



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
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Tax I.D. 62-0814289

Est. 1970

Blair Rollins
OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

Report Summary

Thursday May 16, 2013

Report Number: L634381

Samples Received: 05/07/13

Client Project: 013-0617

Description: Shell 03A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

Blair Rollins
OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : BG 1
Collected By : Blair Rollins
Collection Date : 05/06/13 10:45

ESC Sample # : L634381-01
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium,Trivalent	22.	2.0	mg/kg	Calc.	05/14/13	1
ORP	99.		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	4.6			Calc.	05/14/13	1
Specific Conductance	770		umhos/cm	9050AMod	05/13/13	1
Mercury	0.024	0.020	mg/kg	7471	05/08/13	1
Arsenic	16.	0.38	mg/kg	6010B	05/14/13	1
Barium	220	0.25	mg/kg	6010B	05/14/13	1
Cadmium	0.27	0.25	mg/kg	6010B	05/14/13	1
Chromium	22.	0.50	mg/kg	6010B	05/14/13	1
Copper	21.	1.0	mg/kg	6010B	05/14/13	1
Lead	12.	0.50	mg/kg	6010B	05/14/13	2
Nickel	14.	1.0	mg/kg	6010B	05/14/13	1
Selenium	2.5	1.0	mg/kg	6010B	05/14/13	1
Silver	BDL	0.50	mg/kg	6010B	05/14/13	1
Zinc	55.	1.5	mg/kg	6010B	05/14/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	95.5		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	97.8		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	108.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	94.7		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	95.0		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	05/14/13	1
Surrogate recovery(%) o-Terphenyl	55.9		% Rec.	3546/DRO	05/14/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)



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Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

ESC Sample # : L634381-01

Sample ID : BG 1

Site ID : SHELL 03A

Collected By : Blair Rollins
Collection Date : 05/06/13 10:45

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
Surrogate Recovery						
Nitrobenzene-d5	80.8		% Rec.	8270C-SIM	05/09/13	1
2-Fluorobiphenyl	86.3		% Rec.	8270C-SIM	05/09/13	1
p-Terphenyl-d14	89.5		% Rec.	8270C-SIM	05/09/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : BG 2
Collected By : Blair Rollins
Collection Date : 05/06/13 11:00

ESC Sample # : L634381-02
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium, Trivalent	16.	2.0	mg/kg	Calc.	05/14/13	1
ORP	95.		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	3.5			Calc.	05/14/13	1
Specific Conductance	290		umhos/cm	9050AMod	05/13/13	1
Mercury	BDL	0.020	mg/kg	7471	05/08/13	1
Arsenic	13.	0.38	mg/kg	6010B	05/14/13	1
Barium	220	0.25	mg/kg	6010B	05/14/13	1
Cadmium	BDL	0.25	mg/kg	6010B	05/14/13	1
Chromium	16.	0.50	mg/kg	6010B	05/14/13	1
Copper	15.	1.0	mg/kg	6010B	05/14/13	1
Lead	7.9	0.50	mg/kg	6010B	05/14/13	2
Nickel	12.	1.0	mg/kg	6010B	05/14/13	1
Selenium	2.2	1.0	mg/kg	6010B	05/14/13	1
Silver	BDL	0.50	mg/kg	6010B	05/14/13	1
Zinc	50.	1.5	mg/kg	6010B	05/14/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	94.8		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	99.1		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	109.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	95.2		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	91.6		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	3546/DRO	05/14/13	1
Surrogate recovery(%) o-Terphenyl	52.6		% Rec.	3546/DRO	05/14/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)



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May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

ESC Sample # : L634381-02

Sample ID : BG 2

Site ID : SHELL 03A

Collected By : Blair Rollins
Collection Date : 05/06/13 11:00

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
Surrogate Recovery						
Nitrobenzene-d5	86.0		% Rec.	8270C-SIM	05/09/13	1
2-Fluorobiphenyl	89.3		% Rec.	8270C-SIM	05/09/13	1
p-Terphenyl-d14	89.7		% Rec.	8270C-SIM	05/09/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

