



01/04/12

Technical Report for

KRW Consulting, Inc.

XOM PCU T13X-19G

1112-06

Accutest Job Number: D30572

Sampling Date: 12/21/11

Report to:

KRW Consulting, Inc.
8000 West 14th Avenue Suite 200
Lakewood, CO 80214
cburger@krwconsulting.com; gknell@krwconsulting.com;
dknudson@krwconsulting.com; jhess@krwconsulting.com;
ATTN: Dwayne Knudson

Total number of pages in report: 19



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.


Brad Madadian
Laboratory Director

Client Service contact: 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW) UT (NELAP CO00049)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Sample Results	5
3.1: D30572-1: AS BACKGROUND 1	6
3.2: D30572-2: AS BACKGROUND 2	7
3.3: D30572-3: AS BACKGROUND 3	8
3.4: D30572-4: AS BACKGROUND 4	9
3.5: D30572-5: AS BACKGROUND 5	10
Section 4: Misc. Forms	11
4.1: Chain of Custody	12
Section 5: Metals Analysis - QC Data Summaries	14
5.1: Prep QC MP6552: As	15



Sample Summary

KRW Consulting, Inc.

Job No: D30572

XOM PCU T13X-19G
Project No: 1112-06

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D30572-1	12/21/11	14:00	CO	12/22/11	SO Soil	AS BACKGROUND 1
D30572-2	12/21/11	14:05	CO	12/22/11	SO Soil	AS BACKGROUND 2
D30572-3	12/21/11	14:10	CO	12/22/11	SO Soil	AS BACKGROUND 3
D30572-4	12/21/11	14:15	CO	12/22/11	SO Soil	AS BACKGROUND 4
D30572-5	12/21/11	14:20	CO	12/22/11	SO Soil	AS BACKGROUND 5

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: KRW Consulting, Inc.

Job No D30572

Site: XOM PCU T13X-19G

Report Dat 1/4/2012 10:55:41 AM

On 12/22/2011, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1.1 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D30572 was assigned to the project. The lab sample IDs, client sample IDs, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6020

Matrix SO

Batch ID: MP6552

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D30595-1MS, D30595-1MSD, D30595-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN13022

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	AS BACKGROUND 1	Date Sampled:	12/21/11
Lab Sample ID:	D30572-1	Date Received:	12/22/11
Matrix:	SO - Soil	Percent Solids:	78.9
Project:	XOM PCU T13X-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.3	0.51	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2079
(2) Prep QC Batch: MP6552

RL = Reporting Limit

Report of Analysis

Client Sample ID:	AS BACKGROUND 2	Date Sampled:	12/21/11
Lab Sample ID:	D30572-2	Date Received:	12/22/11
Matrix:	SO - Soil	Percent Solids:	76.9
Project:	XOM PCU T13X-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.5	0.54	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2079
(2) Prep QC Batch: MP6552

RL = Reporting Limit

Report of Analysis

Client Sample ID:	AS BACKGROUND 3	Date Sampled:	12/21/11
Lab Sample ID:	D30572-3	Date Received:	12/22/11
Matrix:	SO - Soil	Percent Solids:	86.0
Project:	XOM PCU T13X-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.6	0.48	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2079
(2) Prep QC Batch: MP6552

RL = Reporting Limit

Report of Analysis

Client Sample ID:	AS BACKGROUND 4	Date Sampled:	12/21/11
Lab Sample ID:	D30572-4	Date Received:	12/22/11
Matrix:	SO - Soil	Percent Solids:	87.2
Project:	XOM PCU T13X-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.1	0.45	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2079
(2) Prep QC Batch: MP6552

RL = Reporting Limit

Report of Analysis

Client Sample ID:	AS BACKGROUND 5	Date Sampled:	12/21/11
Lab Sample ID:	D30572-5	Date Received:	12/22/11
Matrix:	SO - Soil	Percent Solids:	84.1
Project:	XOM PCU T13X-19G		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.9	0.47	mg/kg	5	12/27/11	12/27/11 GJ	SW846 6020 ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2079
(2) Prep QC Batch: MP6552

