

Hawkins Ranch 11-13 Reserve Pit (Location ID: 334404; Document #: 2216380) Reclamation and Closure Sampling Narrative

This is Oxy's updated Hawkins Ranch 11-13 reserve pit sampling narrative. This is being provided in support of the Hawkins Ranch 11-13 Sundry Notice reserve pit closure documentation submitted on 10/04/2011 (reference COGCC document number 2216380). The narrative details what closure, and background samples were taken, where they were taken and for what purpose.

Post Reclaim Samples 11/05/2009 (L430984, Accutest T41765)

- Oxy removed the pit liner and mixed the pit bottom with a back hoe. The initial 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 initial post reclaim samples were taken along the length of the pit between 0-6 inches at the pit bottom, which was approximately 10' feet below the pad surface. The initial post reclaim samples are represented in the tabulated data spreadsheet, in the first and second columns and labeled as "Post Reclaim" for Sample Type on the attached table. Note that there are two "Post Reclaim" sample columns; this is due to that fact that two separate labs were used to process the samples. Lab sample L430022 analyzed the majority of the 910-1 constituents and the Accutest T41412 lab sample analyzed Barium and Boron. The initial post reclaim sample date was 11/02/2009 and the Sample ID from the data tabulation is Hawkins Ranch 11-13 POH REC and Hawkins 11-13 respectively. These samples are shown on the Hawkins Ranch 11-13 Reserve Pit Sampling map as yellow dots and are referenced in the legend as Pit Sample Locations. The lab data reports for these samples are attached. The sample values can be found on lab report L430022 on pages 3 and 4 and on Accutest T41412 pages 5 and 6 as sample ID Hawkins Ranch 11-13 POH REC and Hawkins 11-13 respectively.
- Initial Post Reclaim values showed elevated concentrations for Arsenic (As).

Background Samples 11/05/2009 (L430984)

- In an effort to identify elevated concentrations of naturally occurring As similar to that which was previously identified in the Post Reclaim sample. Oxy collected one native background five point composite sample on 11/02/2009 from undisturbed locations around the pad at depths of 0-6 inches. The Composite background sample date was 11/02/2009 and can be found in the third column of the tabulated data. The Sample ID from the data tabulation is Hawkins Ranch 11-13 BG. These samples are shown on the Hawkins Ranch 11-13 Reserve Pit Sampling map as fuchsia dots and are referenced in the legend as Background sample locations. The sample values can be found on lab report L430022 on page 2 as sample ID Hawkins Ranch 11-13 BG.
- The sampling effort yielded background As concentrations above those found in Post Reclaim samples (11/02/2009).

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 that the pit cap has not subsided and for stormwater compliance until final pad reclamation has occurred.

Pit Reclaims - Collbran

Pad #: Hawkins 11-13

Sample Identifications (mg/kg)

Lab Report #	L430022	Accutest T41412	L430022
Sample Date	11/2/2009	11/2/2009	11/2/2009
Sample Type	Post Reclaim	Post Reclaim	Background
Sample ID	Hawkins Ranch 11-13 POH REC	Hawkins 11-13	Hawkins Ranch 11-13 BG

Organics in Soil	MCL (mg/kg)			
TPH (GRO and DRO)	500	71.0		-
Benzene	0.17	0.045		-
Toluene	85	0.32		-
Ethylbenzene	100	0.12		-
Xylenes	175	2.70		-

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	0.013		-
Indeno(1,2,3,C,D)pyrene	0.22	<0.011		-
Napthalene	23	0.073		-
Pyrene	1000	<0.0089		-

Inorganics in Soil				
EC	<4 mmhos/cm or 2X background	0.790		0.380
SAR	<12	6.0		2.60
pH	6-9	8.6		7.8

Metals in Soils				
Arsenic	0.39	2.6		3.6
Barium	15000	NA	2960	-
Boron (Hot Water Soluble)	2 (mg/L)	NA	0.475	-
Cadmium	70	2.0		-
Chromium	12000	22.0		-
Chromium VI	23	<0.10		-
Copper	3100	21.0		-
Lead	400	18.0		-
Mercury	23	0.015		-
Nickel	1600	17.0		-
Selenium	390	6.30		-
Silver	390	<0.16		-
Zinc	23000	44.0		-



Pit Sample Locations ●
Background sample locations ●
Approximate Location of Pit □



