



DEPARTMENT OF NATURAL RESOURCES  
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April 5, 2011

Mrs. Cynthia Burkhart  
P.O. Box 976  
Wellington, CO 80549

RE: COGCC Complaint #200300876  
Water Quality Results for Domestic Water Well (DWR Permit #256584)  
SWSW Section 15, T-9-N, R-67-W  
Weld County, Colorado

Dear Mrs. Burkhart,

In response to your concerns regarding the possibility of impacts to groundwater quality from oil and gas development in the area near your home, I visited your property on March 16, 2011, to collect a water sample from your well. This sample was collected at your request to provide baseline water quality conditions prior to fracture stimulation operations at a nearby oil & gas well known as the Pawnee 2-16-1 (API 123-31432) operated by Chesapeake Operating, Inc. The water sample was analyzed for general organic and inorganic constituents as well as bacterial analysis. This letter summarizes the water quality results.

### **FIELD TESTING**

The water sample was collected from a frost-free spigot located in front of a door to your barn. The water was turned on at approximately 10:00 and allowed to run for 45 minutes. The water was clear with no odor, and no sediment accumulated in the bucket during purging. A slight effervescence was observed throughout the time the water ran prior to sample collection. The sample was collected at 10:45 and delivered to Test America Laboratories in Arvada, Colorado.

### **COMPARISON OF ANALYTICAL RESULTS TO CDPHE STANDARDS**

The Water Quality Control Commission (WQCC) of the Colorado Department of Public Health and Environment (CDPHE) has established "Domestic Use-Quality" human health standards and drinking water standards. Analytical data for the sample from your water well was compared to these standards in Table 1, provided as Attachment 1. Please keep in mind that these "Domestic Use-Quality Standards" were established for municipal public drinking water supplies and people often use and consume ground water from private wells that exceed these standards. The complete laboratory report was previously provided via email, and the data pages of the report from Test America Laboratories are provided in Attachment 2.

## **DISCUSSION OF ANALYTICAL RESULTS**

None of the analyzed constituents exceeded the CDPHE human health drinking water standards. The result for iron exceeded the CDPHE secondary standard. The water sample did not contain the organic compounds benzene, toluene, ethyl benzene or xylenes, which are often associated with contamination from petroleum hydrocarbons. The water sample was also analyzed for Total Petroleum Hydrocarbons (TPH) including diesel range organics and gasoline range organics. The results were non-detect for TPH. The water sample was also analyzed for dissolved methane, which was not detected.

A sample of your well water was also collected for the determination of the presence of bacteria using the Biological Activity Reaction Test (**BART™**) for the following: Iron Related Bacteria (IRB), Sulfate Reducing Bacteria (SRB), and Slime Forming Bacteria (SFB). The results of the test are documented in the photograph (Attachment 3) taken nine days after the water sample was collected.

**Iron Related Bacteria:** Although not usually harmful, IRB can become a nuisance by plugging the well pump, causing red staining on plumbing fixtures and laundered clothing, building up red, slimy accumulations on any surface the water touches, and causing what may appear to be a oily sheen on standing water. In rare cases, IRB may cause sickness.

- **IRB bacteria were detected in the water sample from your well.**

**Sulfate Reducing Bacteria:** SRB are serious nuisance organisms in water since they can cause severe taste and odor problems. These bacteria reduce sulfate that occurs naturally in the water and generate hydrogen sulfide (H<sub>2</sub>S) gas as they grow. In turn, the H<sub>2</sub>S gas is a nuisance because it smells like rotten eggs, it initiates corrosion on metal surfaces, and it reacts with dissolved metals such as iron to generate black sulfide deposits.

- **SRB bacteria were detected in the water sample from your well.**

**Slime Forming Bacteria:** Although not usually harmful, SFB can become a nuisance by plugging well pumps and causing slimy accumulations on plumbing fixtures and standing water. Slimes often are gelatinous in nature and may range in color from white, to red, to black. As slime bacteria mats grow they create an environment in which complex associations of other strains of bacteria can develop.

- **SFB bacteria were not detected in the water sample from your well.**

Although IRB and SRB were detected in the sample from your well, it should be noted that the reaction rate, or aggressivity, of the bacterial population in both cases was low.

