

Anderson 7-12 Reserve Pit (Location ID: 334550) Reclamation and Closure Sampling Narrative

This is an updated Anderson 7-12 reserve pit sampling and closure narrative, which is being provided to support the Anderson 7-12 reserve pit closure documentation. The narrative details what closure and background samples were taken, where they were taken, and for what purpose.

Post Reclaim Sample 10/19/2009 (L427994)

- Oxy removed the pit liner and mixed the pit bottom with a back hoe. The post reclaim sample was a five point composite sample of the pit bottom, which was consistent with practices conducted at time of closure (2009). The pit was approximately 10' deep; the pit bottom surface area was split into quarters allowing for one sample from each quarter and one additional sample at the low spot of the pit bottom. The post reclaim sample is represented in the first column of the post reclaim tabulated data spreadsheet as "Anderson 7-12-Post Rec." for Sample Name and was sampled on 10/19/2009. These samples are shown on the Anderson 7-12 Reserve Pit Sampling Map as pink dots and are referenced in the legend as Pit Bottom Sample. The lab data reports for these samples are attached. The sample values can be found on lab report L427994 on pages 3 and 4 as sample ID Anderson 7-12-Post Rec.
- Post Reclaim values showed elevated concentrations for pH and sodium adsorption ratio (SAR).

Background Sample 10/19/2009 (L427994)

- In an effort to identify concentration levels of naturally occurring analytes such as arsenic, Oxy collected a 5-point composite sample from native undisturbed areas around the pad in 2009. The sample was collected at various depths ranging between 2-10 inches. The composite background sample ID is "Anderson 7-12 BG 12 in" collected on 10/19/2009 and can be found in the second column of the tabulated data. The composite sampling locations are shown on the Anderson 7-12 Reserve Pit Sampling Map as green dots and are referenced on the legend as Back Ground Sample locations. The sample values can be found on lab report L427994 on page 2 as sample ID Anderson 7-12-BG.
- This sampling effort yielded background As concentrations above those found in Post Reclaim (10/19/2009). Note that the Post Reclaim sample arsenic value is lower than the background sample arsenic value.

Fill Sample 11/30/2009 (L434455)

- Oxy backfilled the pit with stockpiled clean native material to pad grade (8 - 10 feet deep). A five point composite sample was taken of the fill material and analyzed only for the analyte exceedances found in the initial post reclaim samples, specifically pH and SAR, as the fill material was meant to serve as a cap for the elevated value of pH and SAR found in the reclaimed pit bottom. The fill samples are represented in the tabulated data spreadsheet in the third column and labeled as "Fill (11/30/2009)" for Sample Name and was sampled on 11/30/2009. These samples are shown on the Anderson 7-12 Reserve Pit Sampling Map as yellow dots and are referenced in the legend as Pit Fill Sample. The lab data reports for these samples are attached. The sample values can be found on lab report L434455 on page 2 as sample ID Anderson 7-12 Fill.

- Fill samples were tested only for pH and SAR as these were the only analyte exceedances found in the post reclaim sample. All "Fill sample" analytes were found to be below the COGCC's table 910-1 allowable concentrations.

In conclusion, this pit has been closed and meets both the COGCC 900 series and 1000 series rules for pit closure. All analyte concentrations were found to be below COGCC table 910-1 allowable concentrations, or were found to be below native background levels. Oxy will continue to monitor this site to ensure the pit cap has not subsided and for stormwater compliance until final pad reclamation has occurred.

Pit Reclaims - Collbran

Pad #:	Anderson 7-12
Sample Date:	10/19/2009
Clearance Achieved Date:	

