cm/sec

$S = \frac{r_c^2 \alpha}{r_s^2} \approx \frac{0.027}{0.080}$ $10^{-1} = 0.03$ ∴ water-table storage

67% "hole!"



OW-4
7-3-84

date: 7-2-84

casing size: nominal 5 1/2" OD, ID 5.1" csg. matl. PVC
water levels measured from top PVC casing, SW side
which is 1.37 ft above ground level, (concrete slab) 2.05 .68 1.37
volume of slug:

cap OD, ft $\left(\frac{0.37}{0.39} \times \frac{1}{2}\right)^2 \times \pi \times$ length, ft

0.33	0.10	0.011
0.38	0.05	0.006
0.33	4.81	0.411
0.42	0.28	0.032
0.29	0.04	0.003
0.16	0.04	0.006
0.11	0.03	0.002
	0.03	0.001
	0.25	0.002
sum		0.474 = V, ft^3 = 3.55 gal

r_c = internal radius of casing above perfs: 0.211 ft

r_s = radius of screen or open hole: _____ ft

initial water level 5.72 ft below mp, time 13:32

$$H_o = \frac{V}{\pi r_c^2} = \frac{0.474}{\pi (0.211)^2} = 3.389 \text{ ft}$$

clock time	t, sec.	water level	H	H/Ho	remarks
13:48:00	0				slug released
13:48:20	20	2.30 ft	3.42	1.009	zz
49:00	60	2.36	3.36	0.991	
49:26	86	2.42	3.30	0.974	
49:52	112	2.44	3.28	0.968	
50:32	152	2.50	3.22	0.950	
51:05	185	2.56	3.16	0.932	
51:42	222	2.60	3.12	0.921	
52:19	259	2.65	3.07	0.906	
52:55	295	2.70	3.02	0.891	
53:33	333	2.74	2.98	0.879	
54:26	386	2.80	2.92	0.862	
55:30	450	2.86	2.86	0.844	
57:05	545	2.97	2.75	0.811	
59:12	672	3.10	2.62	0.773	
14:01:05	785	3.20	2.52	0.744	
02:25	868	3.28	2.44	0.720	
03:52	952	3.36	2.36	0.696	

clock time	t, sec.	level	H	H/H₀	remarks
14:05:38	1058	3.45	2.27	0.670	
07:22	1167	3.54	2.18	0.643	
09:16	1276	3.62	2.10	0.620	
11:01	1381	3.69	2.03	0.599	
13:17	1517	3.79	1.93	0.569	
15:59	1679	3.89	1.83	0.540	
18:14	1814	3.97	1.75	0.516	
20:40	1960	4.07	1.65	0.487	
23:15	2115	4.15	1.57	0.463	
25:44	2264	4.22	1.50	0.443	
28:45	2445	4.31	1.41	0.416	
33:09	2709	4.43	1.29	0.381	
36:51	2931	4.52	1.20	0.354	
41:56	3236	4.64	1.08	0.319	
46:19	3499	4.71	1.01	0.298	
50:03	3723	4.78	0.94	0.277	
57:39	4179	4.90	0.82	0.242	
15:05:36	4356	5.01	0.71	0.210	
14:12	5172	5.12	0.60	0.177	
21:12	5592	5.18	0.54	0.159	
33:01	6301	5.28	0.44	0.130	
44:35	6995	5.36	0.36	0.106	
53:43	7543	5.40	0.32	0.094	
16:08:22	8422	5.46	0.26	0.077	
26:59	9539	5.52	0.20	0.059	
47:10	10,750.	5.56	0.16	0.047	
17:00:20	11,540	5.58	0.14	0.041	

late data matches: $\alpha = 10^{-5}$ curve, $Tt/r_c^2 = 1$ at $t = 830$ sec.