Test America Laboratories also analyzed the water sample for sodium adsorption ratio (SAR) and electrical conductivity (EC). The result for SAR was 1.8. SAR is a proportion of sodium to calcium plus magnesium and is often used to determine the sodium hazard in irrigation water. Generally, water with SAR values between 1 and 9 has a low sodium hazard. The result for

Mrs. Cynthia Burkhart  
Complaint #200300876  
April 5, 2011

electrical conductivity (EC) in the water was 0.78 mmhos/cm (millimhos per centimeter). EC is often used to determine the salinity hazard of irrigation water. Water with EC of 0.25 – 0.75 mmhos/cm is considered good.

The Colorado Oil & Gas Conservation Commission (COGCC) maintains a water quality database where the analytical results from your water sample will be recorded. If you experience changes in water quality that you believe are related to oil & gas activity in the area near your residence, COGCC will use this baseline sample to compare to future water sample results from your well if requested.

General background information on water wells was provided to you at the time the sample was collected. If you have any questions or would like to discuss the sample results further, please contact me via e-mail ([John.Axelson@state.co.us](mailto:John.Axelson@state.co.us)) or by phone at (303) 637-7178.

Respectfully,



John Axelson, P.G.  
Environmental Protection Specialist, Northeast Region  
Colorado Oil and Gas Conservation Commission

Enclosures

- Attachment 1 – Table 1 – Analytical Summary
- Attachment 2 – Test America Laboratory Report – Data Pages Only
- Attachment 3 – BART™ Results

cc: David Neslin – COGCC Director  
Debbie Baldwin – COGCC Environmental Manager  
Steve Lindblom – COGCC Environmental Supervisor

**ATTACHMENT 1**

**Table 1 – Analytical Summary**

**TABLE 1**  
**ANALYTICAL SUMMARY**  
**Baseline Sample - Complaint #200300876**  
**Burkhart Water Well**

Parameter	Water Well Sample		CDPHE Standards		
	Sample Date				
	16-Mar-11				
	Result	Unit	Domestic	Agriculture	Units
Boron	NA	mg/l	NS	0.75	mg/l
Copper	NA	mg/l	1	0.2	mg/l
Arsenic	ND	mg/l	0.05	0.1	mg/l
Barium	0.033	mg/l	2.0		mg/l
Cadmium	ND	mg/l	0.005	0.01	mg/l
Calcium	68	mg/l	NS		
Chromium	ND	mg/l	0.1	0.1	mg/l
Iron	0.81	mg/l	0.3	5	mg/l
Lead	ND	mg/l	0.05	0.1	mg/l
Magnesium	20	mg/l	NS		
Manganese	0.052	mg/l	0.05	0.2	mg/l
Potassium	6.7	mg/l	NS		
Selenium	ND	mg/l	0.05	0.02	mg/l
Silver	ND	mg/l	0.05	NS	mg/l
Sodium	68	mg/l	NS		
Uranium	ND	mg/l	0.03		mg/l
Chloride	11	mg/l	250	NS	mg/l
Nitrite	ND	mg/l	1.0	10	mg/l
Nitrate	ND	mg/l	10.0	100	mg/l
Total Nitrite/Nitrate	ND	mg/l	10.0	100	mg/l
Fluoride	0.81	mg/l	4.0	NS	mg/l
Total Dissolved Solids	450	mg/l	500	*1500	mg/l
pH	7.11	No units	6.5 - 8.5	6.5 - 8.5	No units
Sulfate	140	mg/l	250		mg/l
Sodium Adsorption Ratio	1.8	No units	NS		
Bromide	ND	mg/l	NS		
Total Alkalinity	260	mg/l	NS		
Bicarbonate	260	mg/l	NS		
Carbonate	ND	mg/l	NS		
Conductivity	0.78	mmhos/cm	NS		
Methane	ND	mg/l	NS		

**Notes**

**CDPHE** Colorado Department of Public Health and the Environment.  
**Domestic** Standards for Domestic Water Supply, Human Health and Drinking Water Standards.  
**Agriculture** \* Standards for agriculture compiled from CDPHE and other of sources.  
**mg/l** Milligrams per liter (equals parts per million).  
**CDPHE Standards** Water Quality Control Commission 5 CCR 1002-41, Regulation No. 41 - The Basic Standards For Groundwater.  
**mmhos/cm** millimhos per centimeer  
**NA** Not analyzed.  
**ND** Not detected.  
**NS** No Standard.  
**\*\*** Health Advisory.  
Human health standard.  
Secondary standard.