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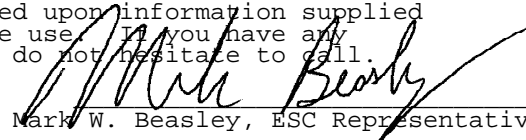
Brett Kennedy
OXY USA Inc - Grand Junction, CO
760 Horizon Dr., Ste. 101

Grand Junction, CO 81506

Report Summary
Thursday November 05, 2009
Report Number: L430022
Samples Received: 11/03/09
Client Project:
Description:

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
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NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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REPORT OF ANALYSIS

November 05, 2009

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

ESC Sample # : L430022-01

Date Received : November 03, 2009
Description :

Site ID :

Sample ID : HAWKINS RANCH 11-13 B6

Project # :

Collected By : Denny Visil
Collection Date : 11/02/09 10:33

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
pH	7.8			su		9045D	11/05/09	1
Sodium Adsorption Ratio	2.6					Calc.	11/04/09	1
Specific Conductance	380			umhos/cm		9050AMo	11/04/09	1
Arsenic	3.6	0.32	1.0	mg/kg		6010B	11/04/09	1

U = ND (Not Detected)

MDL = Minimum Detection Limit = LOD

RDL = Reported Detection Limit = LOQ = PQL = EQL

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 11/05/09 14:47 Printed: 11/05/09 14:48
L430022-01 (PH) - 7.8@18.6c



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REPORT OF ANALYSIS

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

November 05, 2009

Date Received : November 03, 2009
 Description :
 Sample ID : HAWKINS RANCH 11-13 POH REC
 Collected By : Denny Visil
 Collection Date : 11/02/09 09:55

ESC Sample # : L430022-02
 Site ID :
 Project # :

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chromium,Hexavalent	U	0.10	2.0	mg/kg		3060A/7	11/04/09	1
ORP	310			mV		2580	11/04/09	1
pH	8.6			su		9045D	11/05/09	1
Sodium Adsorption Ratio	6.0					Calc.	11/04/09	1
Specific Conductance	790			umhos/cm		9050AMo	11/04/09	1
Mercury	0.015	0.0025	0.020	mg/kg	J	7471	11/04/09	1
Arsenic	2.6	0.32	1.0	mg/kg		6010B	11/04/09	1
Cadmium	2.0	0.040	0.25	mg/kg		6010B	11/04/09	1
Chromium	22.	0.085	0.50	mg/kg		6010B	11/04/09	1
Copper	21.	0.21	1.0	mg/kg		6010B	11/04/09	1
Lead	18.	0.090	0.25	mg/kg		6010B	11/04/09	1
Nickel	17.	0.26	1.0	mg/kg		6010B	11/04/09	1
Selenium	U	0.32	1.0	mg/kg		6010B	11/04/09	1
Selenium	6.3	1.6	5.0	mg/kg		6010B	11/04/09	1
Silver	U	0.16	0.50	mg/kg		6010B	11/04/09	1
Zinc	44.	0.34	1.5	mg/kg		6010B	11/04/09	1
Benzene	0.045	0.00090	0.0025	mg/kg		8021/80	11/04/09	5
Toluene	0.32	0.0015	0.025	mg/kg		8021/80	11/04/09	5
Ethylbenzene	0.12	0.0013	0.0025	mg/kg		8021/80	11/04/09	5
Total Xylene	2.7	0.0028	0.0075	mg/kg		8021/80	11/04/09	5
TPH (GC/FID) Low Fraction	14.	0.14	0.50	mg/kg		GRO	11/04/09	5
Surrogate Recovery-%								
a,a,a-Trifluorotoluene(FID)	99.8			% Rec.		8021/80	11/04/09	5
a,a,a-Trifluorotoluene(PID)	106.			% Rec.		8021/80	11/04/09	5
TPH (GC/FID) High Fraction	57.	1.3	4.0	mg/kg		3546/DR	11/04/09	1
Surrogate recovery(%)								
o-Terphenyl	94.4			% Rec.		3546/DR	11/04/09	1
Polynuclear Aromatic Hydrocarbons								
Anthracene	U	0.0093	0.033	mg/kg	J3	8270C	11/04/09	1
Acenaphthene	U	0.011	0.033	mg/kg	J3	8270C	11/04/09	1
Acenaphthylene	U	0.011	0.033	mg/kg	J3	8270C	11/04/09	1
Benzo(a)anthracene	U	0.0077	0.033	mg/kg	J3	8270C	11/04/09	1
Benzo(a)pyrene	U	0.0074	0.033	mg/kg	J3	8270C	11/04/09	1
Benzo(b)fluoranthene	U	0.0078	0.033	mg/kg	J3	8270C	11/04/09	1