		Sample Identifications (mg/kg)		
	Lab Report #	L427994	L427994	L434455
	Date Sampled	10/19/2009	10/19/2009	12/2/2009
	Sample Name	Anderson 7-12- Post Rec.	Anderson 7-12 BG 12 in	Fill (11/30/09)
Organics in Soil		MCL (mg/kg)		
TPH (GRO and DRO)	500	150.8	-	-
Benzene	0.17	0.0018	-	-
Toluene	85	<0.0015	-	-
Ethylbenzene	100	<0.0013	-	-
Xylenes	175	0.00	-	-
Organics in Soil (PAH's)				
Acenaphthene	1000	<0.011	-	-
Anthracene	1000	<0.0093	-	-
Benzo(A)anthracene	0.22	<0.0077	-	-
Benzo(B)fluoranthene	0.22	<0.0078	-	-
Benzo(K)fluoranthene	2.2	<0.012	-	-
Benzo(A)pyrene	0.022	<0.0074	-	-
Chrysene	22	<0.0091	-	-
Dibenzo(A,H)anthracene	0.022	<0.011	-	-
Fluoranthene	1000	<0.0079	-	-
Flourene	1000	<0.0095	-	-
Indeno(1,2,3,C,D)pyrene	0.22	<0.011	-	-
Napthalene	23	0.045	-	-
Pyrene	1000	<0.0089	-	-
Inorganics in Soil				
EC	<4 mmhos/cm or 2X background	1.20	0.28	-
SAR	<12	19.0	0.68	0.40
pH	6-9	9.2	7.6	7.6
Metals in Soils				
Arsenic	0.39	<0.32	3.9	-
Barium	15000	4010	-	-
Boron (Hot Water Soluble)	2 (mg/L)	1.23	-	-
Cadmium	70	2.0	-	-
Chromium	12000	15.0	-	-
Chromium VI	23	<0.10	-	-
Copper	3100	27.0	-	-
Lead	400	19.0	-	-
Mercury	23	0.016	-	-
Nickel	1600	12.0	-	-
Selenium	390	<1.6	-	-
Silver	390	<0.16	-	-
Zinc	23000	52.0	-	-



OXY USA Inc.
760 Horizon Drive, Suite 101
Grand Junction, CO 81506

Anderson 7-12 Reserve Pit Sampling Map

Mesa County, Colorado

0 0.01 0.02 0.03 0.04 Miles



- Pit or Pond Area
- Pit Bottom Sample
- Pit Fill Sample
- Back Ground Sample
- Background Sample ID **BG2**
- Pit Fill Sample ID **FIL1**
- Post Reclaim Sample ID **PR2**



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Mt. Juliet, TN 37122
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Tax I.D. 62-0814289

Est. 1970

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

Grand Junction, CO 81506

Report Summary

Monday December 07, 2009

Report Number: L434455

Samples Received: 12/02/09

Client Project:

Description: Pit Reclaims - Collbran

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:


Craig Cothron, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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Est. 1970

REPORT OF ANALYSIS

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

December 07, 2009

Date Received : December 02, 2009
Description : Pit Reclaims - Collbran
Sample ID : ANDERSON 7-12 FILL
Collected By : Brett Kennedy
Collection Date : 11/30/09 16:00

ESC Sample # : L434455-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH	7.6		su	9045D	12/03/09	1
Sodium Adsorption Ratio	0.40			Calc.	12/04/09	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 12/07/09 10:26 Printed: 12/07/09 10:26
L434455-01 (PH) - 7.6@16.3c

Summary of Remarks For Samples Printed
12/07/09 at 10:26:47

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L434455-01 Account: OXYGJCO Received: 12/02/09 09:00 Due Date: 12/09/09 00:00 RPT Date: 12/07/09 10:26

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

Grand Junction, CO 81506

Report Summary

Monday November 02, 2009

Report Number: L427994

Samples Received: 10/20/09

Client Project:

Description: Pit Reclaims - Collbran

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 - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375, DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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in laboratory standard operating procedures: 060302, 060303, and 060304.

