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JAN 15 2014
COGCC

Sent To
Ms. Ann Arens
Street, Apt. No.,
or PO Box No. **1911 CR 502**
City, State, ZIP+4
Bayfield CO. 81122



DEPARTMENT OF NATURAL RESOURCES

John W. Hickenlooper, Governor
1120 Lincoln St. Suite 801
Denver, CO 80203
Phone: (303) 894-2100
FAX: (303) 894-2109
www.colorado.gov/cogcc

Certified Mail Receipt 7011350000084561832

January 15, 2014

Ann Arens
1911 CR 502
Bayfield, CO 81122

RE: Water Well Sampling Request Report
Complaint No. 200392550
Division of Water Resources Well Permit No. 115259
NESE Section 34- Township 35 North – Range 7 West
La Plata County, Colorado

Dear Ms. Arens:

On December 16, 2013, Four Corners Geoscience, under the direction of the Colorado Oil and Gas Conservation Commission (COGCC), sampled your water well to assess the quality of groundwater drawn from your domestic well. The water sample was analyzed for general organic and inorganic constituents, and dissolved methane. This letter summarizes the water quality results.

FIELD TESTING

The water sample was collected from the kitchen sink. The sample was collected in laboratory certified containers, labeled, placed on ice in a cooler, and delivered to Green Analytical Laboratory in Durango, Colorado with a chain-of-custody form. Samples were also collected for bacterial reactivity tests and coli form bacteria.

DISCUSSION OF ANALYTICAL RESULTS

The Water Quality Control Commission (WQCC) of the Colorado Department of Public Health and Environment (CDPHE) established "Domestic Use – Quality" Human Health and Secondary Drinking Water Standards in Regulation 41 "The Basic Standards for Groundwater" (5CCR 1002-41). It is important to note that these standards were established for **municipal public drinking water supplies**, and that people often use and consume groundwater from private wells that exceeds these standards. The COGCC is an implementing agency of the groundwater standards for impacts associated with oil and gas exploration and production activities.

Analytical data for the sample from your water well was compared to the CDPHE Human Health and Secondary Drinking Water Standards in the table provided as Attachment 1. This table also summarizes the sample results from your water well for the samples collected in 2005 and 2008. Results of the December 2013 sampling event are consistent with the previous three (3) sampling events. The complete laboratory analytical report is provided as Attachment 2.

INORGANIC ANALYTICAL RESULTS

The sample collected from your well did not exceed any CDPHE primary or secondary drinking water standards. The sample from your well was also analyzed for calcium, magnesium, potassium, sodium and alkalinity content, specific conductivity. There are no CDPHE drinking water standards for these parameters. The sample collected from your well had a sodium concentration of 38.9 milligrams per liter (mg/L), a sodium concentration of less than 20 mg/l is often recommended by some physicians for patients on salt restricted diets or those suffering from hypertension or heart disease.

VOLATILE ORGANIC COMPOUNDS ANALYTICAL RESULTS

A target list of four volatile organic compounds (VOCs) was used during analysis of water from your well. Benzene, toluene, ethyl benzene, and xylenes were not present above the method detection limit in the sample from your well.

METHANE GAS ANALYSIS

Dissolved methane was not detected in the sample from your domestic water above method detection limits.

BACTERIAL ANALYSIS

Iron-Related Bacteria (IRB) was detected in the water sample collected from your domestic water well.

Although not harmful, iron-related bacteria 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 appears to be a sheen on standing water. Signs that may indicate an iron bacteria problem include yellowish, red or orange colored water, rusty deposits in toilet tanks and strange smells resembling fuel oil, cucumbers or sewage. Sometimes the odor will be apparent in only the morning, or after other extended periods of non-use.

Sulfate-Reducing Bacteria (SRB) was not detected in the water sample collected from your domestic water well.

Coli form Bacteria was not observed in the water sample collected from your domestic water well.

CONCLUSIONS

The water in you domestic well did not exceed any primary or secondary CDPHE drinking water standards. The presence of iron reducing bacteria in your well indicates that well disinfection may improve your overall water quality.

I have enclosed a copy of a general information pamphlet entitled *How Well Do You Know Your Water Well*, which includes a simple well disinfection procedure to help control nuisance bacteria, which may improve your general well water quality. In addition, the National Groundwater Association has sponsored a website (<http://www.wellowner.org/>) with resources and information for water well owners.