$T = \frac{1.0\, r_c^2}{t} = \frac{(1.0)(0.21)^2}{830} = 5.36 \times 10^{-5}$ ft²/sec

$= 4.63$ ft²/day = 35 gpd/ft

$K_h = \frac{4.63 \text{ ft}^2/\text{day}}{13.3 \text{ ft screened}} = 0.35$ ft/day

$0.35 \text{ ft/day} \times 30.5 \text{ cm/ft} \times \frac{1}{60 \times 1440 \text{ sec/day}} = 1.2 \times 10^{-4} \frac{\text{cm}}{\text{sec}}$

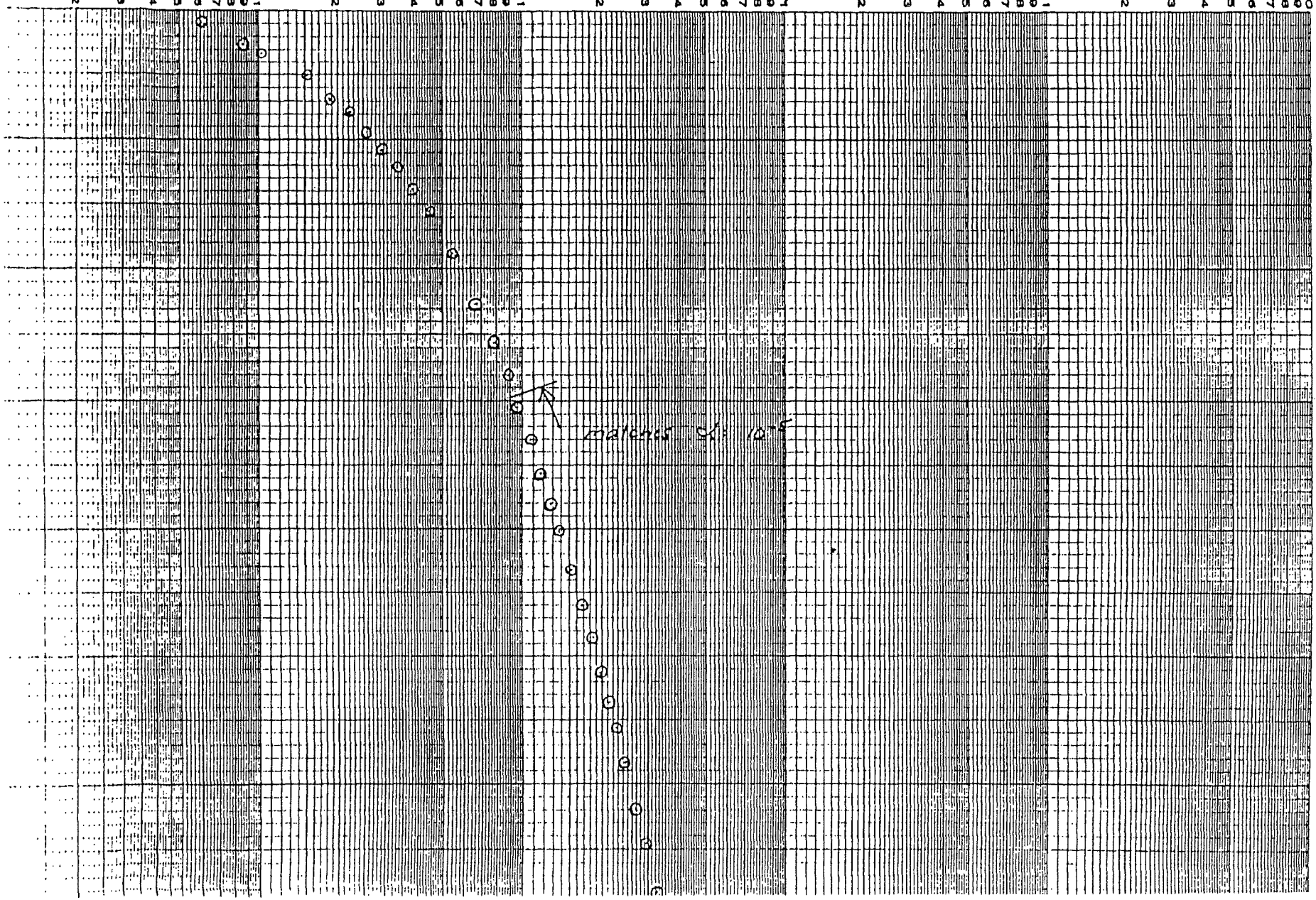
NO. 340-LS10 DIETZGEN GRAPH PAPER
SEMI-LOGARITHMIC
5 CYCLES X 10 DIVISIONS PER INCH