U = ND (Not Detected)
 MDL = Minimum Detection Limit = LOD
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 Note:

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 L430022-02 (PH) - 8.6@18.8c



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REPORT OF ANALYSIS

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

November 05, 2009

Date Received : November 03, 2009
Description :

ESC Sample # : L430022-02

Sample ID : HAWKINS RANCH 11-13 POH REC

Site ID :

Collected By : Denny Visil
Collection Date : 11/02/09 09:55

Project # :

Table with 9 columns: Parameter, Result, MDL, RDL, Units, Q, Method, Date, Dil. Rows include various polycyclic aromatic hydrocarbons and surrogate recovery results.

U = ND (Not Detected)
MDL = Minimum Detection Limit = LOD
RDL = Reported Detection Limit = LOQ = PQL = EQL
Note:

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L430022-02 (PH) - 8.6@18.8c

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L430022-02	WG448863	SAMP	Selenium	R983689	P1
	WG448868	SAMP	Mercury	R984188	J
	WG448941	SAMP	Anthracene	R984549	J3
	WG448941	SAMP	Acenaphthene	R984549	J3
	WG448941	SAMP	Acenaphthylene	R984549	J3
	WG448941	SAMP	Benzo(a)anthracene	R984549	J3
	WG448941	SAMP	Benzo(a)pyrene	R984549	J3
	WG448941	SAMP	Benzo(b)fluoranthene	R984549	J3
	WG448941	SAMP	Benzo(g,h,i)perylene	R984549	J3
	WG448941	SAMP	Benzo(k)fluoranthene	R984549	J3
	WG448941	SAMP	Chrysene	R984549	J3
	WG448941	SAMP	Dibenz(a,h)anthracene	R984549	J3
	WG448941	SAMP	Fluoranthene	R984549	J3
	WG448941	SAMP	Fluorene	R984549	JJ3
	WG448941	SAMP	Indeno(1,2,3-cd)pyrene	R984549	J3
	WG448941	SAMP	Phenanthrene	R984549	J3
	WG448941	SAMP	Pyrene	R984549	J3

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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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
11/05/09 at 14:48:17

TSR Signing Reports: 134
R4 - Rush: Three Day

Sample: L430022-01 Account: OXYGJCO Received: 11/03/09 09:00 Due Date: 11/06/09 00:00 RPT Date: 11/05/09 14:47

Sample: L430022-02 Account: OXYGJCO Received: 11/03/09 09:00 Due Date: 11/06/09 00:00 RPT Date: 11/05/09 14:47
Added AGICP -JCH 11/4



Technical Report for

Oxy USA Inc.

Colibrán - Pit Reclaims

Accutest Job Number: T41412

Sampling Date: 11/02/09

Report to:

Oxy USA Inc.
760 Horizon DR, Suite 101
Grand Junction, CO 81506
Brett_Kennedy@oxy.com

ATTN: Brett Kennedy

Total number of pages in report: **21**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Paul Canevaro
Laboratory Director

Client Service contact: Marianne Walker 713-271-4700

Certifications: TX (T104704220-06-TX) AR (88-0756) FL (E87628) KS (E-10366) LA (85695/04004)
OK (9103) UT(7132714700)

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Test results relate only to samples analyzed.



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Sample Summary

Oxy USA Inc.