Based on the results of the December 16, 2013 sampling, there are no indications that your water well has been impacted by oil and gas activity. The overall water quality of your well water has not significantly changed over the four sampling events. The COGCC maintains a water quality database where the results from your water well sample are recorded.

If you have any questions or would like to discuss these matters further, please contact me at 303-894-2100 Extension 5148 or by email at arthur.koepsell@state.co.us.

Sincerely,

Colorado Oil and Gas Conservation Commission



Arthur W. Koepsell, PG
Environmental Protection Specialist

Enclosures: Attachment 1 Analytical Summary Table
Attachment 2 Laboratory Analytical Reports
Attachment 3 Field Results

cc: James Milne, COGCC Environmental Manager

Attachment 1
Analytical Results Summary Table

**Table 1
Arens Water Well
Analytical Summary**

Parameter	Water Well Sample					CDPHE Standards			
	Sample Date					Unit	Domestic	Agriculture	Units
	13-Jan-05	1-Dec-05	12-Nov-08	16-Dec-13					
	Result	Result	Result	Result					
Benzene	NA	NA	NA	ND	mg/l	0.005	0.005	mg/l	
Ethylbenzene	NA	NA	NA	ND	mg/l	0.7	0.7	mg/l	
Toluene	NA	NA	NA	ND	mg/l	0.56	0.56	mg/l	
Total Xylenes	NA	NA	NA	ND	mg/l	1.4	1.4	mg/l	
Sulfate Red. Bacteria	NA	NA	NA	Absent	mg/l	NS	0.1	mg/l	
Barium	NA	NA	NA	0.146	mg/l	2.0		mg/l	
Calcium	64.1	52.9	57.4	53.3	mg/l	NS			
Iron Related Bacteria	NA	NA	NA	Present	mg/l	NS	0.1	mg/l	
Iron	ND	0.061	ND	ND	mg/l	0.3	5	mg/l	
Lead	NA	NA	NA	NA	mg/l	0.05	0.1	mg/l	
Magnesium	8.6	5.86	7.5	7.29	mg/l	NS			
Manganese	NA	ND	0.042	ND	mg/l	0.05	0.2	mg/l	
Potassium	0.8	0.33	0.6	1.05	mg/l	NS			
Selenium	0.003	0.003	0.003	0.004	mg/l	0.05	0.02	mg/l	
Sodium	44.8	24.5	45.9	38.9	mg/l	NS			
Chloride	10	20	10	11	mg/l	250	NS	mg/l	
Boron	NA	NA	NA	ND	mg/l	1.0	10	mg/l	
Nitrate	NA	NA	NA	NA	mg/l	10.0	100	mg/l	
Total Nitrite/Nitrate	1.35	0.7	0.46	1.32	mg/l	10.0	100	mg/l	
Fluoride	0.3	0.4	0.4	0.317	mg/l	4.0	NS	mg/l	
Total Dissolved Solids	155	248	305	270	mg/l	500	*1500	mg/l	
pH	7.08	6.76	7.02	6.98	No units	6.5 - 8.5	6.5 - 8.5	No units	
Sulfate	ND	15	ND	11	mg/l	250		mg/l	
Bromide	NA	NA	NA	NA	mg/l	NS			
Total Alkalinity	238	200	254	226	mg/l	NS			
Bicarbonate	238	200	250	226	mg/l	NS			
Carbonate	ND	ND	NA	ND	mg/l	NS			
Conductivity	465	360	531	452	µmhos/cm	NS			
Coliform Bacteria	Absent	Absent	Absent	Absent					
Methane	0.09	0.0015	0.46	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.
µmhos/cm Millimhos per centimeer
NA Not analyzed.
ND Not detected.
NS No Standard.
** Health Advisory.
Human health standard.
Secondary standard.

Attachment 2
Laboratory Analytical Report



75 Suttle Street
Durango, CO 81303
970.247.4220 Phone
970.247.4227 Fax
www.greenanalytical.com

31 December 2013

Arthur Koepsell
Colorado Oil and Gas Conservation Commission- Den
1120 Lincoln Street
Denver, CO 80203
RE: Gas MW + Ba, B, BTEX

Enclosed are the results of analyses for samples received by the laboratory on 12/16/13 12:12.
If you need any further assistance, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Debbie Zufelt". The signature is written in a cursive, flowing style.