DIETZGEN CORPORATION
MADE IN U.S.A.

t, sec.

MW-1
7-2-84

100 1000 10000



APPENDIX C
RCRA POST-CLOSURE CARE PERMIT APPLICATION
LAND TREATMENT UNIT
GIANT REFINING COMPANY
CINIZA REFINERY

May 2000

RCRA Part A and Part B
Post-Closure Permit Application
Land Treatment Unit
May 2000

APPENDIX C

Land Treatment Unit Historical Information and Data

LAND TREATMENT UNIT HISTORICAL INFORMATION AND DATA

1.0 LAND TREATMENT HISTORY

> Historical LTU information and data extracted from existing permit applications, operating permits, operating records, and other source documents are provided as Appendix C. The inclusion of this appendix does not imply that historical information and data have been verified.

In August 1980, Ciniza Refinery (Ciniza) notified the U.S. Environmental Protection Agency (EPA) that it was a generator and operator of a hazardous waste management facility. In November 1980, Ciniza submitted a Part A permit application as an "existing facility" (defined at 40 *Code of Federal Regulations* §260.10). This granted Ciniza interim status for their Land Treatment Unit (LTU) operations. In response to notice from the Regional Administrator, Ciniza submitted a Part B permit application in December 1983. Based on changing guidance, Ciniza submitted a land treatment demonstration plan (LTD) and an application for a two-phase LTD permit in April 1985. On February 9, 1987, Ciniza was issued a Short-term LTD Permit (NMD000333211-1) to conduct a hazardous waste land LTD. The LTD was conducted to identify the land treatment capabilities for refinery waste generated by Ciniza. The LTD defined waste management parameters (e.g., rate-limiting constituent, application-limiting constituent, capacity-limiting constituent, and unit life of the LTU). This was accomplished by identifying the Principal Hazardous Constituents (PHCs) present in refinery waste streams and measuring their degradation, transformation, and immobilization in the treatment zone of the LTU. From the results of the LTD and a modified Part B permit application, Ciniza was issued a Hazardous Waste Facility Permit (NMD 000333211-2) on November 4, 1988. Ciniza has not applied hazardous wastes to the LTU since November 8, 1990.

1.1 Land Treatment Program [20 NMAC 4.1, Subpart IX, §270.20(b)]

Ciniza's Hazardous Waste Facility Permit established operational requirements for the LTU. These requirements inchinclude procedural and engineering controls necessary to ensure that hazardous constituents are fully treated within the LTU without uncontrolled release to the environment.

The LTU consists of a treatment zone of soil extending 5 ft deep from the original soil surface. This depth is shallow enough to ensure that the treatment zone is more than 3 ft above the seasonal high water table. The zone of incorporation (ZOI) within the treatment zone is the volume of soil to which the waste was directly applied.

The ZOI for the Ciniza LTU is the top 12 in. of the treatment zone. The LTU was designed and constructed to prevent both washout of any hazardous waste and to prevent inundation of and discharge from the permitted unit through the use of a continuous dike which surrounds the LTU at an elevation of 3 ft above the natural grade.