Job No: T41412

Colibran - Pit Reclaims

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
T41412-1	11/02/09	09:55 BK	11/03/09	SO	Soil	HAWKINS 11-13
T41412-1A	11/02/09	09:55 BK	11/03/09	SO	Soil	HAWKINS 11-13

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	HAWKINS 11-13	Date Sampled:	11/02/09
Lab Sample ID:	T41412-1	Date Received:	11/03/09
Matrix:	SO - Soil	Percent Solids:	80.3
Project:	Colibrán - Pit Reclaims		

Total True Barium Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Barium	2960	59	mg/kg	5	11/09/09	11/13/09 NS	SW846 6010B ¹	LADNR 29B ²

(1) Instrument QC Batch: MA4392

(2) Prep QC Batch: MP10613

RL = Reporting Limit

Report of Analysis

Client Sample ID: HAWKINS 11-13	Date Sampled: 11/02/09
Lab Sample ID: T41412-1A	Date Received: 11/03/09
Matrix: SO - Soil	Percent Solids: 80.3
Project: Colibran - Pit Reclaims	

Hot Water Soluble Boron Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Boron	0.475	0.20	mg/l	1	11/09/09	11/13/09 NS	SW846 6010B ¹	LADNR 29B ²

(1) Instrument QC Batch: MA4392

(2) Prep QC Batch: MP10614

RL = Reporting Limit



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SAMPLE INSPECTION FORM

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Accutest Job Number: T41412 Client: OXY USA Date/Time Received: 11/3/09 9:30
 # of Coolers Received: 204 Thermometer #: 121 Temperature Adjustment Factor: + 0.4
 Cooler Temps: #1: 20.4 #2: _____ #3: _____ #4: _____ #5: _____ #6: _____ #7: _____ #8: _____
 Method of Delivery: FEDEX UPS Accutest Courier Greyhound Delivery Other
 Airbill Numbers: 7970-7329-2520

COOLER INFORMATION

- Custody seal missing or not intact
- Temperature criteria not met
- Wet ice received in cooler

CHAIN OF CUSTODY

- Chain of Custody not received
- Sample D/T unclear or missing
- Analyses unclear or missing
- COC not properly executed

SAMPLE INFORMATION

- Sample containers received broken
- VOC vials have headspace
- Sample labels missing or illegible
- ID on COC does not match label(s)
- D/T on COC does not match label(s)
- Sample/Bottles rcvd but no analysis on COC
- Sample listed on COC, but not received
- Bottles missing for requested analysis
- Insufficient volume for analysis
- Sample received improperly preserved

TRIP BLANK INFORMATION

- Trip Blank on COC but not received
- Trip Blank received but not on COC
- Trip Blank not intact
- Received Water Trip Blank
- Received Soil TB

Number of Encores? _____
 Number of 5035 kits? _____
 Number of lab-filtered metals? _____

Summary of Discrepancies: NO ICE SAMPLE REC. IN BAG.

TECHNICIAN SIGNATURE/DATE: [Signature] 11/3/09

INFORMATION AND SAMPLE LABELING VERIFIED BY: SC 11-39

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ **CORRECTIVE ACTIONS** ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦

Client Representative Notified: _____ Date: _____

By Accutest Representative: _____ Via: Phone Email

Client Instructions:

l:\mwalker\form\samplemanagement

SAMPLE RECEIPT LOG

JOB #:

T41412

DATE/TIME RECEIVED:

11/3/09 9:30

CLIENT:

OX4 USA INC.

INITIALS:

R

COOLER#	SAMPLE ID	FIELD ID	DATE	MATRIX	VOL	BOTTLE #	LOCATION	PRESERV				PH	
								1	2	3	4		
1	1	Hawkins Age 1 U-18	11/2/09 09:55	Soil	4 1/2	1	2FF	1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12
								1	2	3	4	<2	>12
								5	6	7	8	<2	>12

R 11/3/09

PRESERVATIVES: 1: None 2: HCL 3: HNO3 4: H2SO4 5: NAOH 6: DI 7: MeOH 8: Other
 LOCATION: 1: Walk-In #1 (Waters) 2: Walk-In #2 (Soils) VR: Volatile Fridge M: Metals SUB: Subcontract EF: Encore Freezer
 Rev 8/13/01 ewp

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41412
Account: OXYCOGJ - Oxy USA Inc.
Project: Colibrán - Pit Reclaims