Debbie Zufelt
Reports Manager

All accredited analytes contained in this report are denoted by an asterisk (*). For a complete list of accredited analytes please do not hesitate to contact us via any of the contact information contained in this report. Our NELAP accreditation can be viewed at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Green Analytical Laboratories is NELAP accredited through the Texas Commission on Environmental Quality. Accreditation applies to drinking water and non-potable water matrices for trace metals and a variety of inorganic parameters. Green Analytical Laboratories is also accredited through the Colorado Department of Public Health and Environment and EPA region 8 for trace metals, Cyanide, Fluoride, Nitrate, and Nitrite in drinking water.

Our affiliate laboratory, Cardinal Laboratories, is also NELAP accredited through the Texas Commission on Environmental Quality for a variety of organic constituents in drinking water, non-potable water and solid matrices. Cardinal is also accredited for regulated VOCs, TTHM, and HAA-5 in drinking water



dzufelt@greenanalytical.com p: 970 247 4220 f: 970 247 4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Colorado Oil and Gas Conservation Commission- Den 1120 Lincoln Street Denver CO, 80203	Project: Gas MW + Ba, B, BTEX Project Name / Number: [none] Project Manager: Arthur Koepsell	Reported: 12/31/13 12:03
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ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Arens Water Well Complaint #200392550- FCG121613-L1	1312117-01	Water	12/16/13 11:05	12/16/13 12:12

Green Analytical Laboratories

Debbie Zufelt

Debbie Zufelt, Reports Manager

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Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	
1120 Lincoln Street	Project Name / Number: [none]	Reported:
Denver CO, 80203	Project Manager: Arthur Koepsell	12/31/13 12:03

**Arens Water Well Complaint #200392550- FCG121613-L1
707134**

1312117-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
General Chemistry									
Alkalinity, Bicarbonate*	226	10.0		mg/L	2	12/27/13	2320 B		ABP
Alkalinity, Carbonate*	<10.0	10.0		mg/L	2	12/27/13	2320 B		ABP
Alkalinity, Hydroxide*	<10.0	10.0		mg/L	2	12/27/13	2320 B		ABP
Alkalinity, Total*	226	10.0		mg/L	2	12/27/13	2320 B		ABP
Chloride*	11.0	10.0	5.00	mg/L	1	12/30/13	4500-Cl- C		JAW
Conductivity*	452	10.0		uS/cm	1	12/18/13	2510 B		MJV
Fluoride*	0.317	0.200	0.0194	mg/L	1	12/23/13	4500-F- C		ABP
Nitrate/Nitrite as N*	1.32	0.020	0.010	mg/L	1	12/18/13	EPA353.2		KLJ
pH*	6.98			pH Units	1	12/17/13	EPA150.1		MJV
Sulfate	11.0	10.0	1.08	mg/L	1	12/18/13	4500-SO42- E		ABP
TDS*	270	10.0		mg/L	1	12/18/13	EPA160.1		JAW
Total Recoverable Metals by ICP (E200.7)									
Boron	<0.300	0.300	0.033	mg/L	1	12/19/13	EPA200.7		JGS
Calcium*	53.3	1.00	0.004	mg/L	1	12/19/13	EPA200.7		JGS
Hardness	163	6.62	0.088	mg/L	1	12/19/13	Calc		JGS
Iron*	<0.050	0.050	0.004	mg/L	1	12/19/13	EPA200.7		JGS
Magnesium*	7.29	1.00	0.019	mg/L	1	12/19/13	EPA200.7		JGS
Potassium*	1.05	1.00	0.364	mg/L	1	12/19/13	EPA200.7		JGS
Sodium*	38.9	1.00	0.004	mg/L	1	12/19/13	EPA200.7		JGS
Total Recoverable Metals by ICPMS (E200.8)									
Barium*	0.146	0.0005	0.00004	mg/L	1	12/20/13	EPA200.8		JGS
Manganese*	<0.0005	0.0005	0.0004	mg/L	1	12/20/13	EPA200.8		JGS
Selenium*	0.0043	0.0010	0.0004	mg/L	1	12/20/13	EPA200.8		JGS