Sample ID : R PIT CONTENTS

Collected By : Blair Rollins
Collection Date : 05/06/13 10:00

ESC Sample # : L634381-03

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium, Trivalent	51.	2.0	mg/kg	Calc.	05/13/13	1
ORP	110		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	19.			Calc.	05/14/13	1
Specific Conductance	2700		umhos/cm	9050AMod	05/14/13	1
Mercury	0.32	0.020	mg/kg	7471	05/08/13	1
Arsenic	4.5	0.38	mg/kg	6010B	05/13/13	1
Barium	940	0.25	mg/kg	6010B	05/13/13	1
Cadmium	BDL	0.25	mg/kg	6010B	05/13/13	1
Chromium	51.	0.50	mg/kg	6010B	05/13/13	1
Copper	190	1.0	mg/kg	6010B	05/13/13	1
Lead	270	0.25	mg/kg	6010B	05/13/13	1
Nickel	13.	1.0	mg/kg	6010B	05/13/13	1
Selenium	12.	1.0	mg/kg	6010B	05/13/13	1
Silver	0.96	0.50	mg/kg	6010B	05/13/13	1
Zinc	170	1.5	mg/kg	6010B	05/13/13	1
TPH (GC/FID) Low Fraction	7400	250	mg/kg	8015D/GRO	05/08/13	2500
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	96.1		% Rec.	602/8015	05/08/13	2500
Benzene	BDL	2.5	mg/kg	8260B	05/08/13	2500
Toluene	74.	12.	mg/kg	8260B	05/08/13	2500
Ethylbenzene	26.	2.5	mg/kg	8260B	05/08/13	2500
Total Xylenes	540	7.5	mg/kg	8260B	05/08/13	2500
Surrogate Recovery						
Toluene-d8	99.2		% Rec.	8260B	05/08/13	2500
Dibromofluoromethane	103.		% Rec.	8260B	05/08/13	2500
a,a,a-Trifluorotoluene	93.8		% Rec.	8260B	05/08/13	2500
4-Bromofluorobenzene	106.		% Rec.	8260B	05/08/13	2500
TPH (GC/FID) High Fraction	12000	200	mg/kg	3546/DRO	05/10/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	05/10/13	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	11.	0.30	mg/kg	8270C-SIM	05/11/13	50
Acenaphthene	1.8	0.30	mg/kg	8270C-SIM	05/11/13	50

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)



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760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

Sample ID : R PIT CONTENTS

Collected By : Blair Rollins
Collection Date : 05/06/13 10:00

ESC Sample # : L634381-03

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Benzo(a)anthracene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Benzo(a)pyrene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Benzo(b)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Benzo(g,h,i)perylene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Benzo(k)fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Chrysene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Dibenz(a,h)anthracene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Fluoranthene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Fluorene	6.1	0.30	mg/kg	8270C-SIM	05/11/13	50
Indeno(1,2,3-cd)pyrene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
Naphthalene	9.9	1.0	mg/kg	8270C-SIM	05/11/13	50
Phenanthrene	7.5	0.30	mg/kg	8270C-SIM	05/11/13	50
Pyrene	BDL	0.30	mg/kg	8270C-SIM	05/11/13	50
1-Methylnaphthalene	39.	1.0	mg/kg	8270C-SIM	05/11/13	50
2-Methylnaphthalene	120	1.0	mg/kg	8270C-SIM	05/11/13	50
2-Chloronaphthalene	BDL	1.0	mg/kg	8270C-SIM	05/11/13	50
Surrogate Recovery						
Nitrobenzene-d5	7280		% Rec.	8270C-SIM	05/11/13	50
2-Fluorobiphenyl	361.		% Rec.	8270C-SIM	05/11/13	50
p-Terphenyl-d14	75.3		% Rec.	8270C-SIM	05/11/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : CUTTINGS 1
Collected By : Blair Rollins
Collection Date : 05/06/13 11:30

ESC Sample # : L634381-04
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium,Trivalent	13.	2.0	mg/kg	Calc.	05/13/13	1
ORP	130		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	20.			Calc.	05/14/13	1
Specific Conductance	4600		umhos/cm	9050AMod	05/14/13	1
Mercury	BDL	0.020	mg/kg	7471	05/08/13	1
Arsenic	4.5	0.38	mg/kg	6010B	05/13/13	1
Barium	290	0.25	mg/kg	6010B	05/13/13	1
Cadmium	BDL	0.25	mg/kg	6010B	05/13/13	1
Chromium	13.	0.50	mg/kg	6010B	05/13/13	1
Copper	30.	1.0	mg/kg	6010B	05/13/13	1
Lead	8.2	0.25	mg/kg	6010B	05/13/13	1
Nickel	14.	1.0	mg/kg	6010B	05/13/13	1
Selenium	2.1	1.0	mg/kg	6010B	05/13/13	1
Silver	BDL	0.50	mg/kg	6010B	05/13/13	1
Zinc	54.	1.5	mg/kg	6010B	05/13/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	95.7		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	98.1		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	108.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	93.9		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	94.4		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	29.	20.	mg/kg	3546/DRO	05/15/13	5
Surrogate recovery(%) o-Terphenyl	46.4		% Rec.	3546/DRO	05/15/13	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Acenaphthene	0.0092	0.0060	mg/kg	8270C-SIM	05/09/13	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
L634381-04 (DRO) - Previous run also had low SURR recovery. Matrix effect.



