



02/07/11

## Technical Report for

**KRW Consulting, Inc.**

**Love Ranch 8**

**Project 1003-38**

**Accutest Job Number: D20760**

**Sampling Date: 01/27/11**

### Report to:

**KRW Consulting, Inc.**  
**8000 West 14th Avenue Suite 200**  
**Lakewood, CO 80214**  
**jhess@krwconsulting.com; gknell@krwconsulting.com;**  
**dknudson@krwconsulting.com; crachak@krwconsulting.com**  
**ATTN: Joe Hess**

**Total number of pages in report: 18**



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.

A handwritten signature in black ink, appearing to read 'John Hamilton'.

**John Hamilton**  
**Laboratory Director**

**Client Service contact: Amanda Kissell 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.

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Sample Summary

KRW Consulting, Inc.

Job No: D20760

Love Ranch 8  
Project No: Project 1003-38

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D20760-1	01/27/11	09:15 BB	02/01/11	SO	Soil	BACKGROUND 1
D20760-2	01/27/11	09:00 BB	02/01/11	SO	Soil	BACKGROUND 2
D20760-3	01/27/11	09:30 BB	02/01/11	SO	Soil	BACKGROUND 3
D20760-4	01/27/11	09:45 BB	02/01/11	SO	Soil	BACKGROUND 4
D20760-5	01/27/11	10:00 BB	02/01/11	SO	Soil	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** D20760

**Site:** Love Ranch 8

**Report Dat** 2/7/2011 2:33:41 PM

On 02/01/2011, five (5) samples, 0 Trip Blanks, and 0 Field Blanks were received at Accutest Mountain States (AMS) at a temperature of 2.1°C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D20760 was assigned to the project. The lab sample IDs, client sample IDs, and dates 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:** MP3970

- All samples were digested and analyzed within the recommended method holding time.
- The method blank for this batch meets method specific criteria.
- Samples D20760-1MS, D20760-1MSD, and D20760-1SDL were used as the QC samples for the metals analysis.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN8107

- 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

<b>Client Sample ID:</b>	BACKGROUND 1	<b>Date Sampled:</b>	01/27/11
<b>Lab Sample ID:</b>	D20760-1	<b>Date Received:</b>	02/01/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	85.9
<b>Project:</b>	Love Ranch 8		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	13.5	0.45	mg/kg	5	02/04/11	02/04/11 JM	SW846 6020 <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1295  
(2) Prep QC Batch: MP3970

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND 2	<b>Date Sampled:</b>	01/27/11
<b>Lab Sample ID:</b>	D20760-2	<b>Date Received:</b>	02/01/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	80.3
<b>Project:</b>	Love Ranch 8		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	15.9	0.46	mg/kg	5	02/04/11	02/04/11 JM	SW846 6020 <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1295  
(2) Prep QC Batch: MP3970

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND 3	<b>Date Sampled:</b>	01/27/11
<b>Lab Sample ID:</b>	D20760-3	<b>Date Received:</b>	02/01/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.2
<b>Project:</b>	Love Ranch 8		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.8	0.47	mg/kg	5	02/04/11	02/04/11 JM	SW846 6020 <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1295  
(2) Prep QC Batch: MP3970

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND 4	<b>Date Sampled:</b>	01/27/11
<b>Lab Sample ID:</b>	D20760-4	<b>Date Received:</b>	02/01/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	84.3
<b>Project:</b>	Love Ranch 8		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.5	0.47	mg/kg	5	02/04/11	02/04/11 JM	SW846 6020 <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1295  
(2) Prep QC Batch: MP3970

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND 5	<b>Date Sampled:</b>	01/27/11
<b>Lab Sample ID:</b>	D20760-5	<b>Date Received:</b>	02/01/11
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	79.2
<b>Project:</b>	Love Ranch 8		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.2	0.47	mg/kg	5	02/04/11	02/04/11 JM	SW846 6020 <sup>1</sup>	SW846 3010A <sup>2</sup>

(1) Instrument QC Batch: MA1295  
(2) Prep QC Batch: MP3970

RL = Reporting Limit

## Misc. Forms

### Custody Documents and Other Forms

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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