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dzufelt@greenanalytical.com p. 970 247 4220 f. 970 247 4227 75 Suttle Street Durango, CO 81303

www.GreenAnalytical.com

Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	
1120 Lincoln Street	Project Name / Number: [none]	Reported:
Denver CO, 80203	Project Manager: Arthur Koepsell	12/31/13 12:03

Cation/Anion Balance 7.52

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Colorado Oil and Gas Conservation Commission- Den 1120 Lincoln Street Denver CO, 80203	Project: Gas MW + Ba, B, BTEX Project Name / Number: [none] Project Manager: Arthur Koepsell	Reported: 12/31/13 12:03
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Subcontracted -- Cardinal Laboratories

**Arens Water Well Complaint #200392550- FCG121613-L1
707134**

1312117-01 (Water)

Analyte	Result	RL	MDL	Units	Dilution	Analyzed	Method	Notes	Analyst
Volatile Organic Compounds by EPA Method 8260B									
<i>Surrogate: 4-Bromofluorobenzene</i>			99.0 %	53.7-120		12/23/13	8260B		MS
Benzene*	<0.0005	0.0005	0.0002	mg/L	1	12/23/13	8260B		MS
<i>Surrogate: Dibromofluoromethane</i>			101 %	59.8-161		12/23/13	8260B		MS
Ethylbenzene*	<0.0005	0.0005	0.0002	mg/L	1	12/23/13	8260B		MS
Toluene*	<0.0005	0.0005	0.0002	mg/L	1	12/23/13	8260B		MS
<i>Surrogate: Toluene-d8</i>			96.6 %	75.2-115		12/23/13	8260B		MS
Total BTEX	<0.003	0.003	0.0009	mg/L	1	12/23/13	8260B		MS
Total Xylenes*	<0.002	0.002	0.0005	mg/L	1	12/23/13	8260B		MS
Cation/Anion Balance	7.52								

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Colorado Oil and Gas Conservation Commission- Den 1120 Lincoln Street Denver CO, 80203	Project: Gas MW + Ba, B, BTEX Project Name / Number: [none] Project Manager: Arthur Koepsell	Reported: 12/31/13 12:03
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General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B312150 - General Prep - Wet Chem										
Blank (B312150-BLK1)				Prepared: 12/17/13 Analyzed: 12/18/13						
Nitrate/Nitrite as N	ND	0.020	mg/L							
LCS (B312150-BS1)				Prepared: 12/17/13 Analyzed: 12/18/13						
Nitrate/Nitrite as N	0.536	0.020	mg/L	0.500		107	90-110			
LCS Dup (B312150-BSD1)				Prepared: 12/17/13 Analyzed: 12/18/13						
Nitrate/Nitrite as N	0.513	0.020	mg/L	0.500		103	90-110	4.39	20	
Batch B312166 - General Prep - Wet Chem										
Duplicate (B312166-DUP2)		Source: 1312116-05			Prepared & Analyzed: 12/18/13					
Conductivity	12900	10.0	uS/cm		12800			0.234	20	
Reference (B312166-SRM1)		Prepared & Analyzed: 12/18/13								
Conductivity	477		uS/cm	452		106	90-110			
Batch B312170 - General Prep - Wet Chem										
Duplicate (B312170-DUP1)		Source: 1312116-03			Prepared & Analyzed: 12/17/13					
pH	7.55		pH Units		7.49			0.798	20	
Reference (B312170-SRM1)		Prepared & Analyzed: 12/17/13								
pH	8.64		pH Units	8.93		96.8	90-110			
Batch B312176 - General Prep - Wet Chem										
Blank (B312176-BLK1)				Prepared: 12/17/13 Analyzed: 12/18/13						
TDS	ND	10.0	mg/L							

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Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	
1120 Lincoln Street	Project Name / Number: [none]	Reported:
Denver CO, 80203	Project Manager: Arthur Koepsell	12/31/13 12:03