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REPORT OF ANALYSIS

Blair Rollins
OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : CUTTINGS 1
Collected By : Blair Rollins
Collection Date : 05/06/13 11:30

ESC Sample # : L634381-04
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)anthracene	0.0066	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(b)fluoranthene	0.0064	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Chrysene	0.010	0.0060	mg/kg	8270C-SIM	05/09/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluoranthene	0.0087	0.0060	mg/kg	8270C-SIM	05/09/13	1
Fluorene	0.011	0.0060	mg/kg	8270C-SIM	05/09/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	05/09/13	1
Naphthalene	0.17	0.020	mg/kg	8270C-SIM	05/09/13	1
Phenanthrene	0.059	0.0060	mg/kg	8270C-SIM	05/09/13	1
Pyrene	0.016	0.0060	mg/kg	8270C-SIM	05/09/13	1
1-Methylnaphthalene	0.12	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Methylnaphthalene	0.18	0.020	mg/kg	8270C-SIM	05/09/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	05/09/13	1
Surrogate Recovery						
Nitrobenzene-d5	79.2		% Rec.	8270C-SIM	05/09/13	1
2-Fluorobiphenyl	75.9		% Rec.	8270C-SIM	05/09/13	1
p-Terphenyl-d14	62.8		% Rec.	8270C-SIM	05/09/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L634381-04 (DRO) - Previous run also had low SURR recovery. Matrix effect.



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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Blair Rollins
OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

Sample ID : CUTTINGS 2

Collected By : Blair Rollins
Collection Date : 05/06/13 11:40

ESC Sample # : L634381-05

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium,Trivalent	12.	2.0	mg/kg	Calc.	05/16/13	1
ORP	130		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	19.			Calc.	05/13/13	1
Specific Conductance	4100		umhos/cm	9050AMod	05/14/13	1
Mercury	0.026	0.020	mg/kg	7471	05/08/13	1
Arsenic	4.1	0.38	mg/kg	6010B	05/16/13	1
Barium	7600	1.2	mg/kg	6010B	05/16/13	5
Cadmium	0.64	0.25	mg/kg	6010B	05/16/13	1
Chromium	12.	0.50	mg/kg	6010B	05/16/13	1
Copper	18.	1.0	mg/kg	6010B	05/16/13	1
Lead	9.5	0.25	mg/kg	6010B	05/16/13	1
Nickel	9.7	1.0	mg/kg	6010B	05/16/13	1
Selenium	2.3	1.0	mg/kg	6010B	05/16/13	1
Silver	BDL	0.50	mg/kg	6010B	05/16/13	1
Zinc	46.	1.5	mg/kg	6010B	05/16/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	95.2		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	98.7		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	107.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	94.0		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	95.9		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	BDL	200	mg/kg	3546/DRO	05/10/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	05/10/13	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20

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Sample ID : CUTTINGS 2
Collected By : Blair Rollins
Collection Date : 05/06/13 11:40

ESC Sample # : L634381-05

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Chrysene	0.18	0.12	mg/kg	8270C-SIM	05/09/13	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Naphthalene	0.50	0.40	mg/kg	8270C-SIM	05/09/13	20
Phenanthrene	0.23	0.12	mg/kg	8270C-SIM	05/09/13	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
1-Methylnaphthalene	0.41	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Methylnaphthalene	0.98	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Chloronaphthalene	BDL	0.40	mg/kg	8270C-SIM	05/09/13	20
Surrogate Recovery						
Nitrobenzene-d5	59.3		% Rec.	8270C-SIM	05/09/13	20
2-Fluorobiphenyl	74.2		% Rec.	8270C-SIM	05/09/13	20
p-Terphenyl-d14	99.9		% Rec.	8270C-SIM	05/09/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101
Grand Junction, CO 81506