The ZOI was tilled during permitted operations to encourage aerobic microbial activity and improve chemical reaction rates. During active treatment soil nutrients were applied, as necessary, to optimize carbon:nitrogen: phosphorous (C:N:P) ratios. Applications of Ciniza wastes to the LTU were limited to ensure that treatment processes were not overwhelmed or poisoned. Performance indicators (e.g., soil moisture, pH, total organic carbon) were monitored in the ZOI to ensure that treatment was proceeding.

1.2 Treatment Zone Description [20 NMAC 4.1, Subpart IX, §270.20(b)(2) and §270.20(b)(5)]
The LTU consists of three 480-by-240-ft sections, each of which contain 2.6 acres (1.0 hectares) of available treatment surface. Each section is delineated by a continuous dike to prevent site runon and runoff. The treatment zone extends 5-ft deep from the top of the soil within the diked section. The top 12 in. of the treatment zone is the ZOI. The ZOI is tilled when active to encourage aerobic degradation of organics and to maintain moisture content of the soil. This leaves 4 ft of the treatment zone undisturbed.

The soil within the treatment zone is silty clay containing closely-spaced root systems in the uppermost 3 to 4 ft. Field infiltration rates (the rate at which water penetrates into the soil surface) averages 1.0×10^{-3} cm/sec or 3.6 cm/hr. Soil permeability as determined by laboratory measurements averages 1.9×10^{-5} cm/sec or 6.8×10^{-2} cm/hr for three locations at the 6- to 12-in. depth. Field infiltration rate allows prediction of runoff and erosion; permeability (hydraulic conductivity) allows estimation of vertical water movement rates in the soil. The treatment zone soils have a saturated hydraulic conductivity rating of "moderately low" by the U.S. Department of Agriculture Class (Giant Refining Company Part B Permit Application 1984). The low permeability of the treatment zone soil assists in retarding the vertical movement of hazardous constituents through the treatment zone.

The silty clay soil has a high cation exchange capacity (CEC). The CEC is the total amount of exchangeable cations that the soil has to exchange with cations in the soil solution. The exchangeable cations in the LTU are the heavy metals present in the Ciniza wastes. The high CEC results in high sorption of heavy metals in the LTU soils, assuming other factors (such as soil pH) are favorable.

RECENT SOIL PERMEABILITY TESTS
FIREWATER POND CONSTRUCTION PROJECT

GREC

Precision Engineering, Inc.

P.O. Box 422
Las Cruces, NM 88004
505-523-7674

Proposed Fire Water Storage

Rigid Wall Hydraulic Conductivity
Falling Head

ATTN: James Romero
Giant Refining Company
Route 3, Box 7
Gallup, NM 87301

Project: Ciniza Fire Water Lagoon File No.: 05-100
Soil Type: Silty Clay Date: October 13, 2005 Lab No.: 47872
Sampled From: Boring 05-100-1(2.5'-3.0') Performed By: GG

TEST SPECIMEN CONDITIONS AT BEGINING OF TEST:

Wet Unit Weight: 120.8 pcf
Dry Unit Weight: 109.0 pcf

% Moisture: 10.8
% Compaction: n/a
% Compaction Requested: n/a

PROCTOR INFORMATION:

Maximum Dry Density: n/a pcf
Optimum Moisture Content: n/a %

Coefficient of Permeability, k_{20}: 1.1×10^{-7} cm/sec. avg

Remarks: Avg of three: 1.1×10^{-7}, 1.1×10^{-7}, 1.1×10^{-7}

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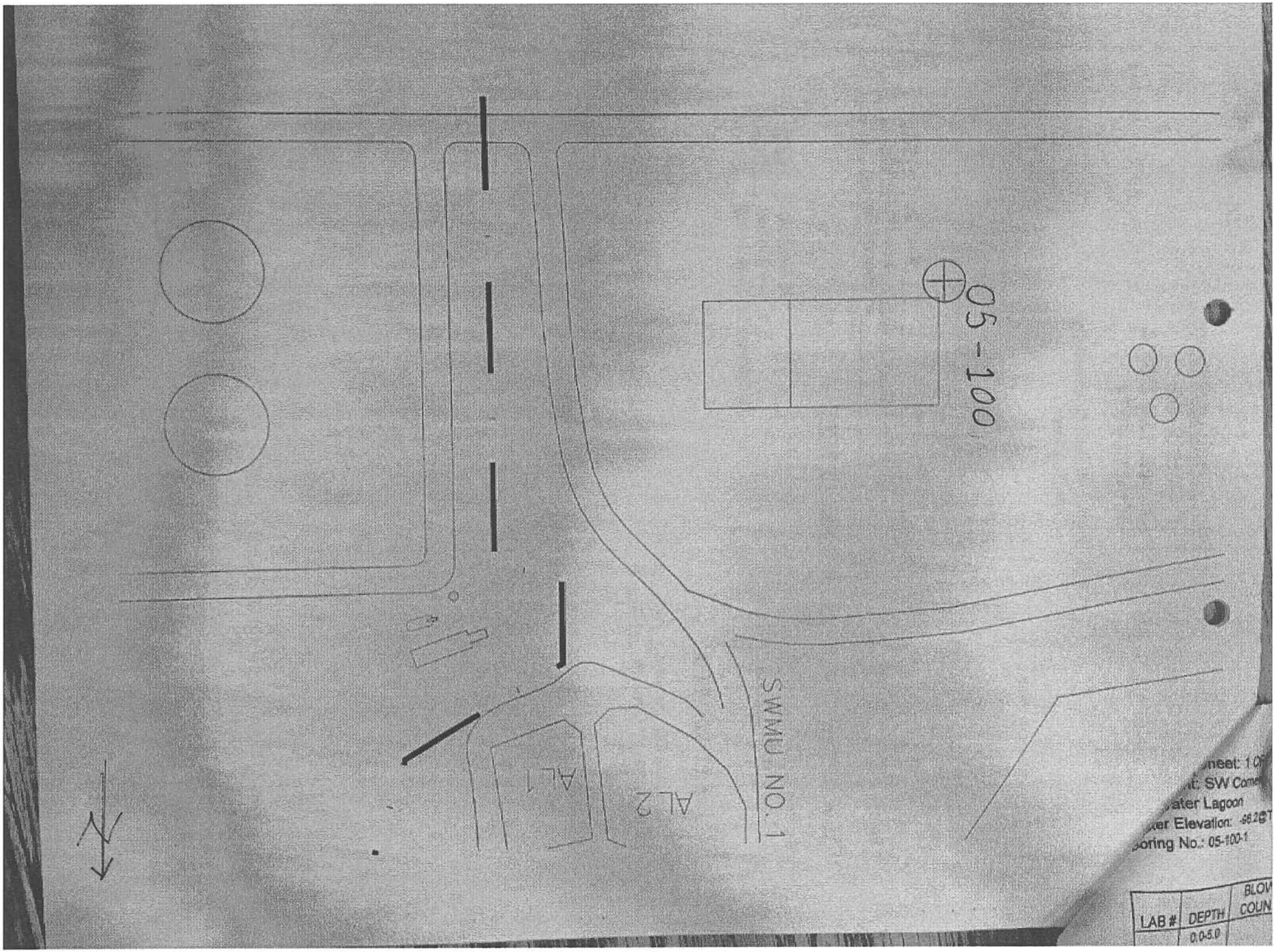
Reviewed By: Reviewed By: Certified By:


05-100
SWMU NO.1
AL1
AL2
Boring No.: 05-100-1
LAB #
DEPTH
0.0-5.0

SW Corner of Proposed
Lagoon
Elevation: -98.2@TD,-27@1 hr
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant-Cliniza