General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B312176 - General Prep - Wet Chem										
Duplicate (B312176-DUP1)		Source: 1312116-01			Prepared: 12/17/13 Analyzed: 12/18/13					
TDS	5480	10.0	mg/L		5180			5.63	20	
Reference (B312176-SRM1)		Prepared: 12/17/13 Analyzed: 12/18/13								
TDS	1110	10.0	mg/L	1090		101	85-115			
Batch B312181 - General Prep - Wet Chem										
Blank (B312181-BLK1)		Prepared & Analyzed: 12/18/13								
Sulfate	ND	10.0	mg/L							
LCS (B312181-BS1)		Prepared & Analyzed: 12/18/13								
Sulfate	46.0	10.0	mg/L	50.0		92.0	85-115			
LCS Dup (B312181-BSD1)		Prepared & Analyzed: 12/18/13								
Sulfate	50.0	10.0	mg/L	50.0		100	85-115	8.33	20	
Batch B312211 - General Prep - Wet Chem										
Blank (B312211-BLK1)		Prepared & Analyzed: 12/23/13								
Fluoride	ND	0.200	mg/L							
LCS (B312211-BS1)		Prepared & Analyzed: 12/23/13								
Fluoride	1.10	0.200	mg/L	1.00		110	85-115			
LCS Dup (B312211-BSD1)		Prepared & Analyzed: 12/23/13								
Fluoride	1.02	0.200	mg/L	1.00		102	85-115	7.91	20	

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Colorado Oil and Gas Conservation Commission- Den 1120 Lincoln Street Denver CO, 80203	Project: Gas MW + Ba, B, BTEX Project Name / Number: [none] Project Manager: Arthur Koepsell	Reported: 12/31/13 12:03
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General Chemistry - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B312242 - General Prep - Wet Chem										
Blank (B312242-BLK1)				Prepared & Analyzed: 12/27/13						
Alkalinity, Total	ND	10.0	mg/L							
LCS (B312242-BS1)				Prepared & Analyzed: 12/27/13						
Alkalinity, Total	103	10.0	mg/L	100		103	85-115			
LCS Dup (B312242-BSD1)				Prepared & Analyzed: 12/27/13						
Alkalinity, Total	102	10.0	mg/L	100		102	85-115	0.976	20	
Batch B312245 - General Prep - Wet Chem										
Blank (B312245-BLK1)				Prepared & Analyzed: 12/30/13						
Chloride	ND	10.0	mg/L							
LCS (B312245-BS1)				Prepared & Analyzed: 12/30/13						
Chloride	106	10.0	mg/L	100		106	85-115			
LCS Dup (B312245-BSD1)				Prepared & Analyzed: 12/30/13						
Chloride	104	10.0	mg/L	100		104	85-115	1.90	20	

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Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	
1120 Lincoln Street	Project Name / Number: [none]	Reported:
Denver CO, 80203	Project Manager: Arthur Koepsell	12/31/13 12:03

Total Recoverable Metals by ICP (E200.7) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B312185 - Total Recoverable, Direct Analysis E200.7/E200.8

Blank (B312185-BLK1) Prepared & Analyzed: 12/19/13

Boron	ND	0.300	mg/L							
Calcium	ND	1.00	mg/L							
Iron	ND	0.050	mg/L							
Magnesium	ND	1.00	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							

LCS (B312185-BS1) Prepared & Analyzed: 12/19/13

Boron	4.25	0.300	mg/L	5.00		85.0	85-115			
Calcium	4.52	1.00	mg/L	5.00		90.4	85-115			
Iron	4.60	0.050	mg/L	5.00		91.9	85-115			
Magnesium	23.5	1.00	mg/L	25.0		94.1	85-115			
Potassium	8.80	1.00	mg/L	10.0		88.0	85-115			
Sodium	7.96	1.00	mg/L	8.10		98.3	85-115			

LCS Dup (B312185-BSD1) Prepared & Analyzed: 12/19/13

Boron	4.33	0.300	mg/L	5.00		86.6	85-115	1.89	20	
Calcium	4.60	1.00	mg/L	5.00		92.0	85-115	1.70	20	
Iron	4.68	0.050	mg/L	5.00		93.6	85-115	1.77	20	
Magnesium	23.9	1.00	mg/L	25.0		95.7	85-115	1.65	20	
Potassium	8.92	1.00	mg/L	10.0		89.2	85-115	1.28	20	
Sodium	7.99	1.00	mg/L	8.10		98.7	85-115	0.380	20	

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	
1120 Lincoln Street	Project Name / Number: [none]	Reported:
Denver CO, 80203	Project Manager: Arthur Koepsell	12/31/13 12:03