May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : CUTTINGS 3
Collected By : Blair Rollins
Collection Date : 05/06/13 11:50

ESC Sample # : L634381-06
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium, Trivalent	8.2	2.0	mg/kg	Calc.	05/15/13	1
ORP	110		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	24.			Calc.	05/13/13	1
Specific Conductance	2200		umhos/cm	9050AMod	05/14/13	1
Mercury	0.020	0.020	mg/kg	7471	05/08/13	1
Arsenic	4.0	0.38	mg/kg	6010B	05/15/13	1
Barium	3000	0.25	mg/kg	6010B	05/15/13	1
Cadmium	0.27	0.25	mg/kg	6010B	05/15/13	1
Chromium	8.2	0.50	mg/kg	6010B	05/15/13	1
Copper	19.	1.0	mg/kg	6010B	05/15/13	1
Lead	17.	0.25	mg/kg	6010B	05/15/13	1
Nickel	12.	1.0	mg/kg	6010B	05/15/13	1
Selenium	BDL	1.0	mg/kg	6010B	05/15/13	1
Silver	BDL	0.50	mg/kg	6010B	05/15/13	1
Zinc	50.	1.5	mg/kg	6010B	05/15/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	95.0		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	98.6		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	107.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	94.8		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	91.9		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	330	200	mg/kg	3546/DRO	05/10/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	05/10/13	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.19	0.12	mg/kg	8270C-SIM	05/09/13	20
Acenaphthene	0.26	0.12	mg/kg	8270C-SIM	05/09/13	20

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May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : CUTTINGS 3
Collected By : Blair Rollins
Collection Date : 05/06/13 11:50

ESC Sample # : L634381-06

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Chrysene	0.34	0.12	mg/kg	8270C-SIM	05/09/13	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluorene	0.52	0.12	mg/kg	8270C-SIM	05/09/13	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Naphthalene	3.1	0.40	mg/kg	8270C-SIM	05/09/13	20
Phenanthrene	1.7	0.12	mg/kg	8270C-SIM	05/09/13	20
Pyrene	0.21	0.12	mg/kg	8270C-SIM	05/09/13	20
1-Methylnaphthalene	2.5	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Methylnaphthalene	9.1	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Chloronaphthalene	BDL	0.40	mg/kg	8270C-SIM	05/09/13	20
Surrogate Recovery						
Nitrobenzene-d5	51.0		% Rec.	8270C-SIM	05/09/13	20
2-Fluorobiphenyl	108.		% Rec.	8270C-SIM	05/09/13	20
p-Terphenyl-d14	114.		% Rec.	8270C-SIM	05/09/13	20

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May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A
Sample ID : CUTTINGS 4
Collected By : Blair Rollins
Collection Date : 05/06/13 12:00

ESC Sample # : L634381-07
Site ID : SHELL 03A
Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	05/14/13	1
Chromium, Trivalent	14.	2.0	mg/kg	Calc.	05/15/13	1
ORP	130		mV	2580 B-2011	05/14/13	1
Sodium Adsorption Ratio	20.			Calc.	05/13/13	1
Specific Conductance	3200		umhos/cm	9050AMod	05/14/13	1
Mercury	0.031	0.020	mg/kg	7471	05/08/13	1
Arsenic	3.8	0.38	mg/kg	6010B	05/15/13	1
Barium	4700	0.25	mg/kg	6010B	05/15/13	1
Cadmium	BDL	0.25	mg/kg	6010B	05/15/13	1
Chromium	14.	0.50	mg/kg	6010B	05/15/13	1
Copper	21.	1.0	mg/kg	6010B	05/15/13	1
Lead	13.	0.25	mg/kg	6010B	05/15/13	1
Nickel	14.	1.0	mg/kg	6010B	05/15/13	1
Selenium	BDL	5.0	mg/kg	6010B	05/15/13	5
Silver	BDL	0.50	mg/kg	6010B	05/15/13	1
Zinc	54.	1.5	mg/kg	6010B	05/15/13	1
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	05/08/13	5
Surrogate Recovery (70-130) a,a,a-Trifluorotoluene(FID)	94.7		% Rec.	602/8015	05/08/13	5
Benzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Toluene	BDL	0.025	mg/kg	8260B	05/08/13	5
Ethylbenzene	BDL	0.0050	mg/kg	8260B	05/08/13	5
Total Xylenes	BDL	0.015	mg/kg	8260B	05/08/13	5
Surrogate Recovery						
Toluene-d8	98.8		% Rec.	8260B	05/08/13	5
Dibromofluoromethane	107.		% Rec.	8260B	05/08/13	5
a,a,a-Trifluorotoluene	92.9		% Rec.	8260B	05/08/13	5
4-Bromofluorobenzene	94.0		% Rec.	8260B	05/08/13	5
TPH (GC/FID) High Fraction	BDL	200	mg/kg	3546/DRO	05/10/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	05/10/13	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20