**ATTACHMENT 2**

**Test America Laboratory Report**

## ANALYTICAL REPORT

Job Number: 280-13610-1

Job Description: Burkhart # 200300876

For:

Colorado Oil&Gas Conservation Commission  
1120 Lincoln St.  
Suite 801  
Denver, CO 80203  
Attention: John Axelson



Approved for release.  
Lori A Parsons  
Project Manager I  
3/30/2011 2:58 PM

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Lori A Parsons  
Project Manager I  
lori.parsons@testamericainc.com  
03/30/2011

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

## CASE NARRATIVE

Client: Colorado Oil&Gas Conservation Commission

Project: Burkhart # 200300876

Report Number: 280-13610-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### RECEIPT

The samples were received on 03/17/2011; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.1 C.

### VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples BURKHART WW (280-13610-1) and TRIP BLANK (280-13610-2) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 03/26/2011.

No difficulties were encountered during the volatiles analyses.

All quality control parameters were within the acceptance limits.

### DISSOLVED GASES

Sample BURKHART WW (280-13610-1) was analyzed for dissolved gases in accordance with RSK\_175. The samples were analyzed on 03/25/2011.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

### GAS RANGE ORGANICS

Sample BURKHART WW (280-13610-1) was analyzed for gas range organics in accordance with EPA SW-846 Method 8015B - GRO. The samples were analyzed on 03/25/2011.

No difficulties were encountered during the GRO analysis.

All quality control parameters were within the acceptance limits.

### DIESEL RANGE ORGANICS

Sample BURKHART WW (280-13610-1) was analyzed for Diesel Range Organics in accordance with EPA SW-846 Method 8015B - DRO. The samples were prepared on 03/17/2011 and analyzed on 03/23/2011.

No difficulties were encountered during the DRO analysis.

All quality control parameters were within the acceptance limits.

### TOTAL METALS

Sample BURKHART WW (280-13610-1) was analyzed for total metals in accordance with EPA SW-846 Method 6010B. The samples were prepared on 03/18/2011 and analyzed on 03/21/2011.

The Continuing Calibration Verification (CCV) associated with analytical batch 58699 exhibited a percent difference above the control limits for sodium. The only sample associated to this CCV was the Method Blank and this sample was non-detect for sodium; therefore the data has been qualified and reported.

The serial dilution associated with analytical batch 58699 was outside the control limits for sodium and magnesium.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

#### **TOTAL METALS - URANIUM**

Sample BURKHART WW (280-13610-1) was analyzed for total metals in accordance with EPA SW-846 Method 6020. The samples were prepared on 03/22/2011 and analyzed on 03/24/2011.

The Continuing Calibration Verification (CCV) associated with analytical batch 59261 exhibited a percent difference above the control limits for uranium. The associated samples were non-detect for uranium therefore the data was qualified and reported.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

#### **SODIUM ABSORPTION RATIO**

Sample BURKHART WW (280-13610-1) was analyzed for Sodium Absorption Ratio in accordance with USDA Handbook 60 - 20B. The samples were analyzed on 03/24/2011.

No difficulties were encountered during the SAR analysis.

All quality control parameters were within the acceptance limits.

#### **ANIONS**

Sample BURKHART WW (280-13610-1) was analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 03/21/2011.

Sample BURKHART WW (280-13610-1)[5X] required dilution prior to analysis for sulfate. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the anions analysis.

All quality control parameters were within the acceptance limits.

#### **NITRATE-NITRITE AS NITROGEN**

Sample BURKHART WW (280-13610-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 03/23/2011.

No difficulties were encountered during the nitrate-nitrite analysis.

All quality control parameters were within the acceptance limits.

#### **ALKALINITY**

Sample BURKHART WW (280-13610-1) was analyzed for Alkalinity in accordance with SM20 2320B. The samples were analyzed on 03/18/2011.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

#### **SPECIFIC CONDUCTIVITY**

Sample BURKHART WW (280-13610-1) was analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 03/22/2011.