Total Recoverable Metals by ICPMS (E200.8) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B312189 - Total Recoverable, Direct Analysis E200.7/E200.8										
Blank (B312189-BLK1)				Prepared: 12/19/13 Analyzed: 12/20/13						
Barium	ND	0.0005	mg/L							
Manganese	ND	0.0005	mg/L							
Selenium	ND	0.0010	mg/L							
LCS (B312189-BS1)				Prepared: 12/19/13 Analyzed: 12/20/13						
Barium	0.0492	0.0005	mg/L	0.0500		98.4	85-115			
Manganese	0.0518	0.0005	mg/L	0.0500		104	85-115			
Selenium	0.257	0.0010	mg/L	0.250		103	85-115			
LCS Dup (B312189-BSD1)				Prepared: 12/19/13 Analyzed: 12/20/13						
Barium	0.0498	0.0005	mg/L	0.0500		99.6	85-115	1.19	20	
Manganese	0.0524	0.0005	mg/L	0.0500		105	85-115	1.21	20	
Selenium	0.265	0.0010	mg/L	0.250		106	85-115	3.17	20	

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Colorado Oil and Gas Conservation Commission- Den	Project: Gas MW + Ba, B, BTEX	Reported:
1120 Lincoln Street	Project Name / Number: [none]	12/31/13 12:03
Denver CO, 80203	Project Manager: Arthur Koepsell	

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3122302 - Volatiles

Blank (3122302-BLK1) Prepared & Analyzed: 12/23/13										
Surrogate: 4-Bromofluorobenzene	0.00968		mg/L	0.0100		96.8	53.7-120			
Benzene	ND	0.0005	mg/L							
Surrogate: Dibromofluoromethane	0.0102		mg/L	0.0100		102	59.8-161			
Ethylbenzene	ND	0.0005	mg/L							
Toluene	ND	0.0005	mg/L							
Surrogate: Toluene-d8	0.00978		mg/L	0.0100		97.8	75.2-115			
Total BTEX	ND	0.003	mg/L							
Total Xylenes	ND	0.002	mg/L							

LCS (3122302-BS1) Prepared & Analyzed: 12/23/13										
Surrogate: 4-Bromofluorobenzene	0.00948		mg/L	0.0100		94.8	53.7-120			
Benzene	0.020	0.0005	mg/L	0.0200		101	76.6-123			
Surrogate: Dibromofluoromethane	0.0102		mg/L	0.0100		102	59.8-161			
Ethylbenzene	0.021	0.0005	mg/L	0.0200		104	81.4-123			
m+p - Xylene	0.042	0.001	mg/L				79.7-125			
o-Xylene	0.021	0.0005	mg/L	0.0200		106	74.3-125			
Toluene	0.021	0.0005	mg/L	0.0200		104	80.8-119			
Surrogate: Toluene-d8	0.00969		mg/L	0.0100		96.9	75.2-115			
Total Xylenes	0.063	0.002	mg/L	0.0600		106	76.9-125			

LCS Dup (3122302-BSD1) Prepared & Analyzed: 12/23/13										
Surrogate: 4-Bromofluorobenzene	0.0100		mg/L	0.0100		100	53.7-120			
Benzene	0.019	0.0005	mg/L	0.0200		97.0	76.6-123	3.99	16.1	
Surrogate: Dibromofluoromethane	0.00981		mg/L	0.0100		98.1	59.8-161			
Ethylbenzene	0.021	0.0005	mg/L	0.0200		106	81.4-123	1.43	17.3	
m+p - Xylene	0.043	0.001	mg/L				79.7-125	0.968	14.8	
o-Xylene	0.021	0.0005	mg/L	0.0200		107	74.3-125	0.749	16.6	
Toluene	0.021	0.0005	mg/L	0.0200		105	80.8-119	1.05	16.5	
Surrogate: Toluene-d8	0.00984		mg/L	0.0100		98.4	75.2-115			
Total Xylenes	0.064	0.002	mg/L	0.0600		107	76.9-125	0.894	15.7	

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Colorado Oil and Gas Conservation Commission- Den 1120 Lincoln Street Denver CO, 80203	Project: Gas MW + Ba, B, BTEX Project Name / Number: [none] Project Manager: Arthur Koepsell	Reported: 12/31/13 12:03
--	--	-----------------------------

Notes and Definitions

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
*Results reported on as received basis unless designated as dry.
- RPD Relative Percent Difference
- LCS Laboratory Control Sample (Blank Spike)
- RL Report Limit
- MDL Method Detection Limit

Green Analytical Laboratories

Debbie Zufelt, Reports Manager

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CHAIN OF CUSTODY RECORD

Page 1 of 1

NOTES:

1) Ensure proper container packaging.