QC Batch ID: MP10613
Matrix Type: SOLID

Methods: SW846 6010B
Units: mg/kg

Prep Date: 11/09/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.82	2.2		
Antimony	0.50	.11	.14		
Arsenic	0.50	.089	.1		
Barium	10	.007	.03	0.16	<10
Beryllium	0.25	.0055	.01		
Boron	5.0	.054	.11		
Cadmium	0.25	.013	.05		
Calcium	250	.27	.86		
Chromium	0.50	.055	.035		
Cobalt	2.5	.025	.09		
Copper	1.3	.029	.065		
Iron	5.0	.65	1.1		
Lead	0.50	.079	.2		
Magnesium	250	.34	.58		
Manganese	0.75	.01	.035		
Molybdenum	0.50	.048	.075		
Nickel	2.0	.048	.065		
Potassium	250	2.7	16		
Selenium	0.50	.16	.12		
Silver	0.50	.043	.04		
Sodium	250	6.5	13		
Strontium	1.0	.0085	.025		
Thallium	0.50	.16	.25		
Tin	1.0	.09	.12		
Titanium	1.0	.015	.045		
Vanadium	2.5	.03	.06		
Zinc	1.0	.025	.2		

Associated samples MP10613: T41412-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10613
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 11/09/09 11/09/09

Metal	T41327-1AB Original DUP		RPD	QC Limits	T41327-1AB Original MS		Spikelot MPTW4	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic									
Barium	1630	1610	1.2	0-20	1630	1590	23.5	-170.4(a)	80-120
Beryllium									
Boron									
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10613: T41412-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

4.1.2
 4

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10613
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 11/09/09

Metal	T41327-LAB Original MSD		SpikeLot MPTW4	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium	1630	1580	23	-217.5(a)	0.6	20
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10613: T41412-1

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

4.1.2
 4

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10613
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: mg/kg

Prep Date: 11/09/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium	19.5	20	97.5	80-120
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10613: T41412-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

4.1.3
4

SERIAL DILUTION RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibran - Pit Reclaims

QC Batch ID: MP10613
 Matrix Type: SOLID

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/09/09

Metal	T41327-LAB	QC
	Original SDL 5:25 %DIF	Limits

Aluminum				
Antimony				
Arsenic				
Barium	27100	28200	3.9	0-10
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10613: T41412-1

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

4.1.4
4

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: T41412
Account: OXYCOGJ - Oxy USA Inc.
Project: Colibran - Pit Reclaims

QC Batch ID: MP10614
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/09/09

Metal	RL	IDL	MDL	MB raw	final
Aluminum	400	33	34		
Antimony	10	4.5	6		
Arsenic	10	3.5	4		
Barium	400	.28	5.4		
Beryllium	10	.22	.4		
Boron	200	2.2	4.2	121	<200
Cadmium	8.0	.5	.6		
Calcium	10000	11	70		
Chromium	20	2.2	3.8		
Cobalt	100	1	1.6		
Copper	50	1.2	12		
Iron	200	26	26		
Lead	6.0	3.2	3.4		
Magnesium	10000	13	16		
Manganese	30	.4	15		
Molybdenum	20	1.9	2.6		
Nickel	80	1.9	6.4		
Potassium	10000	110	110		
Selenium	10	6.5	6.4		
Silver	20	1.7	1.6		
Sodium	10000	260	270		
Strontium	40	.34	.8		
Thallium	20	6.5	5.2		
Tin	40	3.6	5.8		
Titanium	40	.6	.6		
Vanadium	100	1.2	1.2		
Zinc	40	.98	8.2		

Associated samples MP10614: T41412-1A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

4.2.1
4

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10614
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/09/09 11/09/09

Metal	T41327-1AA Original	DUP	RPD	QC Limits	T41327-1AA Original MS	Spikelot MPTW4	% Rec	QC Limits	
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Boron	3090	3060	1.0	0-20	3090	5430	1000	120.9	80-120
Cadmium									
Calcium									
Chromium									
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Molybdenum									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc									

Associated samples MP10614: T41412-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10614
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/09/09

Metal	T41327-1AA Original MSD	SpikeLot MPTW4	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron	3090	5530	1000	127.6	1.8	20
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP10614: T41412-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

4.2.2
4

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10614
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/09/09

Metal	BSP Result	Spikelot MPTW4	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	2200	1000	109.9	80-120
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10614: T41412-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

4.2.3
4

SERIAL DILUTION RESULTS SUMMARY

Login Number: T41412
 Account: OXYCOGJ - Oxy USA Inc.
 Project: Colibrán - Pit Reclaims

QC Batch ID: MP10614
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/09/09

Metal	T41327-1AA Original	SDL 1:5	%DIF	QC Limits
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Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron	1550	1520	2.1	0-10
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP10614: T41412-1A

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

4.2.4
4