No difficulties were encountered during the conductivity analysis.

All quality control parameters were within the acceptance limits.

#### **TOTAL DISSOLVED SOLIDS**

Sample BURKHART WW (280-13610-1) was analyzed for total dissolved solids in accordance with SM20 2540C. The samples were analyzed on 03/22/2011.

No difficulties were encountered during the TDS analysis.

All quality control parameters were within the acceptance limits.

#### **CATION ANION BALANCE**

Sample BURKHART WW (280-13610-1) was analyzed for Cation Anion Balance in accordance with Cation Anion Balance. The samples

were analyzed on 03/28/2011.

No other difficulties were encountered during the Cation Anion Balance analysis.

All other quality control parameters were within the acceptance limits.

**CORROSIVITY (PH)**

Sample BURKHART WW (280-13610-1) was analyzed for corrosivity (pH) in accordance with SM20 4500 H+ B. The samples were analyzed on 03/17/2011.

No other difficulties were encountered during the pH analysis.

All other quality control parameters were within the acceptance limits.

### EXECUTIVE SUMMARY - Detections

Client: Colorado Oil&Gas Conservation Commission

Job Number: 280-13610-1

Lab Sample ID	Client Sample ID		Reporting		
Analyte		Result / Qualifier	Limit	Units	Method
<b>280-13610-1</b>	<b>BURKHART WW</b>				
Sodium Adsorption Ratio		1.8	0.40	No Unit	20B
Barium		33	10	ug/L	6010B
Calcium		68000	200	ug/L	6010B
Iron		810	100	ug/L	6010B
Magnesium		20000	200	ug/L	6010B
Manganese		52	10	ug/L	6010B
Potassium		6700	3000	ug/L	6010B
Sodium		68000	1000	ug/L	6010B
Chloride		11	3.0	mg/L	300.0
Fluoride		0.81	0.50	mg/L	300.0
Sulfate		140	25	mg/L	300.0
Total Anions		8.5		meq/L	SM 1030F
Total Cations		8.2		meq/L	SM 1030F
Percent Difference		-1.5		%	SM 1030F
Anion/Cation Balance		-1.5		%	SM 1030F
Total Alkalinity		260	5.0	mg/L	SM 2320B
Bicarbonate Alkalinity as CaCO3		260	5.0	mg/L	SM 2320B
Specific Conductance		780	2.0	umhos/cm	SM 2510B
Total Dissolved Solids		450	10	mg/L	SM 2540C
pH		7.11	HF	SU	SM 4500 H+ B

**Analytical Data**

Client: Colorado Oil&amp;Gas Conservation Commision

Job Number: 280-13610-1

Client Sample ID: BURKHART WW

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

**8260B Volatile Organic Compounds (GC/MS)**

Method:	8260B	Analysis Batch: 280-59559	Instrument ID:	MSV_G2
Preparation:	5030B		Lab File ID:	G2_2464.D
Dilution:	1.0		Initial Weight/Volume:	20 mL
Date Analyzed:	03/26/2011 1729		Final Weight/Volume:	20 mL
Date Prepared:	03/26/2011 1729			

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Ethylbenzene	ND		1.0
Toluene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	91		70 - 127
Toluene-d8 (Surr)	98		80 - 125
4-Bromofluorobenzene (Surr)	99		78 - 120
Dibromofluoromethane (Surr)	94		77 - 120

**Analytical Data**

Client: Colorado Oil&amp;Gas Conservation Commission

Job Number: 280-13610-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 280-13610-2TB

Date Sampled: 03/16/2011 0000

Client Matrix: Water

Date Received: 03/17/2011 0923

**8260B Volatile Organic Compounds (GC/MS)**

Method:	8260B	Analysis Batch: 280-59559	Instrument ID:	MSV_G2
Preparation:	5030B		Lab File ID:	G2_2465.D
Dilution:	1.0		Initial Weight/Volume:	20 mL
Date Analyzed:	03/26/2011 1748		Final Weight/Volume:	20 mL
Date Prepared:	03/26/2011 1748			