2) Ship samples promptly following collection.

3) Designate Sample Reject Disposition.

Table 1. - Matrix Type
 1 = Surface Water, 2 = Ground Water
 3 = Soil/Sediment, 4 = Prod. W., 5 = Oil
 6 = Waste, 7 = Other (Specify)

FOR GAL USE ONLY
 GAL JOB #
1312-117

Client: COGCC

Contact: ARTHUR KOEPEL

Address: 1120 LINCOLN STREET ST 601

DENVER, CO 80203

Phone Number: 303-894-2108 x 5148

PO# ARTHUR KOEPEL

Email: ARTHUR.KOEPEL@STATE.CO.US

Project Name: AREN'S WATERWELL Samplers Signature: [Signature]

Lab Name: Green Analytical Laboratories

(970) 247-4220

FAX (970) 247-4227

Analyses Required

Address: 75 Suttle Street, Durango, CO 81303

www.greenanalytical.com

Sample ID	Date	Time	Collected by: (Init.)	Miscellaneous			Preservative(s)				Comments		
				Matrix Type From Table 1	No. of Containers	Sample Filtered ? Y/N	Unpreserved (Ice Only)	HNO3	HCL	H2SO4		NAOH	Other (Specify)
1. Aren's	12/13	1105	AK		3		X					#18 4.9°C on ice	
2. WATER Well													
3. 121613-L1			AK		4			X				Facility # 707134	
4. Complaint #												TELESTU	
5. 200398550													
6.													
7.													
8.													
9.													
10.													
Reinquished by:				Date:	12/16/13	Time:	12:12	Received by:	Durbin Spaldt	Date:	12/16/13	Time:	12:12

* Sample Reject: [] Return [] Dispose [] Store (30 Days)

#908#

Attachment 3
Field Results

**Four Corners Geoscience
Water Well Test Report
Groundwater Monitoring Program
per COGCC Infill Orders**

December 16, 2013
Date of Sampling
121613-L1
FCG#

Landowner Information

Arens Jim and Ann
Last Name First Name (Primary)
P O Box 1999
Street/P.O. Box
Bayfield CO 81122
City State Zip
000-000-0000
Phone Number

Methane Results: <0.0005 Detection Limit 0.0005 mg/L

Hydrogen Sulfide: <0.1 Detection Limit 0.1 mg/L
(HACH test Kit Field)

Coliform Bacteria: Absent San Juan Basin Health State of Co Health Dept.

Field Chemistries 7.03 PH Field 480 ECond.(us) 300 TDS CALC 11 Wtr. Temp. C

Water samples collected and delivered to EPA approved analytical lab. Results attached. Please refer to the Water Well booklet or water treatment specialist for interpretation of lab chemistries.

Water Well Location and Permit Data

707134 3699
Facility ID IID (COGCC) #
1911 CR 502
Street/ P.O. Box
Bayfield CO 81122
City State Zip

115259
Water Well Permit #
150
Well Depth (ft)
70
Static Water Level (ft)
10
Yield Permit (gpm)

-107.61663
Longitude (DecDegrees NAD 83)
37.25481
Latitude (DecDegrees NAD 83)

NESE(NUL) 34 35 7 1400S0592E
QRQR Section TWP(North) RGE(West) FTG

Ann states "Well water tastes different" and BP work on gas wells since summer-currently pipeline next to property line"Sample collection at Kitchen sink to avoid ice at frostfrees.Water clear,no odor,no tint,no bubbles,no sediment.Run Minimum per owner.
Comments

NA
Water Well Name
Complaint
Test Name
Donna Davis
Previous Owner
NA
Concern/Special Request

API

Four Corners Geoscience conducted onsite field chemistries, observations of physical characteristics of well water while pumping well to receive a fresh aquifer sample. Water samples were collected and delivered to an EPA accredited laboratory. Methane samples were delivered to Four Corners Geoscience for analysis for methane in accordance with BLM/USGS Method established in 1993 for LaPlata County Colorado. Onsite water well evaluation, sample collection and analysis are conducted in compliance with the Colorado Oil and Gas Conservation Commission Order Numbers 112-156 and/or 112-157 established in 2000 and all subsequent infill orders for 80 acre drilling. Four Corners Geoscience is not liable for the results or interpretation of these analyses. Qualified specialists should be consulted for interpretation or treatment of water.