REPORT OF ANALYSIS

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

November 02, 2009

Date Received : October 20, 2009
Description : Pit Reclaims - Collbran
Sample ID : ANDERSON 7-12-BG
Collected By : Brett Kennedy
Collection Date : 10/19/09 08:40

ESC Sample # : L427994-01

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
pH	7.6			su		9045D	10/23/09	1
Sodium Adsorption Ratio	0.68					Calc.	10/28/09	1
Specific Conductance	280			umhos/cm		9050AMo	10/23/09	1
Arsenic	3.9	0.32	1.0	mg/kg		6010B	10/31/09	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

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Reported: 11/02/09 09:59 Printed: 11/02/09 13:03

L427994-01 (PH) - 7.6@22.4c

REPORT OF ANALYSIS

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

November 02, 2009

Date Received : October 20, 2009
Description : Pit Reclaims - Collbran
Sample ID : ANDERSON 7-12-POST REC
Collected By : Brett Kennedy
Collection Date : 10/19/09 08:55

ESC Sample # : L427994-02

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chromium, Hexavalent	U	0.10	2.0	mg/kg		3060A/7	10/22/09	1
ORP	120			mV		2580	10/23/09	1
pH	9.2			su		9045D	10/23/09	1
Sodium Adsorption Ratio	19.					Calc.	10/28/09	1
Specific Conductance	1200			umhos/cm		9050AMo	10/23/09	1
Mercury	0.016	0.0025	0.020	mg/kg	J	7471	10/23/09	1
Arsenic	U	0.32	1.0	mg/kg		6010B	10/29/09	1
Cadmium	2.0	0.040	0.25	mg/kg		6010B	10/29/09	1
Chromium	15.	0.085	0.50	mg/kg		6010B	10/29/09	1
Copper	27.	0.21	1.0	mg/kg		6010B	10/29/09	1
Lead	19.	0.090	0.25	mg/kg		6010B	10/29/09	1
Nickel	12.	0.26	1.0	mg/kg		6010B	10/29/09	1
Selenium	U	1.6	5.0	mg/kg	O	6010B	10/29/09	5
Silver	U	0.16	0.50	mg/kg		6010B	10/29/09	1
Zinc	52.	0.34	1.5	mg/kg		6010B	10/29/09	1
Benzene	0.0018	0.00090	0.0025	mg/kg	J	8021/80	10/23/09	5
Toluene	U	0.0015	0.025	mg/kg		8021/80	10/23/09	5
Ethylbenzene	U	0.0013	0.0025	mg/kg		8021/80	10/23/09	5
Total Xylene	0.0045	0.0028	0.0075	mg/kg	J	8021/80	10/23/09	5
TPH (GC/FID) Low Fraction	0.80	0.14	0.50	mg/kg		GRO	10/23/09	5
Surrogate Recovery-%								
a,a,a-Trifluorotoluene (FID)	97.0			% Rec.		8021/80	10/23/09	5
a,a,a-Trifluorotoluene (PID)	102.			% Rec.		8021/80	10/23/09	5
TPH (GC/FID) High Fraction	150	1.3	4.0	mg/kg		3546/DR	10/22/09	1
Surrogate recovery(%)								
o-Terphenyl	61.3			% Rec.		3546/DR	10/22/09	1
Polynuclear Aromatic Hydrocarbons								
Anthracene	U	0.0093	0.033	mg/kg		8270C	10/27/09	1
Acenaphthene	U	0.011	0.033	mg/kg	J3	8270C	10/27/09	1
Acenaphthylene	U	0.011	0.033	mg/kg	J3	8270C	10/27/09	1
Benzo(a)anthracene	U	0.0077	0.033	mg/kg		8270C	10/27/09	1
Benzo(a)pyrene	U	0.0074	0.033	mg/kg		8270C	10/27/09	1
Benzo(b)fluoranthene	U	0.0078	0.033	mg/kg		8270C	10/27/09	1
Benzo(g,h,i)perylene	U	0.0095	0.033	mg/kg		8270C	10/27/09	1

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Note:

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Reported: 11/02/09 09:59 Printed: 11/02/09 13:03

L427994-02 (PH) - 9.2@21.2c

REPORT OF ANALYSIS

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

November 02, 2009

Date Received : October 20, 2009
Description : Pit Reclaims - Collbran
Sample ID : ANDERSON 7-12-POST REC
Collected By : Brett Kennedy
Collection Date : 10/19/09 08:55

ESC Sample # : L427994-02

Site ID :

Project # :