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D30572

Client / Reporting Information				Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes	
Company Name KRW CONSULTING				Project Name XOM PCU T13X-19C																DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL Sludge SED Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Waste FB Field Blank EB Equipment Blank RB-Rinse Blank TB-Trip Blank	
Street Address 8000 W 14TH AVE STE 200				Billing information (if different from Report to)																	
City State Zip LAKEWOOD CO 80214				Company Name																	
Project Contact DWAYNE KNUDSON				Project# 1112-06 +001-14A				Street Address													
Phone # 303 239 9011				Fax #				City				State				Zip					
Sampler(s) Name(s) COLIN HOLLISTER 3035659365				Project Manager JOE HESS				Attention:				P.O.#									
Field ID / Point of Collection				MEOH/DI Vial #				Collection				Number of preserved Bottles				LAB USE ONLY					
				Date	Time	Sampled by	Matrix	# of bottles	HCl	NH ₄ OH	HNO ₃	TZSD4	NONE	DV Water	MEOH					ENCORE	Bottling
AS BACKGROUND 1							CH	SO	I					X		X	O1				
AS BACKGROUND 2							CH	SO	I					X		X	O2				
AS BACKGROUND 3							CH	SO	I					X		X	O3				
AS BACKGROUND 4							CH	SO	I					X		X	O4				
AS BACKGROUND 5							CH	SO	I					X		X	O5 <i>[Signature]</i>				
Turnaround Time (Business days) <input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R SH <input type="checkbox"/> 3 Day EMERGENCI <input type="checkbox"/> 2 day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY				Approved By (Accusnet PM) : Date: _____ _____				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> State Forms <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> EOD Format _____ <input type="checkbox"/> Commercial "B" + Narrative <input checked="" type="checkbox"/> PDF <input type="checkbox"/> FULLT1 (Level 3+4)				Comments / Special Instructions PLEASE EMAIL RESULTS TO XOM KRW PICEANCE FIELD TEAM									
																Commercial "A" = Results Only Commercial "B" = Results + QC Summary					
Emergency & Rush T/A date available VIA Lablink																					
Sample Custody must be documented below each time samples change possession, including courier delivery.																					
Reliinquished by Sampler: 1 [Signature]		Date Time: 12/21/11 17:45		Received By: 1 Bill TB		Reliinquished By: 2 Bill TB		Date Time: 12/21/11 1340		Received By: 2 Jacob J... 12/22/11 1340											
Reliinquished by Sampler: 3		Date Time:		Received By: 3		Reliinquished By: 4		Date Time:		Received By: 4											
Reliinquished by: 5		Date Time:		Received By: 5		Custody Seal # HD		<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable R		On Ice N		Cooler Temp. 1.1							

D30572: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D30572

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 12/22/2011 1:40:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XOM PCU T13X-19G

Airbill #'s: HD

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

Metals Analysis

5

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: D30572
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM PCU T13X-19G

QC Batch ID: MP6552
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 12/27/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.072	<0.40
Barium	1.0	.0035	.1		
Beryllium	0.10	.0075	.014		
Boron	20	.97	1		
Cadmium	0.050	.023	.048		
Calcium	200	1.8	8.2		
Chromium	1.0	.021	.24		
Cobalt	0.10	.0033	.003		
Copper	1.0	.011	.063		
Iron	20	.81	3.7		
Lead	0.25	.0012	.015		
Magnesium	50	.067	2.6		
Manganese	0.50	.007	.029		
Molybdenum	0.50	.0044	.023		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	3.2		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.002		
Sodium	250	.8	4.4		
Strontium	10	.004	.04		
Thallium	0.10	.015	.02		
Tin	5.0	.006	.028		
Titanium	1.0	.035	.062		
Uranium	0.25	.00038	.0009		
Vanadium	2.0	.052	.29		
Zinc	5.0	.039	.12		

Associated samples MP6552: D30572-1, D30572-2, D30572-3, D30572-4, D30572-5

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: D30572
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM PCU T13X-19G

QC Batch ID: MP6552
 Matrix Type: SOLID

Methods: SW846 6020
 Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	5.5	124	119	99.2	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6552: D30572-1, D30572-2, D30572-3, D30572-4, D30572-5

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: D30572
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM PCU T13X-19G

QC Batch ID: MP6552
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 12/27/11

Metal	D30595-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	5.5	125	119	100.1	0.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP6552: D30572-1, D30572-2, D30572-3, D30572-4, D30572-5

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D30572
Account: KRWCCOL - KRW Consulting, Inc.
Project: XOM PCU T13X-19G

QC Batch ID: MP6552
Matrix Type: SOLID

Methods: SW846 6020
Units: mg/kg

Prep Date: 12/27/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	106	100	106.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP6552: D30572-1, D30572-2, D30572-3, D30572-4, D30572-5

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D30572
 Account: KRWCCOL - KRW Consulting, Inc.
 Project: XOM PCU T13X-19G

QC Batch ID: MP6552
 Matrix Type: SOLID

Methods: SW846 6020
 Units: ug/l

Prep Date: 12/27/11

Metal	D30595-1			QC	
	Original	SDL 5:25	%DIF	Limits	
Aluminum					
Antimony					
Arsenic	48.6	52.4	7.8	0-10	
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP6552: D30572-1, D30572-2, D30572-3, D30572-4, D30572-5

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