Analyte	Result (ug/L)	Qualifier	RL
Benzene	ND		1.0
Ethylbenzene	ND		1.0
Toluene	ND		1.0
m-Xylene & p-Xylene	ND		2.0
o-Xylene	ND		1.0

  

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	93		70 - 127
Toluene-d8 (Surr)	100		80 - 125
4-Bromofluorobenzene (Surr)	101		78 - 120
Dibromofluoromethane (Surr)	96		77 - 120

**Analytical Data**

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-13610-1

Client Sample ID: **BURKHART WW**

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

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**8015B Gasoline Range Organics - (GC)**

Method: 8015B

Analysis Batch: 280-59592

Instrument ID: GCV\_L

Preparation: 5030B

Initial Weight/Volume: 5 mL

Dilution: 1.0

Final Weight/Volume: 5 mL

Date Analyzed: 03/25/2011 1840

Injection Volume: 5 mL

Date Prepared: 03/25/2011 1840

Result Type: PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Gasoline Range Organics (GRO)-C6-C10	ND		25

Surrogate	%Rec	Qualifier	Acceptance Limits
a,a,a-Trifluorotoluene	93		82 - 110

**Analytical Data**

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-13610-1

Client Sample ID: **BURKHART WW**

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

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**RSK-175 Dissolved Gases in Water**

Method:	RSK-175	Analysis Batch: 280-59408	Instrument ID:	GCV_J
Preparation:	N/A		Initial Weight/Volume:	18 mL
Dilution:	1.0		Final Weight/Volume:	18 mL
Date Analyzed:	03/25/2011 1121		Injection Volume:	
Date Prepared:			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	ND		5.0

**Analytical Data**

Client: Colorado Oil&Gas Conservation Commission

Job Number: 280-13610-1

Client Sample ID: **BURKHART WW**

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

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**RSK-175 Dissolved Gases in Water**

Method:	RSK-175	Analysis Batch: 280-59408	Instrument ID:	GCV_J
Preparation:	N/A		Initial Weight/Volume:	18 mL
Dilution:	1.0		Final Weight/Volume:	18 mL
Date Analyzed:	03/25/2011 1122		Injection Volume:	1 mL
Date Prepared:			Result Type:	SECONDARY

Analyte	Result (ug/L)	Qualifier	RL
Methane	ND		5.0

Analytical Data

Client: Colorado Oil&Gas Conservation Commision

Job Number: 280-13610-1

Client Sample ID: BURKHART WW

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

8015B Diesel Range Organics (DRO) (GC)

Method:	8015B	Analysis Batch: 280-59410	Instrument ID:	GCS_U
Preparation:	3510C	Prep Batch: 280-58157	Initial Weight/Volume:	1045.1 mL
Dilution:	1.0		Final Weight/Volume:	1000 uL
Date Analyzed:	03/23/2011 1428		Injection Volume:	1 uL
Date Prepared:	03/17/2011 1915		Result Type:	PRIMARY

Analyte	Result (mg/L)	Qualifier	RL
C10-C36	ND		0.48

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	79		50 - 115

## Analytical Data

Client: Colorado Oil&Gas Conservation Commission

Job Number: 280-13610-1

**Client Sample ID:** BURKHART WW

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

### 20B Sodium Adsorption Ratio

Method:	20B	Analysis Batch: 280-59087	Instrument ID: MT_025
Preparation:	N/A		Lab File ID: N/A
Dilution:	1.0		Initial Weight/Volume:
Date Analyzed:	03/24/2011 0841		Final Weight/Volume: 1.0 mL
Date Prepared:			

Analyte	Result (No Unit)	Qualifier	RL
Sodium Adsorption Ratio	1.8		0.40

### 6010B Metals (ICP)

Method:	6010B	Analysis Batch: 280-58699	Instrument ID: MT_025
Preparation:	3010A	Prep Batch: 280-58158	Lab File ID: 25D032111.asc
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	03/21/2011 2040		Final Weight/Volume: 50 mL
Date Prepared:	03/18/2011 1700		