**San Juan Basin Health Department
Water Bacteriology Result**

**Coli-Alert Test for Presence or Absence of
Coliform Bacteria in Water Wells and other Water Sources**

Your coli-form bacteria sample was collected at the time of your water well test by Four Corners Geoscience, Inc. and delivered to San Juan Basin Health Department laboratory for analysis for coliform bacteria.

A copy of your result is attached below.

Please call San Juan Basin Health at 970-247-5702 for more information regarding the results and disinfection of water wells. You may consider contacting a water well specialist for treatment of your water well.

<p>San Juan Basin Health Department/Laboratory 281 Sawyer Drive P.O. Box 140 Durango, CO 81302</p>	WATER BACTERIOLOGY	<p align="center"><i>Patricia Ferguson</i> TO BE BILLED <i>kg # 121613-44</i></p>
<p>SAMPLE INFORMATION: <input type="checkbox"/> COMMUNITY <input type="checkbox"/> NON-COMMUNITY <input checked="" type="checkbox"/> PRIVATE</p>		
<p>PWS ID <input type="text"/> <input type="text"/></p> <p>COO <input type="text"/> <input type="text"/></p>	<p><input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> RAW <input type="checkbox"/> REPEAT FOR THE MONTH OF _____</p> <p><input checked="" type="checkbox"/> SPECIAL PURPOSE <input type="checkbox"/> FINISHED</p>	<p>DATE _____ TIME _____</p> <p>COLLECTED <u>12/16/13</u> <input checked="" type="checkbox"/> AM <u>11:05</u></p> <p>RECEIVED _____ <input type="checkbox"/> AM _____ <input type="checkbox"/> PM _____</p>
<p>SAMPLE SITE <u>AREN9</u> CHLORINE RESIDUAL _____ MG/L</p> <p>ADDRESS <u>1911 CR 501</u> CITY _____ COUNTY _____</p>		<p>RESULTS: SEE REVERSE FOR EXPLANATION</p> <p>TOTAL COLIFORM <input type="checkbox"/> PRESENT <input checked="" type="checkbox"/> ABSENT per 100m</p> <p>E. COLI <input type="checkbox"/> PRESENT <input checked="" type="checkbox"/> ABSENT per 100m</p> <p><i>KS smp 1</i></p> <p>DEC 16 '13 12:44:3607</p>
<p>ORDERED BY: (SAMPLE MAY NOT BE TESTED IF ALL INFORMATION IS NOT PROVIDED)</p> <p>RESULTS SENT TO: <u>FC GEOSCIENCE</u></p> <p>LAB PROCEDURE _____</p>		
<p>STD. MTH _____</p> <p>20th ED _____</p> <p>9223C _____</p>	<p>NAME <u>Ms. Lynn Fechter</u></p> <p>ADDRESS <u>PO Box 4224</u></p> <p><u>Durango, CO 81302</u></p> <p>CITY / STATE / ZIP _____</p>	<p><input checked="" type="checkbox"/> Colilert-18 <input type="checkbox"/> Colilert-24 <input type="checkbox"/> Colisure-24 48</p> <p>ANALYST <u>BS</u></p>
<p><input type="checkbox"/> QUANTI-TRAY <input checked="" type="checkbox"/> STD BACT. <input type="checkbox"/> OTHER _____</p>		

**Four Corners Geoscience
BART (Bacterial Test Results)**

3699
IID(COGCC)

NAME	FCG #	DATE
Jim & Ann Arens Complaint	121613-L1	12/16/2013

Methane Result(mg/L)	<0.0005
	<u>CH4_MG_L</u>

SRB

Sulfate Reducing Bacteria ABSENT-solution very very slight cloudy-probable Anaerobic bacterial growth.

**BART Hach Company
BART TYPE: SRB-BART
Batch #0800-W,X Lot 0800-W,X
Expiration Date June 2016
Cert # 120803A**

IRB

Iron Related Bacteria- PRESENT-moderately aggressively- anaerobic bacteria.

**BART Hach Company
BART TYPE:IRB-BART
Batch #: 0498-V Lot #:0498-V
Expiration Date June 2016
Cert #120731A**