<b>Client / Reporting Information</b> Company Name: <u>KRW Consulting</u> Street Address: <u>8000 W 14th Ave</u> City: <u>Lakewood CO</u> State: <u>CO</u> Zip: <u>80244</u> Project Contact: <u>Dwayne Knudson</u> E-mail: <u></u> Phone #: <u>303-239-9041</u> Fax #: <u>303-239-0745</u> Sample(s) Name(s): <u>Bkgnd B</u> Phone #: <u>970-756-4205</u>		<b>Project Information</b> Project Name: <u>Love &amp; Back Ground</u> Street: <u></u> City: <u></u> State: <u></u> Zip: <u></u> Billing Information (If different from Report to) Company Name: <u></u> Street Address: <u></u> City: <u></u> State: <u></u> Zip: <u></u> Project#: <u>1003-38</u> Client PO#: <u></u> Project Manager: <u></u> Attention: <u></u> PO#: <u></u>		<b>Requested Analysis (see TEST CODE sheet)</b> Matrix Codes: <u></u> 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 WIP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
<b>Accutest Sample #</b> Field ID / Point of Collection: <u>Background 1</u> <u>Background 2</u> <u>Background 3</u> <u>Background 4</u> <u>Background 5</u>		<b>MECHDI Vial #</b> <u></u>		<b>Collection</b> Date: <u>4/27/11</u> Time: <u>09:15</u> Sampled by: <u>BB</u> Matrix: <u></u> # of bottles: <u>1</u> Number of preserved Bottles: HCl <u></u> NaOH <u></u> HNO3 <u></u> H2SO4 <u></u> NONE <u></u> DI Water <u></u> MEON <u></u> ENCORE <u></u> Iridium <u></u>	
<b>Turnaround Time (Business days)</b> <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R/SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY Emergency & Rush T/A data available VIA Lablink		<b>Approved By (Accutest PM): / Date:</b> <u></u>		<b>Data Deliverable Information</b> <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> PDF Commercial "A" = Results Only Commercial "B" = Results + QC Summary	
<b>Comments / Special Instructions</b> <u>email results</u> <u>d.knudson@krcwconsulting.com</u> <u>jhees@ " g.knell@ " "</u> <u>bberg@ " "</u>					
<b>Sample Custody must be documented below each time samples change possession, including courier delivery.</b>					
Relinquished by Sampler: <u>1 Brent Berger</u>	Date Time: <u>4/27/11</u>	Received By: <u>1</u>	Relinquished By: <u>2</u>	Date Time: <u></u>	Received By: <u>2</u>
Relinquished by Sampler: <u>3</u>	Date Time: <u></u>	Received By: <u>3</u>	Relinquished By: <u>4</u>	Date Time: <u></u>	Received By: <u>4</u>
Relinquished by: <u>5</u>	Date Time: <u></u>	Received By: <u>5</u>	Custody Seal # <u>fx</u>	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
			On Ice <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Cooler Temp: <u>2.1</u>	

**D20760: Chain of Custody**

**Page 1 of 1**

## Metals Analysis

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### QC Data Summaries

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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: D20760  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: Love Ranch 8

QC Batch ID: MP3970  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 02/04/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.2		
Antimony	0.20	.001	.0095		
Arsenic	0.40	.049	.22	0.25	<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 MP3970: D20760-1, D20760-2, D20760-3, D20760-4, D20760-5

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: D20760  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: Love Ranch 8

QC Batch ID: MP3970  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 02/04/11

Metal	D20760-1 Original MS		Spikelot MPICPALL % Rec		QC Limits
Aluminum					
Antimony					
Arsenic	13.5	113	109	91.5	60-119
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 MP3970: D20760-1, D20760-2, D20760-3, D20760-4, D20760-5

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: D20760  
Account: KRWCCOL - KRW Consulting, Inc.  
Project: Love Ranch 8

QC Batch ID: MP3970  
Matrix Type: SOLID

Methods: SW846 6020  
Units: mg/kg

Prep Date: 02/04/11

Metal	D20760-1 Original	MSD	Spikelot MPICPAL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	13.5	110	113	85.4	2.7	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 MP3970: D20760-1, D20760-2, D20760-3, D20760-4, D20760-5

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: D20760

Account: KRWCCOL - KRW Consulting, Inc.

Project: Love Ranch 8

QC Batch ID: MP3970

Methods: SW846 6020

Matrix Type: SOLID

Units: mg/kg

Prep Date:

02/04/11

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	86.9	100	86.9	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 MP3970: D20760-1, D20760-2, D20760-3, D20760-4, D20760-5

Results &lt; IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D20760  
 Account: KRWCCOL - KRW Consulting, Inc.  
 Project: Love Ranch 8

QC Batch ID: MP3970  
 Matrix Type: SOLID

Methods: SW846 6020  
 Units: ug/l

Prep Date: 02/04/11

Metal	D20760-1 Original SDL 5:25 %DIF			QC Limits
Aluminum				
Antimony				
Arsenic	119	118	0.7	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 MP3970: D20760-1, D20760-2, D20760-3, D20760-4, D20760-5

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