Analyte	Result (ug/L)	Qualifier	RL
Arsenic	ND		15
Barium	33		10
Cadmium	ND		5.0
Calcium	68000		200
Chromium	ND		10
Iron	810		100
Lead	ND		9.0
Magnesium	20000		200
Manganese	52		10
Potassium	6700		3000
Selenium	ND		15
Silver	ND		10
Sodium	68000		1000

### 6020 Metals (ICP/MS)

Method:	6020	Analysis Batch: 280-59261	Instrument ID: MT_024
Preparation:	3020A	Prep Batch: 280-58159	Lab File ID: 262AREF.D
Dilution:	1.0		Initial Weight/Volume: 50 mL
Date Analyzed:	03/24/2011 0632		Final Weight/Volume: 50 mL
Date Prepared:	03/22/2011 0800		

Analyte	Result (ug/L)	Qualifier	RL
Uranium	ND	^	1.0

Analytical Data

Client: Colorado Oil&Gas Conservation Commission

Job Number: 280-13610-1

General Chemistry

Client Sample ID: BURKHART WW

Lab Sample ID: 280-13610-1

Date Sampled: 03/16/2011 1045

Client Matrix: Water

Date Received: 03/17/2011 0923

Analyte	Result	Qual	Units	RL	Dil	Method
Bromide	ND		mg/L	0.20	1.0	300.0
	Analysis Batch: 280-58764	Date Analyzed: 03/21/2011	1955			
Chloride	11		mg/L	3.0	1.0	300.0
	Analysis Batch: 280-58764	Date Analyzed: 03/21/2011	1955			
Fluoride	0.81		mg/L	0.50	1.0	300.0
	Analysis Batch: 280-58764	Date Analyzed: 03/21/2011	1955			
Sulfate	140		mg/L	25	5.0	300.0
	Analysis Batch: 280-58764	Date Analyzed: 03/21/2011	2217			
Nitrate Nitrite as N	ND		mg/L	0.10	1.0	353.2
	Analysis Batch: 280-59044	Date Analyzed: 03/23/2011	1220			
Total Alkalinity	260		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-58401	Date Analyzed: 03/18/2011	2041			
Bicarbonate Alkalinity as CaCO3	260		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-58401	Date Analyzed: 03/18/2011	2041			
Carbonate Alkalinity as CaCO3	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-58401	Date Analyzed: 03/18/2011	2041			
Hydroxide Alkalinity	ND		mg/L	5.0	1.0	SM 2320B
	Analysis Batch: 280-58401	Date Analyzed: 03/18/2011	2041			
Total Dissolved Solids	450		mg/L	10	1.0	SM 2540C
	Analysis Batch: 280-58660	Date Analyzed: 03/22/2011	0749			
Analyte	Result	Qual	Units		Dil	Method
Total Anions	8.5		meq/L		1.0	SM 1030F
	Analysis Batch: 280-59644	Date Analyzed: 03/28/2011	1118			
Total Cations	8.2		meq/L		1.0	SM 1030F
	Analysis Batch: 280-59644	Date Analyzed: 03/28/2011	1118			
Percent Difference	-1.5		%		1.0	SM 1030F
	Analysis Batch: 280-59644	Date Analyzed: 03/28/2011	1118			
Anion/Cation Balance	-1.5		%		1.0	SM 1030F
	Analysis Batch: 280-59644	Date Analyzed: 03/28/2011	1118			
Analyte	Result	Qual	Units	RL	Dil	Method
Specific Conductance	780		umhos/cm	2.0	1.0	SM 2510B
	Analysis Batch: 280-58765	Date Analyzed: 03/22/2011	1509			
pH	7.11	HF	SU	0.100	1.0	SM 4500 H+ B
	Analysis Batch: 280-58139	Date Analyzed: 03/17/2011	1423			



## Login Sample Receipt Checklist

Client: Colorado Oil&Gas Conservation Commission

Job Number: 280-13610-1

Login Number: 13610

List Source: TestAmerica Denver

List Number: 1

Creator: Lazarte, Noah M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	RECEIVED 2 TRIP BLANKS W/ HCI NOT LISTED ON COC.
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

**ATTACHMENT 3**  
**IRB, SRB and SFB Test Results**

Burkhart Water Well – Sample Date 3/16/11  
Baseline Sample #200300876  
BART Test for IRB, SRB & SLYM