BDL - Below Detection Limit
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May 16, 2013

Date Received : May 07, 2013
Description : Shell 03A

Sample ID : CUTTINGS 4

Collected By : Blair Rollins
Collection Date : 05/06/13 12:00

ESC Sample # : L634381-07

Site ID : SHELL 03A

Project # : 013-0617

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Fluorene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
Naphthalene	BDL	0.40	mg/kg	8270C-SIM	05/09/13	20
Phenanthrene	0.15	0.12	mg/kg	8270C-SIM	05/09/13	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	05/09/13	20
1-Methylnaphthalene	BDL	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Methylnaphthalene	0.60	0.40	mg/kg	8270C-SIM	05/09/13	20
2-Chloronaphthalene	BDL	0.40	mg/kg	8270C-SIM	05/09/13	20
Surrogate Recovery						
Nitrobenzene-d5	79.7		% Rec.	8270C-SIM	05/09/13	20
2-Fluorobiphenyl	78.3		% Rec.	8270C-SIM	05/09/13	20
p-Terphenyl-d14	89.9		% Rec.	8270C-SIM	05/09/13	20

BDL - Below Detection Limit

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L634381-01	WG660715	SAMP	ORP	R2667860	T8
L634381-02	WG660715	SAMP	ORP	R2667860	T8
L634381-03	WG660307	SAMP	Nitrobenzene-d5	R2664481	J7
	WG660307	SAMP	2-Fluorobiphenyl	R2664481	J7
	WG660307	SAMP	p-Terphenyl-d14	R2664481	J7
	WG660715	SAMP	ORP	R2667860	T8
	WG660183	SAMP	o-Terphenyl	R2666140	J7
L634381-04	WG660307	SAMP	p-Terphenyl-d14	R2661341	J2
	WG660715	SAMP	ORP	R2667860	T8
	WG660844	SAMP	o-Terphenyl	R2670303	J2
L634381-05	WG660307	SAMP	Nitrobenzene-d5	R2661341	J7
	WG660307	SAMP	2-Fluorobiphenyl	R2661341	J7
	WG660307	SAMP	p-Terphenyl-d14	R2661341	J7
	WG660715	SAMP	ORP	R2667860	T8
	WG660183	SAMP	TPH (GC/FID) High Fraction	R2666140	O
	WG660183	SAMP	o-Terphenyl	R2666140	J7
L634381-06	WG660307	SAMP	Nitrobenzene-d5	R2661341	J7
	WG660307	SAMP	2-Fluorobiphenyl	R2661341	J7
	WG660307	SAMP	p-Terphenyl-d14	R2661341	J7
	WG660715	SAMP	ORP	R2667860	T8
	WG660183	SAMP	o-Terphenyl	R2666140	J7
L634381-07	WG660168	SAMP	Mercury	R2659780	P1
	WG660307	SAMP	Nitrobenzene-d5	R2661341	J7
	WG660307	SAMP	2-Fluorobiphenyl	R2661341	J7
	WG660307	SAMP	p-Terphenyl-d14	R2661341	J7
	WG660715	SAMP	ORP	R2667860	T8
	WG661123	SAMP	Selenium	R2671582	O
	WG660183	SAMP	TPH (GC/FID) High Fraction	R2666140	O
	WG660183	SAMP	o-Terphenyl	R2666140	J7

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
05/16/13 at 14:32:58

TSR Signing Reports: 134
R5 - Desired TAT

Log BTEX by 8260 unless otherwise noted

Sample: L634381-01 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-02 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-03 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-04 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-05 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-06 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32
Sample: L634381-07 Account: OXYGJCO Received: 05/07/13 09:00 Due Date: 05/14/13 00:00 RPT Date: 05/16/13 14:32