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
	0.0-5.0				Clay, Very Silty, Sandy, Very Fine, Dark Red, Wet, Firm				
47672				2.5	[2.5-3.0 hydraulic conductivity sample]				
	5.0-10.0			5.0	Same As Above, Wet, Soft				
				7.5					
	10.0-15.0			10.0	Same As Above				
	15.0-16.0			15.0	Same As Above				
	16.0-17.5				Sand, Very Fine, Very Clayey, Very Silty, Weak Water Bearing, Moderately Dense, Dark Red/Brown				
	17.5-21.5				Clay, Dark Red, Wet, Soft				
				20.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

C:\bill\Projects\2005\05100cliniza\rewtr\[Boring 1.xls]Sheet1

Sheet: 2 OF 5
Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #
Site: Gila
Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS
	21.5-22.1				**Clay**, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				**Clay**, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1				**Pertrified Forest Formation** **Mudstone/Claystone**, Weathered, Some Grey/Green Reduction Spots, Generally Red/				
				25.0					
	25.0-30.0				Brown, Fissile to Crumbly, Damp/Moist **Mudstone**, As Above, Few Reduction Spots, Damp/Dry				
				30.0					
	30.0-35.0				**Same As Above dry**				
				35.0					
	35.0-40.0				**Same As Above** dry				
				40.0					
	40.0-45.0				**Same As Above**, Brighter Red @ 44.5'-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense,bright red brown				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

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Sheet: 2 OF 5
Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #:
Site: Gi
Elevation: EXISTI
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS.
	21.5-22.1				Clay, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				Clay, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1				**Pertrified Forest Formation** **Mudstone/Claystone**, Weathered, Some Grey/Green Reduction Spots, Generally Red/ Brown, Fissile to Crumbly, Damp/Moist				
				25.0					
	25.0-30.0				**Mudstone**, As Above, Few Reduction Spots, Damp/Dry				
				30.0					
	30.0-35.0				**Same As Above dry**				
				35.0					
	35.0-40.0				**Same As Above** dry				
				40.0					
	40.0-45.0				**Same As Above**, Brighter Red @ 44.5'-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense, bright red brown				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

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Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7874

File #: 05-100
Site: Giant-Ciniza

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR ETC.)	%M	LL	PI	CLASS.
	45.0-50.0			45.0	**Mudstone/Siltstone**, Bright Red/Brown, Dry Very Dense				
	50.0-55.0			50.0	**Same As Above**				
	55.0-60.0			55.0	**Same As Above**				
	60.0-65.0			60.0	**Same As Above**				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

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Sheet: 4 OF 5
Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No.: 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS
				65.0					
	66.0-66.2				**Same As Above**				
	66.2-67.4				**Sandstone**, Fine, Red/Brown, Hard, Fissile, Grey/Green Orbicular Reduction Spots Abundant, Dry				
	67.4-78.0				**Sandstone/Siltstone Interbeds**, Some Mudstone, Dark Red/Brown, Hard, Dry				
				70.0					
				75.0					
	78.0-79.1				**Mudstone**, Fissile, Dry, Red/Brown, Some Grey/Green Reduction Spots				
	79.1-97.7			80.0	**Sandstone**, Fine, Red/Brown, Fissile, Hard, Feldspathic, Bedded 6" to 1.0', White Mottled Upper Sonsela Member				
				85.0					

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

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Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant-Ciniza

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

File #: 05-100-1
Site: Giant-Ciniza
Elevation: EXISTING
Date: 9/24/2005

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR,ETC.)	%M	LL	PI	CLASS.
					Upper Sonsela Member Continued (dry)				
				90.0					
				95.0					
	97.7-98.2				**Mudstone**, Hard, Dry, Green/Grey-White				
	98.2-101.6			100.0	**Sandstone**, Fine to Medium, Quartz Grains, Water Bearing, Hard, (Sonsela Member, Petrified Forest Formation, Chinle Group)				
	101.6			105.0	TD Boring continuopusly sampled using 5' split barreled intrusion sampler. Boring closed using 10' of 3/8" TR-30 Pel Plug capped with 50' of 8% bentonite cement slurry and backfilled to the ground surface with cuttings.				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER LOGGED BY: WHK

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