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Benzo(k)fluoranthene	U	0.012	0.033	mg/kg		8270C	10/27/09	1
Chrysene	U	0.0091	0.033	mg/kg		8270C	10/27/09	1
Dibenz(a,h)anthracene	U	0.011	0.033	mg/kg		8270C	10/27/09	1
Fluoranthene	U	0.0079	0.033	mg/kg	J3	8270C	10/27/09	1
Fluorene	U	0.0095	0.033	mg/kg		8270C	10/27/09	1
Indeno(1,2,3-cd)pyrene	U	0.011	0.033	mg/kg		8270C	10/27/09	1
Naphthalene	0.045	0.016	0.033	mg/kg		8270C	10/27/09	1
Phenanthrene	0.023	0.0073	0.033	mg/kg	J	8270C	10/27/09	1
Pyrene	U	0.0089	0.033	mg/kg		8270C	10/27/09	1
Surrogate Recovery								
Nitrobenzene-d5	89.1			% Rec.		8270C	10/27/09	1
2-Fluorobiphenyl	80.0			% Rec.		8270C	10/27/09	1
p-Terphenyl-d14	87.6			% Rec.		8270C	10/27/09	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

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Reported: 11/02/09 09:59 Printed: 11/02/09 13:03

L427994-02 (PH) - 9.2@21.2c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L427994-02	WG447340	SAMP	Benzene	R965048	J
	WG447340	SAMP	Total Xylene	R965048	J
	WG447994	SAMP	Selenium	R974248	O
	WG446943	SAMP	Mercury	R965248	J
	WG447471	SAMP	Acenaphthene	R968569	J3
	WG447471	SAMP	Acenaphthylene	R968569	J3
	WG447471	SAMP	Fluoranthene	R968569	J3
	WG447471	SAMP	Phenanthrene	R968569	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J3	The associated batch QC was outside the established quality control range for precision.
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.

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
11/02/09 at 13:03:38

TSR Signing Reports: 134
R5 - Desired TAT

Sample: L427994-01 Account: OXYGJCO Received: 10/20/09 09:00 Due Date: 10/27/09 00:00 RPT Date: 11/02/09 09:59

Sample: L427994-02 Account: OXYGJCO Received: 10/20/09 09:00 Due Date: 10/27/09 00:00 RPT Date: 11/02/09 09:59

Company Name/Address:

OXY USA - Grand Junction, CO

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

Report to:

Brett Kennedy

Project

Description: Pit Veilings - Collbran

Phone: (970) 263-3601

FAX:

Email to:

brett.kennedy@oxy.com

City/State
Collected

Client Project #:

ESC Key:

Collected by: Brett Kennedy

Site/Facility ID#:

P.O.#:

Collected by (signature):

Brett Kennedy

Immediately

Packed on Ice N Y

Rush? (Lab MUST Be Notified)

Same Day.....200%

Next Day.....100%

Two Day.....50%

Three Day.....25%

Date Results Needed:

Email? No Yes

FAX? No Yes

No.

of

Cntrs

Sample ID

Comp/Grab

Matrix

Depth

Date

Time

Anderson 7-1a Fill

Comp SS

0-6"

11/30/09

1600

1

PH

SAR

Alternate billing information:

Analysis/Container/Preservative

C174

ain of Custody
age 1 of 1

Prepared by:

L

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Road

Mt. Juliet, TN 37122

Phone (615) 758-5858

Phone (800) 767-5859

FAX (615) 758-5859

CoCode OXYG-JCO (lab use only)

Template/Prologon

Shipped Via:

Remarks/Contaminant

Sample # (lab only)

2434455

*Matrix: SS - Soil/Solid GW - Groundwater WW - Wastewater DW - Drinking Water OT - Other

pH Temp

Remarks:

Flow Other

Relinquished by (Signature)

Brett Kennedy

Relinquished by (Signature)

Brett Kennedy

Relinquished by (Signature)

Brett Kennedy

Date: 12/01/09

Time: 0754

Received by: (Signature)

Received by: (Signature)

Received for Lab by: (Signature)

Received for Lab by: (Signature)

Date: 12-01-09

Time: 0900

Bottles Received: 1502

Temp: 5.8C

Condition: 2

CpC Spills Intact: Y N NA

pH Checked: NCF

Condition: (lab use only)