



Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202
720-929-6000 Fax 720-929-7000

December 16, 2011

Mr. Mike Markham
19231 County Road 22
Ft. Lupton, CO 80621

RE: Water Well Sampling

Dear Mr. Markham:

Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) contracted LT Environmental, Inc. (LTE) to collect a water sample from your water well in Weld County, Colorado on October 27, 2011. The water sample was collected in laboratory-supplied containers and submitted to Accutest Laboratories (Accutest) in Wheat Ridge, Colorado and Isotech Laboratories (Isotech) in Champaign, Illinois for analysis of the required water quality parameters. The results from Accutest are listed in Table 1 and the results from Isotech are listed in Table 2. The Isotech laboratory analytical report is provided as an attachment to this letter.

Table 1 summarizes the analytical results. These results were previously provided to you in a letter dated November 14, 2011. For comparison purposes, a regulatory limit for each analyte is included where applicable. The regulatory limit shown is the most stringent of the Colorado Primary Drinking Water Standards, Colorado Groundwater Standards, or Colorado Secondary Drinking Water Standards. The regulatory limit presented may not be the applicable standard for your water use.

Dissolved methane was detected in your well at a concentration of 6.48 mg/L. The Isotech laboratory data indicates that the methane gas is biogenic – meaning that it is not related to oil and gas production activities. A copy of a document entitled “How Well Do You Know Your Water Well?” was previously provided to you (in a letter dated November 14, 2011), as it provides a discussion of methane in groundwater. As noted in that document, methane levels up to 7 mg/L usually are not a concern but should be monitored for changes.

As per COGCC, methane alone is physiologically inert and non-toxic to humans. The presence of methane in drinking water does not present a known health hazard to humans or animals by ingestion. Methane gas dissolved in water “exsolves” when exposed to the atmosphere and dissipates rapidly because it is lighter than air. If the methane occurs at a high enough concentration and if it is allowed to accumulate in a confined space, such as a well pit, crawl space, closet, etc., then an explosion hazard could exist.

Kerr-McGee appreciates your cooperation in this sampling effort. If you have any questions, please contact me at 720-929-6727.

Sincerely,

Kerr-McGee Oil & Gas Onshore LP

A handwritten signature in blue ink, appearing to read 'Paul D. Schneider', is written over the typed name below.

Paul D. Schneider, P.G.
Senior Staff EHS Representative

Attachments

KERR-MCGEE BASELINE WATER QUALITY SAMPLING

Sample ID: Markham Water Well

Sample Date: 10/27/2011

Laboratory Measurements:

Table 1: Accutest Data

Analyte	Result	Regulatory Limit	Units
pH	7.97	6.5-8.5	pH Units
Conductivity	1280	NA	umhos/cm
Alkalinity as CaCO3	558	NA	mg/L
Arsenic	<0.025	0.01	mg/L
Barium	0.0766	2.0	mg/L
Benzene	<0.001	0.005	mg/L
Bicarbonate as CaCO3	558	NA	mg/L
Bromide	0.81	NA	mg/L
Cadmium	<0.010	0.005	mg/L
Calcium	3.450	NA	mg/L
Carbonate as CaCO3	<5.0	NA	mg/L
Chloride	102	250	mg/L
Chromium	<0.010	0.1	mg/L
Ethylbenzene	<0.002	0.7	mg/L
Fluoride	2.4	4.0	mg/L
Iron	<0.0868	0.3	mg/L
Lead	<0.050	0.05	mg/L
Magnesium	0.924	NA	mg/L
Manganese	0.0116	0.05	mg/L
Methane	6.48	NA	mg/L
Naphthalene	<0.010	0.140	mg/L
Nitrate as N	<0.090	10	mg/L
Nitrite as N	<0.31	1	mg/L
Potassium	1.650	NA	mg/L
Selenium	0.015	0.02	mg/L
Sodium	278.00	NA	mg/L
Sulfate	<1.0	250	mg/L
TOC	141	NA	mg/L
TPH-GRO	<0.20	NA	mg/L
TPH-DRO	<0.40	NA	mg/L
TPH-ORO	1.0	NA	mg/L
Toluene	<0.002	1.0	mg/L
TDS	822	500	mg/L
Xylene (total)	<0.004	1.4	mg/L

KERR-MCGEE BASELINE WATER QUALITY SAMPLING

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Sample Date: 10/27/2011

Laboratory Measurements:

Table 2: Isotech Data (Gas Composition and Isotopes)

Analyte	Result	Regulatory Limits	Units
Helium	NA	NA	%
Hydrogen	ND	NA	%
Argon	0.480	NA	%
Oxygen	0.92	NA	%
Carbon Dioxide	0.69	NA	%
Nitrogen	27.28	NA	%
Carbon Monoxide	ND	NA	%
Methane	68.33	NA	%
Ethane	1.97	NA	%
Propane	0.273	NA	%
iso-butane	0.0410	NA	%
n-butane	0.0148	NA	%
iso-pentane	0.0048	NA	%
n-pentane	0.0004	NA	%
Hexanes	ND	NA	%
δ^{13} of Methane	-59.96	NA	per mil
δD of Methane	-250.9	NA	per mil
δ^{13} of Ethane	-28.55	NA	per mil
δ^{13} of Propane	-24.5	NA	per mil

Notes:

NA – Not Applicable

umhos/cm – micromhos per centimeter

N – Nitrogen

TDS – Total Dissolved Solids

mg/L – milligrams per Liter (~ parts per million)

TPH – Total Petroleum Hydrocarbons

GRO - Gasoline Range Organics

DRO – Diesel Range Organics

ORO – Oil Range Organics

TOC – Total Organic Carbon

Mil – Milliliter

ND – Not Detected

Lab #: 225687 Job #: 16741
 Sample Name/Number: Markham Water Well
 Company: LT Environmental
 Date Sampled: 10/27/2011
 Container: Dissolved Gas Bottle
 Field/Site Name: Markham 014211218
 Location:
 Formation/Depth:
 Sampling Point:
 Date Received: 11/08/2011 Date Reported: 11/17/2011

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	δD ‰	$\delta^{18}\text{O}$ ‰
Carbon Monoxide -----	nd			
Hydrogen Sulfide -----	na			
Helium -----	na			
Hydrogen -----	nd			
Argon -----	0.480			
Oxygen -----	0.92			
Nitrogen -----	27.28			
Carbon Dioxide -----	0.69			
Methane -----	68.33	-59.96	-250.9	
Ethane -----	1.97	-28.55		
Ethylene -----	0.0004			
Propane -----	0.273	-24.5		
Iso-butane -----	0.0410			
N-butane -----	0.0148			
Iso-pentane -----	0.0048			
N-pentane -----	0.0004			
Hexanes + -----	nd			

Total BTU/cu.ft. dry @ 60deg F & 14.7psia, calculated: 736

Specific gravity, calculated: 0.696

Remarks:

Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace. Helium dilution factor = 0.51

*Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen. propane carbon isotope data obtained online via GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of carbon is relative to VPDB. Isotopic composition of hydrogen and oxygen are relative to VSMOW. Calculations for BTU and specific gravity per D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.